STAT 652: Predicting Flight Delays Project

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Contents

1 Introduction

The goal of this project is to predict the response variable, departure delays, for a particular flight given the explanatory variables.

* Please note that you can click on a figure or table number to jump to that figure or table.

2 Data

The dataset consists of information about all the flights leaving from New York City in 2013. The dataset contains 43 variables in total. The dataset is an amalgamation of several datasets, including datasets containing information on weather, the airports, the flights, and the models of airplanes. The training dataset provided to us contains 200,000 observations. Please see table 2 to view a small sample of the data.

3 Methods

We will now outline the various methods used to clean and perform prediction on the data. We will discuss our techniques for data preprocessing and cross validation, and the different models that we tried.

3.1 Data Preprocessing

We performed data preprocessing on the nycflights13 dataset. Our data preprocessing steps included the following:

- Load the data from a csv.
- Set the random seed for reproducibility of results.
- Cast all the columns with the character data type into the factor data type.
- Convert the 'sched_arr_time' and 'sched_dep_time' columns into the POSIX time format, then take the difference between them to create the 'sched_air_time' (scheduled air time) column.
- Drop columns 'dep_time', 'arr_time', 'air_time', and 'arr_delay' which contain data from after the flights' departures which might have leaked information about the response variable 'dep_delay'.
- Drop column 'year.x' because all values were 2013.
- Drop column 'tailnum' because it produces too many dummy variable columns for one-hot encoding.
- Drop columns which consist of over 50% NAs, which includes the speed column
- Impute the missing values with the median or mode depending on the datatype of the column and created a flag column which indicates whether or not data was imputed for that variable and row.
- Normalize the data, to work well with methods like lasso regression.
- Exclude data which has a departure delay of more than 30 minutes late, which reduced the dataset from 200,000 rows to approximately 170,000.

3.2 Exploratory Analysis

3.2.1 Correlations

First, we created a correlation plot for the numeric variables to see if there any correlations between the variables.

We see that there is very little correlation between the response variable dep_delay and any of the other variables. Some of the strongest correlations include the correlation between distance and longitude and time zone and a smaller correlation between distance and latitude. This makes sense as most of the planes are inter US flights from west to east or vice versa, there is not as much distance flown in the north south direction. Please see figure 1 for the correlation plot. (Please click on the figure number to jump to the plot).

3.3 Principal Component Analysis (PCA)

Next we performed Principal Component Analysis (PCA) on only the numeric variables as techniques to perform PCA on mixed datasets (numerical and categorical) were not covered in class. When looking at the

contribution of each variable to the first principal component, we notice that the variables 'lon', 'distance', 'tz', 'seats', 'alt', 'sched_air_time' have the greatest absolute coefficients for the first principal component. The fact that the aforementioned variables have large coefficients in the first principal component suggests that they are highly correlated with each other. The fact that 'dep_delay' has a small coefficient in the first principal component suggests that 'dep_delay' is not highly correlated with any of the above variables.

As expected, it turns out that variables like 'lon', 'distance' and 'tz' are not important for predicting 'dep_delay' according to the GBM model. This maybe be because although variables like 'lon', 'distance' and 'tz' help explain most of the variance in the dataset, they have a weak relationship with 'dep_delay'.

Please see table 3 for the proportion of variance explained by each principal component. Please see table 4 for the variable coefficients for each principal component ordered by the magnitude of the variable coefficient for the first principal component.

3.4 Validation

Initially, we used the most basic validation technique where we have a training dataset and a validation dataset. We reserved 2/3 of the original dataset's observations for the training dataset and 1/3 of the observations for the validation dataset. There is an additional data which would be provided by the professor at a later date which we will use as the holdout test set. We believe that 2/3 of the data gives enough data for the models to train on while 1/3 is enough data for us to get an accurate assessment of the error. After the data preprocessing steps, which included removing all rows where 'dep_delay' was greater than 30 minutes, we were left with 170,645 observations. Of these 170,645 observations, 113,763 was used in the training dataset and 56,882 was used in the validation set. The training dataset and the validation dataset do not have any common observations. k-folds cross validation was not initially used in order to save on compute time as we were initially only exploring the models. k-folds cross validation would increase training time for the models by a factor of k. However, k-folds cross validation would lead to a more stable estimate of holdout test set error.

3.5 Models

We first explored some basic models to establish a baseline performance and compared it to our most sophisticated model, the Generalized Boosted Regression Model (GBM).

3.5.1 Basic Models

'dep_delay' is the number of minutes that the plane either departs early or late. Negative numbers are for early departures and positive numbers are for the number of minutes the plane is late. First, we used a basic model of simply predicting the 'dep_delay' to always be 0. This was done to establish baseline performance. This model had a root mean squared error (RMSE) of 8.30571. The model in which we predicted the median for all the predictions had an RMSE of 8.46926.

3.5.2 Linear Regression

A linear regression model assumes a linear relationship between the explanatory variables and the response variable. The model minimizes the squared loss function. This minimization process generates coefficients which are used for a linear combination of the explanatory variables. The linear combination is the prediction. Then we tried linear regression with 'dep_delay' as the response variables and all the other remaining variables as the explanatory variables. This model was better than predicting the mean with an RMSE of 7.98999. This suggests that there is some relationship between the 'dep_delay' and the explanatory variables.

Table 1: benchmark on the validation set comparing all the models that we tried

model_description	rmse
predicting 0	8.30571
predicting the mean	8.29977
predicting the median	8.46926
linear regression	7.98999
GBM (tuned)	7.89071

3.5.3 Generalized Boosted Regression Model (GBM)

3.5.3.1 Explanation of Model

How boosted regression models work is we first start off with a baseline prediction. For example, we can use the mean as our baseline prediction. Then we use a base classifier to iteratively predict on the residuals multiplied by the shrinkage hyperparameter. Then this base classifier is added to the ensemble of base classifiers trained so far. A lower shrinkage effectively means a lower learning rate and therefore you need more iterations to reduce the train set residuals by the same amount. The benefit of a smaller shrinkage (with sufficient trees) is that you end up with a larger ensemble of trees that can reach a lower cross validation loss. This iterative prediction process is called boosting. In our case, our base classifiers are regressor trees. Each tree decides on its splitting criterion greedily by picking the split which results in the lowest mean squared error or some other splitting heuristic. We continue for n number of trees where n is specified by the user. Each iteration produces one tree, so the number of iterations is equal to the number of trees.

3.5.3.2 Tuning

Afterwards, we tried a Generalized Boosted Regression Model (GBM). This model with our best tuned hyperparameters had the lowest RMSE of 7.91635 on the validation set after it was tuned to have a shrinkage of 0.01 and 8,192 trees. Shrinkage is proportional to the learning rate. 8,192 is the number of trees used in the model. Each iteration uses 1 tree, so 8,192 trees also refers to the number of iterations. According to the vignette provided by the 'GBM' package, the RMSE can always be improved by decreasing shrinkage, but this provides diminishing returns. A good strategy would be to pick a small shrinkage that balances performance and compute time. Then with this fixed shrinkage value, increase the number of trees until you get diminishing returns. We decided to follow the aforementioned strategy. See figure 2 for a summary of our tuning experiments.

3.5.3.3 Influence

Please see table 5 for a table of the relative influence of each explanatory variable. Here, you can see the relative influence for each variable for GBM.
For a GBM, the improvement in the splitting criterion (which is mean squared error for regression) for a given variable is calculated at each step. The relative influence for a given variable is the average of these improvements over all the trees where the aforementioned variable is used.

4 Results

In regression and GBM, we found different features to be important.
Please see table 1 below for all the models and their root mean squared error (RMSE) on the validation set.

4.1   GBM

For the best GBM model, 'dest', which refers to which airport a given plane was flying to, was one of the most important features. However, the one hot encoding versions of the variable 'carrier' were some of the most important features for regression. Based on the relative influence scores provided by the best GBM, some of the most important feature variables include 'dest', 'model', and 'sched_dep_time_num_minute'. The 'dest' column contains the airport code for where a given flight is flying to. Based on my run of GBM with a shrinkage of 0.01 and 16834 trees, 'dest' was the most important feature with 49.56 relative influence. ("Gradient Boosting Machines · UC Business Analytics R Programming Guide" 2019). 'dest' is the destination airport code. 'sched_dep_time_num_minute' is the number of minutes since the beginning of a given day for that flight. 'model' is the plane model. When we tested our model on the final holdout test set, we achieved an RMSE of 7.88805.

4.2   Linear Regression

On the other hand, 'dest' does appear as an important feature in linear regression as well but it is not the most important feature. If we can somehow sum up all the contributions from each of the one-hot-encoded variables derived from 'dest', then, it might appear as the most important feature for linear regression as well. We use ANOVA to measure the statistical significance of 'dest'. Performing ANOVA to compare linear regression models with and without 'dest' yielded a low p-value of 0.0001863 associated with having 'dest' meaning that keeping at least one of the one-hot-encoded variables derived from 'dest' is beneficial for the linear regression model with high statistical significance.

4.3   Comparison

'dest' was most one of the most important features in GBM. It is possible that 'dest' is important in combination with other variables which is something that the linear regression model without interaction terms cannot capture the relationship of, whereas GBM can discover these non-linear relationships.

5   Conclusion and Discussion

5.1   Discussion

5.1.1   Data Preprocessing

We considered removing outliers in terms of 'dep_delay' in train but not in validation, then use k-folds cross validation on test to determine how many outliers we should remove to boost performance on the cross-validation set. We considered removing highly influential points in order to train a better model. In this case, we consider highly influential points to be points with high cook's distances. However, this was infeasible as we did not have enough computational resources available and it took too long. We compromised by excluding data which has a departure delay of more than 30 minutes late as a proxy for excluding outliers, which reduced the dataset from 200,000 rows to approximately 170,000. This is because we consider extreme delays of over 30 minutes late to be freak accidents which cannot be accurately predicted by the available explanatory variables. We drop columns which consist of over 50% NAs, which includes the speed column. However, it should be noted that a rule of thumb suggested by Professor McNeney is to drop any columns with over 5% NAs. We use a different threshold for dropping columns leading to us keeping columns such as model instead of dropping it. We impute the missing values. However, there are limitations to this approach of imputing the missing values. It is possible, that the missingness of the plane model variable is related to 'dep_delay'. In this scenario, we may be creating an inferior feature set by keeping the variable 'model' and imputing it. For example, say a highly unreliable plane model that frequently causes long delays has a

high probability of being labeled as NA and represents the majority of NAs in the dataset. We would not be able to capture the relationship between this plane 'model' and 'dep_delay' if we imputed the model with the mode. To counteract this affect, we imputed NAs for the remaining columns using the 'imputeMissings' library, adding a boolean flag which indicates 0 if the associated value was present and 1 if the associated value was NA. For example, the 'model_flag' for a given row is 1 if the 'model' value was NA for that given row. Hence, no information is lost from our imputation.

5.2 Conclusion

None of the models that we tried performed particularly well. We surmise that this may be due to the explanatory variables having a weak relationship with the 'dep_delay' variable. There is a lack of information about the condition of a particular flight before it reaches New York City. Instead, we get information about where the flight is going next, which would reveal less information about the current condition of the plane and what kind of maintenance it would need, and therefore what 'dep_delay' it would have. Out of all the models, that we tried, gradient boosted regression models yielded the best performance based on having the lowest root mean squared error on the hold out test set. We believe that this makes sense because GBMs are able to capture non-linear relationships between the explanatory variables and 'dep_delay' whereas linear regression cannot.

6 Code

6.1 Preparing the programming environment

6.1.1 Loading Libraries

```r
library(tidyverse)
```

6.2 Data Preprocessing

6.2.1 Loading the data

```r
library(nycflights13)
library(Hmisc)
```

```
## Loading required package: lattice

## Loading required package: survival

## Loading required package: Formula

##
## Attaching package: 'Hmisc'

## The following objects are masked from 'package:dplyr':
##
##     src, summarize

## The following objects are masked from 'package:base':
##
##     format.pval, units
```

Table 2: A table of the first few rows of the nycflights13 data.

year.x	month	day	dep_time	sched_dep_time	dep_delay	arr_time	sched_arr_time	arr_delay	carrier	f
2013	11	7	600	600	0	826	825	1	WN	
2013	10	30	1252	1250	2	1356	1400	-4	AA	
2013	12	18	1723	1715	8	2008	2020	-12	DL	
2013	11	20	2029	2030	-1	2141	2205	-24	WN	
2013	10	21	1620	1625	-5	1818	1831	-13	DL	
2013	11	7	852	900	-8	1139	1157	-18	B6	

```r
set.seed(42)
original_data <- read_csv("fltrain.csv.gz")

## Parsed with column specification:
## cols(
##   .default = col_double(),
##   carrier = col_character(),
##   tailnum = col_character(),
##   origin = col_character(),
##   dest = col_character(),
##   time_hour = col_datetime(format = ""),
##   name = col_character(),
##   dst = col_character(),
##   tzone = col_character(),
##   type = col_character(),
##   manufacturer = col_character(),
##   model = col_character(),
##   engine = col_character()
## )

## See spec(...) for full column specifications.
DF <- original_data
```

turning all columns with datatype characters to factors.

```r
DF[sapply(DF, is.character)] <- lapply(DF[sapply(DF, is.character)],
                                       as.factor)
DF$flight <- as.factor(DF$flight)
```

```r
library(lubridate)
```

```
##
## Attaching package: 'lubridate'

## The following object is masked from 'package:base':
##
##     date
```

```r
DF$sched_arr_time_posix <- as.POSIXct(str_pad(as.character(DF$sched_arr_time), 4, pad="0"),format="%H%M
DF$sched_arr_time_hour <- hour(DF$sched_arr_time_posix)
DF$sched_arr_time_minute <- minute(DF$sched_arr_time_posix)

#num minute is number of minutes since start of day for scheduled arrival time
```

```
DF$sched_arr_time_num_minute <- 60*DF$sched_arr_time_hour + DF$sched_arr_time_minute

DF$sched_dep_time_posix <- as.POSIXct(str_pad(as.character(DF$sched_dep_time),4 , pad="0"),format="%H%M
DF$sched_dep_time_hour <- hour(DF$sched_dep_time_posix)
DF$sched_dep_time_minute <- minute(DF$sched_dep_time_posix)
#num minute is number of minutes since start of day for scheduled depival time
DF$sched_dep_time_num_minute <- 60*DF$sched_dep_time_hour + DF$sched_dep_time_minute

select(original_data, time_hour, sched_dep_time, sched_arr_time, tz, tzone)
select(DF, sched_arr_time, sched_arr_time_hour)

DF$sched_air_time <- DF$sched_arr_time_posix - DF$sched_dep_time_posix
drops <- c('sched_arr_time_posix', 'sched_arr_time_hour', 'sched_dep_time_posix', 'sched_dep_time_hour'
DF <- DF[ , !(names(DF) %in% drops)]

drops <- c("dep_time", "arr_time", "air_time", "arr_delay", "year.x", 'tailnum')
DF <- DF[ , !(names(DF) %in% drops)]

## Remove columns with more than 50% NA
DF <- DF[, -which(colMeans(is.na(DF)) > 0.5)]

DF$sched_air_time <- as.numeric(DF$sched_air_time)
library(imputeMissings)

##
## Attaching package: 'imputeMissings'

## The following object is masked from 'package:Hmisc':
##
##      impute

## The following object is masked from 'package:dplyr':
##
##      compute

impute_model <- imputeMissings::compute(DF, method="median/mode")
DF <- impute(DF, object=impute_model, flag=TRUE)
DF <- DF[!duplicated(as.list(DF))]   #remove all redundant flag columns that are identical to each other

numeric_only_df <- dplyr::select_if(DF, is.numeric)
library(corrplot)

## corrplot 0.84 loaded
```

6.3 Feature Scaling

```
dep_delay_vec <- DF$dep_delay
DF$dep_delay <- NULL
head(DF)

library(dplyr)
DF <- DF %>% mutate_if(is.numeric, scale)
head(DF)
DF$dep_delay <- dep_delay_vec
```
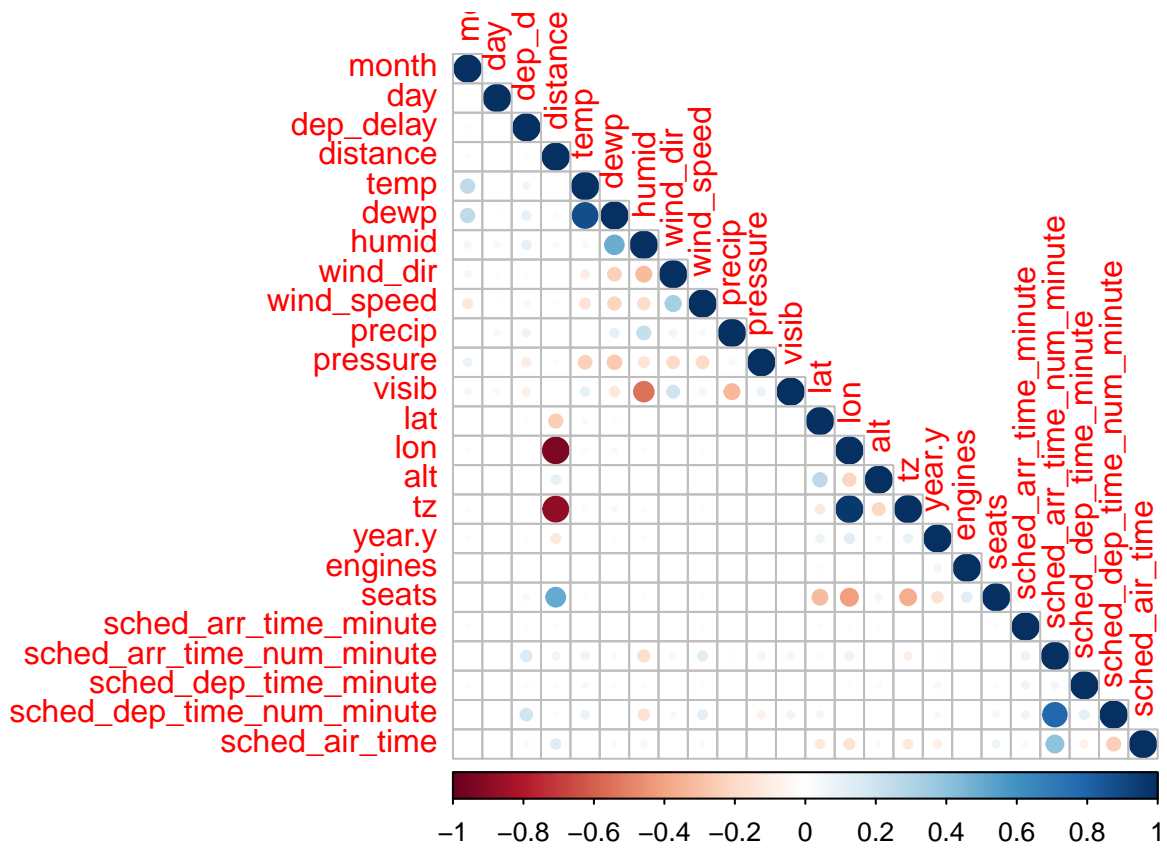
Figure 1: grid depicting correlation amongst all numerical variables

Table 3: proportion of variance explained by each principal component

	x
PC1	0.135269
PC2	0.106195
PC3	0.086279
PC4	0.068886
PC5	0.060590
PC6	0.058295

Table 4: coefficients for each variable on each principal component

	PC1	PC2	PC3	PC4	PC5	PC6	PC7	PC8	P
lon	0.534262	0.008228	-0.011813	-0.007181	-0.141255	0.021195	0.014172	-0.023885	-0.0224
distance	-0.530322	-0.013673	0.042091	0.000606	-0.042942	-0.005943	-0.122736	0.043705	0.0200
tz	0.515232	0.003918	-0.003819	-0.009390	-0.207494	0.030490	0.001420	-0.017610	-0.0442
seats	-0.326797	-0.021807	0.092398	0.007581	-0.299155	-0.009582	-0.206563	-0.144397	0.0156
alt	-0.129118	0.001274	-0.022431	0.017906	0.466078	-0.062307	0.241778	-0.082761	-0.1384
sched_air_time	-0.126932	-0.059262	-0.046756	-0.053512	-0.299113	0.151635	0.696202	-0.179246	-0.1491

6.4 Exploratory Data Analysis

```
numeric_DF <- dplyr::select_if(DF, is.numeric) %>% scale()
```

```
prcomp_res <- prcomp(numeric_DF)
sdev <- prcomp_res$sdev
sdev
```

6.4.1 all four components at same time

proportion of variance explained by each component

```
pve <- colSums(prcomp_res$x^2)/sum(numeric_DF^2)
```

```
rotation <- as.data.frame(prcomp_res$rotation)
rotation[order(-abs(rotation$PC1)),]
```

```
pca_rotation <- head(rotation[order(-abs(rotation$PC1)),])
```

6.4.2 take out extreme departure delays

```
DF<-DF[DF$dep_delay < 30,]
```

```
set.seed(42)
DF$flight <- NULL
train_index <- sample(1:nrow(DF),size=2*nrow(DF)/3,replace=FALSE)
train_df <- DF[train_index,]
test_df <- DF[-train_index,]
```

save entire dataset for later

```
train_and_validation_df <- DF
```

6.5 predicting 0

```
benchmark_df <- data.frame(model_description = character(), rmse = numeric(), stringsAsFactors = FALSE)
rmse = mean((test_df$dep_delay-0)^2) %>% sqrt()
model_description = "predicting 0"
benchmark_df <- rbind(benchmark_df, data.frame(model_description = model_description, rmse=rmse))
```

6.6 predicting the mean

```
rmse = mean((test_df$dep_delay-mean(train_df$dep_delay))^2)%>% sqrt()
rmse
model_description <- 'predicting the mean'
benchmark_df <- rbind(benchmark_df, data.frame(model_description = model_description, rmse=rmse))
benchmark_df
```

6.7 predicting the median

```
rmse = mean((test_df$dep_delay-median(train_df$dep_delay))^2)%>% sqrt()
rmse
model_description <- 'predicting the median'
benchmark_df <- rbind(benchmark_df, data.frame(model_description = model_description, rmse=rmse))
```

6.8 linear regression with dest

```
model <- lm(dep_delay ~ ., data=train_df)
model_without_dest <-  lm(dep_delay ~ .-dest, data=train_df)
anova(model, model_without_dest)
summary <- round(summary(model)$coefficients,6)
sorteddf <- summary[order(summary[,ncol(summary)]),]
head(sorteddf)
```

```
lm_test_df <- test_df

in_test_but_not_train <- setdiff(unique(lm_test_df$model), unique(train_df$model))
lm_test_df <- lm_test_df[ !lm_test_df$model %in% in_test_but_not_train, ]

in_test_but_not_train <- setdiff(unique(lm_test_df$dest), unique(train_df$dest))
lm_test_df <- lm_test_df[ !lm_test_df$dest %in% in_test_but_not_train, ]

preds = predict(model, newdata=lm_test_df)
```

```
## Warning in predict.lm(model, newdata = lm_test_df): prediction from a rank-
## deficient fit may be misleading
```

```
rmse = sqrt(mean((lm_test_df$dep_delay - preds)^2))
rmse
model_description <- 'linear regression'
benchmark_df <- rbind(benchmark_df, data.frame(model_description = model_description, rmse=rmse))
```

6.9 GBM

```
library(gbm)
```

```
## Loaded gbm 2.1.5
```

```
train_gbm <- function(filename){
num_trees <- 2^13
set.seed(42)
model <- gbm(dep_delay ~ ., data=train_df,
              n.trees=num_trees, shrinkage=0.01) # default shrinkage = 0.1
preds = predict(model, newdata=test_df, n.trees=num_trees)
rmse = sqrt(mean((test_df$dep_delay - preds)^2))
summary(model)
saveRDS(model, filename)
return(model)
}

destfile <- "models2/gbm_shrinkage_0point01_ntrees_8192_v2.rds"
if (!file.exists(destfile)) {
   train_gbm(destfile)
 }
model <- readRDS(destfile)
```
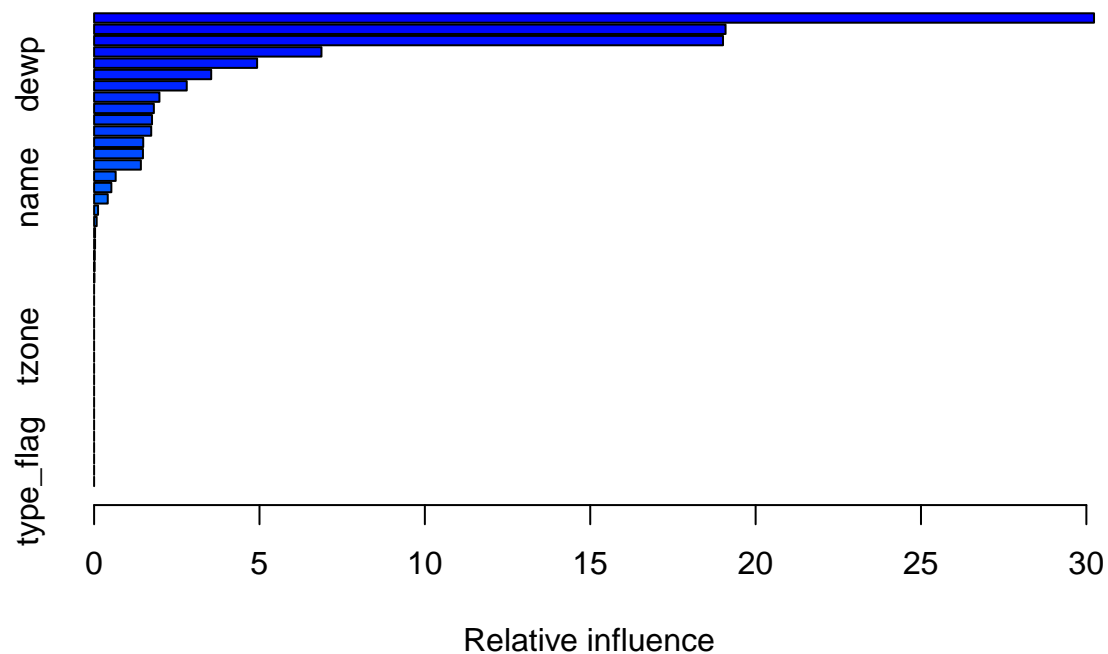

Chunk below takes 2+ hours to run on an average laptop.
```

Table 5: gbm relative influence

|  | var | rel.inf |
|---|---|---|
| dest | dest | 30.23130 |
| model | model | 19.09165 |
| sched_dep_time_num_minute | sched_dep_time_num_minute | 19.01377 |
| month | month | 6.87392 |
| carrier | carrier | 4.92863 |
| dewp | dewp | 3.54021 |

```r
library(gbm)
train_gbm_rmse_vs_num_trees <- function(shrinkage, rerun, num_trees_2_exp=16) {
  #rerun <- TRUE
  set.seed(42)
  x <- 2 ^ seq(5, num_trees_2_exp, by = 1)
  rmse_vec <- numeric(length(x))
  count <- 1
  filename_vec1 <- c("models2/gbm_shrinkage_")
  filename_vec1 <-
    append(filename_vec1, gsub('\\.', 'point', toString(shrinkage)))
  filename_vec1 <- append(filename_vec1, "_ntrees_")
  filename_prefix1 <- paste(filename_vec1, collapse = '')

  for (val in x) {
    filename_vec2 <- append(filename_prefix1, val)
    filename_vec2 <- append(filename_vec2, "_v2.rds")
    filename <- paste(filename_vec2, collapse = '')
    if (!file.exists(filename) | rerun) {
      hboost <- gbm(
        dep_delay ~ .,
        data = train_df,
        n.trees = val,
        shrinkage = shrinkage
      ) # default shrinkage = 0.1
      saveRDS(hboost, filename)
      hboost <- readRDS(filename)
    } else {
      print("reading saved model")
      hboost <- readRDS(filename)
    }

    preds = predict(hboost, n.trees = val, newdata = test_df)
    mse = mean((test_df$dep_delay - preds) ^ 2)
    rmse <- sqrt(mse)
    rmse_vec[count] <- rmse
    print(val)
    print(rmse)
    count = count + 1
  }

  filename_vec1 <- c("performance2/gbm_shrinkage_")
```

```r
  filename_vec1 <-
    append(filename_vec1, gsub('\\.', 'point', toString(shrinkage)))
  #filename_vec1 <- append(filename_vec1, "_ntrees_")
  #filename_prefix1 <- paste(filename_vec1, collapse = '')
  #filename_vec2 <- append(filename_prefix1, x[length(x)])

  #summary filename
  filename_vec_summary <- append(filename_vec1, "_v2_summary.csv")
  filename_summary <- paste(filename_vec_summary, collapse = '')

  #rmse_vs_num_trees filename
  filename_vec_rmse_vs_num_trees <- append(filename_vec1, "_v2_rmse_vs_num_trees.csv")
  filename_rmse_vs_num_trees <- paste(filename_vec_rmse_vs_num_trees, collapse = '')

  summary <- summary(hboost)
  write.csv(summary, filename_summary)

  num_trees_vs_rmse <-
    data.frame("num_trees" = x, "rmse" = rmse_vec)
  write.csv(
    num_trees_vs_rmse, filename_rmse_vs_num_trees
  )
}

train_gbm_rmse_vs_num_trees(shrinkage = 0.01, rerun = FALSE, num_trees_2_exp=17)
train_gbm_rmse_vs_num_trees(shrinkage = 0.001, rerun = FALSE, num_trees_2_exp=17)
```

```r
shrinkage_0point01_bench <- read.csv('performance2/gbm_shrinkage_0point01_v2_rmse_vs_num_trees.csv')
shrinkage_0point01_bench$X <- NULL
shrinkage_0point01_bench <- shrinkage_0point01_bench %>%
  dplyr::rename(
    "shrinkage_0point01_rmse" = rmse
    )
shrinkage_0point01_bench
```

```r
shrinkage_0point001_bench <- read.csv('performance2/gbm_shrinkage_0point001_v2_rmse_vs_num_trees.csv')
shrinkage_0point001_bench$X <- NULL
shrinkage_0point001_bench <- shrinkage_0point001_bench %>%
  dplyr::rename(
    "shrinkage_0point001_rmse" = rmse
    )
shrinkage_0point001_bench
```

```r
gbm_merge_df <- merge(shrinkage_0point01_bench, shrinkage_0point001_bench, all.x = TRUE)
gbm_merge_df
```

```r
benchmark_df <- rbind(benchmark_df, data.frame(model_description = 'GBM (tuned)', rmse=7.89071))
write_csv(benchmark_df, 'performance/benchmark_df.csv')
```

Final training on entire dataset to prepare for test set.

```r
library(gbm)
num_trees <- 2^13
train_final_gbm <- function(filename, num_trees){
set.seed(42)
```

GBM: RMSE vs. Number of Trees for Different Shrinkage

Figure 2: plot of RMSE vs number of trees for shrinkage = 0.01 and shrinkage = 0.001

Table 6: RMSE on the validation set, benchmark comparing all the models that we tried

model_description	rmse
predicting 0	8.30571
predicting the mean	8.29977
predicting the median	8.46926
linear regression	7.98999
GBM (tuned)	7.89071

```
model <- gbm(dep_delay ~ ., data=train_and_validation_df,
             n.trees=num_trees, shrinkage=0.01) # default shrinkage = 0.1
saveRDS(model, filename)
return(model)
}

destfile <- "models_ultimate/final_train_on_train_and_validation_gbm_v1.rds"
if (!file.exists(destfile)) {
    train_final_gbm(destfile)
}

final_model <- readRDS(destfile)
final_preds = predict(final_model, newdata=train_and_validation_df, n.trees=num_trees)
final_rmse = sqrt(mean((train_and_validation_df$dep_delay - final_preds)^2))
summary(final_model)
```
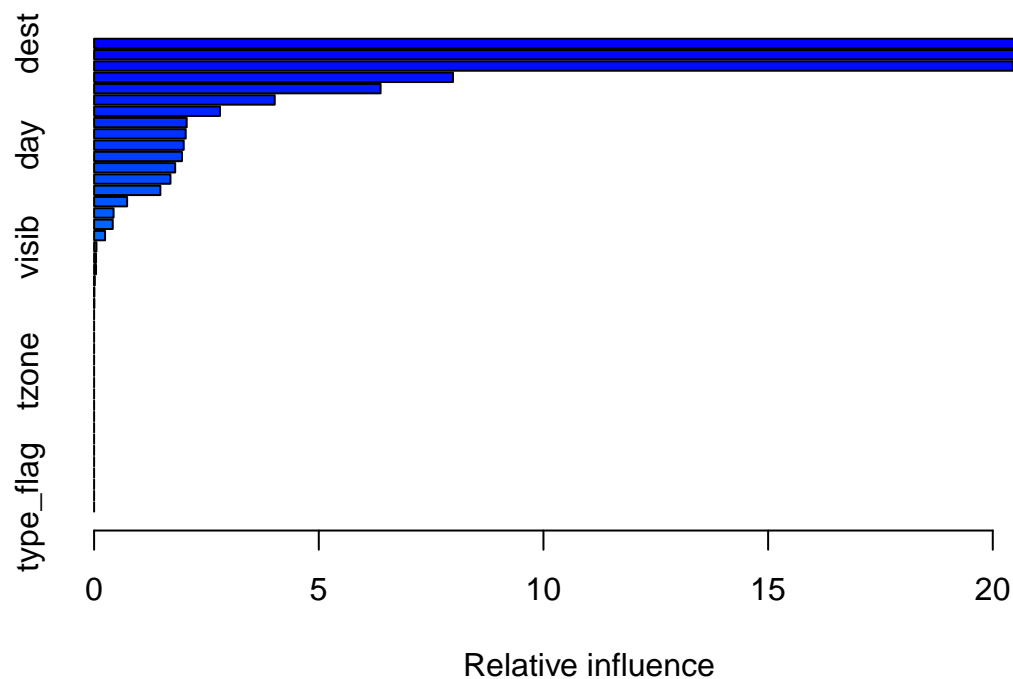


```
rmse
```

```
## [1] 7.98999
```

7 test on final test data

```
library(tidyverse)
library(nycflights13)
library(Hmisc)
library(lubridate)
library(imputeMissings)
library(dplyr)
```

```r
preprocess_data <- function(filepath) {
  set.seed(42)
  original_data <- read_csv(filepath)
  DF <- original_data
  DF[sapply(DF, is.character)] <-
    lapply(DF[sapply(DF, is.character)],
           as.factor)
  DF$flight <- as.factor(DF$flight)
  DF$sched_arr_time_posix <-
    as.POSIXct(str_pad(as.character(DF$sched_arr_time), 4, pad = "0"), format =
                 "%H%M")
  DF$sched_arr_time_hour <- hour(DF$sched_arr_time_posix)
  DF$sched_arr_time_minute <- minute(DF$sched_arr_time_posix)

  #num minute is number of minutes since start of day for scheduled arrival time
  DF$sched_arr_time_num_minute <-
    60 * DF$sched_arr_time_hour + DF$sched_arr_time_minute
  DF$sched_dep_time_posix <-
    as.POSIXct(str_pad(as.character(DF$sched_dep_time), 4 , pad = "0"), format =
                 "%H%M")
  DF$sched_dep_time_hour <- hour(DF$sched_dep_time_posix)
  DF$sched_dep_time_minute <- minute(DF$sched_dep_time_posix)

  #num minute is number of minutes since start of day for scheduled depival time
  DF$sched_dep_time_num_minute <-
    60 * DF$sched_dep_time_hour + DF$sched_dep_time_minute
  DF$sched_air_time <-
    DF$sched_arr_time_posix - DF$sched_dep_time_posix
  drops <-
    c(
      'sched_arr_time_posix',
      'sched_arr_time_hour',
      'sched_dep_time_posix',
      'sched_dep_time_hour',
      'sched_dep_time',
      'sched_arr_time',
      'hour',
      'time',
      'minute',
      'time_hour',
      "dep_time",
      "arr_time",
      "air_time",
      "arr_delay",
      "year.x",
      'tailnum'
    )
  DF <- DF[, !(names(DF) %in% drops)]

  ## Remove columns with more than 50% NA
  DF <- DF[, -which(colMeans(is.na(DF)) > 0.5)]

  DF$sched_air_time <- as.numeric(DF$sched_air_time)
```

```r
  # impute
  impute_model <- imputeMissings::compute(DF, method = "median/mode")
  DF <- impute(DF, object = impute_model, flag = TRUE)
  DF <-
    DF[!duplicated(as.list(DF))]  #remove all redundant flag columns that are identical to each other.


  # scale all but dep_delay
  dep_delay_vec <- DF$dep_delay
  DF$dep_delay <- NULL
  DF <- DF %>% mutate_if(is.numeric, scale)
  DF$dep_delay <- dep_delay_vec

  # exclude dep_delay >= 30
  DF <- DF[DF$dep_delay < 30,]
  DF$flight <- NULL

  return(DF)
}


final_test_df <- preprocess_data('fltest.csv.gz')
```

```
## Parsed with column specification:
## cols(
##   .default = col_double(),
##   carrier = col_character(),
##   tailnum = col_character(),
##   origin = col_character(),
##   dest = col_character(),
##   time_hour = col_datetime(format = ""),
##   name = col_character(),
##   dst = col_character(),
##   tzone = col_character(),
##   type = col_character(),
##   manufacturer = col_character(),
##   model = col_character(),
##   engine = col_character()
## )

## See spec(...) for full column specifications.
```

```r
print(final_test_df)
```

```
##          month        day carrier origin dest   distance       temp       dewp
## 1     -1.62197  -1.677413      AA    JFK  MIA  0.06309615 -1.00266723 -0.7597368
## 2     -1.62197  -1.677413      UA    EWR  ORD -0.43920534 -1.00266723 -0.7038719
## 3     -1.62197  -1.677413      B6    JFK  PBI -0.01971572 -1.06282238 -0.7597368
## 4     -1.62197  -1.677413      UA    JFK  LAX  1.94469037 -1.06282238 -0.7597368
## 5     -1.62197  -1.677413      UA    EWR  SFO  2.06687181 -1.06282238 -0.7038719
## 6     -1.62197  -1.677413      B6    JFK  BOS -1.16143342 -1.00266723 -0.7597368
## 7     -1.62197  -1.677413      UA    EWR  LAS  1.60801262 -1.06282238 -0.7038719
## 8     -1.62197  -1.677413      MQ    LGA  ATL -0.38082976 -0.95253794 -0.8621557
## 9     -1.62197  -1.677413      DL    LGA  MSP -0.03057629 -0.95253794 -0.8621557
## 10    -1.62197  -1.677413      B6    JFK  RSW  0.04273258 -1.06282238 -0.7597368
```

```
## 11   -1.62197 -1.677413   B6   JFK  SJU  0.75410009 -1.06282238 -0.7597368
## 12   -1.62197 -1.677413   AA   LGA  MIA  0.07259915 -0.95253794 -0.8621557
## 13   -1.62197 -1.677413   AA   JFK  SJU  0.75410009 -1.06282238 -0.7597368
## 14   -1.62197 -1.677413   UA   EWR  LAX  1.91618137 -1.06282238 -0.7038719
## 15   -1.62197 -1.677413   AA   LGA  ORD -0.42019933 -0.95253794 -0.8621557
## 16   -1.62197 -1.677413   WN   LGA  BWI -1.16414856 -0.95253794 -0.8621557
## 17   -1.62197 -1.677413   US   EWR  CLT -0.69714394 -1.06282238 -0.7038719
## 18   -1.62197 -1.677413   EV   EWR  IAD -1.12749413 -1.06282238 -0.7038719
## 19   -1.62197 -1.677413   B6   JFK  BOS -1.16143342 -1.06282238 -0.7597368
## 20   -1.62197 -1.677413   UA   EWR  PBI -0.02650357 -1.06282238 -0.7038719
## 21   -1.62197 -1.677413   US   EWR  CLT -0.69714394 -1.06282238 -0.7038719
## 22   -1.62197 -1.677413   B6   JFK  BUF -1.00667026 -1.06282238 -0.7597368
## 23   -1.62197 -1.677413   UA   LGA  DEN  0.78396666 -0.95253794 -0.8621557
## 24   -1.62197 -1.677413   B6   JFK  LAS  1.63652162 -1.06282238 -0.7597368
## 25   -1.62197 -1.677413   B6   JFK  MSY  0.18935031 -1.06282238 -0.7597368
## 26   -1.62197 -1.677413   DL   LGA  PBI -0.01021271 -0.95253794 -0.8062908
## 27   -1.62197 -1.677413   DL   JFK  SLC  1.28626815 -1.06282238 -0.7597368
## 28   -1.62197 -1.677413   DL   JFK  SFO  2.09538082 -1.00266723 -0.7038719
## 29   -1.62197 -1.677413   AA   LGA  ORD -0.42019933 -0.95253794 -0.8062908
## 30   -1.62197 -1.677413   AA   JFK  MCO -0.13375173 -1.06282238 -0.7597368
## 31   -1.62197 -1.677413   MQ   LGA  XNA  0.14183530 -0.95253794 -0.8062908
## 32   -1.62197 -1.677413   AA   LGA  MIA  0.07259915 -0.95253794 -0.8062908
## 33   -1.62197 -1.677413   UA   EWR  RSW  0.03458715 -1.00266723 -0.7038719
## 34   -1.62197 -1.677413   UA   LGA  ORD -0.42019933 -0.95253794 -0.8062908
## 35   -1.62197 -1.677413   B6   JFK  SJU  0.75410009 -1.00266723 -0.7038719
## 36   -1.62197 -1.677413   AA   JFK  FLL  0.03594472 -1.00266723 -0.7038719
## 37   -1.62197 -1.677413   FL   LGA  MKE -0.41341148 -0.95253794 -0.8062908
## 38   -1.62197 -1.677413   UA   EWR  PBI -0.02650357 -1.00266723 -0.7038719
## 39   -1.62197 -1.677413   AS   EWR  SEA  1.84558765 -1.00266723 -0.7038719
## 40   -1.62197 -1.677413   AA   EWR  DFW  0.44728891 -1.00266723 -0.7038719
## 41   -1.62197 -1.677413   UA   EWR  DEN  0.76360309 -1.00266723 -0.7038719
## 42   -1.62197 -1.677413   UA   LGA  IAH  0.50702206 -0.95253794 -0.8062908
## 43   -1.62197 -1.677413   VX   JFK  SFO  2.09538082 -1.00266723 -0.7038719
## 44   -1.62197 -1.677413   B6   JFK  SFO  2.09538082 -1.00266723 -0.7038719
## 45   -1.62197 -1.677413   UA   EWR  IAH  0.48530091 -1.00266723 -0.7038719
## 46   -1.62197 -1.677413   AA   JFK  LAX  1.94469037 -1.00266723 -0.7038719
## 47   -1.62197 -1.677413   AA   JFK  SFO  2.09538082 -1.00266723 -0.7038719
## 49   -1.62197 -1.677413   US   LGA  CLT -0.67678036 -0.95253794 -0.8062908
## 50   -1.62197 -1.677413   AA   LGA  MIA  0.07259915 -0.95253794 -0.8062908
## 51   -1.62197 -1.677413   DL   LGA  ATL -0.38082976 -0.95253794 -0.8062908
## 52   -1.62197 -1.677413   B6   EWR  MCO -0.14325473 -0.95253794 -0.7038719
## 53   -1.62197 -1.677413   AA   JFK  BOS -1.16143342 -0.95253794 -0.7597368
## 54   -1.62197 -1.677413   UA   JFK  SFO  2.09538082 -0.95253794 -0.7597368
## 55   -1.62197 -1.677413   MQ   LGA  CMH -0.76502252 -0.95253794 -0.8062908
## 56   -1.62197 -1.677413   9E   JFK  MSP -0.01835814 -0.95253794 -0.7597368
## 57   -1.62197 -1.677413   EV   EWR  CHS -0.56274435 -0.95253794 -0.7038719
## 58   -1.62197 -1.677413   US   EWR  CLT -0.69714394 -0.95253794 -0.7038719
## 59   -1.62197 -1.677413   EV   EWR  MEM -0.13103659 -0.95253794 -0.7038719
## 60   -1.62197 -1.677413   DL   JFK  SJU  0.75410009 -0.95253794 -0.7597368
## 61   -1.62197 -1.677413   MQ   JFK  DCA -1.12613656 -0.95253794 -0.7597368
## 62   -1.62197 -1.677413   US   JFK  CLT -0.68085308 -0.95253794 -0.7597368
## 63   -1.62197 -1.677413   AA   LGA  STL -0.20977574 -0.95253794 -0.8062908
## 64   -1.62197 -1.677413   B6   JFK  JAX -0.29123003 -0.95253794 -0.7597368
## 66   -1.62197 -1.677413   B6   JFK  ORD -0.41069633 -0.95253794 -0.7597368
```

```
## 67   -1.62197 -1.677413     UA     JFK  LAX   1.94469037 -0.95253794 -0.7597368
## 68   -1.62197 -1.677413     EV     EWR  MYR  -0.66863493 -0.95253794 -0.7038719
## 69   -1.62197 -1.677413     MQ     LGA  RDU  -0.83018595 -0.95253794 -0.8062908
## 70   -1.62197 -1.677413     F9     LGA  DEN   0.78396666 -0.95253794 -0.8062908
## 71   -1.62197 -1.677413     AA     LGA  DFW   0.47036763 -0.95253794 -0.8062908
## 72   -1.62197 -1.677413     MQ     LGA  CLE  -0.84647681 -0.95253794 -0.8062908
## 73   -1.62197 -1.677413     AA     JFK  SJU   0.75410009 -0.95253794 -0.7597368
## 75   -1.62197 -1.677413     UA     EWR  JAC   1.12878985 -0.95253794 -0.7038719
## 76   -1.62197 -1.677413     EV     EWR  RDU  -0.85054953 -0.95253794 -0.7038719
## 77   -1.62197 -1.677413     DL     EWR  DTW  -0.75280437 -0.95253794 -0.7038719
## 78   -1.62197 -1.677413     UA     EWR  SAN   1.87681179 -0.95253794 -0.7038719
## 79   -1.62197 -1.677413     B6     JFK  TPA  -0.05093986 -0.95253794 -0.7597368
## 80   -1.62197 -1.677413     UA     EWR  PBI  -0.02650357 -0.95253794 -0.7038719
## 81   -1.62197 -1.677413     DL     LGA  DTW  -0.73379837 -0.95253794 -0.8062908
## 82   -1.62197 -1.677413     DL     EWR  ATL  -0.40255090 -0.95253794 -0.7038719
## 83   -1.62197 -1.677413     UA     EWR  ORD  -0.43920534 -0.95253794 -0.7038719
## 84   -1.62197 -1.677413     UA     EWR  DEN   0.76360309 -0.95253794 -0.7038719
## 86   -1.62197 -1.677413     UA     EWR  STT   0.80297267 -0.95253794 -0.7038719
## 87   -1.62197 -1.677413     AA     EWR  DFW   0.44728891 -0.95253794 -0.7038719
## 88   -1.62197 -1.677413     AA     LGA  DFW   0.47036763 -0.95253794 -0.8062908
## 89   -1.62197 -1.677413     B6     JFK  RDU  -0.83561624 -0.95253794 -0.7597368
## 90   -1.62197 -1.677413     B6     JFK  IAD  -1.10577299 -0.95253794 -0.7597368
## 91   -1.62197 -1.677413     DL     JFK  LAX   1.94469037 -0.95253794 -0.7597368
## 92   -1.62197 -1.677413     UA     EWR  EGE   0.92786925 -0.95253794 -0.7038719
## 93   -1.62197 -1.677413     UA     EWR  TPA  -0.06180044 -0.95253794 -0.7038719
## 94   -1.62197 -1.677413     B6     LGA  FLL   0.04544772 -0.95253794 -0.8062908
## 95   -1.62197 -1.677413     UA     LGA  ORD  -0.42019933 -0.95253794 -0.8062908
## 96   -1.62197 -1.677413     VX     JFK  LAS   1.63652162 -0.95253794 -0.7597368
## 97   -1.62197 -1.677413     B6     JFK  BUF  -1.00667026 -0.95253794 -0.7597368
## 98   -1.62197 -1.677413     B6     JFK  LAX   1.94469037 -0.95253794 -0.7597368
## 99   -1.62197 -1.677413     EV     EWR  AVL  -0.62383507 -0.95253794 -0.7038719
## 100  -1.62197 -1.677413     DL     LGA  ATL  -0.38082976 -0.95253794 -0.8062908
## 101  -1.62197 -1.677413     DL     LGA  FLL   0.04544772 -0.95253794 -0.8062908
## 102  -1.62197 -1.677413     US     LGA  CLT  -0.67678036 -0.95253794 -0.8062908
## 103  -1.62197 -1.677413     DL     JFK  LAS   1.63652162 -0.89238279 -0.7038719
## 104  -1.62197 -1.677413     EV     EWR  BUF  -1.03246412 -0.89238279 -0.7038719
## 106  -1.62197 -1.677413     UA     LGA  IAH   0.50702206 -0.95253794 -0.8062908
## 107  -1.62197 -1.677413     UA     EWR  FLL   0.03051443 -0.89238279 -0.7038719
## 108  -1.62197 -1.677413     EV     EWR  IND  -0.53966563 -0.89238279 -0.7038719
## 109  -1.62197 -1.677413     UA     EWR  BOS  -1.14378499 -0.89238279 -0.7038719
## 110  -1.62197 -1.677413     AA     LGA  ORD  -0.42019933 -0.95253794 -0.8062908
## 111  -1.62197 -1.677413     B6     JFK  MCO  -0.13375173 -0.89238279 -0.7038719
## 112  -1.62197 -1.677413     UA     EWR  IAH   0.48530091 -0.89238279 -0.7038719
## 113  -1.62197 -1.677413     MQ     LGA  DTW  -0.73379837 -0.95253794 -0.8062908
## 114  -1.62197 -1.677413     DL     LGA  ATL  -0.38082976 -0.95253794 -0.8062908
## 115  -1.62197 -1.677413     EV     EWR  PWM  -1.02974898 -0.89238279 -0.7038719
## 116  -1.62197 -1.677413     WN     LGA  BWI  -1.16414856 -0.95253794 -0.8062908
## 117  -1.62197 -1.677413     UA     EWR  LAS   1.60801262 -0.89238279 -0.7038719
## 118  -1.62197 -1.677413     B6     EWR  PBI  -0.02650357 -0.89238279 -0.7038719
## 119  -1.62197 -1.677413     MQ     LGA  CMH  -0.76502252 -0.95253794 -0.8062908
## 120  -1.62197 -1.677413     AA     LGA  MIA   0.07259915 -0.95253794 -0.8062908
## 121  -1.62197 -1.677413     DL     LGA  DTW  -0.73379837 -0.95253794 -0.8062908
## 122  -1.62197 -1.677413     WN     LGA  STL  -0.20977574 -0.95253794 -0.8062908
## 123  -1.62197 -1.677413     DL     LGA  RSW   0.05087801 -0.95253794 -0.8062908
```

```
## 124  -1.62197 -1.677413    UA    JFK   LAX   1.94469037 -0.89238279 -0.7597368
## 125  -1.62197 -1.677413    UA    EWR   PBI  -0.02650357 -0.89238279 -0.7597368
## 126  -1.62197 -1.677413    UA    EWR   TPA  -0.06180044 -0.89238279 -0.7597368
## 127  -1.62197 -1.677413    AA    LGA   ORD  -0.42019933 -0.95253794 -0.8062908
## 128  -1.62197 -1.677413    DL    LGA   MSP  -0.03057629 -0.95253794 -0.8062908
## 129  -1.62197 -1.677413    MQ    LGA   CLE  -0.84647681 -0.95253794 -0.8062908
## 130  -1.62197 -1.677413    AA    EWR   MIA   0.05766586 -0.89238279 -0.7597368
## 131  -1.62197 -1.677413    DL    LGA   PBI  -0.01021271 -0.95253794 -0.8062908
## 132  -1.62197 -1.677413    EV    EWR   ATL  -0.40255090 -0.89238279 -0.7597368
## 133  -1.62197 -1.677413    FL    LGA   CAK  -0.87634339 -0.95253794 -0.8062908
## 134  -1.62197 -1.677413    EV    EWR   CMH  -0.78674366 -0.89238279 -0.7597368
## 136  -1.62197 -1.677413    B6    EWR   BOS  -1.14378499  0.00994442  0.0596146
## 137  -1.62197 -1.677413    EV    EWR   ROC  -1.08133670 -0.89238279 -0.7597368
## 138  -1.62197 -1.677413    WN    EWR   BWI  -1.18586971  0.00994442  0.0596146
## 139  -1.62197 -1.677413    UA    LGA   ORD  -0.42019933 -1.06282238 -0.6852503
## 140  -1.62197 -1.677413    UA    EWR   SJU   0.76767580 -0.89238279 -0.7597368
## 141  -1.62197 -1.677413    UA    EWR   IAH   0.48530091  0.00994442  0.0596146
## 142  -1.62197 -1.677413    B6    JFK   HOU   0.52331292 -0.89238279 -0.7597368
## 143  -1.62197 -1.677413    EV    EWR   CLT  -0.69714394  0.00994442  0.0596146
## 144  -1.62197 -1.677413    UA    EWR   SFO   2.06687181  0.00994442  0.0596146
## 145  -1.62197 -1.677413    AA    LGA   STL  -0.20977574 -1.06282238 -0.6852503
## 146  -1.62197 -1.677413    DL    LGA   MSY   0.19070788 -1.06282238 -0.6852503
## 147  -1.62197 -1.677413    EV    EWR   JAX  -0.30209061 -0.89238279 -0.7597368
## 148  -1.62197 -1.677413    EV    EWR   DTW  -0.75280437  0.00994442  0.0596146
## 149  -1.62197 -1.677413    UA    EWR   FLL   0.03051443  0.00994442  0.0596146
## 150  -1.62197 -1.677413    AA    JFK   BOS  -1.16143342  0.00994442  0.0596146
## 151  -1.62197 -1.677413    WN    LGA   MKE  -0.41341148 -1.06282238 -0.6852503
## 152  -1.62197 -1.677413    EV    EWR   DTW  -0.75280437  0.00994442  0.0596146
## 153  -1.62197 -1.677413    AA    LGA   MIA   0.07259915 -1.06282238 -0.6852503
## 154  -1.62197 -1.677413    AA    LGA   DFW   0.47036763 -1.06282238 -0.6852503
## 155  -1.62197 -1.677413    DL    LGA   ATL  -0.38082976 -1.06282238 -0.8621557
## 156  -1.62197 -1.677413    US    LGA   BOS  -1.16550614 -1.06282238 -0.8621557
## 157  -1.62197 -1.677413    MQ    LGA   CMH  -0.76502252 -1.06282238 -0.8621557
## 158  -1.62197 -1.677413    AA    EWR   DFW   0.44728891  0.00994442  0.0596146
## 160  -1.62197 -1.677413    UA    EWR   MIA   0.05766586 -0.99264137 -0.6852503
## 162  -1.62197 -1.677413    B6    JFK   ROC  -1.05690041  0.00994442  0.0596146
## 163  -1.62197 -1.677413    MQ    LGA   DTW  -0.73379837 -1.06282238 -0.8621557
## 164  -1.62197 -1.677413    AA    JFK   MIA   0.06309615  0.00994442  0.0596146
## 165  -1.62197 -1.677413    WN    EWR   HOU   0.50023420 -0.99264137 -0.6852503
## 166  -1.62197 -1.677413    MQ    LGA   RDU  -0.83018595 -1.06282238 -0.8621557
## 167  -1.62197 -1.677413    B6    LGA   MCO  -0.12560630 -1.06282238 -0.8621557
## 168  -1.62197 -1.677413    UA    EWR   LAX   1.91618137 -0.99264137 -0.6852503
## 169  -1.62197 -1.677413    DL    EWR   SLC   1.25775915 -0.99264137 -0.6852503
## 170  -1.62197 -1.677413    EV    EWR   IND  -0.53966563 -0.99264137 -0.6852503
## 172  -1.62197 -1.677413    AA    JFK   LAX   1.94469037 -1.06282238 -0.7783584
## 173  -1.62197 -1.677413    AA    LGA   DFW   0.47036763 -1.06282238 -0.8621557
## 174  -1.62197 -1.677413    WN    EWR   PHX   1.48040089 -0.99264137 -0.6852503
## 175  -1.62197 -1.677413    EV    EWR   CHS  -0.56274435 -0.99264137 -0.6852503
## 176  -1.62197 -1.677413    DL    JFK   BOS  -1.16143342 -1.06282238 -0.7783584
## 177  -1.62197 -1.677413    WN    LGA   MDW  -0.43105991 -1.06282238 -0.8621557
## 178  -1.62197 -1.677413    UA    LGA   ORD  -0.42019933 -1.06282238 -0.8621557
## 179  -1.62197 -1.677413    UA    EWR   IAH   0.48530091 -0.99264137 -0.6852503
## 181  -1.62197 -1.677413    FL    LGA   ATL  -0.38082976 -1.00266723 -0.9087097
## 183  -1.62197 -1.677413    UA    EWR   SEA   1.84558765 -1.00266723 -0.9087097
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## 186  -1.62197 -1.677413    UA    JFK   SFO  2.09538082 -1.00266723 -0.9087097
## 187  -1.62197 -1.677413    EV    LGA   IAD -1.10441541 -1.00266723 -0.9087097
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## 191  -1.62197 -1.677413    DL    JFK   SFO  2.09538082 -1.00266723 -0.9087097
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## 193  -1.62197 -1.677413    AA    LGA   ORD -0.42019933 -1.00266723 -0.9087097
## 194  -1.62197 -1.677413    AA    JFK   MIA  0.06309615 -1.00266723 -0.9087097
## 195  -1.62197 -1.677413    9E    JFK   BUF -1.00667026 -1.00266723 -0.9087097
## 196  -1.62197 -1.677413    MQ    JFK   CLE -0.83833138 -1.00266723 -0.9087097
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## 198  -1.62197 -1.677413    DL    LGA   PBI -0.01021271 -1.00266723 -1.0204395
## 199  -1.62197 -1.677413    UA    EWR   AUS  0.62648836 -1.00266723 -0.9087097
## 200  -1.62197 -1.677413    US    EWR   CLT -0.69714394 -1.06282238 -0.9087097
## 201  -1.62197 -1.677413    MQ    LGA   CMH -0.76502252 -1.00266723 -1.0204395
## 202  -1.62197 -1.677413    UA    EWR   FLL  0.03051443 -1.06282238 -0.9087097
## 203  -1.62197 -1.677413    MQ    LGA   RDU -0.83018595 -1.00266723 -1.0204395
## 204  -1.62197 -1.677413    AA    LGA   DFW  0.47036763 -1.00266723 -1.0204395
## 205  -1.62197 -1.677413    UA    LGA   DEN  0.78396666 -1.00266723 -1.0204395
## 206  -1.62197 -1.677413    9E    JFK   ROC -1.05690041 -1.00266723 -0.9645746
## 207  -1.62197 -1.677413    MQ    JFK   IND -0.51251420 -1.00266723 -0.9645746
## 208  -1.62197 -1.677413    UA    EWR   MCO -0.14325473 -1.00266723 -0.9087097
## 209  -1.62197 -1.677413    DL    LGA   ATL -0.38082976 -1.00266723 -1.0204395
## 210  -1.62197 -1.677413    EV    EWR   CLT -0.69714394 -1.06282238 -0.9087097
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## 212  -1.62197 -1.677413    MQ    JFK   DCA -1.12613656 -1.00266723 -0.9645746
## 213  -1.62197 -1.677413    UA    EWR   MCO -0.14325473 -1.06282238 -0.9087097
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## 217  -1.62197 -1.677413    WN    EWR   MDW -0.45006591 -1.06282238 -0.9087097
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## 220  -1.62197 -1.677413    UA    EWR   DEN  0.76360309 -1.06282238 -0.9087097
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## 223  -1.62197 -1.677413    DL    JFK   MCO -0.13375173 -1.00266723 -0.9645746
## 224  -1.62197 -1.677413    AA    JFK   LAX  1.94469037 -1.00266723 -0.9645746
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## 227  -1.62197 -1.677413    9E    JFK   ORD -0.41069633 -1.00266723 -0.9645746
## 228  -1.62197 -1.677413    UA    EWR   MIA  0.05766586 -1.06282238 -0.9087097
## 229  -1.62197 -1.677413    9E    JFK   IND -0.51251420 -1.00266723 -0.9645746
## 230  -1.62197 -1.677413    FL    LGA   ATL -0.38082976 -1.06282238 -1.0669935
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## 240  -1.62197 -1.677413    AA    LGA   MIA  0.07259915 -1.06282238 -1.0669935
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## 259   -1.62197 -1.677413         UA    LGA  IAH  0.50702206 -1.17310682 -1.2718314
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## 289   -1.62197 -1.677413         9E    JFK  DTW -0.72429537 -1.22323611 -1.4301151
## 290   -1.62197 -1.677413         AA    LGA  MIA  0.07259915 -1.28339125 -1.3276962
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## 305   -1.62197 -1.677413         UA    EWR  PHX  1.48040089 -1.33352054 -1.4859800
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## 312 -1.62197 -1.677413   AA    EWR   DFW  0.44728891 -1.33352054 -1.4859800
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## 317 -1.62197 -1.677413   AA    JFK   TPA -0.05093986 -1.33352054 -1.4301151
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## 380 -1.62197 -1.563526    DL   EWR  ATL -0.40255090 -1.83481344 -1.6908178
## 381 -1.62197 -1.563526    WN   EWR  MDW -0.45006591 -1.83481344 -1.6908178
## 382 -1.62197 -1.563526    B6   JFK  SJU  0.75410009 -1.89496859 -1.6908178
## 383 -1.62197 -1.563526    UA   LGA  IAH  0.50702206 -1.83481344 -1.6349530
## 384 -1.62197 -1.563526    UA   EWR  DFW  0.44728891 -1.83481344 -1.6908178
## 385 -1.62197 -1.563526    US   EWR  CLT -0.69714394 -1.83481344 -1.6908178
## 386 -1.62197 -1.563526    DL   LGA  TPA -0.04415200 -1.83481344 -1.6349530
## 387 -1.62197 -1.563526    WN   EWR  BWI -1.18586971 -1.83481344 -1.6908178
## 388 -1.62197 -1.563526    EV   EWR  IAD -1.12749413 -1.83481344 -1.6908178
## 389 -1.62197 -1.563526    EV   EWR  CVG -0.64284107 -1.83481344 -1.6908178
## 390 -1.62197 -1.563526    UA   EWR  LAX  1.91618137 -1.83481344 -1.6908178
## 391 -1.62197 -1.563526    AA   LGA  ORD -0.42019933 -1.83481344 -1.6349530
## 392 -1.62197 -1.563526    UA   EWR  AUS  0.62648836 -1.83481344 -1.6908178
## 393 -1.62197 -1.563526    US   JFK  PHX  1.50755232 -1.89496859 -1.6908178
## 394 -1.62197 -1.563526    UA   EWR  CLE -0.86684039 -1.83481344 -1.6908178
## 395 -1.62197 -1.563526    EV   EWR  ATL -0.40255090 -1.83481344 -1.6908178
## 396 -1.62197 -1.563526    AA   LGA  DFW  0.47036763 -1.83481344 -1.6349530
## 397 -1.62197 -1.563526    B6   LGA  MCO -0.12560630 -1.83481344 -1.6349530
## 398 -1.62197 -1.563526    US   LGA  CLT -0.67678036 -1.83481344 -1.6349530
## 399 -1.62197 -1.563526    UA   LGA  DEN  0.78396666 -1.83481344 -1.6349530
## 400 -1.62197 -1.563526    DL   JFK  SLC  1.28626815 -1.89496859 -1.6908178
## 401 -1.62197 -1.563526    UA   EWR  MCO -0.14325473 -1.83481344 -1.6908178
## 402 -1.62197 -1.563526    UA   EWR  FLL  0.03051443 -1.83481344 -1.6908178
## 403 -1.62197 -1.563526    B6   JFK  LAS  1.63652162 -1.89496859 -1.6908178
## 404 -1.62197 -1.563526    DL   LGA  PBI -0.01021271 -1.83481344 -1.6908178
## 405 -1.62197 -1.563526    US   LGA  DCA -1.12477899 -1.83481344 -1.6908178
## 406 -1.62197 -1.563526    VX   JFK  LAX  1.94469037 -1.89496859 -1.6908178
## 407 -1.62197 -1.563526    DL   LGA  DTW -0.73379837 -1.83481344 -1.6908178
## 408 -1.62197 -1.563526    UA   EWR  SJU  0.76767580 -1.78468415 -1.6349530
## 410 -1.62197 -1.563526    MQ   EWR  ORD -0.43920534 -1.78468415 -1.6349530
## 411 -1.62197 -1.563526    AA   JFK  MIA  0.06309615 -1.89496859 -1.6908178
## 412 -1.62197 -1.563526    B6   JFK  LAX  1.94469037 -1.89496859 -1.6908178
## 413 -1.62197 -1.563526    DL   LGA  ATL -0.38082976 -1.83481344 -1.6908178
## 414 -1.62197 -1.563526    UA   LGA  ORD -0.42019933 -1.83481344 -1.6908178
## 415 -1.62197 -1.563526    AA   JFK  FLL  0.03594472 -1.89496859 -1.6908178
## 416 -1.62197 -1.563526    B6   JFK  MCO -0.13375173 -1.89496859 -1.6908178
## 418 -1.62197 -1.563526    AS   EWR  SEA  1.84558765 -1.78468415 -1.6349530
## 420 -1.62197 -1.563526    UA   EWR  DEN  0.76360309 -1.78468415 -1.6349530
## 421 -1.62197 -1.563526    DL   JFK  SEA  1.87273908 -1.89496859 -1.6908178
## 422 -1.62197 -1.563526    UA   LGA  IAH  0.50702206 -1.83481344 -1.6908178
## 423 -1.62197 -1.563526    AA   LGA  ORD -0.42019933 -1.83481344 -1.6908178
## 424 -1.62197 -1.563526    AA   JFK  SFO  2.09538082 -1.89496859 -1.6908178
## 425 -1.62197 -1.563526    UA   EWR  MCO -0.14325473 -1.78468415 -1.6349530
## 426 -1.62197 -1.563526    WN   LGA  DEN  0.78396666 -1.83481344 -1.6908178
## 427 -1.62197 -1.563526    UA   LGA  DEN  0.78396666 -1.83481344 -1.6908178
## 428 -1.62197 -1.563526    DL   EWR  ATL -0.40255090 -1.78468415 -1.6349530
## 429 -1.62197 -1.563526    EV   EWR  BTV -1.05418527 -1.78468415 -1.6349530
## 430 -1.62197 -1.563526    UA   EWR  IAH  0.48530091 -1.78468415 -1.6349530
## 432 -1.62197 -1.563526    B6   JFK  FLL  0.03594472 -1.78468415 -1.7373719
## 433 -1.62197 -1.563526    DL   JFK  MIA  0.06309615 -1.78468415 -1.7373719
## 434 -1.62197 -1.563526    US   LGA  CLT -0.67678036 -1.83481344 -1.6908178
## 435 -1.62197 -1.563526    DL   JFK  MCO -0.13375173 -1.78468415 -1.7373719
## 436 -1.62197 -1.563526    UA   EWR  PDX  1.88902994 -1.78468415 -1.6349530
## 437 -1.62197 -1.563526    AA   JFK  STT  0.78803938 -1.78468415 -1.7373719
```

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## 438 -1.62197 -1.563526    B6    JFK  PIT -0.95372497 -1.78468415 -1.7373719
## 439 -1.62197 -1.563526    DL    LGA  MSP -0.03057629 -1.78468415 -1.6349530
## 440 -1.62197 -1.563526    DL    LGA  PBI -0.01021271 -1.78468415 -1.6349530
## 442 -1.62197 -1.563526    9E    JFK  ORD -0.41069633 -1.78468415 -1.7373719
## 443 -1.62197 -1.563526    AA    JFK  BOS -1.16143342 -1.78468415 -1.7373719
## 444 -1.62197 -1.563526    B6    JFK  SAN  1.90532080 -1.78468415 -1.7373719
## 445 -1.62197 -1.563526    DL    JFK  LAS  1.63652162 -1.78468415 -1.7373719
## 446 -1.62197 -1.563526    B6    JFK  SJU  0.75410009 -1.78468415 -1.7373719
## 447 -1.62197 -1.563526    AA    LGA  ORD -0.42019933 -1.78468415 -1.6349530
## 448 -1.62197 -1.563526    AA    LGA  STL -0.20977574 -1.78468415 -1.6349530
## 450 -1.62197 -1.563526    F9    LGA  DEN  0.78396666 -1.78468415 -1.6349530
## 451 -1.62197 -1.563526    MQ    LGA  ATL -0.38082976 -1.78468415 -1.6349530
## 452 -1.62197 -1.563526    9E    JFK  DCA -1.12613656 -1.78468415 -1.7373719
## 453 -1.62197 -1.563526    UA    JFK  LAX  1.94469037 -1.78468415 -1.7373719
## 455 -1.62197 -1.563526    9E    JFK  RDU -0.83561624 -1.78468415 -1.7373719
## 457 -1.62197 -1.563526    MQ    LGA  CLE -0.84647681 -1.78468415 -1.6349530
## 458 -1.62197 -1.563526    9E    JFK  DTW -0.72429537 -1.78468415 -1.7373719
## 459 -1.62197 -1.563526    UA    EWR  DEN  0.76360309 -1.78468415 -1.6349530
## 460 -1.62197 -1.563526    EV    EWR  CHS -0.56274435 -1.78468415 -1.6349530
## 462 -1.62197 -1.563526    B6    EWR  RSW  0.03458715 -1.78468415 -1.6349530
## 463 -1.62197 -1.563526    DL    EWR  DTW -0.75280437 -1.78468415 -1.6349530
## 464 -1.62197 -1.563526    AA    JFK  MIA  0.06309615 -1.67439971 -1.7373719
## 465 -1.62197 -1.563526    UA    EWR  LAX  1.91618137 -1.78468415 -1.6349530
## 466 -1.62197 -1.563526    UA    EWR  JAC  1.12878985 -1.78468415 -1.6349530
## 467 -1.62197 -1.563526    B6    JFK  IAD -1.10577299 -1.67439971 -1.7373719
## 468 -1.62197 -1.563526    UA    EWR  IAH  0.48530091 -1.67439971 -1.6349530
## 469 -1.62197 -1.563526    MQ    LGA  CLT -0.67678036 -1.67439971 -1.6349530
## 470 -1.62197 -1.563526    B6    JFK  BOS -1.16143342 -1.67439971 -1.7373719
## 471 -1.62197 -1.563526    AA    EWR  DFW  0.44728891 -1.67439971 -1.6349530
## 472 -1.62197 -1.563526    B6    EWR  SJU  0.76767580 -1.67439971 -1.6349530
## 473 -1.62197 -1.563526    B6    JFK  RDU -0.83561624 -1.67439971 -1.7373719
## 474 -1.62197 -1.563526    B6    LGA  FLL  0.04544772 -1.67439971 -1.6349530
## 475 -1.62197 -1.563526    UA    EWR  EGE  0.92786925 -1.67439971 -1.6349530
## 476 -1.62197 -1.563526    WN    EWR  DEN  0.76360309 -1.67439971 -1.6349530
## 477 -1.62197 -1.563526    WN    LGA  MKE -0.41341148 -1.67439971 -1.6349530
## 479 -1.62197 -1.563526    B6    JFK  PBI -0.01971572 -1.67439971 -1.7373719
## 480 -1.62197 -1.563526    EV    EWR  DCA -1.14514256 -1.67439971 -1.6349530
## 481 -1.62197 -1.563526    AA    LGA  ORD -0.42019933 -1.67439971 -1.6349530
## 482 -1.62197 -1.563526    B6    JFK  PWM -1.04468226 -1.67439971 -1.7373719
## 483 -1.62197 -1.563526    9E    JFK  ROC -1.05690041 -1.67439971 -1.7373719
## 484 -1.62197 -1.563526    WN    LGA  MDW -0.43105991 -1.67439971 -1.6349530
## 485 -1.62197 -1.563526    B6    EWR  FLL  0.03051443 -1.56411528 -1.5883989
## 486 -1.62197 -1.563526    MQ    EWR  ORD -0.43920534 -1.56411528 -1.5883989
## 487 -1.62197 -1.563526    US    EWR  CLT -0.69714394 -1.56411528 -1.5883989
## 488 -1.62197 -1.563526    FL    LGA  ATL -0.38082976 -1.61424456 -1.5883989
## 489 -1.62197 -1.563526    US    JFK  PHX  1.50755232 -1.67439971 -1.7373719
## 490 -1.62197 -1.563526    DL    LGA  ATL -0.38082976 -1.61424456 -1.5883989
## 491 -1.62197 -1.563526    B6    JFK  BOS -1.16143342 -1.56411528 -1.6908178
## 492 -1.62197 -1.563526    DL    EWR  ATL -0.40255090 -1.56411528 -1.5883989
## 493 -1.62197 -1.563526    VX    JFK  SFO  2.09538082 -1.56411528 -1.6908178
## 494 -1.62197 -1.563526    EV    EWR  BUF -1.03246412 -1.56411528 -1.5883989
## 495 -1.62197 -1.563526    B6    JFK  MCO -0.13375173 -1.56411528 -1.6908178
## 496 -1.62197 -1.563526    UA    EWR  FLL  0.03051443 -1.56411528 -1.5883989
## 497 -1.62197 -1.563526    AA    JFK  LAX  1.94469037 -1.56411528 -1.6908178
```

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## 498 -1.62197 -1.563526      MQ    LGA  DTW -0.73379837 -1.61424456 -1.5883989
## 499 -1.62197 -1.563526      DL    JFK  SLC  1.28626815 -1.56411528 -1.6908178
## 501 -1.62197 -1.563526      UA    EWR  LAS  1.60801262 -1.45383084 -1.5325340
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## 503 -1.62197 -1.563526      AA    LGA  MIA  0.07259915 -1.56411528 -1.5325340
## 504 -1.62197 -1.563526      DL    JFK  MCO -0.13375173 -1.50396013 -1.6349530
## 506 -1.62197 -1.563526      DL    LGA  RSW  0.05087801 -1.56411528 -1.5325340
## 507 -1.62197 -1.563526      WN    LGA  STL -0.20977574 -1.56411528 -1.5325340
## 508 -1.62197 -1.563526      MQ    JFK  DCA -1.12613656 -1.45383084 -1.6349530
## 509 -1.62197 -1.563526      AA    LGA  DFW  0.47036763 -1.45383084 -1.4859800
## 510 -1.62197 -1.563526      B6    EWR  MCO -0.14325473 -1.39367569 -1.4859800
## 511 -1.62197 -1.563526      B6    JFK  HOU  0.52331292 -1.50396013 -1.6349530
## 512 -1.62197 -1.563526      DL    JFK  LAX  1.94469037 -1.45383084 -1.6349530
## 514 -1.62197 -1.563526      DL    LGA  FLL  0.04544772 -1.45383084 -1.4859800
## 515 -1.62197 -1.563526      UA    EWR  IAH  0.48530091 -1.39367569 -1.4859800
## 516 -1.62197 -1.563526      AA    JFK  LAX  1.94469037 -1.45383084 -1.6349530
## 517 -1.62197 -1.563526      EV    EWR  BUF -1.03246412 -1.39367569 -1.4859800
## 518 -1.62197 -1.563526      UA    EWR  MCO -0.14325473 -1.45383084 -1.5325340
## 519 -1.62197 -1.563526      EV    EWR  DTW -0.75280437 -1.39367569 -1.4859800
## 520 -1.62197 -1.563526      DL    LGA  DTW -0.73379837 -1.45383084 -1.4859800
## 523 -1.62197 -1.563526      WN    EWR  BWI -1.18586971 -1.39367569 -1.4859800
## 524 -1.62197 -1.563526      DL    JFK  SLC  1.28626815 -1.45383084 -1.6349530
## 525 -1.62197 -1.563526      EV    EWR  DTW -0.75280437 -1.39367569 -1.4859800
## 526 -1.62197 -1.563526      DL    JFK  SJU  0.75410009 -1.45383084 -1.6349530
## 527 -1.62197 -1.563526      AA    JFK  BOS -1.16143342 -1.45383084 -1.6349530
## 528 -1.62197 -1.563526      9E    EWR  CVG -0.64284107 -1.28339125 -1.4859800
## 529 -1.62197 -1.563526      US    LGA  CLT -0.67678036 -1.45383084 -1.4859800
## 530 -1.62197 -1.563526      B6    JFK  FLL  0.03594472 -1.45383084 -1.6349530
## 531 -1.62197 -1.563526      EV    EWR  DCA -1.14514256 -1.28339125 -1.4859800
## 532 -1.62197 -1.563526      DL    EWR  ATL -0.40255090 -1.28339125 -1.4859800
## 533 -1.62197 -1.563526      WN    LGA  DEN  0.78396666 -1.45383084 -1.4859800
## 534 -1.62197 -1.563526      UA    EWR  MIA  0.05766586 -1.28339125 -1.4859800
## 535 -1.62197 -1.563526      B6    JFK  PBI -0.01971572 -1.33352054 -1.5883989
## 536 -1.62197 -1.563526      US    EWR  CLT -0.69714394 -1.28339125 -1.4859800
## 537 -1.62197 -1.563526      EV    EWR  GSO -0.81117995 -1.28339125 -1.4859800
## 538 -1.62197 -1.563526      B6    LGA  MCO -0.12560630 -1.39367569 -1.4859800
## 539 -1.62197 -1.563526      UA    EWR  LAX  1.91618137 -1.28339125 -1.4859800
## 540 -1.62197 -1.563526      WN    EWR  HOU  0.50023420 -1.28339125 -1.4859800
## 541 -1.62197 -1.563526      B6    EWR  FLL  0.03051443 -1.28339125 -1.4859800
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## 543 -1.62197 -1.563526      EV    EWR  OMA  0.12418687 -1.28339125 -1.4859800
## 544 -1.62197 -1.563526      B6    LGA  SRQ  0.00607814 -1.39367569 -1.4859800
## 545 -1.62197 -1.563526      AA    JFK  LAX  1.94469037 -1.33352054 -1.5883989
## 546 -1.62197 -1.563526      AA    LGA  MIA  0.07259915 -1.39367569 -1.4859800
## 547 -1.62197 -1.563526      DL    LGA  MCO -0.12560630 -1.39367569 -1.4859800
## 548 -1.62197 -1.563526      MQ    LGA  CLT -0.67678036 -1.39367569 -1.4859800
## 549 -1.62197 -1.563526      US    EWR  PHX  1.48040089 -1.28339125 -1.4859800
## 551 -1.62197 -1.563526      B6    JFK  MCO -0.13375173 -1.33352054 -1.5883989
## 553 -1.62197 -1.563526      EV    EWR  MSN -0.33059961 -1.28339125 -1.4859800
## 554 -1.62197 -1.563526      UA    EWR  ORD -0.43920534 -1.28339125 -1.5883989
## 555 -1.62197 -1.563526      UA    EWR  PBI -0.02650357 -1.28339125 -1.4859800
## 556 -1.62197 -1.563526      UA    LGA  IAH  0.50702206 -1.28339125 -1.4301151
## 558 -1.62197 -1.563526      DL    LGA  RSW  0.05087801 -1.28339125 -1.4301151
## 559 -1.62197 -1.563526      DL    JFK  DCA -1.12613656 -1.22323611 -1.5883989
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## 560 -1.62197 -1.563526     9E     JFK  CLT -0.68085308 -1.22323611 -1.5883989
## 561 -1.62197 -1.563526     B6     JFK  MSY  0.18935031 -1.22323611 -1.5883989
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## 563 -1.62197 -1.563526     B6     JFK  PIT -0.95372497 -1.22323611 -1.5883989
## 564 -1.62197 -1.563526     UA     EWR  MCO -0.14325473 -1.28339125 -1.5883989
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## 567 -1.62197 -1.563526     DL     LGA  ATL -0.38082976 -1.33352054 -1.4859800
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## 572 -1.62197 -1.563526     B6     JFK  MCO -0.13375173 -1.28339125 -1.6349530
## 573 -1.62197 -1.563526     AA     JFK  FLL  0.03594472 -1.28339125 -1.6349530
## 574 -1.62197 -1.563526     AA     JFK  SFO  2.09538082 -1.28339125 -1.6349530
## 576 -1.62197 -1.563526     MQ     LGA  RDU -0.83018595 -1.33352054 -1.4859800
## 577 -1.62197 -1.563526     9E     JFK  ROC -1.05690041 -1.28339125 -1.6349530
## 578 -1.62197 -1.563526     B6     JFK  SJU  0.75410009 -1.28339125 -1.6349530
## 579 -1.62197 -1.563526     DL     LGA  MCO -0.12560630 -1.33352054 -1.4859800
## 580 -1.62197 -1.563526     AA     LGA  DFW  0.47036763 -1.33352054 -1.4859800
## 581 -1.62197 -1.563526     DL     EWR  ATL -0.40255090 -1.28339125 -1.5325340
## 582 -1.62197 -1.563526     9E     JFK  MSP -0.01835814 -1.28339125 -1.6349530
## 584 -1.62197 -1.563526     B6     JFK  ORD -0.41069633 -1.28339125 -1.6349530
## 585 -1.62197 -1.563526     DL     JFK  ATL -0.38354490 -1.28339125 -1.6349530
## 586 -1.62197 -1.563526     B6     LGA  PBI -0.01021271 -1.33352054 -1.3742503
## 587 -1.62197 -1.563526     DL     JFK  RSW  0.04273258 -1.39367569 -1.5883989
## 588 -1.62197 -1.563526     UA     EWR  FLL  0.03051443 -1.28339125 -1.5325340
## 589 -1.62197 -1.563526     MQ     JFK  CVG -0.61568964 -1.39367569 -1.5883989
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## 591 -1.62197 -1.563526     UA     EWR  BOS -1.14378499 -1.28339125 -1.5325340
## 593 -1.62197 -1.563526     DL     JFK  LAS  1.63652162 -1.39367569 -1.5883989
## 594 -1.62197 -1.563526     DL     LGA  ATL -0.38082976 -1.33352054 -1.4859800
## 596 -1.62197 -1.563526     9E     JFK  RDU -0.83561624 -1.39367569 -1.5883989
## 597 -1.62197 -1.563526     WN     EWR  DEN  0.76360309 -1.39367569 -1.4859800
## 598 -1.62197 -1.563526     UA     EWR  IAH  0.48530091 -1.39367569 -1.4859800
## 599 -1.62197 -1.563526     DL     LGA  DTW -0.73379837 -1.33352054 -1.3742503
## 600 -1.62197 -1.563526     UA     EWR  RSW  0.03458715 -1.39367569 -1.4859800
## 601 -1.62197 -1.563526     B6     JFK  LAX  1.94469037 -1.39367569 -1.5883989
## 602 -1.62197 -1.563526     DL     JFK  DTW -0.72429537 -1.39367569 -1.5883989
## 603 -1.62197 -1.563526     UA     EWR  CLE -0.86684039 -1.39367569 -1.4859800
## 604 -1.62197 -1.563526     VX     JFK  SFO  2.09538082 -1.39367569 -1.5883989
## 605 -1.62197 -1.563526     DL     JFK  DEN  0.79211209 -1.39367569 -1.5883989
## 607 -1.62197 -1.563526     AA     LGA  DFW  0.47036763 -1.33352054 -1.3742503
## 608 -1.62197 -1.563526     B6     JFK  CLT -0.68085308 -1.39367569 -1.5883989
## 609 -1.62197 -1.563526     B6     EWR  BOS -1.14378499 -1.39367569 -1.4859800
## 610 -1.62197 -1.563526     DL     JFK  AUS  0.64956708 -1.39367569 -1.5883989
## 611 -1.62197 -1.563526     9E     JFK  CVG -0.61568964 -1.39367569 -1.5883989
## 612 -1.62197 -1.563526     WN     EWR  STL -0.23149688 -1.39367569 -1.4859800
## 613 -1.62197 -1.563526     MQ     LGA  DTW -0.73379837 -1.33352054 -1.3742503
## 614 -1.62197 -1.563526     UA     LGA  ORD -0.42019933 -1.39367569 -1.4301151
## 615 -1.62197 -1.563526     US     LGA  CLT -0.67678036 -1.39367569 -1.4301151
## 616 -1.62197 -1.563526     AA     EWR  DFW  0.44728891 -1.39367569 -1.4859800
## 617 -1.62197 -1.563526     AA     JFK  AUS  0.64956708 -1.39367569 -1.5883989
## 618 -1.62197 -1.563526     AA     JFK  ORD -0.41069633 -1.39367569 -1.5883989
## 619 -1.62197 -1.563526     UA     EWR  PDX  1.88902994 -1.39367569 -1.4859800
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## 621  -1.62197 -1.563526    F9   LGA  DEN  0.78396666 -1.39367569 -1.4301151
## 622  -1.62197 -1.563526    UA   EWR  DFW  0.44728891 -1.39367569 -1.4859800
## 624  -1.62197 -1.563526    UA   EWR  SAN  1.87681179 -1.39367569 -1.4859800
## 625  -1.62197 -1.563526    DL   JFK  PDX  1.91618137 -1.39367569 -1.5883989
## 626  -1.62197 -1.563526    MQ   LGA  XNA  0.14183530 -1.39367569 -1.4301151
## 628  -1.62197 -1.563526    UA   JFK  LAX  1.94469037 -1.39367569 -1.5883989
## 630  -1.62197 -1.563526    B6   JFK  BOS -1.16143342 -1.45383084 -1.5325340
## 631  -1.62197 -1.563526    WN   LGA  MDW -0.43105991 -1.39367569 -1.4301151
## 635  -1.62197 -1.563526    B6   JFK  RDU -0.83561624 -1.45383084 -1.5325340
## 636  -1.62197 -1.563526    DL   LGA  MSP -0.03057629 -1.39367569 -1.4301151
## 637  -1.62197 -1.563526    UA   EWR  CLE -0.86684039 -1.39367569 -1.4859800
## 638  -1.62197 -1.563526    MQ   LGA  BNA -0.37811462 -1.39367569 -1.4301151
## 639  -1.62197 -1.563526    MQ   LGA  CMH -0.76502252 -1.39367569 -1.4301151
## 641  -1.62197 -1.563526    AA   LGA  MIA  0.07259915 -1.39367569 -1.4301151
## 643  -1.62197 -1.563526    MQ   LGA  CLE -0.84647681 -1.39367569 -1.4301151
## 644  -1.62197 -1.563526    DL   JFK  MSP -0.01835814 -1.45383084 -1.5325340
## 645  -1.62197 -1.563526    UA   EWR  SNA  1.88902994 -1.45383084 -1.4859800
## 646  -1.62197 -1.563526    B6   JFK  SJC  2.07230210 -1.45383084 -1.5325340
## 648  -1.62197 -1.563526    DL   LGA  PIT -0.96051283 -1.39367569 -1.4301151
## 649  -1.62197 -1.563526    B6   JFK  BUR  1.93111466 -1.45383084 -1.5325340
## 650  -1.62197 -1.563526    AA   JFK  SEA  1.87273908 -1.45383084 -1.5325340
## 651  -1.62197 -1.563526    WN   EWR  BWI -1.18586971 -1.45383084 -1.4859800
## 652  -1.62197 -1.563526    UA   JFK  SFO  2.09538082 -1.45383084 -1.5325340
## 654  -1.62197 -1.563526    9E   JFK  DFW  0.47308277 -1.45383084 -1.5325340
## 655  -1.62197 -1.563526    AA   LGA  STL -0.20977574 -1.39367569 -1.4301151
## 656  -1.62197 -1.563526    VX   JFK  SFO  2.09538082 -1.45383084 -1.5325340
## 657  -1.62197 -1.563526    AA   JFK  SJU  0.75410009 -1.45383084 -1.5325340
## 658  -1.62197 -1.563526    DL   JFK  ATL -0.38354490 -1.45383084 -1.5325340
## 659  -1.62197 -1.563526    WN   LGA  MKE -0.41341148 -1.45383084 -1.4301151
## 660  -1.62197 -1.563526    B6   JFK  MCO -0.13375173 -1.45383084 -1.5325340
## 661  -1.62197 -1.563526    US   LGA  CLT -0.67678036 -1.39367569 -1.4301151
## 662  -1.62197 -1.563526    B6   JFK  BUF -1.00667026 -1.45383084 -1.5325340
## 663  -1.62197 -1.563526    AA   EWR  DFW  0.44728891 -1.45383084 -1.4301151
## 664  -1.62197 -1.563526    EV   EWR  BNA -0.39983576 -1.45383084 -1.4301151
## 665  -1.62197 -1.563526    AA   JFK  LAX  1.94469037 -1.45383084 -1.4859800
## 666  -1.62197 -1.563526    UA   EWR  SFO  2.06687181 -1.45383084 -1.4301151
## 667  -1.62197 -1.563526    B6   JFK  SMF  2.00713866 -1.45383084 -1.5325340
## 668  -1.62197 -1.563526    B6   JFK  SLC  1.28626815 -1.45383084 -1.4859800
## 669  -1.62197 -1.563526    9E   JFK  ORD -0.41069633 -1.45383084 -1.4859800
## 670  -1.62197 -1.563526    UA   EWR  PHX  1.48040089 -1.45383084 -1.4301151
## 671  -1.62197 -1.563526    DL   JFK  PHX  1.50755232 -1.45383084 -1.4859800
## 672  -1.62197 -1.563526    MQ   LGA  RDU -0.83018595 -1.45383084 -1.4301151
## 673  -1.62197 -1.563526    EV   EWR  DSM -0.03464900 -1.45383084 -1.4301151
## 674  -1.62197 -1.563526    DL   LGA  TPA -0.04415200 -1.45383084 -1.4301151
## 675  -1.62197 -1.563526    B6   JFK  PBI -0.01971572 -1.45383084 -1.4859800
## 676  -1.62197 -1.563526    9E   JFK  SAT  0.73916680 -1.45383084 -1.4859800
## 677  -1.62197 -1.563526    DL   LGA  PBI -0.01021271 -1.45383084 -1.4301151
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## 680  -1.62197 -1.563526    UA   EWR  BOS -1.14378499 -1.45383084 -1.4301151
## 682  -1.62197 -1.563526    UA   EWR  SEA  1.84558765 -1.45383084 -1.4301151
## 683  -1.62197 -1.563526    9E   JFK  JAX -0.29123003 -1.45383084 -1.4859800
## 684  -1.62197 -1.563526    UA   EWR  IAH  0.48530091 -1.45383084 -1.4301151
## 686  -1.62197 -1.563526    9E   LGA  TYS -0.53695049 -1.45383084 -1.4301151
## 687  -1.62197 -1.563526    DL   LGA  ATL -0.38082976 -1.45383084 -1.4301151
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## 696  -1.62197 -1.563526     AA    JFK  BOS -1.16143342 -1.45383084 -1.4859800
## 697  -1.62197 -1.563526     MQ    LGA  CMH -0.76502252 -1.45383084 -1.4301151
## 698  -1.62197 -1.563526     9E    JFK  PIT -0.95372497 -1.45383084 -1.4859800
## 699  -1.62197 -1.563526     B6    JFK  FLL  0.03594472 -1.45383084 -1.4859800
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## 703  -1.62197 -1.563526     AA    LGA  ORD -0.42019933 -1.45383084 -1.4301151
## 704  -1.62197 -1.563526     B6    JFK  RSW  0.04273258 -1.45383084 -1.4859800
## 706  -1.62197 -1.563526     B6    JFK  LAX  1.94469037 -1.45383084 -1.4859800
## 707  -1.62197 -1.563526     MQ    LGA  DTW -0.73379837 -1.45383084 -1.4301151
## 709  -1.62197 -1.563526     B6    LGA  MCO -0.12560630 -1.45383084 -1.3276962
## 710  -1.62197 -1.563526     WN    LGA  MDW -0.43105991 -1.45383084 -1.3276962
## 711  -1.62197 -1.563526     UA    EWR  PBI -0.02650357 -1.50396013 -1.4301151
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## 713  -1.62197 -1.563526     MQ    LGA  CLT -0.67678036 -1.45383084 -1.3276962
## 714  -1.62197 -1.563526     UA    EWR  IAH  0.48530091 -1.50396013 -1.4301151
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## 717  -1.62197 -1.563526     UA    EWR  BOS -1.14378499 -1.50396013 -1.4301151
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## 721  -1.62197 -1.563526     B6    JFK  DEN  0.79211209 -1.45383084 -1.4301151
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## 726  -1.62197 -1.563526     B6    JFK  SJU  0.75410009 -1.45383084 -1.4301151
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## 739  -1.62197 -1.563526     EV    EWR  ATL -0.40255090 -1.28339125 -1.5883989
## 743  -1.62197 -1.449639     UA    EWR  IAH  0.48530091 -1.72452900 -1.3742503
## 744  -1.62197 -1.449639     EV    JFK  IAD -1.10577299 -1.72452900 -1.4301151
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## 748  -1.62197 -1.449639     MQ    LGA  DTW -0.73379837 -1.72452900 -1.3742503
## 749  -1.62197 -1.449639     B6    JFK  PBI -0.01971572 -1.72452900 -1.4301151
## 750  -1.62197 -1.449639     B6    JFK  TPA -0.05093986 -1.72452900 -1.4301151
## 751  -1.62197 -1.449639     DL    EWR  DTW -0.75280437 -1.72452900 -1.3276962
## 752  -1.62197 -1.449639     FL    LGA  ATL -0.38082976 -1.72452900 -1.3742503
## 753  -1.62197 -1.449639     AA    LGA  ORD -0.42019933 -1.72452900 -1.3742503
## 754  -1.62197 -1.449639     WN    LGA  MDW -0.43105991 -1.72452900 -1.3742503
## 755  -1.62197 -1.449639     WN    EWR  BWI -1.18586971 -1.72452900 -1.3276962
## 756  -1.62197 -1.449639     AA    EWR  MIA  0.05766586 -1.72452900 -1.3276962
## 757  -1.62197 -1.449639     B6    JFK  RSW  0.04273258 -1.72452900 -1.4301151
## 758  -1.62197 -1.449639     DL    EWR  ATL -0.40255090 -1.72452900 -1.3276962
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## 775 -1.62197 -1.449639      UA    LGA  DEN  0.78396666 -1.72452900 -1.3742503
## 776 -1.62197 -1.449639      UA    EWR  LAS  1.60801262 -1.72452900 -1.3276962
## 777 -1.62197 -1.449639      AA    JFK  MCO -0.13375173 -1.72452900 -1.4301151
## 778 -1.62197 -1.449639      B6    JFK  LAS  1.63652162 -1.72452900 -1.4301151
## 779 -1.62197 -1.449639      EV    EWR  DTW -0.75280437 -1.72452900 -1.3276962
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## 781 -1.62197 -1.449639      UA    EWR  LAX  1.91618137 -1.72452900 -1.3276962
## 782 -1.62197 -1.449639      AA    JFK  FLL  0.03594472 -1.72452900 -1.4301151
## 784 -1.62197 -1.449639      UA    EWR  RSW  0.03458715 -1.72452900 -1.3276962
## 785 -1.62197 -1.449639      DL    LGA  DTW -0.73379837 -1.72452900 -1.3742503
## 786 -1.62197 -1.449639      UA    JFK  SFO  2.09538082 -1.72452900 -1.4301151
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## 793 -1.62197 -1.449639      AA    JFK  SFO  2.09538082 -1.72452900 -1.4301151
## 794 -1.62197 -1.449639      B6    LGA  TPA -0.04415200 -1.72452900 -1.3742503
## 795 -1.62197 -1.449639      9E    JFK  PIT -0.95372497 -1.72452900 -1.4301151
## 796 -1.62197 -1.449639      WN    LGA  DEN  0.78396666 -1.72452900 -1.3742503
## 797 -1.62197 -1.449639      DL    JFK  FLL  0.03594472 -1.61424456 -1.4301151
## 798 -1.62197 -1.449639      MQ    JFK  RDU -0.83561624 -1.61424456 -1.4301151
## 799 -1.62197 -1.449639      B6    JFK  SRQ -0.00206729 -1.72452900 -1.4301151
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## 801 -1.62197 -1.449639      DL    LGA  TPA -0.04415200 -1.72452900 -1.3742503
## 802 -1.62197 -1.449639      DL    JFK  LAS  1.63652162 -1.61424456 -1.4301151
## 803 -1.62197 -1.449639      US    EWR  CLT -0.69714394 -1.67439971 -1.2718314
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## 810 -1.62197 -1.449639      UA    EWR  BOS -1.14378499 -1.67439971 -1.2718314
## 811 -1.62197 -1.449639      UA    EWR  SAN  1.87681179 -1.67439971 -1.2718314
## 812 -1.62197 -1.449639      EV    EWR  IND -0.53966563 -1.67439971 -1.2718314
## 813 -1.62197 -1.449639      EV    EWR  PWM -1.02974898 -1.67439971 -1.2718314
```

```
## 815  -1.62197 -1.449639     AA    JFK   LAX   1.94469037 -1.56411528 -1.4301151
## 816  -1.62197 -1.449639     DL    JFK   LAX   1.94469037 -1.56411528 -1.4301151
## 817  -1.62197 -1.449639     DL    LGA   MCO  -0.12560630 -1.72452900 -1.3742503
## 818  -1.62197 -1.449639     MQ    LGA   DTW  -0.73379837 -1.72452900 -1.3742503
## 819  -1.62197 -1.449639     VX    JFK   LAX   1.94469037 -1.56411528 -1.4301151
## 821  -1.62197 -1.449639     AA    JFK   MIA   0.06309615 -1.56411528 -1.4301151
## 822  -1.62197 -1.449639     UA    EWR   TPA  -0.06180044 -1.61424456 -1.2718314
## 823  -1.62197 -1.449639     UA    EWR   LAS   1.60801262 -1.61424456 -1.2718314
## 824  -1.62197 -1.449639     DL    LGA   DTW  -0.73379837 -1.72452900 -1.3742503
## 825  -1.62197 -1.449639     UA    EWR   STT   0.80297267 -1.61424456 -1.2718314
## 826  -1.62197 -1.449639     UA    LGA   IAH   0.50702206 -1.72452900 -1.3742503
## 828  -1.62197 -1.449639     B6    JFK   BOS  -1.16143342 -1.56411528 -1.4301151
## 829  -1.62197 -1.449639     UA    EWR   CLE  -0.86684039 -1.61424456 -1.2718314
## 831  -1.62197 -1.449639     EV    EWR   ATL  -0.40255090 -1.61424456 -1.2718314
## 832  -1.62197 -1.449639     B6    LGA   FLL   0.04544772 -1.72452900 -1.3742503
## 833  -1.62197 -1.449639     B6    EWR   SJU   0.76767580 -1.61424456 -1.2718314
## 834  -1.62197 -1.449639     EV    EWR   STL  -0.23149688 -1.61424456 -1.2718314
## 835  -1.62197 -1.449639     B6    JFK   BUF  -1.00667026 -1.56411528 -1.4301151
## 837  -1.62197 -1.449639     B6    JFK   PBI  -0.01971572 -1.56411528 -1.4301151
## 839  -1.62197 -1.449639     WN    LGA   MKE  -0.41341148 -1.72452900 -1.3742503
## 840  -1.62197 -1.449639     B6    EWR   FLL   0.03051443 -1.45383084 -1.3742503
## 841  -1.62197 -1.449639     9E    LGA   GRR  -0.57632007 -1.72452900 -1.3742503
## 843  -1.62197 -1.449639     MQ    LGA   BNA  -0.37811462 -1.72452900 -1.3742503
## 844  -1.62197 -1.449639     US    JFK   PHX   1.50755232 -1.56411528 -1.4301151
## 845  -1.62197 -1.449639     US    EWR   PHX   1.48040089 -1.45383084 -1.3742503
## 846  -1.62197 -1.449639     UA    EWR   SEA   1.84558765 -1.45383084 -1.3742503
## 848  -1.62197 -1.449639     MQ    EWR   ORD  -0.43920534 -1.45383084 -1.3742503
## 849  -1.62197 -1.449639     US    JFK   CLT  -0.68085308 -1.45383084 -1.3742503
## 850  -1.62197 -1.449639     UA    LGA   IAH   0.50702206 -1.67439971 -1.3742503
## 852  -1.62197 -1.449639     DL    LGA   SRQ   0.00607814 -1.67439971 -1.3742503
## 853  -1.62197 -1.449639     US    EWR   CLT  -0.69714394 -1.45383084 -1.3742503
## 855  -1.62197 -1.449639     FL    LGA   ATL  -0.38082976 -1.67439971 -1.3742503
## 856  -1.62197 -1.449639     EV    EWR   DTW  -0.75280437 -1.45383084 -1.3742503
## 857  -1.62197 -1.449639     EV    EWR   CHS  -0.56274435 -1.45383084 -1.3742503
## 858  -1.62197 -1.449639     AA    JFK   SFO   2.09538082 -1.45383084 -1.3742503
## 859  -1.62197 -1.449639     VX    JFK   SFO   2.09538082 -1.45383084 -1.3742503
## 860  -1.62197 -1.449639     EV    EWR   MKE  -0.43105991 -1.45383084 -1.3742503
## 861  -1.62197 -1.449639     DL    LGA   MEM  -0.10795787 -1.67439971 -1.3742503
## 862  -1.62197 -1.449639     B6    LGA   FLL   0.04544772 -1.67439971 -1.3742503
## 863  -1.62197 -1.449639     EV    EWR   RDU  -0.85054953 -1.45383084 -1.3742503
## 864  -1.62197 -1.449639     UA    EWR   RSW   0.03458715 -1.45383084 -1.3742503
## 865  -1.62197 -1.449639     UA    EWR   LAS   1.60801262 -1.45383084 -1.3742503
## 866  -1.62197 -1.449639     MQ    JFK   DCA  -1.12613656 -1.50396013 -1.5325340
## 867  -1.62197 -1.449639     B6    JFK   SFO   2.09538082 -1.50396013 -1.5325340
## 868  -1.62197 -1.449639     MQ    LGA   CMH  -0.76502252 -1.56411528 -1.4301151
## 869  -1.62197 -1.449639     AA    LGA   DFW   0.47036763 -1.67439971 -1.3742503
## 870  -1.62197 -1.449639     EV    EWR   MCI   0.06716887 -1.45383084 -1.4301151
## 871  -1.62197 -1.449639     UA    LGA   DEN   0.78396666 -1.56411528 -1.4301151
## 872  -1.62197 -1.449639     DL    JFK   SJU   0.75410009 -1.50396013 -1.5325340
## 873  -1.62197 -1.449639     VX    JFK   LAX   1.94469037 -1.50396013 -1.5325340
## 874  -1.62197 -1.449639     DL    JFK   MCO  -0.13375173 -1.50396013 -1.5325340
## 875  -1.62197 -1.449639     UA    EWR   MCO  -0.14325473 -1.45383084 -1.4301151
## 876  -1.62197 -1.449639     UA    EWR   DEN   0.76360309 -1.45383084 -1.4301151
## 877  -1.62197 -1.449639     B6    JFK   RSW   0.04273258 -1.50396013 -1.5325340
```

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## 878 -1.62197 -1.449639    MQ    LGA  CLE -0.84647681 -1.56411528 -1.4301151
## 879 -1.62197 -1.449639    DL    LGA  PBI -0.01021271 -1.56411528 -1.4301151
## 880 -1.62197 -1.449639    B6    JFK  BTV -1.05418527 -1.50396013 -1.5325340
## 881 -1.62197 -1.449639    DL    LGA  TPA -0.04415200 -1.56411528 -1.4301151
## 882 -1.62197 -1.449639    MQ    LGA  MSP -0.03057629 -1.56411528 -1.4301151
## 883 -1.62197 -1.449639    DL    EWR  ATL -0.40255090 -1.45383084 -1.4301151
## 884 -1.62197 -1.449639    UA    EWR  TPA -0.06180044 -1.45383084 -1.4301151
## 885 -1.62197 -1.449639    FL    LGA  CAK -0.87634339 -1.56411528 -1.4301151
## 886 -1.62197 -1.449639    EV    EWR  JAX -0.30209061 -1.45383084 -1.4301151
## 887 -1.62197 -1.449639    B6    JFK  HOU  0.52331292 -1.50396013 -1.5325340
## 888 -1.62197 -1.449639    WN    EWR  STL -0.23149688 -1.45383084 -1.4301151
## 891 -1.62197 -1.449639    AA    LGA  DFW  0.47036763 -1.45383084 -1.4859800
## 892 -1.62197 -1.449639    EV    EWR  PWM -1.02974898 -1.33352054 -1.4859800
## 893 -1.62197 -1.449639    UA    EWR  PHX  1.48040089 -1.33352054 -1.4859800
## 894 -1.62197 -1.449639    WN    EWR  MDW -0.45006591 -1.33352054 -1.4859800
## 895 -1.62197 -1.449639    B6    JFK  BUF -1.00667026 -1.33352054 -1.4859800
## 896 -1.62197 -1.449639    EV    EWR  CLT -0.69714394 -1.33352054 -1.4859800
## 897 -1.62197 -1.449639    DL    JFK  SLC  1.28626815 -1.33352054 -1.4859800
## 898 -1.62197 -1.449639    AA    EWR  DFW  0.44728891 -1.33352054 -1.4859800
## 899 -1.62197 -1.449639    WN    LGA  MKE -0.41341148 -1.45383084 -1.4859800
## 900 -1.62197 -1.449639    AA    JFK  BOS -1.16143342 -1.33352054 -1.4859800
## 901 -1.62197 -1.449639    DL    LGA  MCO -0.12560630 -1.45383084 -1.4859800
## 902 -1.62197 -1.449639    UA    EWR  DFW  0.44728891 -1.33352054 -1.4859800
## 903 -1.62197 -1.449639    B6    JFK  BOS -1.16143342 -1.33352054 -1.4859800
## 904 -1.62197 -1.449639    B6    JFK  ROC -1.05690041 -1.33352054 -1.4859800
## 905 -1.62197 -1.449639    UA    EWR  MCO -0.14325473 -1.33352054 -1.4859800
## 906 -1.62197 -1.449639    UA    EWR  ORD -0.43920534 -1.28339125 -1.4859800
## 907 -1.62197 -1.449639    EV    EWR  DCA -1.14514256 -1.28339125 -1.4859800
## 910 -1.62197 -1.449639    DL    LGA  ATL -0.38082976 -1.39367569 -1.5325340
## 911 -1.62197 -1.449639    B6    JFK  LGB  1.93111466 -1.33352054 -1.4859800
## 913 -1.62197 -1.449639    EV    EWR  STL -0.23149688 -1.28339125 -1.4859800
## 914 -1.62197 -1.449639    VX    JFK  LAX  1.94469037 -1.33352054 -1.4859800
## 915 -1.62197 -1.449639    B6    JFK  BUR  1.93111466 -1.33352054 -1.4859800
## 916 -1.62197 -1.449639    AA    JFK  LAX  1.94469037 -1.33352054 -1.4859800
## 917 -1.62197 -1.449639    B6    LGA  SRQ  0.00607814 -1.39367569 -1.5325340
## 918 -1.62197 -1.449639    US    EWR  PHX  1.48040089 -1.28339125 -1.4859800
## 919 -1.62197 -1.449639    EV    JFK  IAD -1.10577299 -1.33352054 -1.4859800
## 920 -1.62197 -1.449639    AA    LGA  MIA  0.07259915 -1.39367569 -1.5325340
## 921 -1.62197 -1.449639    B6    JFK  MCO -0.13375173 -1.33352054 -1.4859800
## 923 -1.62197 -1.449639    DL    LGA  ATL -0.38082976 -1.33352054 -1.5325340
## 924 -1.62197 -1.449639    B6    JFK  SEA  1.87273908 -1.33352054 -1.4859800
## 926 -1.62197 -1.449639    UA    EWR  FLL  0.03051443 -1.28339125 -1.4859800
## 927 -1.62197 -1.449639    DL    EWR  ATL -0.40255090 -1.28339125 -1.4859800
## 928 -1.62197 -1.449639    UA    EWR  ORD -0.43920534 -1.28339125 -1.4859800
## 929 -1.62197 -1.449639    MQ    EWR  ORD -0.43920534 -1.28339125 -1.4859800
## 930 -1.62197 -1.449639    UA    EWR  PBI -0.02650357 -1.28339125 -1.4859800
## 931 -1.62197 -1.449639    EV    EWR  CHS -0.56274435 -1.28339125 -1.4859800
## 932 -1.62197 -1.449639    B6    JFK  BOS -1.16143342 -1.33352054 -1.5325340
## 934 -1.62197 -1.449639    AA    EWR  DFW  0.44728891 -1.28339125 -1.4859800
## 935 -1.62197 -1.449639    DL    LGA  MCI  0.08753244 -1.33352054 -1.5325340
## 936 -1.62197 -1.449639    DL    LGA  MSP -0.03057629 -1.33352054 -1.5325340
## 937 -1.62197 -1.449639    US    LGA  CLT -0.67678036 -1.33352054 -1.5325340
## 939 -1.62197 -1.449639    UA    EWR  MIA  0.05766586 -1.28339125 -1.4859800
## 940 -1.62197 -1.449639    UA    EWR  DEN  0.76360309 -1.28339125 -1.4859800
```

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## 941   -1.62197 -1.449639      9E      JFK   BOS -1.16143342 -1.33352054 -1.5325340
## 942   -1.62197 -1.449639      MQ      JFK   RDU -0.83561624 -1.33352054 -1.5325340
## 943   -1.62197 -1.449639      UA      EWR   BOS -1.14378499 -1.28339125 -1.4859800
## 944   -1.62197 -1.449639      EV      EWR   DCA -1.14514256 -1.28339125 -1.4859800
## 945   -1.62197 -1.449639      US      LGA   DCA -1.12477899 -1.33352054 -1.5325340
## 946   -1.62197 -1.449639      DL      JFK   SFO  2.09538082 -1.33352054 -1.5325340
## 947   -1.62197 -1.449639      AA      LGA   ORD -0.42019933 -1.33352054 -1.5325340
## 948   -1.62197 -1.449639      DL      JFK   LAX  1.94469037 -1.39367569 -1.4859800
## 949   -1.62197 -1.449639      B6      LGA   FLL  0.04544772 -1.33352054 -1.5325340
## 950   -1.62197 -1.449639      UA      LGA   IAH  0.50702206 -1.33352054 -1.5325340
## 951   -1.62197 -1.449639      EV      EWR   PWM -1.02974898 -1.28339125 -1.4859800
## 952   -1.62197 -1.449639      B6      JFK   BUF -1.00667026 -1.33352054 -1.5325340
## 953   -1.62197 -1.449639      US      EWR   CLT -0.69714394 -1.33352054 -1.4301151
## 954   -1.62197 -1.449639      EV      EWR   IAD -1.12749413 -1.33352054 -1.4301151
## 955   -1.62197 -1.449639      DL      LGA   ATL -0.38082976 -1.33352054 -1.5325340
## 956   -1.62197 -1.449639      9E      JFK   BUF -1.00667026 -1.33352054 -1.5325340
## 957   -1.62197 -1.449639      UA      LGA   DEN  0.78396666 -1.33352054 -1.5325340
## 958   -1.62197 -1.449639      UA      EWR   AUS  0.62648836 -1.28339125 -1.4859800
## 959   -1.62197 -1.449639      AA      JFK   MCO -0.13375173 -1.33352054 -1.5325340
## 960   -1.62197 -1.449639      MQ      LGA   CLT -0.67678036 -1.33352054 -1.5325340
## 961   -1.62197 -1.449639      EV      EWR   BNA -0.39983576 -1.33352054 -1.4301151
## 962   -1.62197 -1.449639      B6      JFK   TPA -0.05093986 -1.33352054 -1.5325340
## 963   -1.62197 -1.449639      WN      LGA   MKE -0.41341148 -1.33352054 -1.5325340
## 964   -1.62197 -1.449639      UA      EWR   MCO -0.14325473 -1.33352054 -1.4301151
## 965   -1.62197 -1.449639      EV      EWR   MKE -0.43105991 -1.33352054 -1.4301151
## 966   -1.62197 -1.449639      UA      EWR   LAX  1.91618137 -1.33352054 -1.4301151
## 967   -1.62197 -1.449639      EV      EWR   GRR -0.59396850 -1.33352054 -1.4301151
## 968   -1.62197 -1.449639      AA      JFK   FLL  0.03594472 -1.39367569 -1.4859800
## 969   -1.62197 -1.449639      WN      EWR   MDW -0.45006591 -1.33352054 -1.4301151
## 971   -1.62197 -1.449639      UA      EWR   IAH  0.48530091 -1.33352054 -1.4301151
## 972   -1.62197 -1.449639      EV      EWR   ORF -1.02974898 -1.33352054 -1.4301151
## 973   -1.62197 -1.449639      9E      JFK   ROC -1.05690041 -1.39367569 -1.4859800
## 974   -1.62197 -1.449639      AA      JFK   LAX  1.94469037 -1.39367569 -1.4859800
## 975   -1.62197 -1.449639      B6      JFK   ORD -0.41069633 -1.39367569 -1.4859800
## 976   -1.62197 -1.449639      B6      JFK   SJU  0.75410009 -1.39367569 -1.4859800
## 977   -1.62197 -1.449639      9E      JFK   IND -0.51251420 -1.39367569 -1.4859800
## 978   -1.62197 -1.449639      UA      EWR   BOS -1.14378499 -1.33352054 -1.4301151
## 979   -1.62197 -1.449639      DL      LGA   ATL -0.38082976 -1.33352054 -1.4859800
## 980   -1.62197 -1.449639      UA      EWR   LAS  1.60801262 -1.39367569 -1.4301151
## 981   -1.62197 -1.449639      DL      JFK   ATL -0.38354490 -1.39367569 -1.4859800
## 984   -1.62197 -1.449639      EV      EWR   GSO -0.81117995 -1.39367569 -1.4301151
## 985   -1.62197 -1.449639      B6      JFK   LAX  1.94469037 -1.45383084 -1.3742503
## 987   -1.62197 -1.449639      DL      LGA   DTW -0.73379837 -1.33352054 -1.4859800
## 988   -1.62197 -1.449639      UA      EWR   SAT  0.71473051 -1.39367569 -1.4301151
## 989   -1.62197 -1.449639      9E      JFK   RDU -0.83561624 -1.45383084 -1.3742503
## 990   -1.62197 -1.449639      EV      EWR   DAY -0.69171365 -1.39367569 -1.4301151
## 991   -1.62197 -1.449639      EV      EWR   DTW -0.75280437 -1.39367569 -1.4301151
## 992   -1.62197 -1.449639      9E      EWR   CVG -0.64284107 -1.39367569 -1.4301151
## 993   -1.62197 -1.449639      AA      LGA   DFW  0.47036763 -1.33352054 -1.4859800
## 994   -1.62197 -1.449639      MQ      LGA   BNA -0.37811462 -1.33352054 -1.4859800
## 995   -1.62197 -1.449639      DL      JFK   AUS  0.64956708 -1.45383084 -1.3742503
## 996   -1.62197 -1.449639      UA      EWR   LAS  1.60801262 -1.39367569 -1.4301151
## 997   -1.62197 -1.449639      EV      EWR   SAV -0.45413862 -1.39367569 -1.4301151
## 998   -1.62197 -1.449639      DL      EWR   ATL -0.40255090 -1.50396013 -1.3742503
```

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## 1000 -1.62197 -1.449639     MQ    LGA   DTW -0.73379837 -1.33352054 -1.4859800
## 1001 -1.62197 -1.449639     DL    JFK   LAX  1.94469037 -1.45383084 -1.3742503
## 1002 -1.62197 -1.449639     UA    LGA   ORD -0.42019933 -1.39367569 -1.4301151
## 1003 -1.62197 -1.449639     AA    JFK   LAS  1.63652162 -1.45383084 -1.3742503
## 1004 -1.62197 -1.449639     DL    LGA   ATL -0.38082976 -1.39367569 -1.4301151
## 1005 -1.62197 -1.449639     AA    EWR   DFW  0.44728891 -1.50396013 -1.3742503
## 1006 -1.62197 -1.449639     US    LGA   CLT -0.67678036 -1.39367569 -1.4301151
## 1007 -1.62197 -1.449639     MQ    JFK   DCA -1.12613656 -1.45383084 -1.3742503
## 1008 -1.62197 -1.449639     EV    EWR   BWI -1.18586971 -1.50396013 -1.3742503
## 1009 -1.62197 -1.449639     UA    EWR   BOS -1.14378499 -1.39367569 -1.4301151
## 1010 -1.62197 -1.449639     UA    LGA   DEN  0.78396666 -1.39367569 -1.4301151
## 1013 -1.62197 -1.449639     AA    EWR   MIA  0.05766586 -1.50396013 -1.3742503
## 1014 -1.62197 -1.449639     VX    JFK   LAX  1.94469037 -1.45383084 -1.3742503
## 1016 -1.62197 -1.449639     MQ    LGA   RDU -0.83018595 -1.39367569 -1.4301151
## 1017 -1.62197 -1.449639     UA    EWR   IAH  0.48530091 -1.50396013 -1.3742503
## 1018 -1.62197 -1.449639     UA    EWR   TPA -0.06180044 -1.50396013 -1.3742503
## 1020 -1.62197 -1.449639     B6    JFK   PHX  1.50755232 -1.45383084 -1.3742503
## 1021 -1.62197 -1.449639     AA    JFK   ORD -0.41069633 -1.45383084 -1.3742503
## 1022 -1.62197 -1.449639     EV    EWR   CVG -0.64284107 -1.50396013 -1.3742503
## 1024 -1.62197 -1.449639     UA    EWR   FLL  0.03051443 -1.50396013 -1.3742503
## 1026 -1.62197 -1.449639     B6    JFK   FLL  0.03594472 -1.45383084 -1.3742503
## 1028 -1.62197 -1.449639     UA    EWR   CLE -0.86684039 -1.45383084 -1.3742503
## 1029 -1.62197 -1.449639     WN    LGA   BWI -1.16414856 -1.39367569 -1.4301151
## 1030 -1.62197 -1.449639     9E    JFK   ORF -1.02160355 -1.45383084 -1.3742503
## 1031 -1.62197 -1.449639     UA    EWR   LAS  1.60801262 -1.45383084 -1.3742503
## 1032 -1.62197 -1.449639     EV    EWR   MSP -0.04686715 -1.45383084 -1.3742503
## 1033 -1.62197 -1.449639     AA    EWR   LAX  1.91618137 -1.45383084 -1.3742503
## 1034 -1.62197 -1.449639     EV    EWR   DTW -0.75280437 -1.45383084 -1.3742503
## 1035 -1.62197 -1.449639     US    EWR   CLT -0.69714394 -1.45383084 -1.3742503
## 1036 -1.62197 -1.449639     B6    JFK   BUR  1.93111466 -1.45383084 -1.3742503
## 1037 -1.62197 -1.449639     UA    EWR   LAX  1.91618137 -1.45383084 -1.3742503
## 1038 -1.62197 -1.449639     AA    JFK   SEA  1.87273908 -1.45383084 -1.3742503
## 1040 -1.62197 -1.449639     9E    JFK   DTW -0.72429537 -1.45383084 -1.3742503
## 1042 -1.62197 -1.449639     AA    LGA   STL -0.20977574 -1.39367569 -1.4301151
## 1044 -1.62197 -1.449639     DL    JFK   MIA  0.06309615 -1.45383084 -1.3742503
## 1046 -1.62197 -1.449639     DL    JFK   TPA -0.05093986 -1.45383084 -1.3742503
## 1047 -1.62197 -1.449639     US    LGA   CLT -0.67678036 -1.39367569 -1.4301151
## 1048 -1.62197 -1.449639     WN    LGA   MKE -0.41341148 -1.33352054 -1.4301151
## 1049 -1.62197 -1.449639     DL    JFK   LAX  1.94469037 -1.39367569 -1.3742503
## 1050 -1.62197 -1.449639     EV    EWR   RIC -1.03925198 -1.45383084 -1.3742503
## 1051 -1.62197 -1.449639     MQ    LGA   RDU -0.83018595 -1.33352054 -1.4301151
## 1053 -1.62197 -1.449639     DL    JFK   LAS  1.63652162 -1.39367569 -1.3742503
## 1054 -1.62197 -1.449639     DL    JFK   FLL  0.03594472 -1.39367569 -1.3742503
## 1055 -1.62197 -1.449639     UA    EWR   ORD -0.43920534 -1.45383084 -1.3742503
## 1056 -1.62197 -1.449639     DL    JFK   PHX  1.50755232 -1.39367569 -1.3742503
## 1057 -1.62197 -1.449639     DL    JFK   SLC  1.28626815 -1.39367569 -1.3742503
## 1058 -1.62197 -1.449639     DL    LGA   TPA -0.04415200 -1.33352054 -1.4301151
## 1059 -1.62197 -1.449639     EV    EWR   CHS -0.56274435 -1.45383084 -1.3742503
## 1061 -1.62197 -1.449639     9E    JFK   IAD -1.10577299 -1.39367569 -1.3742503
## 1063 -1.62197 -1.449639     9E    JFK   BWI -1.16550614 -1.39367569 -1.3742503
## 1065 -1.62197 -1.449639     UA    EWR   SJU  0.76767580 -1.45383084 -1.3742503
## 1068 -1.62197 -1.449639     UA    EWR   TPA -0.06180044 -1.45383084 -1.3742503
## 1069 -1.62197 -1.449639     UA    EWR   CLE -0.86684039 -1.45383084 -1.3742503
## 1071 -1.62197 -1.449639     UA    EWR   RSW  0.03458715 -1.45383084 -1.3742503
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## 1076 -1.62197 -1.449639   AA    JFK   BOS -1.16143342 -1.39367569 -1.3276962
## 1077 -1.62197 -1.449639   VX    JFK   LAX  1.94469037 -1.39367569 -1.3276962
## 1078 -1.62197 -1.449639   MQ    LGA   ATL -0.38082976 -1.33352054 -1.4301151
## 1079 -1.62197 -1.449639   9E    JFK   PHL -1.28768758 -1.39367569 -1.3276962
## 1080 -1.62197 -1.449639   UA    EWR   PBI -0.02650357 -1.45383084 -1.3742503
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## 1091 -1.62197 -1.449639   EV    EWR   MHT -1.13156685 -1.45383084 -1.3742503
## 1092 -1.62197 -1.449639   EV    EWR   RIC -1.03925198 -1.45383084 -1.3276962
## 1093 -1.62197 -1.449639   MQ    LGA   CLT -0.67678036 -1.33352054 -1.3742503
## 1096 -1.62197 -1.449639   B6    EWR   MCO -0.14325473 -1.45383084 -1.3276962
## 1097 -1.62197 -1.449639   B6    JFK   LAS  1.63652162 -1.39367569 -1.2718314
## 1098 -1.62197 -1.449639   UA    EWR   BOS -1.14378499 -1.45383084 -1.3276962
## 1099 -1.62197 -1.449639   EV    EWR   PVD -1.19808785 -1.45383084 -1.3276962
## 1100 -1.62197 -1.449639   AA    JFK   LAX  1.94469037 -1.39367569 -1.2718314
## 1101 -1.62197 -1.449639   B6    EWR   FLL  0.03051443 -1.45383084 -1.3276962
## 1103 -1.62197 -1.449639   EV    EWR   BTV -1.05418527 -1.45383084 -1.3276962
## 1104 -1.62197 -1.449639   EV    EWR   PWM -1.02974898 -1.45383084 -1.3276962
## 1106 -1.62197 -1.449639   B6    JFK   PWM -1.04468226 -1.39367569 -1.2718314
## 1107 -1.62197 -1.449639   B6    JFK   ROC -1.05690041 -1.39367569 -1.2718314
## 1108 -1.62197 -1.449639   B6    JFK   BUF -1.00667026 -1.39367569 -1.2718314
## 1109 -1.62197 -1.449639   EV    EWR   DCA -1.14514256 -1.72452900 -1.3276962
## 1110 -1.62197 -1.449639   AA    LGA   DFW  0.47036763 -1.72452900 -1.3742503
## 1111 -1.62197 -1.449639   AA    LGA   DFW  0.47036763 -1.72452900 -1.3742503
## 1112 -1.62197 -1.449639   MQ    LGA   MSP -0.03057629 -1.72452900 -1.3742503
## 1113 -1.62197 -1.449639   UA    EWR   MIA  0.05766586 -1.67439971 -1.2718314
## 1114 -1.62197 -1.335752   B6    JFK   PBI -0.01971572 -1.33352054 -1.0669935
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## 1119 -1.62197 -1.335752   MQ    LGA   DTW -0.73379837 -1.22323611 -1.1228584
## 1120 -1.62197 -1.335752   FL    LGA   ATL -0.38082976 -1.22323611 -1.1228584
## 1121 -1.62197 -1.335752   WN    LGA   MDW -0.43105991 -1.22323611 -1.1228584
## 1122 -1.62197 -1.335752   EV    LGA   IAD -1.10441541 -1.22323611 -1.1228584
## 1123 -1.62197 -1.335752   UA    EWR   CLE -0.86684039 -1.33352054 -1.0669935
## 1124 -1.62197 -1.335752   AA    EWR   MIA  0.05766586 -1.33352054 -1.0669935
## 1125 -1.62197 -1.335752   B6    JFK   RSW  0.04273258 -1.33352054 -1.0669935
## 1126 -1.62197 -1.335752   AA    LGA   ORD -0.42019933 -1.22323611 -1.1228584
## 1127 -1.62197 -1.335752   DL    LGA   MSP -0.03057629 -1.22323611 -1.1228584
## 1128 -1.62197 -1.335752   UA    JFK   LAX  1.94469037 -1.33352054 -1.0669935
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## 1130 -1.62197 -1.335752   MQ    LGA   RDU -0.83018595 -1.22323611 -1.1228584
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## 1132 -1.62197 -1.335752   US    JFK   CLT -0.68085308 -1.33352054 -1.0669935
## 1133 -1.62197 -1.335752   9E    JFK   ATL -0.38354490 -1.33352054 -1.0669935
## 1134 -1.62197 -1.335752   US    EWR   CLT -0.69714394 -1.33352054 -1.0669935
## 1135 -1.62197 -1.335752   EV    EWR   CVG -0.64284107 -1.33352054 -1.0669935
## 1136 -1.62197 -1.335752   US    EWR   PHX  1.48040089 -1.33352054 -1.0669935
## 1137 -1.62197 -1.335752   MQ    LGA   MSP -0.03057629 -1.22323611 -1.1228584
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## 1139 -1.62197 -1.335752   UA    EWR   PHX  1.48040089 -1.33352054 -1.0669935
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## 1147 -1.62197 -1.335752    DL   LGA  FLL  0.04544772 -1.22323611 -1.1694124
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## 1150 -1.62197 -1.335752    B6   JFK  LAS  1.63652162 -1.33352054 -1.0669935
## 1151 -1.62197 -1.335752    DL   LGA  MIA  0.07259915 -1.22323611 -1.1694124
## 1152 -1.62197 -1.335752    VX   JFK  LAX  1.94469037 -1.28339125 -1.0204395
## 1153 -1.62197 -1.335752    WN   EWR  HOU  0.50023420 -1.28339125 -1.0204395
## 1154 -1.62197 -1.335752    MQ   LGA  XNA  0.14183530 -1.22323611 -1.1694124
## 1155 -1.62197 -1.335752    UA   EWR  LAS  1.60801262 -1.33352054 -1.0669935
## 1156 -1.62197 -1.335752    UA   EWR  ORD -0.43920534 -1.28339125 -1.0204395
## 1157 -1.62197 -1.335752    AA   LGA  MIA  0.07259915 -1.22323611 -1.1694124
## 1158 -1.62197 -1.335752    UA   EWR  SNA  1.88902994 -1.28339125 -1.0204395
## 1159 -1.62197 -1.335752    UA   JFK  SFO  2.09538082 -1.28339125 -1.0204395
## 1160 -1.62197 -1.335752    AA   JFK  MIA  0.06309615 -1.28339125 -1.0204395
## 1161 -1.62197 -1.335752    AA   JFK  FLL  0.03594472 -1.28339125 -1.0204395
## 1162 -1.62197 -1.335752    DL   LGA  DTW -0.73379837 -1.22323611 -1.1694124
## 1163 -1.62197 -1.335752    DL   JFK  LAX  1.94469037 -1.28339125 -1.0204395
## 1164 -1.62197 -1.335752    FL   LGA  MKE -0.41341148 -1.22323611 -1.1694124
## 1165 -1.62197 -1.335752    DL   JFK  SFO  2.09538082 -1.28339125 -1.0204395
## 1166 -1.62197 -1.335752    B6   JFK  LAX  1.94469037 -1.28339125 -1.0204395
## 1167 -1.62197 -1.335752    VX   JFK  SFO  2.09538082 -1.28339125 -1.0204395
## 1168 -1.62197 -1.335752    DL   JFK  SEA  1.87273908 -1.28339125 -1.0204395
## 1170 -1.62197 -1.335752    B6   LGA  RSW  0.05087801 -1.22323611 -1.1694124
## 1171 -1.62197 -1.335752    B6   JFK  SRQ -0.00206729 -1.28339125 -1.0204395
## 1172 -1.62197 -1.335752    9E   EWR  CVG -0.64284107 -1.28339125 -1.0204395
## 1173 -1.62197 -1.335752    UA   EWR  SJU  0.76767580 -1.28339125 -1.0204395
## 1174 -1.62197 -1.335752    EV   EWR  PWM -1.02974898 -1.28339125 -1.0204395
## 1175 -1.62197 -1.335752    AA   LGA  MIA  0.07259915 -1.22323611 -1.1694124
## 1176 -1.62197 -1.335752    WN   LGA  DEN  0.78396666 -1.22323611 -1.1694124
## 1177 -1.62197 -1.335752    DL   JFK  MIA  0.06309615 -1.22323611 -1.0669935
## 1178 -1.62197 -1.335752    UA   EWR  DFW  0.44728891 -1.28339125 -1.0204395
## 1179 -1.62197 -1.335752    EV   EWR  MSP -0.04686715 -1.22323611 -1.0204395
## 1180 -1.62197 -1.335752    UA   JFK  SFO  2.09538082 -1.28339125 -1.0204395
## 1181 -1.62197 -1.335752    EV   EWR  MHT -1.13156685 -1.28339125 -1.0204395
## 1182 -1.62197 -1.335752    MQ   JFK  RDU -0.83561624 -1.22323611 -1.0669935
## 1183 -1.62197 -1.335752    B6   JFK  FLL  0.03594472 -1.22323611 -1.0669935
## 1184 -1.62197 -1.335752    DL   JFK  LAS  1.63652162 -1.22323611 -1.0669935
## 1185 -1.62197 -1.335752    DL   JFK  MCO -0.13375173 -1.22323611 -1.0669935
## 1186 -1.62197 -1.335752    MQ   LGA  CMH -0.76502252 -1.22323611 -1.1228584
## 1187 -1.62197 -1.335752    FL   LGA  ATL -0.38082976 -1.22323611 -1.1228584
## 1188 -1.62197 -1.335752    EV   EWR  OMA  0.12418687 -1.22323611 -1.0204395
## 1189 -1.62197 -1.335752    AA   JFK  STT  0.78803938 -1.22323611 -1.0669935
## 1190 -1.62197 -1.335752    EV   EWR  DAY -0.69171365 -1.22323611 -1.0204395
## 1191 -1.62197 -1.335752    DL   LGA  DEN  0.78396666 -1.22323611 -1.1228584
## 1192 -1.62197 -1.335752    EV   EWR  MYR -0.66863493 -1.22323611 -1.0204395
## 1193 -1.62197 -1.335752    DL   LGA  PBI -0.01021271 -1.22323611 -1.1228584
## 1194 -1.62197 -1.335752    MQ   JFK  DCA -1.12613656 -1.22323611 -1.0669935
## 1195 -1.62197 -1.335752    EV   EWR  GRR -0.59396850 -1.22323611 -1.0204395
## 1196 -1.62197 -1.335752    US   JFK  CLT -0.68085308 -1.22323611 -1.0669935
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## 1202 -1.62197 -1.335752     UA     JFK   LAX  1.94469037 -1.22323611 -1.0669935
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## 1215 -1.62197 -1.335752     AA     JFK   MIA  0.06309615 -1.17310682 -1.0669935
## 1216 -1.62197 -1.335752     DL     JFK   LAX  1.94469037 -1.17310682 -1.0669935
## 1217 -1.62197 -1.335752     DL     LGA   DTW -0.73379837 -1.22323611 -1.0669935
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## 1219 -1.62197 -1.335752     DL     LGA   FLL  0.04544772 -1.22323611 -1.0669935
## 1220 -1.62197 -1.335752     UA     EWR   LAS  1.60801262 -1.17310682 -1.0669935
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## 1242 -1.62197 -1.335752     UA     EWR   FLL  0.03051443 -1.11295167 -1.1694124
## 1243 -1.62197 -1.335752     US     EWR   PHX  1.48040089 -1.11295167 -1.1694124
## 1244 -1.62197 -1.335752     US     JFK   PHX  1.50755232 -1.17310682 -1.0669935
## 1245 -1.62197 -1.335752     B6     JFK   LAX  1.94469037 -1.17310682 -1.0669935
## 1246 -1.62197 -1.335752     DL     LGA   MSP -0.03057629 -1.17310682 -1.1694124
## 1247 -1.62197 -1.335752     MQ     EWR   ORD -0.43920534 -1.11295167 -1.1694124
## 1248 -1.62197 -1.335752     US     EWR   CLT -0.69714394 -1.11295167 -1.1694124
## 1249 -1.62197 -1.335752     DL     LGA   SRQ  0.00607814 -1.17310682 -1.1694124
## 1250 -1.62197 -1.335752     B6     JFK   PWM -1.04468226 -1.17310682 -1.0669935
## 1251 -1.62197 -1.335752     9E     EWR   DTW -0.75280437 -1.11295167 -1.1694124
```

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## 1252 -1.62197 -1.335752       MQ      LGA   RDU -0.83018595 -1.17310682 -1.1694124
## 1253 -1.62197 -1.335752       VX      JFK   SFO  2.09538082 -1.17310682 -1.1228584
## 1254 -1.62197 -1.335752       EV      EWR   IAD -1.12749413 -1.11295167 -1.1694124
## 1255 -1.62197 -1.335752       AA      JFK   SFO  2.09538082 -1.17310682 -1.1228584
## 1257 -1.62197 -1.335752       EV      EWR   CHS -0.56274435 -1.11295167 -1.1694124
## 1258 -1.62197 -1.335752       B6      EWR   PBI -0.02650357 -1.11295167 -1.1694124
## 1259 -1.62197 -1.335752       EV      EWR   BUF -1.03246412 -1.11295167 -1.1694124
## 1260 -1.62197 -1.335752       EV      EWR   MKE -0.43105991 -1.11295167 -1.1694124
## 1261 -1.62197 -1.335752       DL      LGA   MEM -0.10795787 -1.17310682 -1.1694124
## 1263 -1.62197 -1.335752       B6      LGA   FLL  0.04544772 -1.17310682 -1.1694124
## 1264 -1.62197 -1.335752       EV      EWR   RDU -0.85054953 -1.11295167 -1.1694124
## 1265 -1.62197 -1.335752       DL      LGA   MIA  0.07259915 -1.17310682 -1.2252773
## 1266 -1.62197 -1.335752       UA      JFK   SFO  2.09538082 -1.17310682 -1.1228584
## 1268 -1.62197 -1.335752       DL      LGA   ATL -0.38082976 -1.17310682 -1.2252773
## 1269 -1.62197 -1.335752       MQ      LGA   DTW -0.73379837 -1.17310682 -1.1694124
## 1270 -1.62197 -1.335752       MQ      LGA   CMH -0.76502252 -1.17310682 -1.2252773
## 1272 -1.62197 -1.335752       UA      JFK   LAX  1.94469037 -1.17310682 -1.1228584
## 1273 -1.62197 -1.335752       DL      JFK   SJU  0.75410009 -1.17310682 -1.1228584
## 1274 -1.62197 -1.335752       DL      JFK   MCO -0.13375173 -1.17310682 -1.1228584
## 1275 -1.62197 -1.335752       DL      LGA   MSP -0.03057629 -1.17310682 -1.2252773
## 1276 -1.62197 -1.335752       VX      JFK   LAX  1.94469037 -1.17310682 -1.1228584
## 1277 -1.62197 -1.335752       UA      EWR   MCO -0.14325473 -1.11295167 -1.1694124
## 1278 -1.62197 -1.335752       UA      EWR   SJU  0.76767580 -1.11295167 -1.1694124
## 1279 -1.62197 -1.335752       DL      LGA   FLL  0.04544772 -1.17310682 -1.2252773
## 1280 -1.62197 -1.335752       DL      LGA   TPA -0.04415200 -1.17310682 -1.2252773
## 1281 -1.62197 -1.335752       DL      EWR   ATL -0.40255090 -1.11295167 -1.1694124
## 1282 -1.62197 -1.335752       MQ      JFK   DCA -1.12613656 -1.11295167 -1.1228584
## 1284 -1.62197 -1.335752       DL      JFK   LAX  1.94469037 -1.11295167 -1.1228584
## 1285 -1.62197 -1.335752       AA      JFK   LAX  1.94469037 -1.11295167 -1.1228584
## 1286 -1.62197 -1.335752       AA      LGA   DFW  0.47036763 -1.11295167 -1.1694124
## 1287 -1.62197 -1.335752       B6      JFK   HOU  0.52331292 -1.17310682 -1.1228584
## 1288 -1.62197 -1.335752       VX      JFK   SFO  2.09538082 -1.11295167 -1.1228584
## 1290 -1.62197 -1.335752       AA      LGA   STL -0.20977574 -1.11295167 -1.1694124
## 1291 -1.62197 -1.335752       UA      EWR   PHX  1.48040089 -0.95253794 -1.1228584
## 1292 -1.62197 -1.335752       EV      EWR   PWM -1.02974898 -0.95253794 -1.1228584
## 1293 -1.62197 -1.335752       DL      JFK   SLC  1.28626815 -1.11295167 -1.1228584
## 1294 -1.62197 -1.335752       WN      EWR   MDW -0.45006591 -0.95253794 -1.1228584
## 1295 -1.62197 -1.335752       WN      EWR   BWI -1.18586971 -0.95253794 -1.1228584
## 1296 -1.62197 -1.335752       EV      EWR   ATL -0.40255090 -1.06282238 -1.1694124
## 1297 -1.62197 -1.335752       B6      JFK   PBI -0.01971572 -1.11295167 -1.1228584
## 1298 -1.62197 -1.335752       AA      LGA   ORD -0.42019933 -1.06282238 -1.2252773
## 1299 -1.62197 -1.335752       B6      JFK   BOS -1.16143342 -1.11295167 -1.1228584
## 1300 -1.62197 -1.335752       UA      EWR   DFW  0.44728891 -0.95253794 -1.1228584
## 1303 -1.62197 -1.335752       UA      EWR   MSY  0.16898673 -1.06282238 -1.1694124
## 1304 -1.62197 -1.335752       EV      EWR   DCA -1.14514256 -1.06282238 -1.1694124
## 1305 -1.62197 -1.335752       MQ      LGA   DTW -0.73379837 -1.06282238 -1.2252773
## 1306 -1.62197 -1.335752       B6      EWR   FLL  0.03051443 -1.06282238 -1.1694124
## 1308 -1.62197 -1.335752       UA      EWR   LAX  1.91618137 -1.06282238 -1.1694124
## 1309 -1.62197 -1.335752       MQ      LGA   RDU -0.83018595 -1.06282238 -1.2252773
## 1310 -1.62197 -1.335752       DL      JFK   ATL -0.38354490 -1.06282238 -1.1694124
## 1311 -1.62197 -1.335752       VX      JFK   LAX  1.94469037 -1.06282238 -1.1694124
## 1312 -1.62197 -1.335752       WN      EWR   PHX  1.48040089 -1.06282238 -1.1694124
## 1313 -1.62197 -1.335752       B6      LGA   MCO -0.12560630 -1.06282238 -1.2252773
## 1314 -1.62197 -1.335752       AA      JFK   LAX  1.94469037 -1.06282238 -1.1694124
```

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## 1315 -1.62197 -1.335752    B6    EWR   MCO -0.14325473 -1.06282238 -1.1694124
## 1317 -1.62197 -1.335752    AA    LGA   MIA  0.07259915 -1.06282238 -1.2252773
## 1318 -1.62197 -1.335752    B6    JFK   JAX -0.29123003 -1.06282238 -1.1694124
## 1319 -1.62197 -1.335752    MQ    LGA   CLE -0.84647681 -1.06282238 -1.1694124
## 1320 -1.62197 -1.335752    FL    LGA   ATL -0.38082976 -1.06282238 -1.1694124
## 1322 -1.62197 -1.335752    B6    JFK   SEA  1.87273908 -1.06282238 -1.1694124
## 1323 -1.62197 -1.335752    EV    EWR   MSP -0.04686715 -1.06282238 -1.1228584
## 1325 -1.62197 -1.335752    DL    LGA   MSP -0.03057629 -1.06282238 -1.1694124
## 1327 -1.62197 -1.335752    DL    LGA   PBI -0.01021271 -1.06282238 -1.1694124
## 1328 -1.62197 -1.335752    UA    EWR   AUS  0.62648836 -1.06282238 -1.1228584
## 1329 -1.62197 -1.335752    US    LGA   CLT -0.67678036 -1.06282238 -1.1694124
## 1330 -1.62197 -1.335752    9E    JFK   ORF -1.02160355 -1.06282238 -1.1228584
## 1331 -1.62197 -1.335752    EV    EWR   MCI  0.06716887 -1.06282238 -1.1228584
## 1332 -1.62197 -1.335752    MQ    JFK   RDU -0.83561624 -1.06282238 -1.1228584
## 1333 -1.62197 -1.335752    UA    LGA   IAH  0.50702206 -1.06282238 -1.1694124
## 1334 -1.62197 -1.335752    B6    JFK   FLL  0.03594472 -1.06282238 -1.1228584
## 1335 -1.62197 -1.335752    B6    JFK   PIT -0.95372497 -1.06282238 -1.1228584
## 1336 -1.62197 -1.335752    US    LGA   DCA -1.12477899 -1.06282238 -1.1694124
## 1338 -1.62197 -1.335752    DL    LGA   ATL -0.38082976 -1.06282238 -1.1694124
## 1340 -1.62197 -1.335752    9E    JFK   DCA -1.12613656 -1.11295167 -1.1228584
## 1341 -1.62197 -1.335752    DL    JFK   LAX  1.94469037 -1.11295167 -1.1228584
## 1342 -1.62197 -1.335752    US    EWR   CLT -0.69714394 -1.06282238 -1.1228584
## 1343 -1.62197 -1.335752    EV    EWR   PWM -1.02974898 -1.06282238 -1.1228584
## 1344 -1.62197 -1.335752    AA    LGA   DFW  0.47036763 -1.06282238 -1.1694124
## 1346 -1.62197 -1.335752    EV    EWR   CLT -0.69714394 -1.06282238 -1.1228584
## 1347 -1.62197 -1.335752    9E    JFK   BUF -1.00667026 -1.06282238 -1.1228584
## 1348 -1.62197 -1.335752    EV    EWR   RDU -0.85054953 -1.06282238 -1.1228584
## 1349 -1.62197 -1.335752    MQ    LGA   RDU -0.83018595 -1.06282238 -1.1694124
## 1350 -1.62197 -1.335752    DL    LGA   MIA  0.07259915 -1.06282238 -1.1694124
## 1351 -1.62197 -1.335752    9E    JFK   IAD -1.10577299 -1.11295167 -1.1228584
## 1352 -1.62197 -1.335752    UA    EWR   IAH  0.48530091 -1.06282238 -1.1228584
## 1353 -1.62197 -1.335752    UA    EWR   LAX  1.91618137 -1.06282238 -1.1228584
## 1354 -1.62197 -1.335752    WN    EWR   MDW -0.45006591 -1.06282238 -1.1228584
## 1356 -1.62197 -1.335752    B6    JFK   MCO -0.13375173 -1.11295167 -1.1228584
## 1357 -1.62197 -1.335752    UA    EWR   FLL  0.03051443 -1.06282238 -1.1228584
## 1358 -1.62197 -1.335752    DL    EWR   ATL -0.40255090 -1.06282238 -1.1228584
## 1359 -1.62197 -1.335752    UA    JFK   LAX  1.94469037 -1.11295167 -1.1228584
## 1360 -1.62197 -1.335752    DL    LGA   TPA -0.04415200 -1.06282238 -1.1694124
## 1361 -1.62197 -1.335752    UA    EWR   ORD -0.43920534 -1.06282238 -1.1228584
## 1362 -1.62197 -1.335752    DL    JFK   DTW -0.72429537 -1.11295167 -1.1228584
## 1364 -1.62197 -1.335752    DL    JFK   MCO -0.13375173 -1.17310682 -1.1228584
## 1366 -1.62197 -1.335752    B6    JFK   SYR -1.13156685 -1.11295167 -1.1228584
## 1367 -1.62197 -1.335752    DL    LGA   ATL -0.38082976 -1.11295167 -1.1694124
## 1368 -1.62197 -1.335752    EV    LGA   PIT -0.96051283 -1.11295167 -1.1694124
## 1369 -1.62197 -1.335752    UA    EWR   LAS  1.60801262 -1.11295167 -1.1228584
## 1370 -1.62197 -1.335752    DL    LGA   MSP -0.03057629 -1.11295167 -1.1694124
## 1371 -1.62197 -1.335752    EV    EWR   DAY -0.69171365 -1.11295167 -1.1228584
## 1372 -1.62197 -1.335752    EV    EWR   ALB -1.22116657 -1.11295167 -1.1228584
## 1374 -1.62197 -1.335752    MQ    LGA   ATL -0.38082976 -1.11295167 -1.1694124
## 1375 -1.62197 -1.335752    US    JFK   PHX  1.50755232 -1.17310682 -1.1228584
## 1376 -1.62197 -1.335752    AA    JFK   DFW  0.47308277 -1.17310682 -1.1228584
## 1377 -1.62197 -1.335752    B6    JFK   LAX  1.94469037 -1.17310682 -1.1228584
## 1378 -1.62197 -1.335752    UA    EWR   IAH  0.48530091 -1.11295167 -1.1228584
## 1379 -1.62197 -1.335752    DL    LGA   MEM -0.10795787 -1.11295167 -1.1694124
```

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## 1380 -1.62197 -1.335752    EV    EWR DTW -0.75280437 -1.11295167 -1.1228584
## 1381 -1.62197 -1.335752    AA    JFK LAX  1.94469037 -1.17310682 -1.1228584
## 1382 -1.62197 -1.335752    AA    JFK BOS -1.16143342 -1.17310682 -1.1228584
## 1383 -1.62197 -1.335752    B6    JFK SAN  1.90532080 -1.17310682 -1.1228584
## 1385 -1.62197 -1.335752    B6    EWR BOS -1.14378499 -1.11295167 -1.1228584
## 1387 -1.62197 -1.335752    DL    JFK SJU  0.75410009 -1.17310682 -1.1228584
## 1388 -1.62197 -1.335752    AA    JFK LAS  1.63652162 -1.17310682 -1.1228584
## 1389 -1.62197 -1.335752    DL    JFK LAX  1.94469037 -1.17310682 -1.1228584
## 1390 -1.62197 -1.335752    DL    JFK SFO  2.09538082 -1.17310682 -1.1228584
## 1391 -1.62197 -1.335752    WN    EWR HOU  0.50023420 -1.17310682 -1.0669935
## 1392 -1.62197 -1.335752    DL    EWR ATL -0.40255090 -1.17310682 -1.0669935
## 1393 -1.62197 -1.335752    B6    JFK RSW  0.04273258 -1.17310682 -1.1228584
## 1394 -1.62197 -1.335752    UA    EWR LAX  1.91618137 -1.17310682 -1.0669935
## 1395 -1.62197 -1.335752    DL    LGA MCO -0.12560630 -1.11295167 -1.1228584
## 1396 -1.62197 -1.335752    VX    JFK LAX  1.94469037 -1.17310682 -1.1228584
## 1397 -1.62197 -1.335752    MQ    LGA RDU -0.83018595 -1.11295167 -1.1228584
## 1398 -1.62197 -1.335752    AA    JFK ORD -0.41069633 -1.17310682 -1.1228584
## 1399 -1.62197 -1.335752    FL    LGA ATL -0.38082976 -1.11295167 -1.1228584
## 1400 -1.62197 -1.335752    UA    EWR MCO -0.14325473 -1.17310682 -1.0669935
## 1402 -1.62197 -1.335752    B6    JFK TPA -0.05093986 -1.17310682 -1.1228584
## 1403 -1.62197 -1.335752    AA    JFK MIA  0.06309615 -1.17310682 -1.1228584
## 1404 -1.62197 -1.335752    AA    LGA DFW  0.47036763 -1.11295167 -1.1228584
## 1405 -1.62197 -1.335752    AA    EWR MIA  0.05766586 -1.17310682 -1.0669935
## 1406 -1.62197 -1.335752    B6    LGA MCO -0.12560630 -1.11295167 -1.1228584
## 1407 -1.62197 -1.335752    DL    JFK PDX  1.91618137 -1.17310682 -1.1228584
## 1408 -1.62197 -1.335752    UA    EWR SEA  1.84558765 -1.17310682 -1.0669935
## 1409 -1.62197 -1.335752    UA    EWR PDX  1.88902994 -1.17310682 -1.0669935
## 1410 -1.62197 -1.335752    UA    JFK LAX  1.94469037 -1.17310682 -1.1228584
## 1411 -1.62197 -1.335752    US    JFK CLT -0.68085308 -1.17310682 -1.0669935
## 1412 -1.62197 -1.335752    B6    EWR PBI -0.02650357 -1.17310682 -1.0669935
## 1413 -1.62197 -1.335752    UA    EWR CLE -0.86684039 -1.22323611 -1.0669935
## 1414 -1.62197 -1.335752    9E    JFK ORF -1.02160355 -1.17310682 -1.0669935
## 1415 -1.62197 -1.335752    B6    EWR MCO -0.14325473 -1.17310682 -1.0669935
## 1416 -1.62197 -1.335752    AA    LGA MIA  0.07259915 -1.11295167 -1.1228584
## 1419 -1.62197 -1.335752    AA    LGA ORD -0.42019933 -1.11295167 -1.1228584
## 1420 -1.62197 -1.335752    UA    EWR LAS  1.60801262 -1.22323611 -1.0669935
## 1421 -1.62197 -1.335752    US    EWR CLT -0.69714394 -1.22323611 -1.0669935
## 1422 -1.62197 -1.335752    B6    JFK RDU -0.83561624 -1.17310682 -1.0669935
## 1423 -1.62197 -1.335752    UA    EWR SNA  1.88902994 -1.22323611 -1.0669935
## 1425 -1.62197 -1.335752    DL    JFK SEA  1.87273908 -1.17310682 -1.0669935
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## 1427 -1.62197 -1.335752    DL    JFK MIA  0.06309615 -1.17310682 -1.0669935
## 1428 -1.62197 -1.335752    EV    EWR PWM -1.02974898 -1.22323611 -1.0669935
## 1429 -1.62197 -1.335752    B6    JFK BUR  1.93111466 -1.17310682 -1.0669935
## 1430 -1.62197 -1.335752    US    LGA CLT -0.67678036 -1.11295167 -1.1228584
## 1431 -1.62197 -1.335752    MQ    LGA MSP -0.03057629 -1.11295167 -1.1228584
## 1432 -1.62197 -1.335752    DL    LGA ATL -0.38082976 -1.11295167 -1.1694124
## 1433 -1.62197 -1.335752    DL    JFK LAX  1.94469037 -1.17310682 -1.0669935
## 1434 -1.62197 -1.335752    UA    LGA IAH  0.50702206 -1.11295167 -1.1228584
## 1435 -1.62197 -1.335752    UA    EWR SFO  2.06687181 -1.22323611 -1.0669935
## 1436 -1.62197 -1.335752    WN    LGA MKE -0.41341148 -1.11295167 -1.1694124
## 1438 -1.62197 -1.335752    EV    EWR DSM -0.03464900 -1.22323611 -1.0669935
## 1439 -1.62197 -1.335752    9E    JFK MSY  0.18935031 -1.17310682 -1.0669935
## 1440 -1.62197 -1.335752    DL    JFK PHX  1.50755232 -1.17310682 -1.0669935
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## 1444 -1.62197 -1.335752     DL     LGA   MIA  0.07259915 -1.11295167 -1.1694124
## 1445 -1.62197 -1.335752     DL     LGA   PBI -0.01021271 -1.11295167 -1.1694124
## 1446 -1.62197 -1.335752     DL     JFK   SLC  1.28626815 -1.17310682 -1.0669935
## 1447 -1.62197 -1.335752     9E     JFK   CLT -0.68085308 -1.17310682 -1.0669935
## 1448 -1.62197 -1.335752     9E     JFK   IAD -1.10577299 -1.17310682 -1.0669935
## 1449 -1.62197 -1.335752     DL     JFK   FLL  0.03594472 -1.17310682 -1.0669935
## 1450 -1.62197 -1.335752     EV     LGA   CLE -0.84647681 -1.11295167 -1.1694124
## 1451 -1.62197 -1.335752     EV     EWR   CHS -0.56274435 -1.22323611 -1.0669935
## 1452 -1.62197 -1.335752     EV     EWR   OKC  0.38348305 -1.22323611 -1.0669935
## 1455 -1.62197 -1.335752     MQ     JFK   CMH -0.75959223 -1.17310682 -1.0669935
## 1457 -1.62197 -1.335752     B6     JFK   SFO  2.09538082 -1.17310682 -1.0669935
## 1460 -1.62197 -1.335752     9E     JFK   JAX -0.29123003 -1.17310682 -1.0669935
## 1461 -1.62197 -1.335752     WN     EWR   MDW -0.45006591 -1.22323611 -1.0669935
## 1462 -1.62197 -1.335752     MQ     JFK   RDU -0.83561624 -1.17310682 -1.0669935
## 1463 -1.62197 -1.335752     DL     JFK   BOS -1.16143342 -1.17310682 -1.1228584
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## 1466 -1.62197 -1.335752     VX     JFK   LAX  1.94469037 -1.17310682 -1.1228584
## 1467 -1.62197 -1.335752     UA     EWR   CLE -0.86684039 -1.22323611 -1.1228584
## 1468 -1.62197 -1.335752     B6     JFK   MSY  0.18935031 -1.17310682 -1.1228584
## 1469 -1.62197 -1.335752     UA     EWR   PBI -0.02650357 -1.22323611 -1.1228584
## 1472 -1.62197 -1.335752     AA     LGA   ORD -0.42019933 -1.17310682 -1.1694124
## 1473 -1.62197 -1.335752     9E     JFK   DCA -1.12613656 -1.17310682 -1.1228584
## 1474 -1.62197 -1.335752     B6     JFK   PDX  1.91618137 -1.17310682 -1.1228584
## 1475 -1.62197 -1.335752     B6     JFK   LAX  1.94469037 -1.17310682 -1.1228584
## 1476 -1.62197 -1.335752     B6     JFK   JAX -0.29123003 -1.17310682 -1.1228584
## 1477 -1.62197 -1.335752     MQ     LGA   CLT -0.67678036 -1.17310682 -1.1694124
## 1478 -1.62197 -1.335752     MQ     LGA   RDU -0.83018595 -1.17310682 -1.1694124
## 1480 -1.62197 -1.335752     B6     LGA   FLL  0.04544772 -1.17310682 -1.1694124
## 1481 -1.62197 -1.335752     UA     EWR   BOS -1.14378499 -1.22323611 -1.1228584
## 1482 -1.62197 -1.335752     MQ     LGA   DTW -0.73379837 -1.17310682 -1.1694124
## 1483 -1.62197 -1.335752     MQ     JFK   DCA -1.12613656 -1.22323611 -1.1228584
## 1484 -1.62197 -1.335752     UA     EWR   IAH  0.48530091 -1.22323611 -1.1228584
## 1486 -1.62197 -1.335752     B6     JFK   SJU  0.75410009 -1.22323611 -1.1228584
## 1487 -1.62197 -1.335752     B6     JFK   TPA -0.05093986 -1.22323611 -1.1228584
## 1488 -1.62197 -1.335752     B6     JFK   RDU -0.83561624 -1.22323611 -1.1228584
## 1489 -1.62197 -1.335752     B6     JFK   FLL  0.03594472 -1.22323611 -1.1228584
## 1490 -1.62197 -1.335752     EV     EWR   BTV -1.05418527 -1.22323611 -1.1228584
## 1493 -1.62197 -1.335752     B6     JFK   SYR -1.13156685 -1.28339125 -1.1228584
## 1494 -1.62197 -1.335752     B6     JFK   BUF -1.00667026 -1.28339125 -1.1228584
## 1495 -1.62197 -1.335752     B6     JFK   BOS -1.16143342 -1.28339125 -1.1228584
## 1497 -1.62197 -1.335752     AA     LGA   DFW  0.47036763 -1.11295167 -1.1694124
## 1498 -1.62197 -1.221865     US     EWR   CLT -0.69714394 -1.39367569 -1.2718314
## 1499 -1.62197 -1.221865     AA     JFK   MIA  0.06309615 -1.33352054 -1.2252773
## 1500 -1.62197 -1.221865     B6     JFK   PBI -0.01971572 -1.33352054 -1.2252773
## 1501 -1.62197 -1.221865     UA     EWR   FLL  0.03051443 -1.33352054 -1.2252773
## 1502 -1.62197 -1.221865     B6     EWR   PBI -0.02650357 -1.33352054 -1.2252773
## 1503 -1.62197 -1.221865     B6     JFK   TPA -0.05093986 -1.33352054 -1.2252773
## 1504 -1.62197 -1.221865     UA     EWR   PBI -0.02650357 -1.33352054 -1.2252773
## 1505 -1.62197 -1.221865     B6     JFK   BQN  0.72423351 -1.33352054 -1.2252773
## 1506 -1.62197 -1.221865     B6     JFK   RSW  0.04273258 -1.33352054 -1.2252773
## 1507 -1.62197 -1.221865     AA     EWR   MIA  0.05766586 -1.33352054 -1.2252773
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## 1509 -1.62197 -1.221865    DL   JFK  ATL -0.38354490 -1.33352054 -1.2252773
## 1510 -1.62197 -1.221865    DL   EWR  ATL -0.40255090 -1.33352054 -1.2252773
## 1511 -1.62197 -1.221865    B6   JFK  BOS -1.16143342 -1.33352054 -1.2252773
## 1512 -1.62197 -1.221865    B6   JFK  SJU  0.75410009 -1.33352054 -1.2252773
## 1513 -1.62197 -1.221865    AA   JFK  MCO -0.13375173 -1.33352054 -1.2252773
## 1514 -1.62197 -1.221865    UA   LGA  DEN  0.78396666 -1.28339125 -1.2718314
## 1515 -1.62197 -1.221865    DL   JFK  SLC  1.28626815 -1.33352054 -1.2252773
## 1516 -1.62197 -1.221865    DL   JFK  SFO  2.09538082 -1.33352054 -1.1694124
## 1517 -1.62197 -1.221865    DL   LGA  MCO -0.12560630 -1.28339125 -1.2252773
## 1518 -1.62197 -1.221865    WN   EWR  HOU  0.50023420 -1.39367569 -1.1694124
## 1519 -1.62197 -1.221865    MQ   EWR  ORD -0.43920534 -1.39367569 -1.1694124
## 1520 -1.62197 -1.221865    UA   EWR  LAS  1.60801262 -1.39367569 -1.1694124
## 1521 -1.62197 -1.221865    UA   EWR  LAX  1.91618137 -1.39367569 -1.1694124
## 1522 -1.62197 -1.221865    DL   LGA  DTW -0.73379837 -1.28339125 -1.2252773
## 1523 -1.62197 -1.221865    UA   EWR  STT  0.80297267 -1.39367569 -1.1694124
## 1524 -1.62197 -1.221865    FL   LGA  MKE -0.41341148 -1.28339125 -1.2252773
## 1525 -1.62197 -1.221865    UA   EWR  MCO -0.14325473 -1.39367569 -1.1694124
## 1526 -1.62197 -1.221865    DL   EWR  ATL -0.40255090 -1.39367569 -1.1694124
## 1527 -1.62197 -1.221865    B6   JFK  MCO -0.13375173 -1.33352054 -1.1694124
## 1528 -1.62197 -1.221865    DL   JFK  SEA  1.87273908 -1.33352054 -1.1694124
## 1529 -1.62197 -1.221865    B6   LGA  TPA -0.04415200 -1.28339125 -1.2252773
## 1530 -1.62197 -1.221865    B6   LGA  RSW  0.05087801 -1.28339125 -1.2252773
## 1531 -1.62197 -1.221865    AA   JFK  SFO  2.09538082 -1.33352054 -1.1694124
## 1533 -1.62197 -1.221865    EV   EWR  BUF -1.03246412 -1.39367569 -1.1694124
## 1534 -1.62197 -1.221865    DL   JFK  MIA  0.06309615 -1.22323611 -1.1228584
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## 1557 -1.62197 -1.221865    F9   LGA  DEN  0.78396666 -1.17310682 -1.1694124
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## 1573 -1.62197 -1.221865   US   LGA  CLT  -0.67678036 -1.17310682 -1.1694124
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## 1577 -1.62197 -1.221865   VX   JFK  LAS   1.63652162 -1.11295167 -1.1228584
## 1578 -1.62197 -1.221865   WN   LGA  MDW  -0.43105991 -1.06282238 -1.1694124
## 1579 -1.62197 -1.221865   AA   LGA  MIA   0.07259915 -1.06282238 -1.1694124
## 1580 -1.62197 -1.221865   AA   EWR  DFW   0.44728891 -1.06282238 -1.0669935
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## 1582 -1.62197 -1.221865   AA   LGA  ORD  -0.42019933 -1.06282238 -1.1694124
## 1583 -1.62197 -1.221865   B6   JFK  BUF  -1.00667026 -1.11295167 -1.1228584
## 1584 -1.62197 -1.221865   B6   LGA  PBI  -0.01021271 -1.06282238 -1.1694124
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## 1588 -1.62197 -1.221865   UA   EWR  MIA   0.05766586 -0.89238279 -1.0669935
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## 1597 -1.62197 -1.221865   9E   JFK  PHL  -1.28768758 -1.11295167 -1.1228584
## 1598 -1.62197 -1.221865   AA   LGA  DFW   0.47036763 -0.95253794 -1.0669935
## 1599 -1.62197 -1.221865   AA   JFK  LAX   1.94469037 -0.89238279 -1.1228584
## 1600 -1.62197 -1.221865   B6   EWR  PBI  -0.02650357 -0.89238279 -1.0669935
## 1601 -1.62197 -1.221865   B6   JFK  MCO  -0.13375173 -0.89238279 -1.1228584
## 1602 -1.62197 -1.221865   DL   LGA  EYW   0.22328960 -0.95253794 -1.0669935
## 1603 -1.62197 -1.221865   UA   JFK  SFO   2.09538082 -0.78209836 -1.1694124
## 1604 -1.62197 -1.221865   AA   LGA  ORD  -0.42019933 -0.89238279 -1.0669935
## 1606 -1.62197 -1.221865   UA   EWR  SEA   1.84558765 -0.89238279 -1.0669935
## 1607 -1.62197 -1.221865   WN   LGA  BWI  -1.16414856 -0.89238279 -1.0669935
## 1608 -1.62197 -1.221865   UA   JFK  LAX   1.94469037 -0.78209836 -1.1694124
## 1609 -1.62197 -1.221865   WN   EWR  STL  -0.23149688 -0.83222765 -1.1228584
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## 1611 -1.62197 -1.221865   EV   EWR  BTV  -1.05418527 -0.83222765 -1.1228584
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## 1615 -1.62197 -1.221865   B6   EWR  MCO  -0.14325473 -0.78209836 -1.1228584
## 1616 -1.62197 -1.221865   WN   EWR  BWI  -1.18586971 -0.78209836 -1.1228584
## 1617 -1.62197 -1.221865   MQ   JFK  DCA  -1.12613656 -0.72194321 -1.1228584
## 1618 -1.62197 -1.221865   MQ   EWR  ORD  -0.43920534 -0.78209836 -1.1228584
## 1619 -1.62197 -1.221865   EV   EWR  ATL  -0.40255090 -0.78209836 -1.1228584
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## 1624 -1.62197 -1.221865    DL    LGA  ATL -0.38082976 -0.78209836 -1.0204395
## 1626 -1.62197 -1.221865    UA    EWR  ORD -0.43920534 -0.72194321 -1.1228584
## 1627 -1.62197 -1.221865    MQ    LGA  CMH -0.76502252 -0.78209836 -1.0204395
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## 1630 -1.62197 -1.221865    WN    EWR  HOU  0.50023420 -0.72194321 -1.1228584
## 1631 -1.62197 -1.221865    US    EWR  CLT -0.69714394 -0.72194321 -1.1228584
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## 1636 -1.62197 -1.221865    DL    JFK  ATL -0.38354490 -0.72194321 -1.1694124
## 1638 -1.62197 -1.221865    EV    EWR  MHT -1.13156685 -0.72194321 -1.1228584
## 1640 -1.62197 -1.221865    UA    EWR  IAH  0.48530091 -0.72194321 -1.1228584
## 1641 -1.62197 -1.221865    DL    EWR  ATL -0.40255090 -0.72194321 -1.1228584
## 1642 -1.62197 -1.221865    UA    EWR  LAS  1.60801262 -0.72194321 -1.1228584
## 1643 -1.62197 -1.221865    UA    LGA  IAH  0.50702206 -0.78209836 -1.1228584
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## 1647 -1.62197 -1.221865    DL    LGA  MSP -0.03057629 -0.78209836 -1.1228584
## 1648 -1.62197 -1.221865    UA    EWR  PBI -0.02650357 -0.72194321 -1.1228584
## 1649 -1.62197 -1.221865    US    LGA  CLT -0.67678036 -0.78209836 -1.1228584
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## 1651 -1.62197 -1.221865    EV    EWR  DTW -0.75280437 -0.72194321 -1.1228584
## 1652 -1.62197 -1.221865    9E    JFK  RIC -1.02431869 -0.72194321 -1.1694124
## 1653 -1.62197 -1.221865    EV    LGA  CLE -0.84647681 -0.78209836 -1.1228584
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## 1670 -1.62197 -1.221865    AA    JFK  SFO  2.09538082 -0.83222765 -1.1694124
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## 1673 -1.62197 -1.221865    US    LGA  PHL -1.28497244 -0.78209836 -1.1694124
## 1674 -1.62197 -1.221865    WN    EWR  MDW -0.45006591 -0.78209836 -1.1694124
## 1675 -1.62197 -1.221865    9E    JFK  ROC -1.05690041 -0.83222765 -1.1694124
## 1676 -1.62197 -1.221865    AA    LGA  STL -0.20977574 -0.78209836 -1.1694124
## 1677 -1.62197 -1.221865    DL    JFK  DEN  0.79211209 -1.00266723 -1.0669935
## 1678 -1.62197 -1.221865    DL    JFK  MCO -0.13375173 -1.00266723 -1.0669935
## 1679 -1.62197 -1.221865    AA    LGA  MIA  0.07259915 -0.83222765 -1.0669935
## 1680 -1.62197 -1.221865    AA    JFK  SJU  0.75410009 -0.83222765 -1.1694124
```

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## 1681 -1.62197 -1.221865       B6    EWR   FLL   0.03051443 -0.89238279 -1.1228584
## 1682 -1.62197 -1.221865       DL    LGA   TPA  -0.04415200 -0.83222765 -1.0669935
## 1683 -1.62197 -1.221865       DL    JFK   LAS   1.63652162 -1.00266723 -1.0669935
## 1684 -1.62197 -1.221865       DL    JFK   MIA   0.06309615 -1.00266723 -1.0669935
## 1685 -1.62197 -1.221865       AA    LGA   ORD  -0.42019933 -0.83222765 -1.0669935
## 1686 -1.62197 -1.221865       9E    JFK   RDU  -0.83561624 -1.00266723 -1.0669935
## 1687 -1.62197 -1.221865       EV    EWR   MSP  -0.04686715 -0.89238279 -1.1228584
## 1688 -1.62197 -1.221865       B6    LGA   TPA  -0.04415200 -0.83222765 -1.0669935
## 1689 -1.62197 -1.221865       DL    LGA   DTW  -0.73379837 -0.83222765 -1.0669935
## 1690 -1.62197 -1.221865       MQ    LGA   BNA  -0.37811462 -0.83222765 -1.0669935
## 1691 -1.62197 -1.221865       UA    EWR   IAH   0.48530091 -0.89238279 -1.1228584
## 1692 -1.62197 -1.221865       AA    JFK   LAX   1.94469037 -1.00266723 -1.0669935
## 1693 -1.62197 -1.221865       US    EWR   PHX   1.48040089 -0.89238279 -1.1228584
## 1694 -1.62197 -1.221865       B6    JFK   RSW   0.04273258 -1.00266723 -1.0669935
## 1695 -1.62197 -1.221865       WN    EWR   STL  -0.23149688 -0.89238279 -1.1228584
## 1696 -1.62197 -1.221865       DL    JFK   SFO   2.09538082 -1.06282238 -1.0669935
## 1697 -1.62197 -1.221865       MQ    JFK   DCA  -1.12613656 -1.06282238 -1.0669935
## 1698 -1.62197 -1.221865       US    LGA   CLT  -0.67678036 -0.89238279 -1.1694124
## 1699 -1.62197 -1.221865       AA    JFK   AUS   0.64956708 -1.06282238 -1.0669935
## 1701 -1.62197 -1.221865       EV    EWR   RIC  -1.03925198 -0.95253794 -1.1228584
## 1702 -1.62197 -1.221865       B6    JFK   SJU   0.75410009 -1.06282238 -1.0669935
## 1703 -1.62197 -1.221865       DL    LGA   MCO  -0.12560630 -0.89238279 -1.1694124
## 1704 -1.62197 -1.221865       DL    LGA   FLL   0.04544772 -0.89238279 -1.1694124
## 1705 -1.62197 -1.221865       MQ    JFK   BNA  -0.37675704 -1.06282238 -1.0669935
## 1706 -1.62197 -1.221865       FL    LGA   ATL  -0.38082976 -0.89238279 -1.1694124
## 1707 -1.62197 -1.221865       AA    JFK   SAN   1.90532080 -1.06282238 -1.0669935
## 1708 -1.62197 -1.221865       WN    EWR   BWI  -1.18586971 -0.95253794 -1.1228584
## 1709 -1.62197 -1.221865       UA    EWR   MCO  -0.14325473 -0.95253794 -1.1228584
## 1710 -1.62197 -1.221865       UA    EWR   PBI  -0.02650357 -0.95253794 -1.1228584
## 1711 -1.62197 -1.221865       UA    JFK   SFO   2.09538082 -1.06282238 -1.0669935
## 1712 -1.62197 -1.221865       B6    JFK   TPA  -0.05093986 -1.06282238 -1.0669935
## 1713 -1.62197 -1.221865       UA    EWR   FLL   0.03051443 -0.95253794 -1.1228584
## 1714 -1.62197 -1.221865       UA    EWR   IAH   0.48530091 -0.95253794 -1.1228584
## 1715 -1.62197 -1.221865       B6    JFK   BTV  -1.05418527 -1.06282238 -1.0669935
## 1716 -1.62197 -1.221865       DL    LGA   MSP  -0.03057629 -0.95253794 -1.0204395
## 1717 -1.62197 -1.221865       EV    EWR   MCI   0.06716887 -0.95253794 -1.1228584
## 1718 -1.62197 -1.221865       B6    JFK   FLL   0.03594472 -1.17310682 -0.8621557
## 1719 -1.62197 -1.221865       B6    EWR   PBI  -0.02650357 -0.95253794 -1.1228584
## 1720 -1.62197 -1.221865       MQ    LGA   BNA  -0.37811462 -0.95253794 -1.0204395
## 1721 -1.62197 -1.221865       DL    LGA   TPA  -0.04415200 -0.95253794 -1.0204395
## 1722 -1.62197 -1.221865       AS    EWR   SEA   1.84558765 -1.00266723 -1.0204395
## 1723 -1.62197 -1.221865       9E    JFK   ORF  -1.02160355 -1.17310682 -0.8621557
## 1724 -1.62197 -1.221865       WN    LGA   MDW  -0.43105991 -0.95253794 -1.0204395
## 1726 -1.62197 -1.221865       AA    EWR   LAX   1.91618137 -1.00266723 -1.0204395
## 1728 -1.62197 -1.221865       DL    LGA   PWM  -1.05011255 -0.95253794 -1.0204395
## 1729 -1.62197 -1.221865       MQ    LGA   CLE  -0.84647681 -0.95253794 -1.0204395
## 1730 -1.62197 -1.221865       EV    EWR   BDL  -1.25782100 -1.00266723 -1.0204395
## 1731 -1.62197 -1.221865       EV    EWR   GSO  -0.81117995 -1.00266723 -1.0204395
## 1733 -1.62197 -1.221865       UA    EWR   ORD  -0.43920534 -1.00266723 -1.0204395
## 1734 -1.62197 -1.221865       AA    LGA   MIA   0.07259915 -0.95253794 -1.0204395
## 1735 -1.62197 -1.221865       AA    JFK   SEA   1.87273908 -1.17310682 -0.8621557
## 1736 -1.62197 -1.221865       UA    EWR   PDX   1.88902994 -1.00266723 -1.0204395
## 1737 -1.62197 -1.221865       B6    JFK   LGB   1.93111466 -1.17310682 -0.8621557
## 1738 -1.62197 -1.221865       B6    JFK   BUF  -1.00667026 -1.17310682 -0.8621557
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## 1739 -1.62197 -1.221865   DL   JFK  DTW -0.72429537 -1.17310682 -0.8621557
## 1740 -1.62197 -1.221865   US   LGA  CLT -0.67678036 -0.95253794 -1.0204395
## 1741 -1.62197 -1.221865   B6   JFK  LAS  1.63652162 -1.17310682 -0.8621557
## 1742 -1.62197 -1.221865   UA   JFK  LAX  1.94469037 -1.22323611 -0.9645746
## 1743 -1.62197 -1.221865   B6   JFK  MCO -0.13375173 -1.17310682 -0.8621557
## 1744 -1.62197 -1.221865   EV   EWR  CLT -0.69714394 -1.00266723 -1.0204395
## 1745 -1.62197 -1.221865   AA   JFK  LAX  1.94469037 -1.22323611 -0.9645746
## 1746 -1.62197 -1.221865   9E   JFK  ORD -0.41069633 -1.22323611 -0.9645746
## 1747 -1.62197 -1.221865   DL   JFK  FLL  0.03594472 -1.22323611 -0.9645746
## 1748 -1.62197 -1.221865   UA   EWR  SJU  0.76767580 -1.17310682 -1.0204395
## 1749 -1.62197 -1.221865   WN   LGA  MDW -0.43105991 -0.95253794 -1.0669935
## 1751 -1.62197 -1.221865   UA   EWR  SFO  2.06687181 -1.17310682 -1.0204395
## 1753 -1.62197 -1.221865   9E   JFK  JAX -0.29123003 -1.22323611 -0.9645746
## 1755 -1.62197 -1.221865   MQ   JFK  CMH -0.75959223 -1.22323611 -0.9645746
## 1756 -1.62197 -1.221865   AA   JFK  TPA -0.05093986 -1.22323611 -0.9645746
## 1757 -1.62197 -1.221865   9E   JFK  IAD -1.10577299 -1.22323611 -0.9645746
## 1758 -1.62197 -1.221865   EV   EWR  ALB -1.22116657 -1.28339125 -1.0204395
## 1759 -1.62197 -1.221865   DL   JFK  BOS -1.16143342 -1.28339125 -0.9645746
## 1760 -1.62197 -1.221865   UA   EWR  MCO -0.14325473 -1.28339125 -1.0204395
## 1761 -1.62197 -1.221865   AA   LGA  MIA  0.07259915 -0.95253794 -1.0669935
## 1762 -1.62197 -1.221865   AA   JFK  BOS -1.16143342 -1.28339125 -0.9645746
## 1763 -1.62197 -1.221865   B6   JFK  FLL  0.03594472 -1.28339125 -0.9645746
## 1764 -1.62197 -1.221865   9E   JFK  PHL -1.28768758 -1.28339125 -0.9645746
## 1765 -1.62197 -1.221865   B6   JFK  MSY  0.18935031 -1.28339125 -0.9645746
## 1766 -1.62197 -1.221865   UA   EWR  TPA -0.06180044 -1.28339125 -1.0204395
## 1767 -1.62197 -1.221865   B6   JFK  RSW  0.04273258 -1.28339125 -0.9645746
## 1768 -1.62197 -1.221865   UA   EWR  BQN  0.73645166 -1.28339125 -1.0204395
## 1769 -1.62197 -1.221865   B6   LGA  MCO -0.12560630 -1.00266723 -1.0669935
## 1771 -1.62197 -1.221865   B6   JFK  SJU  0.75410009 -1.28339125 -0.9087097
## 1772 -1.62197 -1.221865   B6   EWR  FLL  0.03051443 -1.33352054 -0.9645746
## 1774 -1.62197 -1.221865   B6   JFK  TPA -0.05093986 -1.28339125 -0.9087097
## 1776 -1.62197 -1.221865   B6   JFK  BUF -1.00667026 -1.28339125 -0.9087097
## 1779 -1.62197 -1.221865   B6   JFK  SJU  0.75410009 -1.22323611 -0.8621557
## 1780 -1.62197 -1.221865   EV   JFK  IAD -1.10577299 -0.72194321 -1.1694124
## 1781 -1.62197 -1.107978   UA   EWR  IAH  0.48530091 -1.29341711 -0.5921422
## 1782 -1.62197 -1.107978   AA   JFK  MIA  0.06309615 -1.33352054 -0.5548989
## 1783 -1.62197 -1.107978   UA   JFK  SFO  2.09538082 -1.33352054 -0.5548989
## 1784 -1.62197 -1.107978   B6   JFK  PBI -0.01971572 -1.28339125 -0.4990341
## 1785 -1.62197 -1.107978   AA   LGA  DFW  0.47036763  0.00994442  0.0596146
## 1786 -1.62197 -1.107978   B6   EWR  PBI -0.02650357 -1.28339125 -0.5548989
## 1787 -1.62197 -1.107978   B6   JFK  TPA -0.05093986 -1.28339125 -0.4990341
## 1788 -1.62197 -1.107978   B6   LGA  FLL  0.04544772  0.00994442  0.0596146
## 1789 -1.62197 -1.107978   AA   LGA  MIA  0.07259915  0.00994442  0.0596146
## 1790 -1.62197 -1.107978   DL   JFK  ATL -0.38354490 -1.28339125 -0.4990341
## 1791 -1.62197 -1.107978   B6   JFK  SJU  0.75410009 -1.28339125 -0.4990341
## 1792 -1.62197 -1.107978   US   EWR  CLT -0.69714394 -1.28339125 -0.5548989
## 1793 -1.62197 -1.107978   UA   EWR  MIA  0.05766586 -1.28339125 -0.5548989
## 1794 -1.62197 -1.107978   AA   LGA  ORD -0.42019933  0.00994442  0.0596146
## 1795 -1.62197 -1.107978   UA   EWR  PHX  1.48040089 -1.28339125 -0.5548989
## 1796 -1.62197 -1.107978   AA   LGA  DFW  0.47036763  0.00994442  0.0596146
## 1797 -1.62197 -1.107978   US   EWR  CLT -0.69714394 -1.28339125 -0.5548989
## 1798 -1.62197 -1.107978   B6   LGA  MCO -0.12560630  0.00994442  0.0596146
## 1799 -1.62197 -1.107978   B6   JFK  BUF -1.00667026 -1.28339125 -0.4990341
## 1800 -1.62197 -1.107978   AA   JFK  MCO -0.13375173 -1.28339125 -0.4990341
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## 1801 -1.62197 -1.107978     B6    JFK   MSY  0.18935031 -1.28339125 -0.4990341
## 1802 -1.62197 -1.107978     DL    LGA   MCO -0.12560630 -1.17310682 -0.5548989
## 1803 -1.62197 -1.107978     DL    JFK   SFO  2.09538082 -1.19315853 -0.4059260
## 1804 -1.62197 -1.107978     UA    EWR   LAS  1.60801262 -1.28339125 -0.5548989
## 1806 -1.62197 -1.107978     AA    JFK   MIA  0.06309615 -1.19315853 -0.4059260
## 1807 -1.62197 -1.107978     UA    EWR   RSW  0.03458715 -1.22323611 -0.4990341
## 1808 -1.62197 -1.107978     UA    EWR   MCO -0.14325473 -1.22323611 -0.4990341
## 1809 -1.62197 -1.107978     AA    JFK   FLL  0.03594472 -1.19315853 -0.4059260
## 1810 -1.62197 -1.107978     B6    JFK   MCO -0.13375173 -1.19315853 -0.4059260
## 1811 -1.62197 -1.107978     MQ    EWR   ORD -0.43920534 -1.22323611 -0.4990341
## 1812 -1.62197 -1.107978     AS    EWR   SEA  1.84558765 -1.22323611 -0.4990341
## 1813 -1.62197 -1.107978     VX    JFK   SFO  2.09538082 -1.19315853 -0.4059260
## 1814 -1.62197 -1.107978     UA    EWR   TPA -0.06180044 -1.22323611 -0.4990341
## 1815 -1.62197 -1.107978     AA    LGA   ORD -0.42019933 -1.17310682 -0.5548989
## 1816 -1.62197 -1.107978     UA    EWR   SJU  0.76767580 -1.22323611 -0.4990341
## 1818 -1.62197 -1.107978     AA    LGA   MIA  0.07259915 -1.17310682 -0.5548989
## 1819 -1.62197 -1.107978     DL    LGA   MSP -0.03057629 -1.17310682 -0.5548989
## 1820 -1.62197 -1.107978     EV    EWR   MEM -0.13103659 -1.22323611 -0.4990341
## 1821 -1.62197 -1.107978     US    LGA   CLT -0.67678036 -1.17310682 -0.5548989
## 1822 -1.62197 -1.107978     DL    LGA   ATL -0.38082976 -1.17310682 -0.5548989
## 1823 -1.62197 -1.107978     B6    LGA   RSW  0.05087801 -1.17310682 -0.5548989
## 1824 -1.62197 -1.107978     MQ    JFK   RDU -0.83561624 -1.17310682 -0.4059260
## 1825 -1.62197 -1.107978     WN    EWR   PHX  1.48040089 -1.17310682 -0.4990341
## 1826 -1.62197 -1.107978     EV    EWR   RDU -0.85054953 -1.17310682 -0.4990341
## 1827 -1.62197 -1.107978     US    EWR   CLT -0.69714394 -1.17310682 -0.4990341
## 1828 -1.62197 -1.107978     B6    EWR   BOS -1.14378499 -1.17310682 -0.4990341
## 1829 -1.62197 -1.107978     9E    JFK   BWI -1.16550614 -1.17310682 -0.4059260
## 1830 -1.62197 -1.107978     DL    JFK   TPA -0.05093986 -1.17310682 -0.4059260
## 1831 -1.62197 -1.107978     MQ    JFK   DCA -1.12613656 -1.17310682 -0.4059260
## 1832 -1.62197 -1.107978     EV    EWR   BTV -1.05418527 -1.22323611 -0.4990341
## 1833 -1.62197 -1.107978     DL    JFK   SJU  0.75410009 -1.17310682 -0.4059260
## 1834 -1.62197 -1.107978     US    JFK   CLT -0.68085308 -1.17310682 -0.4059260
## 1835 -1.62197 -1.107978     B6    JFK   JAX -0.29123003 -1.17310682 -0.4059260
## 1836 -1.62197 -1.107978     MQ    LGA   ATL -0.38082976 -1.17310682 -0.5548989
## 1837 -1.62197 -1.107978     9E    JFK   BOS -1.16143342 -1.17310682 -0.4059260
## 1838 -1.62197 -1.107978     UA    JFK   LAX  1.94469037 -1.17310682 -0.4059260
## 1839 -1.62197 -1.107978     WN    EWR   MDW -0.45006591 -1.17310682 -0.4990341
## 1840 -1.62197 -1.107978     UA    EWR   SAN  1.87681179 -1.17310682 -0.4990341
## 1841 -1.62197 -1.107978     DL    LGA   MCO -0.12560630 -1.11295167 -0.6014530
## 1842 -1.62197 -1.107978     DL    LGA   DTW -0.73379837 -1.11295167 -0.6014530
## 1843 -1.62197 -1.107978     AA    JFK   MIA  0.06309615 -1.11295167 -0.4990341
## 1844 -1.62197 -1.107978     AA    JFK   LAX  1.94469037 -1.11295167 -0.4990341
## 1845 -1.62197 -1.107978     B6    JFK   BTV -1.05418527 -1.11295167 -0.4990341
## 1846 -1.62197 -1.107978     UA    EWR   STT  0.80297267 -1.09289995 -0.4990341
## 1847 -1.62197 -1.107978     UA    EWR   ORD -0.43920534 -1.09289995 -0.4990341
## 1848 -1.62197 -1.107978     EV    EWR   STL -0.23149688 -1.09289995 -0.4990341
## 1849 -1.62197 -1.107978     AA    LGA   DFW  0.47036763 -1.11295167 -0.6014530
## 1850 -1.62197 -1.107978     UA    EWR   CLE -0.86684039 -1.09289995 -0.4990341
## 1851 -1.62197 -1.107978     AA    EWR   DFW  0.44728891 -1.09289995 -0.4990341
## 1852 -1.62197 -1.107978     B6    JFK   BOS -1.16143342 -1.11295167 -0.4990341
## 1853 -1.62197 -1.107978     B6    LGA   FLL  0.04544772 -1.11295167 -0.6014530
## 1854 -1.62197 -1.107978     B6    LGA   PBI -0.01021271 -1.11295167 -0.6014530
## 1855 -1.62197 -1.107978     WN    EWR   DEN  0.76360309 -1.09289995 -0.4990341
## 1856 -1.62197 -1.107978     B6    JFK   PBI -0.01971572 -1.11295167 -0.4990341
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## 1857 -1.62197 -1.107978    EV    EWR   DCA -1.14514256 -1.09289995 -0.4990341
## 1859 -1.62197 -1.107978    AA    LGA   MIA  0.07259915 -1.11295167 -0.6014530
## 1860 -1.62197 -1.107978    VX    JFK   LAS  1.63652162 -1.11295167 -0.4990341
## 1862 -1.62197 -1.107978    B6    JFK   BUF -1.00667026 -1.11295167 -0.4990341
## 1864 -1.62197 -1.107978    MQ    LGA   ATL -0.38082976 -1.11295167 -0.6014530
## 1865 -1.62197 -1.107978    DL    LGA   MIA  0.07259915 -0.99264137 -0.6014530
## 1866 -1.62197 -1.107978    US    JFK   PHX  1.50755232 -1.11295167 -0.4990341
## 1867 -1.62197 -1.107978    B6    JFK   PWM -1.04468226 -1.11295167 -0.4990341
## 1868 -1.62197 -1.107978    EV    EWR   IND -0.53966563 -0.95253794 -0.5548989
## 1869 -1.62197 -1.107978    US    EWR   CLT -0.69714394 -0.95253794 -0.5548989
## 1870 -1.62197 -1.107978    DL    LGA   MSP -0.03057629 -0.99264137 -0.6014530
## 1871 -1.62197 -1.107978    DL    LGA   SRQ  0.00607814 -0.99264137 -0.6014530
## 1872 -1.62197 -1.107978    EV    EWR   BNA -0.39983576 -0.95253794 -0.5548989
## 1873 -1.62197 -1.107978    EV    EWR   DTW -0.75280437 -0.95253794 -0.5548989
## 1874 -1.62197 -1.107978    UA    EWR   RSW  0.03458715 -0.95253794 -0.5548989
## 1875 -1.62197 -1.107978    DL    EWR   ATL -0.40255090 -0.95253794 -0.5548989
## 1876 -1.62197 -1.107978    AA    JFK   LAX  1.94469037 -0.99264137 -0.4059260
## 1878 -1.62197 -1.107978    DL    LGA   PBI -0.01021271 -0.99264137 -0.6014530
## 1880 -1.62197 -1.107978    B6    LGA   FLL  0.04544772 -0.99264137 -0.6014530
## 1881 -1.62197 -1.107978    UA    EWR   IAH  0.48530091 -0.95253794 -0.5548989
## 1882 -1.62197 -1.107978    WN    LGA   MDW -0.43105991 -0.99264137 -0.6014530
## 1883 -1.62197 -1.107978    UA    JFK   SFO  2.09538082 -0.95253794 -0.4990341
## 1885 -1.62197 -1.107978    AA    LGA   MIA  0.07259915 -0.89238279 -0.6573179
## 1887 -1.62197 -1.107978    DL    LGA   DTW -0.73379837 -0.89238279 -0.6573179
## 1888 -1.62197 -1.107978    MQ    LGA   CMH -0.76502252 -0.89238279 -0.6573179
## 1889 -1.62197 -1.107978    EV    LGA   PIT -0.96051283 -0.89238279 -0.6573179
## 1890 -1.62197 -1.107978    AA    LGA   ORD -0.42019933 -0.89238279 -0.6573179
## 1891 -1.62197 -1.107978    MQ    LGA   CLE -0.84647681 -0.89238279 -0.6573179
## 1892 -1.62197 -1.107978    UA    EWR   DEN  0.76360309 -0.78209836 -0.6014530
## 1893 -1.62197 -1.107978    VX    JFK   LAX  1.94469037 -0.95253794 -0.4990341
## 1894 -1.62197 -1.107978    WN    EWR   STL -0.23149688 -0.78209836 -0.6014530
## 1895 -1.62197 -1.107978    UA    EWR   MCO -0.14325473 -0.78209836 -0.6014530
## 1896 -1.62197 -1.107978    FL    LGA   CAK -0.87634339 -0.89238279 -0.6573179
## 1897 -1.62197 -1.107978    UA    EWR   TPA -0.06180044 -0.78209836 -0.6014530
## 1898 -1.62197 -1.107978    EV    EWR   JAX -0.30209061 -0.78209836 -0.6014530
## 1899 -1.62197 -1.107978    DL    LGA   TPA -0.04415200 -0.89238279 -0.6573179
## 1900 -1.62197 -1.107978    DL    JFK   LAX  1.94469037 -0.83222765 -0.4990341
## 1901 -1.62197 -1.107978    MQ    LGA   BNA -0.37811462 -0.78209836 -0.7597368
## 1902 -1.62197 -1.107978    EV    EWR   PWM -1.02974898 -0.61165877 -0.6573179
## 1903 -1.62197 -1.107978    B6    JFK   HOU  0.52331292 -0.95253794 -0.4990341
## 1904 -1.62197 -1.107978    AA    LGA   DFW  0.47036763 -0.78209836 -0.7597368
## 1905 -1.62197 -1.107978    DL    LGA   ATL -0.38082976 -0.78209836 -0.7597368
## 1906 -1.62197 -1.107978    VX    JFK   SFO  2.09538082 -0.83222765 -0.4990341
## 1907 -1.62197 -1.107978    US    JFK   CLT -0.68085308 -0.83222765 -0.4990341
## 1908 -1.62197 -1.107978    B6    EWR   BOS -1.14378499 -0.61165877 -0.6573179
## 1909 -1.62197 -1.107978    B6    JFK   LAX  1.94469037 -0.83222765 -0.4990341
## 1910 -1.62197 -1.107978    MQ    EWR   ORD -0.43920534 -0.61165877 -0.6573179
## 1911 -1.62197 -1.107978    UA    EWR   PHX  1.48040089 -0.61165877 -0.6573179
## 1912 -1.62197 -1.107978    WN    EWR   MDW -0.45006591 -0.61165877 -0.6573179
## 1913 -1.62197 -1.107978    MQ    JFK   RDU -0.83561624 -0.83222765 -0.4990341
## 1914 -1.62197 -1.107978    DL    LGA   DTW -0.73379837 -0.78209836 -0.7597368
## 1915 -1.62197 -1.107978    UA    EWR   MIA  0.05766586 -0.61165877 -0.6573179
## 1916 -1.62197 -1.107978    AA    EWR   DFW  0.44728891 -0.61165877 -0.6573179
## 1917 -1.62197 -1.107978    EV    EWR   DTW -0.75280437 -0.61165877 -0.6573179
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## 1918 -1.62197 -1.107978     DL     LGA  MCO -0.12560630 -0.78209836 -0.7597368
## 1919 -1.62197 -1.107978     WN     LGA  DEN  0.78396666 -0.78209836 -0.7597368
## 1920 -1.62197 -1.107978     9E     JFK  PHL -1.28768758 -0.78209836 -0.5548989
## 1921 -1.62197 -1.107978     B6     JFK  PBI -0.01971572 -0.78209836 -0.5548989
## 1922 -1.62197 -1.107978     AA     LGA  ORD -0.42019933 -0.67181392 -0.7597368
## 1923 -1.62197 -1.107978     MQ     LGA  CMH -0.76502252 -0.67181392 -0.7597368
## 1924 -1.62197 -1.107978     WN     EWR  HOU  0.50023420 -0.56152948 -0.7597368
## 1925 -1.62197 -1.107978     EV     EWR  BUF -1.03246412 -0.56152948 -0.7597368
## 1926 -1.62197 -1.107978     MQ     LGA  DTW -0.73379837 -0.67181392 -0.7597368
## 1927 -1.62197 -1.107978     EV     EWR  IAD -1.12749413 -0.56152948 -0.7597368
## 1928 -1.62197 -1.107978     B6     JFK  BUR  1.93111466 -0.78209836 -0.5548989
## 1929 -1.62197 -1.107978     DL     JFK  ATL -0.38354490 -0.78209836 -0.5548989
## 1930 -1.62197 -1.107978     B6     EWR  MCO -0.14325473 -0.56152948 -0.7597368
## 1931 -1.62197 -1.107978     WN     EWR  PHX  1.48040089 -0.56152948 -0.7597368
## 1932 -1.62197 -1.107978     EV     EWR  BWI -1.18586971 -0.56152948 -0.7597368
## 1933 -1.62197 -1.107978     B6     JFK  SJU  0.75410009 -0.78209836 -0.5548989
## 1934 -1.62197 -1.107978     US     EWR  PHX  1.48040089 -0.56152948 -0.7597368
## 1935 -1.62197 -1.107978     B6     JFK  MCO -0.13375173 -0.78209836 -0.5548989
## 1936 -1.62197 -1.107978     DL     LGA  FLL  0.04544772 -0.67181392 -0.7597368
## 1937 -1.62197 -1.107978     UA     EWR  FLL  0.03051443 -0.56152948 -0.7597368
## 1938 -1.62197 -1.107978     EV     EWR  CHS -0.56274435 -0.56152948 -0.7597368
## 1940 -1.62197 -1.107978     UA     EWR  PBI -0.02650357 -0.56152948 -0.7597368
## 1941 -1.62197 -1.107978     FL     LGA  ATL -0.38082976 -0.61165877 -0.7597368
## 1942 -1.62197 -1.107978     UA     EWR  TPA -0.06180044 -0.50137433 -0.8621557
## 1943 -1.62197 -1.107978     AA     EWR  DFW  0.44728891 -0.50137433 -0.8621557
## 1944 -1.62197 -1.107978     UA     EWR  ORD -0.43920534 -0.50137433 -0.8621557
## 1945 -1.62197 -1.107978     EV     EWR  MSP -0.04686715 -0.50137433 -0.8621557
## 1946 -1.62197 -1.107978     9E     JFK  BOS -1.16143342 -0.67181392 -0.6014530
## 1947 -1.62197 -1.107978     EV     EWR  MCI  0.06716887 -0.50137433 -0.8621557
## 1948 -1.62197 -1.107978     EV     EWR  DTW -0.75280437 -0.50137433 -0.8621557
## 1949 -1.62197 -1.107978     AA     JFK  MCO -0.13375173 -0.67181392 -0.6014530
## 1951 -1.62197 -1.107978     B6     JFK  BOS -1.16143342 -0.67181392 -0.6014530
## 1952 -1.62197 -1.107978     UA     EWR  RSW  0.03458715 -0.50137433 -0.8621557
## 1953 -1.62197 -1.107978     EV     EWR  GSP -0.60890178 -0.50137433 -0.8621557
## 1954 -1.62197 -1.107978     DL     LGA  DTW -0.73379837 -0.61165877 -0.7597368
## 1955 -1.62197 -1.107978     UA     EWR  BOS -1.14378499 -0.50137433 -0.8621557
## 1957 -1.62197 -1.107978     US     EWR  CLT -0.69714394 -0.56152948 -0.9087097
## 1959 -1.62197 -1.107978     B6     JFK  PBI -0.01971572 -0.67181392 -0.6014530
## 1960 -1.62197 -1.107978     B6     JFK  TPA -0.05093986 -0.67181392 -0.6014530
## 1961 -1.62197 -1.107978     UA     LGA  DEN  0.78396666 -0.61165877 -0.8621557
## 1962 -1.62197 -1.107978     B6     JFK  BUF -1.00667026 -0.67181392 -0.6014530
## 1963 -1.62197 -1.107978     EV     EWR  RDU -0.85054953 -0.56152948 -0.9087097
## 1964 -1.62197 -1.107978     EV     EWR  JAX -0.30209061 -0.56152948 -0.9087097
## 1965 -1.62197 -1.107978     DL     LGA  MIA  0.07259915 -0.61165877 -0.8621557
## 1966 -1.62197 -1.107978     AA     LGA  STL -0.20977574 -0.61165877 -0.8621557
## 1968 -1.62197 -1.107978     9E     JFK  IAD -1.10577299 -0.72194321 -0.6573179
## 1969 -1.62197 -1.107978     MQ     JFK  DCA -1.12613656 -0.72194321 -0.6573179
## 1970 -1.62197 -1.107978     AA     LGA  DFW  0.47036763 -0.61165877 -0.8621557
## 1971 -1.62197 -1.107978     UA     LGA  CLE -0.84647681 -0.61165877 -0.8621557
## 1972 -1.62197 -1.107978     9E     JFK  ROC -1.05690041 -0.72194321 -0.6573179
## 1973 -1.62197 -1.107978     UA     EWR  IAH  0.48530091 -0.56152948 -0.9087097
## 1975 -1.62197 -1.107978     DL     EWR  ATL -0.40255090 -0.56152948 -0.9087097
## 1976 -1.62197 -1.107978     DL     JFK  FLL  0.03594472 -0.72194321 -0.6573179
## 1977 -1.62197 -1.107978     AA     JFK  LAX  1.94469037 -0.72194321 -0.6573179
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## 1978 -1.62197 -1.107978    9E    JFK   BWI -1.16550614 -0.72194321 -0.6573179
## 1979 -1.62197 -1.107978    DL    LGA   ATL -0.38082976 -0.61165877 -0.9645746
## 1980 -1.62197 -1.107978    MQ    LGA   RDU -0.83018595 -0.61165877 -0.9645746
## 1981 -1.62197 -1.107978    DL    JFK   MCO -0.13375173 -0.89238279 -0.7038719
## 1982 -1.62197 -1.107978    DL    JFK   DEN  0.79211209 -0.89238279 -0.7038719
## 1983 -1.62197 -1.107978    DL    JFK   MIA  0.06309615 -0.89238279 -0.7038719
## 1984 -1.62197 -1.107978    AA    LGA   ORD -0.42019933 -0.61165877 -0.9645746
## 1985 -1.62197 -1.107978    EV    EWR   DAY -0.69171365 -0.67181392 -0.8062908
## 1986 -1.62197 -1.107978    B6    JFK   MCO -0.13375173 -0.89238279 -0.7038719
## 1988 -1.62197 -1.107978    9E    JFK   RDU -0.83561624 -0.89238279 -0.7038719
## 1989 -1.62197 -1.107978    MQ    LGA   BNA -0.37811462 -0.61165877 -0.9645746
## 1990 -1.62197 -1.107978    US    JFK   PHX  1.50755232 -0.89238279 -0.7038719
## 1991 -1.62197 -1.107978    VX    JFK   SFO  2.09538082 -0.89238279 -0.7038719
## 1992 -1.62197 -1.107978    UA    EWR   CLE -0.86684039 -0.67181392 -0.8062908
## 1993 -1.62197 -1.107978    WN    EWR   DEN  0.76360309 -0.67181392 -0.8062908
## 1995 -1.62197 -1.107978    MQ    LGA   DTW -0.73379837 -0.61165877 -0.9645746
## 1997 -1.62197 -1.107978    UA    EWR   MCO -0.14325473 -0.67181392 -0.8062908
## 1998 -1.62197 -1.107978    EV    EWR   MEM -0.13103659 -0.67181392 -0.8062908
## 1999 -1.62197 -1.107978    UA    EWR   ORD -0.43920534 -0.67181392 -0.8062908
## 2000 -1.62197 -1.107978    DL    JFK   AUS  0.64956708 -0.89238279 -0.7038719
## 2001 -1.62197 -1.107978    AA    JFK   BOS -1.16143342 -0.89238279 -0.7038719
## 2002 -1.62197 -1.107978    VX    JFK   LAX  1.94469037 -0.89238279 -0.7038719
## 2003 -1.62197 -1.107978    AA    EWR   DFW  0.44728891 -0.72194321 -0.8062908
## 2004 -1.62197 -1.107978    EV    EWR   DCA -1.14514256 -0.72194321 -0.8062908
## 2005 -1.62197 -1.107978    EV    EWR   BWI -1.18586971 -0.72194321 -0.8062908
## 2006 -1.62197 -1.107978    DL    JFK   SAN  1.90532080 -0.89238279 -0.6573179
## 2007 -1.62197 -1.107978    US    LGA   CLT -0.67678036 -0.67181392 -0.9087097
## 2008 -1.62197 -1.107978    MQ    LGA   RDU -0.83018595 -0.67181392 -0.9087097
## 2012 -1.62197 -1.107978    WN    EWR   STL -0.23149688 -0.72194321 -0.8062908
## 2013 -1.62197 -1.107978    F9    LGA   DEN  0.78396666 -0.67181392 -0.9087097
## 2014 -1.62197 -1.107978    AA    LGA   ORD -0.42019933 -0.67181392 -0.9087097
## 2015 -1.62197 -1.107978    WN    LGA   BNA -0.37811462 -0.67181392 -0.9087097
## 2016 -1.62197 -1.107978    AA    LGA   DFW  0.47036763 -0.67181392 -0.9087097
## 2019 -1.62197 -1.107978    EV    EWR   RIC -1.03925198 -0.72194321 -0.8062908
## 2020 -1.62197 -1.107978    DL    JFK   PDX  1.91618137 -0.89238279 -0.6573179
## 2022 -1.62197 -1.107978    B6    JFK   FLL  0.03594472 -0.78209836 -0.8062908
## 2023 -1.62197 -1.107978    DL    LGA   ATL -0.38082976 -0.67181392 -0.9087097
## 2024 -1.62197 -1.107978    B6    JFK   MCO -0.13375173 -0.89238279 -0.6573179
## 2025 -1.62197 -1.107978    MQ    LGA   CMH -0.76502252 -0.67181392 -0.9087097
## 2027 -1.62197 -1.107978    B6    EWR   MCO -0.14325473 -0.72194321 -0.8062908
## 2028 -1.62197 -1.107978    AS    EWR   SEA  1.84558765 -0.72194321 -0.8621557
## 2030 -1.62197 -1.107978    9E    JFK   DTW -0.72429537 -0.78209836 -0.8062908
## 2031 -1.62197 -1.107978    UA    EWR   CLE -0.86684039 -0.72194321 -0.8621557
## 2032 -1.62197 -1.107978    B6    JFK   SJC  2.07230210 -0.78209836 -0.8062908
## 2033 -1.62197 -1.107978    9E    EWR   DTW -0.75280437 -0.72194321 -0.8621557
## 2034 -1.62197 -1.107978    AA    JFK   SEA  1.87273908 -0.78209836 -0.8062908
## 2035 -1.62197 -1.107978    UA    EWR   SEA  1.84558765 -0.72194321 -0.8621557
## 2036 -1.62197 -1.107978    US    EWR   CLT -0.69714394 -0.72194321 -0.8621557
## 2037 -1.62197 -1.107978    B6    JFK   BUF -1.00667026 -0.78209836 -0.8062908
## 2038 -1.62197 -1.107978    UA    EWR   SNA  1.88902994 -0.72194321 -0.8621557
## 2039 -1.62197 -1.107978    EV    EWR   CAE -0.59804121 -0.72194321 -0.8621557
## 2040 -1.62197 -1.107978    MQ    LGA   MSP -0.03057629 -0.67181392 -0.9087097
## 2041 -1.62197 -1.107978    AA    LGA   STL -0.20977574 -0.67181392 -0.9087097
## 2042 -1.62197 -1.107978    US    LGA   CLT -0.67678036 -0.67181392 -0.9087097
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## 2043 -1.62197 -1.107978    UA    EWR  BOS -1.14378499 -0.72194321 -0.8621557
## 2044 -1.62197 -1.107978    AA    JFK  SJU  0.75410009 -0.78209836 -0.8062908
## 2045 -1.62197 -1.107978    DL    LGA  PIT -0.96051283 -0.72194321 -0.9087097
## 2046 -1.62197 -1.107978    DL    JFK  LAX  1.94469037 -0.78209836 -0.8621557
## 2047 -1.62197 -1.107978    DL    JFK  SFO  2.09538082 -0.78209836 -0.8621557
## 2048 -1.62197 -1.107978    MQ    LGA  RDU -0.83018595 -0.72194321 -0.9087097
## 2049 -1.62197 -1.107978    EV    EWR  RIC -1.03925198 -0.78209836 -0.8621557
## 2050 -1.62197 -1.107978    EV    EWR  OMA  0.12418687 -0.78209836 -0.8621557
## 2051 -1.62197 -1.107978    DL    JFK  ATL -0.38354490 -0.78209836 -0.8062908
## 2052 -1.62197 -1.107978    DL    LGA  MIA  0.07259915 -0.72194321 -0.9087097
## 2053 -1.62197 -1.107978    DL    LGA  FLL  0.04544772 -0.72194321 -0.9087097
## 2055 -1.62197 -1.107978    UA    EWR  LAS  1.60801262 -0.78209836 -0.8621557
## 2056 -1.62197 -1.107978    AA    JFK  TPA -0.05093986 -0.78209836 -0.8621557
## 2057 -1.62197 -1.107978    WN    EWR  MDW -0.45006591 -0.78209836 -0.8621557
## 2058 -1.62197 -1.107978    B6    JFK  PBI -0.01971572 -0.78209836 -0.8621557
## 2059 -1.62197 -1.107978    EV    LGA  IAD -1.10441541 -0.72194321 -0.9087097
## 2060 -1.62197 -1.107978    B6    JFK  SFO  2.09538082 -0.78209836 -0.8621557
## 2062 -1.62197 -1.107978    9E    JFK  BWI -1.16550614 -0.78209836 -0.8621557
## 2063 -1.62197 -1.107978    EV    EWR  OKC  0.38348305 -0.78209836 -0.8621557
## 2064 -1.62197 -1.107978    9E    LGA  TYS -0.53695049 -0.72194321 -0.8621557
## 2065 -1.62197 -1.107978    9E    JFK  CVG -0.61568964 -0.78209836 -0.8621557
## 2066 -1.62197 -1.107978    9E    JFK  BUF -1.00667026 -0.78209836 -0.8621557
## 2067 -1.62197 -1.107978    9E    JFK  JAX -0.29123003 -0.78209836 -0.8621557
## 2068 -1.62197 -1.107978    DL    JFK  BOS -1.16143342 -0.78209836 -0.8621557
## 2069 -1.62197 -1.107978    EV    EWR  TYS -0.55867164 -0.78209836 -0.8062908
## 2070 -1.62197 -1.107978    EV    EWR  BUF -1.03246412 -0.78209836 -0.8621557
## 2071 -1.62197 -1.107978    UA    EWR  MIA  0.05766586 -0.78209836 -0.8062908
## 2072 -1.62197 -1.107978    EV    EWR  GSO -0.81117995 -0.78209836 -0.8062908
## 2074 -1.62197 -1.107978    MQ    LGA  CMH -0.76502252 -0.72194321 -0.8621557
## 2076 -1.62197 -1.107978    UA    JFK  LAX  1.94469037 -0.78209836 -0.8621557
## 2077 -1.62197 -1.107978    UA    EWR  TPA -0.06180044 -0.78209836 -0.8062908
## 2078 -1.62197 -1.107978    UA    EWR  FLL  0.03051443 -0.78209836 -0.8062908
## 2079 -1.62197 -1.107978    FL    LGA  CAK -0.87634339 -0.72194321 -0.8621557
## 2080 -1.62197 -1.107978    AA    LGA  ORD -0.42019933 -0.72194321 -0.8621557
## 2081 -1.62197 -1.107978    9E    JFK  DCA -1.12613656 -0.78209836 -0.8621557
## 2083 -1.62197 -1.107978    DL    JFK  LAX  1.94469037 -0.78209836 -0.8062908
## 2085 -1.62197 -1.107978    MQ    LGA  BNA -0.37811462 -0.72194321 -0.8062908
## 2086 -1.62197 -1.107978    EV    EWR  PHL -1.30669358 -0.83222765 -0.8062908
## 2087 -1.62197 -1.107978    EV    EWR  SDF -0.54373835 -0.83222765 -0.8062908
## 2088 -1.62197 -1.107978    MQ    LGA  RDU -0.83018595 -0.72194321 -0.8062908
## 2089 -1.62197 -1.107978    B6    LGA  FLL  0.04544772 -0.72194321 -0.8062908
## 2090 -1.62197 -1.107978    B6    JFK  SJU  0.75410009 -0.78209836 -0.8062908
## 2091 -1.62197 -1.107978    AA    JFK  LAX  1.94469037 -0.78209836 -0.8062908
## 2092 -1.62197 -1.107978    EV    EWR  PWM -1.02974898 -0.83222765 -0.8062908
## 2093 -1.62197 -1.107978    EV    EWR  PVD -1.19808785 -0.83222765 -0.8062908
## 2094 -1.62197 -1.107978    DL    LGA  PWM -1.05011255 -0.72194321 -0.8062908
## 2095 -1.62197 -1.107978    B6    JFK  FLL  0.03594472 -0.78209836 -0.8062908
## 2096 -1.62197 -1.107978    EV    EWR  BTV -1.05418527 -0.83222765 -0.8062908
## 2099 -1.62197 -1.107978    B6    JFK  SYR -1.13156685 -0.78209836 -0.8062908
## 2100 -1.62197 -1.107978    B6    JFK  BUF -1.00667026 -0.78209836 -0.8062908
## 2102 -1.62197 -1.107978    B6    JFK  BOS -1.16143342 -0.78209836 -0.8062908
## 2105 -1.62197 -0.994091    AA    JFK  MIA  0.06309615 -1.00266723 -0.7597368
## 2106 -1.62197 -0.994091    B6    JFK  BQN  0.72423351 -1.00266723 -0.7597368
## 2107 -1.62197 -0.994091    UA    LGA  IAH  0.50702206 -0.95253794 -0.7038719
```

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## 2108 -1.62197 -0.994091      EV     EWR  DTW -0.75280437 -1.17310682 -0.7038719
## 2109 -1.62197 -0.994091      B6     EWR  FLL  0.03051443 -1.17310682 -0.7038719
## 2110 -1.62197 -0.994091      AA     LGA  DFW  0.47036763 -1.00266723 -0.7038719
## 2111 -1.62197 -0.994091      DL     LGA  ATL -0.38082976 -1.00266723 -0.7038719
## 2112 -1.62197 -0.994091      DL     LGA  DTW -0.73379837 -1.00266723 -0.7038719
## 2113 -1.62197 -0.994091      MQ     LGA  ATL -0.38082976 -1.00266723 -0.7038719
## 2114 -1.62197 -0.994091      US     LGA  DCA -1.12477899 -1.00266723 -0.7038719
## 2115 -1.62197 -0.994091      UA     EWR  BOS -1.14378499 -1.17310682 -0.7038719
## 2116 -1.62197 -0.994091      DL     LGA  MSP -0.03057629 -1.00266723 -0.7038719
## 2117 -1.62197 -0.994091      AA     LGA  MIA  0.07259915 -1.00266723 -0.7038719
## 2118 -1.62197 -0.994091      US     JFK  PHL -1.28768758 -1.06282238 -0.7597368
## 2119 -1.62197 -0.994091      MQ     LGA  RDU -0.83018595 -1.00266723 -0.7038719
## 2120 -1.62197 -0.994091      US     JFK  CLT -0.68085308 -1.00266723 -0.7038719
## 2121 -1.62197 -0.994091      EV     EWR  CVG -0.64284107 -1.17310682 -0.7038719
## 2122 -1.62197 -0.994091      B6     JFK  MCO -0.13375173 -1.06282238 -0.7597368
## 2123 -1.62197 -0.994091      US     LGA  CLT -0.67678036 -1.00266723 -0.7038719
## 2124 -1.62197 -0.994091      UA     EWR  PBI -0.02650357 -1.17310682 -0.7038719
## 2125 -1.62197 -0.994091      EV     EWR  IND -0.53966563 -1.17310682 -0.7038719
## 2126 -1.62197 -0.994091      WN     LGA  DEN  0.78396666 -1.00266723 -0.7038719
## 2127 -1.62197 -0.994091      AA     JFK  SJU  0.75410009 -1.06282238 -0.7597368
## 2128 -1.62197 -0.994091      B6     JFK  TPA -0.05093986 -1.06282238 -0.7597368
## 2129 -1.62197 -0.994091      UA     EWR  SFO  2.06687181 -1.17310682 -0.7038719
## 2130 -1.62197 -0.994091      AA     LGA  ORD -0.42019933 -1.00266723 -0.7038719
## 2131 -1.62197 -0.994091      UA     EWR  PHX  1.48040089 -1.17310682 -0.7038719
## 2132 -1.62197 -0.994091      UA     EWR  AUS  0.62648836 -1.17310682 -0.7038719
## 2133 -1.62197 -0.994091      EV     EWR  DCA -1.14514256 -1.17310682 -0.7038719
## 2134 -1.62197 -0.994091      VX     JFK  LAX  1.94469037 -1.06282238 -0.7597368
## 2135 -1.62197 -0.994091      B6     JFK  MSY  0.18935031 -1.06282238 -0.7597368
## 2136 -1.62197 -0.994091      US     LGA  BOS -1.16550614 -0.95253794 -0.6573179
## 2137 -1.62197 -0.994091      DL     LGA  FLL  0.04544772 -0.95253794 -0.6573179
## 2138 -1.62197 -0.994091      MQ     LGA  XNA  0.14183530 -0.95253794 -0.6573179
## 2139 -1.62197 -0.994091      DL     JFK  LAX  1.94469037 -1.06282238 -0.7597368
## 2140 -1.62197 -0.994091      EV     EWR  RDU -0.85054953 -1.17310682 -0.7038719
## 2141 -1.62197 -0.994091      EV     EWR  MSY  0.16898673 -1.06282238 -0.6573179
## 2142 -1.62197 -0.994091      DL     JFK  SFO  2.09538082 -1.06282238 -0.7597368
## 2143 -1.62197 -0.994091      B6     LGA  MCO -0.12560630 -0.95253794 -0.6573179
## 2144 -1.62197 -0.994091      UA     EWR  ORD -0.43920534 -1.06282238 -0.6573179
## 2145 -1.62197 -0.994091      B6     JFK  FLL  0.03594472 -1.06282238 -0.7597368
## 2146 -1.62197 -0.994091      MQ     EWR  ORD -0.43920534 -1.06282238 -0.6573179
## 2147 -1.62197 -0.994091      UA     LGA  ORD -0.42019933 -0.95253794 -0.6573179
## 2148 -1.62197 -0.994091      UA     JFK  SFO  2.09538082 -1.06282238 -0.7597368
## 2149 -1.62197 -0.994091      UA     EWR  SNA  1.88902994 -1.06282238 -0.6573179
## 2151 -1.62197 -0.994091      AA     JFK  FLL  0.03594472 -1.06282238 -0.7597368
## 2152 -1.62197 -0.994091      DL     LGA  DTW -0.73379837 -0.95253794 -0.6573179
## 2153 -1.62197 -0.994091      AA     JFK  MCO -0.13375173 -1.06282238 -0.7597368
## 2154 -1.62197 -0.994091      AA     JFK  LAX  1.94469037 -1.06282238 -0.7597368
## 2155 -1.62197 -0.994091      AS     EWR  SEA  1.84558765 -1.06282238 -0.6573179
## 2156 -1.62197 -0.994091      DL     JFK  SEA  1.87273908 -1.06282238 -0.7597368
## 2157 -1.62197 -0.994091      UA     LGA  IAH  0.50702206 -0.95253794 -0.6573179
## 2158 -1.62197 -0.994091      AA     LGA  ORD -0.42019933 -0.95253794 -0.6573179
## 2159 -1.62197 -0.994091      AA     JFK  SFO  2.09538082 -1.06282238 -0.7597368
## 2160 -1.62197 -0.994091      EV     EWR  STL -0.23149688 -1.06282238 -0.6573179
## 2161 -1.62197 -0.994091      EV     EWR  MHT -1.13156685 -1.06282238 -0.6573179
## 2162 -1.62197 -0.994091      UA     EWR  TPA -0.06180044 -1.06282238 -0.6573179
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## 2163 -1.62197 -0.994091    DL    JFK   MIA   0.06309615 -0.83222765 -0.7597368
## 2164 -1.62197 -0.994091    B6    EWR   MCO  -0.14325473 -0.95253794 -0.6573179
## 2165 -1.62197 -0.994091    EV    EWR   OMA   0.12418687 -0.95253794 -0.6573179
## 2166 -1.62197 -0.994091    AA    JFK   STT   0.78803938 -0.83222765 -0.7597368
## 2167 -1.62197 -0.994091    9E    JFK   MSP  -0.01835814 -0.83222765 -0.7597368
## 2168 -1.62197 -0.994091    B6    JFK   CLT  -0.68085308 -0.83222765 -0.7597368
## 2169 -1.62197 -0.994091    DL    JFK   ATL  -0.38354490 -0.83222765 -0.7597368
## 2170 -1.62197 -0.994091    US    EWR   CLT  -0.69714394 -0.95253794 -0.6573179
## 2171 -1.62197 -0.994091    DL    LGA   TPA  -0.04415200 -0.89238279 -0.7038719
## 2172 -1.62197 -0.994091    WN    EWR   PHX   1.48040089 -0.95253794 -0.6573179
## 2173 -1.62197 -0.994091    DL    LGA   DEN   0.78396666 -0.89238279 -0.7038719
## 2174 -1.62197 -0.994091    9E    JFK   BWI  -1.16550614 -0.83222765 -0.7597368
## 2175 -1.62197 -0.994091    MQ    LGA   BNA  -0.37811462 -0.89238279 -0.7038719
## 2176 -1.62197 -0.994091    EV    EWR   DAY  -0.69171365 -0.95253794 -0.6573179
## 2177 -1.62197 -0.994091    EV    EWR   MYR  -0.66863493 -0.95253794 -0.6573179
## 2178 -1.62197 -0.994091    MQ    JFK   DCA  -1.12613656 -0.83222765 -0.7597368
## 2179 -1.62197 -0.994091    EV    EWR   MEM  -0.13103659 -0.95253794 -0.6573179
## 2180 -1.62197 -0.994091    B6    JFK   SAN   1.90532080 -0.83222765 -0.7597368
## 2182 -1.62197 -0.994091    EV    EWR   PWM  -1.02974898 -0.95253794 -0.6573179
## 2183 -1.62197 -0.994091    9E    JFK   RDU  -0.83561624 -0.83222765 -0.7597368
## 2184 -1.62197 -0.994091    US    LGA   CLT  -0.67678036 -0.89238279 -0.7038719
## 2185 -1.62197 -0.994091    F9    LGA   DEN   0.78396666 -0.89238279 -0.7038719
## 2186 -1.62197 -0.994091    DL    JFK   SJU   0.75410009 -0.83222765 -0.7597368
## 2187 -1.62197 -0.994091    EV    EWR   BTV  -1.05418527 -0.95253794 -0.6573179
## 2188 -1.62197 -0.994091    UA    EWR   MCO  -0.14325473 -0.95253794 -0.6573179
## 2189 -1.62197 -0.994091    WN    EWR   MDW  -0.45006591 -0.95253794 -0.6573179
## 2190 -1.62197 -0.994091    UA    EWR   SFO   2.06687181 -0.95253794 -0.6573179
## 2191 -1.62197 -0.994091    UA    EWR   FLL   0.03051443 -0.95253794 -0.6573179
## 2192 -1.62197 -0.994091    EV    EWR   RIC  -1.03925198 -0.95253794 -0.6573179
## 2193 -1.62197 -0.994091    9E    JFK   DCA  -1.12613656 -0.83222765 -0.7597368
## 2194 -1.62197 -0.994091    AA    JFK   SJU   0.75410009 -0.83222765 -0.7597368
## 2195 -1.62197 -0.994091    B6    JFK   TPA  -0.05093986 -0.83222765 -0.7597368
## 2196 -1.62197 -0.994091    US    LGA   DCA  -1.12477899 -0.83222765 -0.7597368
## 2197 -1.62197 -0.994091    UA    EWR   IAH   0.48530091 -0.95253794 -0.6573179
## 2198 -1.62197 -0.994091    MQ    LGA   DTW  -0.73379837 -0.83222765 -0.7597368
## 2199 -1.62197 -0.994091    B6    JFK   AUS   0.64956708 -0.83222765 -0.7597368
## 2200 -1.62197 -0.994091    DL    EWR   ATL  -0.40255090 -0.72194321 -0.7597368
## 2201 -1.62197 -0.994091    AA    JFK   MIA   0.06309615 -0.72194321 -0.7597368
## 2202 -1.62197 -0.994091    UA    EWR   TPA  -0.06180044 -0.95253794 -0.6573179
## 2203 -1.62197 -0.994091    EV    EWR   XNA   0.12011416 -0.95253794 -0.6573179
## 2204 -1.62197 -0.994091    DL    JFK   LAX   1.94469037 -0.72194321 -0.7597368
## 2205 -1.62197 -0.994091    9E    JFK   DTW  -0.72429537 -0.83222765 -0.7597368
## 2206 -1.62197 -0.994091    DL    LGA   FLL   0.04544772 -0.83222765 -0.7597368
## 2207 -1.62197 -0.994091    B6    JFK   ROC  -1.05690041 -0.72194321 -0.7597368
## 2208 -1.62197 -0.994091    AA    JFK   LAX   1.94469037 -0.72194321 -0.7597368
## 2209 -1.62197 -0.994091    MQ    LGA   CLT  -0.67678036 -0.83222765 -0.7597368
## 2210 -1.62197 -0.994091    UA    EWR   LAS   1.60801262 -0.72194321 -0.7597368
## 2211 -1.62197 -0.994091    B6    LGA   FLL   0.04544772 -0.83222765 -0.7597368
## 2212 -1.62197 -0.994091    EV    EWR   STL  -0.23149688 -0.72194321 -0.7597368
## 2215 -1.62197 -0.994091    B6    JFK   BTV  -1.05418527 -0.72194321 -0.7597368
## 2216 -1.62197 -0.994091    EV    EWR   DTW  -0.75280437 -0.95253794 -0.6573179
## 2217 -1.62197 -0.994091    UA    EWR   LAX   1.91618137 -0.72194321 -0.7597368
## 2218 -1.62197 -0.994091    B6    JFK   BUF  -1.00667026 -0.72194321 -0.7597368
## 2219 -1.62197 -0.994091    B6    JFK   FLL   0.03594472 -0.72194321 -0.7597368
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## 2220 -1.62197 -0.994091    B6    LGA   PBI -0.01021271 -0.83222765 -0.7597368
## 2221 -1.62197 -0.994091    VX    JFK   LAS  1.63652162 -0.72194321 -0.7597368
## 2222 -1.62197 -0.994091    AA    LGA   MIA  0.07259915 -0.83222765 -0.7597368
## 2223 -1.62197 -0.994091    WN    LGA   BNA -0.37811462 -0.83222765 -0.7597368
## 2224 -1.62197 -0.994091    EV    EWR   DCA -1.14514256 -0.72194321 -0.7597368
## 2225 -1.62197 -0.994091    B6    JFK   PWM -1.04468226 -0.72194321 -0.7597368
## 2226 -1.62197 -0.994091    9E    LGA   GRR -0.57632007 -0.83222765 -0.7597368
## 2227 -1.62197 -0.994091    WN    LGA   MKE -0.41341148 -0.83222765 -0.7597368
## 2228 -1.62197 -0.994091    US    LGA   BOS -1.16550614 -0.78209836 -0.8062908
## 2229 -1.62197 -0.994091    US    JFK   PHX  1.50755232 -0.72194321 -0.7597368
## 2230 -1.62197 -0.994091    US    LGA   DCA -1.12477899 -0.78209836 -0.8062908
## 2231 -1.62197 -0.994091    DL    JFK   SFO  2.09538082 -0.61165877 -0.8621557
## 2232 -1.62197 -0.994091    US    LGA   CLT -0.67678036 -0.78209836 -0.8062908
## 2233 -1.62197 -0.994091    B6    JFK   LAS  1.63652162 -0.72194321 -0.7597368
## 2235 -1.62197 -0.994091    EV    EWR   BNA -0.39983576 -0.72194321 -0.7597368
## 2236 -1.62197 -0.994091    MQ    EWR   ORD -0.43920534 -0.67181392 -0.9087097
## 2237 -1.62197 -0.994091    UA    EWR   MCO -0.14325473 -0.67181392 -0.9087097
## 2238 -1.62197 -0.994091    UA    EWR   SEA  1.84558765 -0.67181392 -0.9087097
## 2239 -1.62197 -0.994091    DL    LGA   SRQ  0.00607814 -0.78209836 -0.8062908
## 2240 -1.62197 -0.994091    US    JFK   CLT -0.68085308 -0.61165877 -0.8621557
## 2241 -1.62197 -0.994091    UA    LGA   IAH  0.50702206 -0.78209836 -0.8062908
## 2242 -1.62197 -0.994091    EV    EWR   DTW -0.75280437 -0.67181392 -0.9087097
## 2243 -1.62197 -0.994091    VX    JFK   SFO  2.09538082 -0.61165877 -0.8621557
## 2244 -1.62197 -0.994091    AA    LGA   ORD -0.42019933 -0.78209836 -0.8062908
## 2245 -1.62197 -0.994091    B6    JFK   MCO -0.13375173 -0.61165877 -0.8621557
## 2246 -1.62197 -0.994091    DL    LGA   MEM -0.10795787 -0.78209836 -0.8062908
## 2247 -1.62197 -0.994091    EV    EWR   MKE -0.43105991 -0.67181392 -0.9087097
## 2248 -1.62197 -0.994091    AA    LGA   DFW  0.47036763 -0.78209836 -0.8062908
## 2249 -1.62197 -0.994091    B6    LGA   FLL  0.04544772 -0.78209836 -0.8062908
## 2250 -1.62197 -0.994091    UA    JFK   SFO  2.09538082 -0.61165877 -0.9645746
## 2251 -1.62197 -0.994091    US    LGA   DCA -1.12477899 -0.78209836 -0.9087097
## 2252 -1.62197 -0.994091    WN    LGA   MDW -0.43105991 -0.78209836 -0.9087097
## 2253 -1.62197 -0.994091    MQ    JFK   DCA -1.12613656 -0.61165877 -0.9645746
## 2254 -1.62197 -0.994091    MQ    LGA   DTW -0.73379837 -0.78209836 -0.8062908
## 2255 -1.62197 -0.994091    UA    EWR   BOS -1.14378499 -0.67181392 -0.9087097
## 2256 -1.62197 -0.994091    B6    JFK   BTV -1.05418527 -0.61165877 -0.9645746
## 2257 -1.62197 -0.994091    DL    LGA   ATL -0.38082976 -0.78209836 -0.9087097
## 2259 -1.62197 -0.994091    MQ    LGA   CLE -0.84647681 -0.78209836 -0.9087097
## 2260 -1.62197 -0.994091    B6    EWR   MCO -0.14325473 -0.61165877 -0.9645746
## 2261 -1.62197 -0.994091    B6    JFK   LAX  1.94469037 -0.61165877 -0.9645746
## 2262 -1.62197 -0.994091    DL    LGA   MSP -0.03057629 -0.78209836 -0.9087097
## 2263 -1.62197 -0.994091    UA    EWR   MCO -0.14325473 -0.61165877 -0.9645746
## 2264 -1.62197 -0.994091    B6    JFK   RSW  0.04273258 -0.61165877 -0.9645746
## 2265 -1.62197 -0.994091    DL    JFK   SJU  0.75410009 -0.61165877 -0.9645746
## 2266 -1.62197 -0.994091    AA    EWR   MIA  0.05766586 -0.61165877 -0.9645746
## 2267 -1.62197 -0.994091    FL    LGA   CAK -0.87634339 -0.78209836 -0.9087097
## 2268 -1.62197 -0.994091    DL    LGA   TPA -0.04415200 -0.78209836 -0.9087097
## 2269 -1.62197 -0.994091    DL    EWR   ATL -0.40255090 -0.61165877 -0.9645746
## 2270 -1.62197 -0.994091    B6    EWR   BOS -1.14378499 -0.56152948 -1.0204395
## 2271 -1.62197 -0.994091    US    LGA   BOS -1.16550614 -0.72194321 -1.0669935
## 2272 -1.62197 -0.994091    AA    JFK   LAX  1.94469037 -0.61165877 -1.0669935
## 2273 -1.62197 -0.994091    MQ    LGA   ATL -0.38082976 -0.72194321 -1.0669935
## 2274 -1.62197 -0.994091    US    JFK   CLT -0.68085308 -0.61165877 -1.0669935
## 2275 -1.62197 -0.994091    B6    JFK   SYR -1.13156685 -0.61165877 -1.0669935
```

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## 2276 -1.62197 -0.994091    MQ    EWR  ORD -0.43920534 -0.56152948 -1.0204395
## 2277 -1.62197 -0.994091    UA    EWR  SFO  2.06687181 -0.56152948 -1.0204395
## 2278 -1.62197 -0.994091    MQ    JFK  RDU -0.83561624 -0.61165877 -1.0669935
## 2279 -1.62197 -0.994091    WN    LGA  MKE -0.41341148 -0.72194321 -1.0669935
## 2280 -1.62197 -0.994091    UA    EWR  MIA  0.05766586 -0.56152948 -1.0204395
## 2281 -1.62197 -0.994091    AA    JFK  BOS -1.16143342 -0.61165877 -1.0669935
## 2282 -1.62197 -0.994091    EV    EWR  ATL -0.40255090 -0.56152948 -1.0204395
## 2283 -1.62197 -0.994091    DL    LGA  MCO -0.12560630 -0.72194321 -1.0669935
## 2285 -1.62197 -0.994091    UA    LGA  IAH  0.50702206 -0.72194321 -1.0669935
## 2286 -1.62197 -0.994091    9E    EWR  CVG -0.64284107 -0.61165877 -1.1228584
## 2287 -1.62197 -0.994091    US    LGA  DCA -1.12477899 -0.67181392 -1.0204395
## 2288 -1.62197 -0.994091    US    LGA  CLT -0.67678036 -0.72194321 -1.0669935
## 2289 -1.62197 -0.994091    EV    EWR  RIC -1.03925198 -0.56152948 -1.0204395
## 2290 -1.62197 -0.994091    DL    LGA  ATL -0.38082976 -0.67181392 -1.0204395
## 2291 -1.62197 -0.994091    WN    EWR  HOU  0.50023420 -0.61165877 -1.1228584
## 2292 -1.62197 -0.994091    B6    JFK  PBI -0.01971572 -0.61165877 -1.0669935
## 2293 -1.62197 -0.994091    B6    JFK  FLL  0.03594472 -0.61165877 -1.1228584
## 2294 -1.62197 -0.994091    EV    EWR  DCA -1.14514256 -0.56152948 -1.0204395
## 2295 -1.62197 -0.994091    FL    LGA  ATL -0.38082976 -0.67181392 -1.0204395
## 2296 -1.62197 -0.994091    MQ    LGA  DTW -0.73379837 -0.67181392 -1.0204395
## 2297 -1.62197 -0.994091    UA    EWR  DFW  0.44728891 -0.56152948 -1.0204395
## 2298 -1.62197 -0.994091    EV    EWR  STL -0.23149688 -0.61165877 -1.1228584
## 2300 -1.62197 -0.994091    EV    EWR  BWI -1.18586971 -0.61165877 -1.1228584
## 2301 -1.62197 -0.994091    VX    JFK  LAX  1.94469037 -0.61165877 -1.1228584
## 2302 -1.62197 -0.994091    UA    EWR  HNL  5.32232848 -0.61165877 -1.1228584
## 2303 -1.62197 -0.994091    EV    EWR  MSN -0.33059961 -0.61165877 -1.1228584
## 2304 -1.62197 -0.994091    EV    EWR  CHS -0.56274435 -0.61165877 -1.1228584
## 2305 -1.62197 -0.994091    US    LGA  DCA -1.12477899 -0.67181392 -1.0204395
## 2306 -1.62197 -0.994091    EV    JFK  IAD -1.10577299 -0.61165877 -1.1228584
## 2307 -1.62197 -0.994091    DL    LGA  MSY  0.19070788 -0.67181392 -1.0204395
## 2308 -1.62197 -0.994091    MQ    EWR  ORD -0.43920534 -0.56152948 -1.1228584
## 2309 -1.62197 -0.994091    UA    JFK  SFO  2.09538082 -0.61165877 -1.1228584
## 2310 -1.62197 -0.994091    EV    EWR  DCA -1.14514256 -0.56152948 -1.1228584
## 2312 -1.62197 -0.994091    EV    EWR  MSP -0.04686715 -0.56152948 -1.1228584
## 2313 -1.62197 -0.994091    B6    JFK  PBI -0.01971572 -0.61165877 -1.1228584
## 2314 -1.62197 -0.994091    UA    EWR  BOS -1.14378499 -0.56152948 -1.1228584
## 2315 -1.62197 -0.994091    US    LGA  CLT -0.67678036 -0.67181392 -1.0204395
## 2316 -1.62197 -0.994091    AA    JFK  MCO -0.13375173 -0.61165877 -1.1228584
## 2317 -1.62197 -0.994091    DL    LGA  PBI -0.01021271 -0.67181392 -1.0204395
## 2318 -1.62197 -0.994091    9E    JFK  ORF -1.02160355 -0.61165877 -1.1228584
## 2319 -1.62197 -0.994091    9E    JFK  BUF -1.00667026 -0.61165877 -1.1228584
## 2320 -1.62197 -0.994091    AA    JFK  MIA  0.06309615 -0.61165877 -1.1228584
## 2321 -1.62197 -0.994091    AA    LGA  MIA  0.07259915 -0.67181392 -1.1694124
## 2322 -1.62197 -0.994091    DL    LGA  ATL -0.38082976 -0.67181392 -1.1694124
## 2323 -1.62197 -0.994091    UA    LGA  IAH  0.50702206 -0.67181392 -1.0204395
## 2324 -1.62197 -0.994091    US    EWR  CLT -0.69714394 -0.67181392 -1.2252773
## 2325 -1.62197 -0.994091    UA    EWR  RSW  0.03458715 -0.56152948 -1.1228584
## 2326 -1.62197 -0.994091    UA    EWR  DEN  0.76360309 -0.56152948 -1.1228584
## 2327 -1.62197 -0.994091    B6    LGA  MCO -0.12560630 -0.67181392 -1.0204395
## 2328 -1.62197 -0.994091    EV    EWR  PWM -1.02974898 -0.67181392 -1.2252773
## 2329 -1.62197 -0.994091    9E    JFK  DCA -1.12613656 -0.67181392 -1.1694124
## 2330 -1.62197 -0.994091    AA    LGA  DFW  0.47036763 -0.67181392 -1.1694124
## 2331 -1.62197 -0.994091    UA    EWR  LAX  1.91618137 -0.67181392 -1.2252773
## 2332 -1.62197 -0.994091    MQ    JFK  IND -0.51251420 -0.67181392 -1.1694124
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## 2334 -1.62197 -0.994091    UA    EWR  SFO  2.06687181 -0.56152948 -1.1228584
## 2335 -1.62197 -0.994091    WN    LGA  MKE -0.41341148 -0.67181392 -1.1694124
## 2336 -1.62197 -0.994091    9E    LGA  RIC -1.01888840 -0.67181392 -1.1694124
## 2337 -1.62197 -0.994091    EV    EWR  GRR -0.59396850 -0.67181392 -1.2252773
## 2338 -1.62197 -0.994091    MQ    JFK  DCA -1.12613656 -0.67181392 -1.1694124
## 2339 -1.62197 -0.994091    MQ    JFK  CMH -0.75959223 -0.67181392 -1.1694124
## 2340 -1.62197 -0.994091    EV    EWR  MKE -0.43105991 -0.67181392 -1.2252773
## 2341 -1.62197 -0.994091    B6    EWR  TPA -0.06180044 -0.67181392 -1.2252773
## 2343 -1.62197 -0.994091    UA    LGA  DEN  0.78396666 -0.67181392 -1.1694124
## 2344 -1.62197 -0.994091    AA    JFK  SFO  2.09538082 -0.67181392 -1.1694124
## 2345 -1.62197 -0.994091    EV    EWR  BNA -0.39983576 -0.67181392 -1.2252773
## 2346 -1.62197 -0.994091    EV    EWR  MSP -0.04686715 -0.67181392 -1.2252773
## 2347 -1.62197 -0.994091    9E    JFK  ROC -1.05690041 -0.67181392 -1.1694124
## 2348 -1.62197 -0.994091    UA    EWR  FLL  0.03051443 -0.67181392 -1.2252773
## 2349 -1.62197 -0.994091    AA    JFK  LAX  1.94469037 -0.67181392 -1.1694124
## 2350 -1.62197 -0.994091    DL    JFK  SLC  1.28626815 -0.67181392 -1.1694124
## 2351 -1.62197 -0.994091    DL    JFK  ATL -0.38354490 -0.67181392 -1.1694124
## 2352 -1.62197 -0.994091    9E    JFK  MSP -0.01835814 -0.67181392 -1.1694124
## 2353 -1.62197 -0.994091    US    LGA  BOS -1.16550614 -0.78209836 -1.0204395
## 2354 -1.62197 -0.994091    FL    LGA  ATL -0.38082976 -0.78209836 -1.0204395
## 2355 -1.62197 -0.994091    US    LGA  DCA -1.12477899 -0.78209836 -1.0204395
## 2356 -1.62197 -0.994091    B6    LGA  TPA -0.04415200 -0.78209836 -1.0204395
## 2357 -1.62197 -0.994091    AA    JFK  DFW  0.47308277 -0.89238279 -1.1694124
## 2358 -1.62197 -0.994091    DL    LGA  MCO -0.12560630 -0.67181392 -1.1694124
## 2359 -1.62197 -0.994091    UA    EWR  ORD -0.43920534 -0.78209836 -1.2252773
## 2360 -1.62197 -0.994091    B6    JFK  ORD -0.41069633 -0.67181392 -1.1694124
## 2363 -1.62197 -0.994091    9E    JFK  BWI -1.16550614 -0.67181392 -1.1694124
## 2364 -1.62197 -0.994091    9E    JFK  BNA -0.37675704 -0.89238279 -1.1694124
## 2365 -1.62197 -0.994091    DL    JFK  MIA  0.06309615 -0.89238279 -1.1694124
## 2366 -1.62197 -0.994091    MQ    LGA  BNA -0.37811462 -0.78209836 -1.0204395
## 2367 -1.62197 -0.994091    EV    EWR  DCA -1.14514256 -0.78209836 -1.2252773
## 2368 -1.62197 -0.994091    MQ    LGA  ATL -0.38082976 -0.78209836 -1.0204395
## 2369 -1.62197 -0.994091    9E    JFK  RDU -0.83561624 -0.89238279 -1.1694124
## 2370 -1.62197 -0.994091    B6    JFK  LAX  1.94469037 -0.89238279 -1.1694124
## 2371 -1.62197 -0.994091    9E    JFK  PHL -1.28768758 -0.89238279 -1.1694124
## 2372 -1.62197 -0.994091    US    JFK  PHX  1.50755232 -0.89238279 -1.1694124
## 2373 -1.62197 -0.994091    B6    EWR  BOS -1.14378499 -0.78209836 -1.2252773
## 2375 -1.62197 -0.994091    US    EWR  PHX  1.48040089 -0.78209836 -1.2252773
## 2376 -1.62197 -0.994091    AA    LGA  DFW  0.47036763 -0.78209836 -1.0204395
## 2378 -1.62197 -0.994091    9E    EWR  CVG -0.64284107 -0.78209836 -1.2252773
## 2379 -1.62197 -0.994091    UA    EWR  LAS  1.60801262 -0.78209836 -1.2252773
## 2380 -1.62197 -0.994091    DL    JFK  AUS  0.64956708 -0.89238279 -1.1694124
## 2381 -1.62197 -0.994091    US    LGA  DCA -1.12477899 -0.89238279 -1.0669935
## 2383 -1.62197 -0.994091    DL    LGA  ATL -0.38082976 -0.89238279 -1.0669935
## 2384 -1.62197 -0.994091    B6    JFK  SAN  1.90532080 -0.89238279 -1.1694124
## 2385 -1.62197 -0.994091    DL    JFK  LAX  1.94469037 -1.06282238 -1.1228584
## 2386 -1.62197 -0.994091    WN    EWR  STL -0.23149688 -0.83222765 -1.2252773
## 2387 -1.62197 -0.994091    AA    JFK  BOS -1.16143342 -0.89238279 -1.1694124
## 2388 -1.62197 -0.994091    B6    JFK  ROC -1.05690041 -1.06282238 -1.1228584
## 2389 -1.62197 -0.994091    B6    JFK  BUR  1.93111466 -0.89238279 -1.1694124
## 2390 -1.62197 -0.994091    UA    EWR  BOS -1.14378499 -0.78209836 -1.2252773
## 2391 -1.62197 -0.994091    EV    EWR  BWI -1.18586971 -0.83222765 -1.2252773
## 2392 -1.62197 -0.994091    DL    LGA  MCO -0.12560630 -0.89238279 -1.0669935
## 2395 -1.62197 -0.994091    UA    LGA  IAH  0.50702206 -0.89238279 -1.0669935
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## 2396 -1.62197 -0.994091     MQ     JFK  DCA -1.12613656 -1.06282238 -1.1228584
## 2397 -1.62197 -0.994091     US     LGA  CLT -0.67678036 -0.89238279 -1.0669935
## 2398 -1.62197 -0.994091     AA     JFK  ORD -0.41069633 -1.06282238 -1.1228584
## 2399 -1.62197 -0.994091     DL     EWR  SLC  1.25775915 -0.83222765 -1.2252773
## 2401 -1.62197 -0.994091     UA     JFK  SFO  2.09538082 -1.06282238 -1.1228584
## 2402 -1.62197 -0.994091     UA     EWR  IAH  0.48530091 -0.83222765 -1.2252773
## 2403 -1.62197 -0.994091     B6     JFK  BTV -1.05418527 -1.06282238 -1.1228584
## 2404 -1.62197 -0.994091     WN     EWR  MDW -0.45006591 -0.83222765 -1.2252773
## 2405 -1.62197 -0.994091     WN     LGA  BNA -0.37811462 -0.89238279 -1.0669935
## 2406 -1.62197 -0.994091     EV     EWR  PIT -0.98223397 -0.83222765 -1.2252773
## 2407 -1.62197 -0.994091     MQ     LGA  XNA  0.14183530 -0.89238279 -1.0669935
## 2408 -1.62197 -0.994091     B6     EWR  PBI -0.02650357 -0.83222765 -1.2252773
## 2409 -1.62197 -0.994091     UA     EWR  SEA  1.84558765 -0.83222765 -1.2252773
## 2410 -1.62197 -0.994091     AA     JFK  SFO  2.09538082 -1.06282238 -1.1228584
## 2411 -1.62197 -0.994091     WN     EWR  BWI -1.18586971 -0.89238279 -1.1694124
## 2412 -1.62197 -0.994091     US     LGA  DCA -1.12477899 -0.95253794 -1.0669935
## 2413 -1.62197 -0.994091     US     LGA  BOS -1.16550614 -0.95253794 -1.0669935
## 2414 -1.62197 -0.994091     B6     JFK  FLL  0.03594472 -0.95253794 -1.1228584
## 2415 -1.62197 -0.994091     MQ     LGA  CMH -0.76502252 -0.95253794 -1.0669935
## 2416 -1.62197 -0.994091     B6     JFK  MCO -0.13375173 -0.95253794 -1.1228584
## 2417 -1.62197 -0.994091     AA     LGA  MIA  0.07259915 -0.95253794 -1.0669935
## 2418 -1.62197 -0.994091     B6     JFK  SJC  2.07230210 -0.95253794 -1.1228584
## 2419 -1.62197 -0.994091     EV     EWR  MSP -0.04686715 -0.89238279 -1.1694124
## 2420 -1.62197 -0.994091     WN     LGA  MDW -0.43105991 -0.95253794 -1.0669935
## 2421 -1.62197 -0.994091     B6     JFK  LGB  1.93111466 -0.95253794 -1.1228584
## 2422 -1.62197 -0.994091     UA     EWR  LAS  1.60801262 -0.89238279 -1.1694124
## 2423 -1.62197 -0.994091     B6     JFK  IAD -1.10577299 -1.06282238 -1.1228584
## 2425 -1.62197 -0.994091     9E     JFK  RIC -1.02431869 -0.95253794 -1.1228584
## 2426 -1.62197 -0.994091     UA     EWR  ORD -0.43920534 -0.83222765 -1.2252773
## 2427 -1.62197 -0.994091     UA     EWR  CLE -0.86684039 -0.89238279 -1.1694124
## 2428 -1.62197 -0.994091     AA     LGA  ORD -0.42019933 -0.95253794 -1.0669935
## 2429 -1.62197 -0.994091     US     LGA  PHL -1.28497244 -0.95253794 -1.0669935
## 2430 -1.62197 -0.994091     EV     EWR  DTW -0.75280437 -0.89238279 -1.1694124
## 2431 -1.62197 -0.994091     UA     EWR  SNA  1.88902994 -0.89238279 -1.1694124
## 2432 -1.62197 -0.994091     UA     JFK  SFO  2.09538082 -0.95253794 -1.1228584
## 2434 -1.62197 -0.994091     DL     LGA  DTW -0.73379837 -0.95253794 -1.0669935
## 2435 -1.62197 -0.994091     B6     EWR  MCO -0.14325473 -0.89238279 -1.1694124
## 2436 -1.62197 -0.994091     DL     JFK  SEA  1.87273908 -0.95253794 -1.1228584
## 2437 -1.62197 -0.994091     MQ     JFK  BWI -1.16550614 -0.95253794 -1.1228584
## 2438 -1.62197 -0.994091     MQ     LGA  CRW -0.81253752 -0.95253794 -1.0669935
## 2439 -1.62197 -0.994091     DL     JFK  MIA  0.06309615 -0.95253794 -1.1228584
## 2440 -1.62197 -0.994091     9E     JFK  MSY  0.18935031 -0.95253794 -1.1228584
## 2441 -1.62197 -0.994091     AA     LGA  STL -0.20977574 -0.95253794 -1.0669935
## 2442 -1.62197 -0.994091     FL     LGA  ATL -0.38082976 -0.89238279 -1.1694124
## 2443 -1.62197 -0.994091     DL     JFK  ATL -0.38354490 -0.95253794 -1.1228584
## 2444 -1.62197 -0.994091     9E     JFK  PIT -0.95372497 -1.11295167 -1.1228584
## 2445 -1.62197 -0.994091     EV     EWR  DSM -0.03464900 -0.95253794 -1.0669935
## 2446 -1.62197 -0.994091     WN     LGA  MKE -0.41341148 -0.89238279 -1.1694124
## 2447 -1.62197 -0.994091     MQ     LGA  RDU -0.83018595 -0.89238279 -1.1694124
## 2448 -1.62197 -0.994091     AA     EWR  DFW  0.44728891 -0.95253794 -1.0669935
## 2449 -1.62197 -0.994091     B6     JFK  SLC  1.28626815 -1.11295167 -1.1228584
## 2450 -1.62197 -0.994091     B6     JFK  MCO -0.13375173 -1.11295167 -1.1228584
## 2451 -1.62197 -0.994091     9E     JFK  ORD -0.41069633 -1.11295167 -1.1228584
## 2452 -1.62197 -0.994091     B6     JFK  SMF  2.00713866 -0.95253794 -1.1228584
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## 2453 -1.62197 -0.994091     EV     EWR  GRR -0.59396850 -0.89238279 -1.1694124
## 2454 -1.62197 -0.994091     DL     LGA  ATL -0.38082976 -0.89238279 -1.1694124
## 2455 -1.62197 -0.994091     9E     JFK  RDU -0.83561624 -1.11295167 -1.1228584
## 2456 -1.62197 -0.994091     DL     JFK  PHX  1.50755232 -1.11295167 -1.1228584
## 2457 -1.62197 -0.994091     DL     JFK  SLC  1.28626815 -1.11295167 -1.1228584
## 2458 -1.62197 -0.994091     EV     EWR  OKC  0.38348305 -0.95253794 -1.0669935
## 2459 -1.62197 -0.994091     AA     JFK  TPA -0.05093986 -1.11295167 -1.1228584
## 2460 -1.62197 -0.994091     WN     EWR  MDW -0.45006591 -0.95253794 -1.0669935
## 2461 -1.62197 -0.994091     9E     JFK  BWI -1.16550614 -1.11295167 -1.1228584
## 2462 -1.62197 -0.994091     UA     EWR  IAH  0.48530091 -0.95253794 -1.0669935
## 2463 -1.62197 -0.994091     EV     EWR  DCA -1.14514256 -0.95253794 -1.0669935
## 2464 -1.62197 -0.994091     9E     LGA  TYS -0.53695049 -0.89238279 -1.1228584
## 2465 -1.62197 -0.994091     DL     JFK  BOS -1.16143342 -1.11295167 -1.0204395
## 2466 -1.62197 -0.994091     9E     JFK  BUF -1.00667026 -1.11295167 -1.0204395
## 2467 -1.62197 -0.994091     UA     EWR  TPA -0.06180044 -0.95253794 -1.0669935
## 2469 -1.62197 -0.994091     AA     JFK  BOS -1.16143342 -1.11295167 -1.0204395
## 2470 -1.62197 -0.994091     UA     EWR  PBI -0.02650357 -0.95253794 -1.0669935
## 2471 -1.62197 -0.994091     MQ     LGA  CMH -0.76502252 -0.89238279 -1.1228584
## 2472 -1.62197 -0.994091     EV     EWR  GSP -0.60890178 -0.95253794 -1.0669935
## 2475 -1.62197 -0.994091     B6     JFK  MSY  0.18935031 -1.11295167 -1.0204395
## 2476 -1.62197 -0.994091     EV     EWR  STL -0.23149688 -0.95253794 -1.0669935
## 2477 -1.62197 -0.994091     B6     JFK  MCO -0.13375173 -1.11295167 -1.0204395
## 2480 -1.62197 -0.994091     MQ     EWR  ORD -0.43920534 -1.11295167 -0.9087097
## 2481 -1.62197 -0.994091     WN     LGA  MDW -0.43105991 -0.95253794 -1.0669935
## 2482 -1.62197 -0.994091     EV     EWR  RIC -1.03925198 -1.11295167 -0.9087097
## 2483 -1.62197 -0.994091     EV     EWR  JAX -0.30209061 -1.11295167 -0.9087097
## 2486 -1.62197 -0.994091     EV     EWR  PVD -1.19808785 -1.11295167 -0.9087097
## 2487 -1.62197 -0.994091     B6     JFK  SJU  0.75410009 -1.39367569 -1.0204395
## 2489 -1.62197 -0.994091     B6     JFK  LAS  1.63652162 -1.39367569 -1.0204395
## 2492 -1.62197 -0.994091     B6     JFK  PWM -1.04468226 -1.33352054 -0.9087097
## 2495 -1.62197 -0.994091     B6     JFK  BOS -1.16143342 -1.33352054 -0.9087097
## 2496 -1.62197 -0.994091     B6     JFK  BQN  0.72423351 -1.28339125 -0.8062908
## 2497 -1.62197 -0.994091     AA     LGA  STL -0.20977574 -0.72194321 -1.0669935
## 2498 -1.62197 -0.994091     9E     JFK  BUF -1.00667026 -0.83222765 -0.7597368
## 2499 -1.62197 -0.880204     AA     LGA  DFW  0.47036763 -1.11295167 -0.8062908
## 2500 -1.62197 -0.880204     FL     LGA  ATL -0.38082976 -1.11295167 -0.8062908
## 2501 -1.62197 -0.880204     DL     LGA  DTW -0.73379837 -1.11295167 -0.8062908
## 2502 -1.62197 -0.880204     MQ     LGA  ATL -0.38082976 -1.11295167 -0.8062908
## 2503 -1.62197 -0.880204     EV     JFK  IAD -1.10577299 -1.22323611 -0.7038719
## 2504 -1.62197 -0.880204     B6     EWR  FLL  0.03051443 -1.45383084 -0.8621557
## 2505 -1.62197 -0.880204     MQ     LGA  DTW -0.73379837 -1.11295167 -0.8062908
## 2506 -1.62197 -0.880204     EV     EWR  IAD -1.12749413 -1.45383084 -0.8621557
## 2507 -1.62197 -0.880204     UA     EWR  BOS -1.14378499 -1.45383084 -0.8621557
## 2508 -1.62197 -0.880204     AA     LGA  MIA  0.07259915 -1.11295167 -0.8062908
## 2509 -1.62197 -0.880204     WN     EWR  MDW -0.45006591 -1.45383084 -0.8621557
## 2510 -1.62197 -0.880204     UA     JFK  SFO  2.09538082 -1.22323611 -0.7038719
## 2511 -1.62197 -0.880204     DL     EWR  ATL -0.40255090 -1.45383084 -0.8621557
## 2512 -1.62197 -0.880204     US     EWR  CLT -0.69714394 -1.45383084 -0.8621557
## 2513 -1.62197 -0.880204     B6     JFK  MCO -0.13375173 -1.22323611 -0.7038719
## 2514 -1.62197 -0.880204     US     LGA  CLT -0.67678036 -1.11295167 -0.8062908
## 2515 -1.62197 -0.880204     EV     EWR  CVG -0.64284107 -1.45383084 -0.8621557
## 2516 -1.62197 -0.880204     EV     EWR  PIT -0.98223397 -1.45383084 -0.8621557
## 2517 -1.62197 -0.880204     B6     JFK  BOS -1.16143342 -1.22323611 -0.7038719
## 2518 -1.62197 -0.880204     EV     EWR  CLT -0.69714394 -1.45383084 -0.8621557
```

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## 2519 -1.62197 -0.880204     UA    EWR   MIA   0.05766586 -1.45383084 -0.8621557
## 2520 -1.62197 -0.880204     US    EWR   CLT  -0.69714394 -1.45383084 -0.8621557
## 2521 -1.62197 -0.880204     UA    EWR   SFO   2.06687181 -1.45383084 -0.8621557
## 2522 -1.62197 -0.880204     EV    EWR   DCA  -1.14514256 -1.45383084 -0.8621557
## 2523 -1.62197 -0.880204     UA    EWR   DFW   0.44728891 -1.45383084 -0.8621557
## 2524 -1.62197 -0.880204     AA    LGA   MIA   0.07259915 -1.06282238 -0.8062908
## 2525 -1.62197 -0.880204     DL    LGA   ATL  -0.38082976 -1.11295167 -0.8062908
## 2526 -1.62197 -0.880204     UA    EWR   DEN   0.76360309 -1.45383084 -0.8621557
## 2527 -1.62197 -0.880204     MQ    LGA   XNA   0.14183530 -1.06282238 -0.8062908
## 2528 -1.62197 -0.880204     DL    JFK   SFO   2.09538082 -1.17310682 -0.6573179
## 2529 -1.62197 -0.880204     DL    LGA   MIA   0.07259915 -1.06282238 -0.8062908
## 2530 -1.62197 -0.880204     DL    JFK   LAX   1.94469037 -1.17310682 -0.6573179
## 2531 -1.62197 -0.880204     EV    EWR   SDF  -0.54373835 -1.50396013 -0.8621557
## 2532 -1.62197 -0.880204     UA    EWR   MCO  -0.14325473 -1.50396013 -0.8621557
## 2533 -1.62197 -0.880204     UA    EWR   LAS   1.60801262 -1.50396013 -0.8621557
## 2534 -1.62197 -0.880204     US    LGA   BOS  -1.16550614 -1.06282238 -0.8062908
## 2535 -1.62197 -0.880204     B6    JFK   LAX   1.94469037 -1.17310682 -0.6573179
## 2536 -1.62197 -0.880204     B6    JFK   FLL   0.03594472 -1.17310682 -0.6573179
## 2537 -1.62197 -0.880204     UA    EWR   SNA   1.88902994 -1.50396013 -0.8621557
## 2538 -1.62197 -0.880204     UA    LGA   ORD  -0.42019933 -1.06282238 -0.8062908
## 2539 -1.62197 -0.880204     EV    EWR   BNA  -0.39983576 -1.50396013 -0.8621557
## 2540 -1.62197 -0.880204     VX    JFK   LAX   1.94469037 -1.17310682 -0.6573179
## 2541 -1.62197 -0.880204     AA    JFK   MIA   0.06309615 -1.17310682 -0.6573179
## 2542 -1.62197 -0.880204     DL    LGA   DTW  -0.73379837 -1.06282238 -0.8062908
## 2543 -1.62197 -0.880204     FL    LGA   MKE  -0.41341148 -1.06282238 -0.8062908
## 2544 -1.62197 -0.880204     UA    EWR   PBI  -0.02650357 -1.50396013 -0.8621557
## 2545 -1.62197 -0.880204     AS    EWR   SEA   1.84558765 -1.50396013 -0.8621557
## 2546 -1.62197 -0.880204     AA    JFK   LAX   1.94469037 -1.17310682 -0.6573179
## 2547 -1.62197 -0.880204     DL    EWR   ATL  -0.40255090 -1.50396013 -0.8621557
## 2548 -1.62197 -0.880204     EV    EWR   STL  -0.23149688 -1.50396013 -0.8621557
## 2549 -1.62197 -0.880204     UA    EWR   TPA  -0.06180044 -1.50396013 -0.8621557
## 2550 -1.62197 -0.880204     UA    EWR   IAH   0.48530091 -1.50396013 -0.8621557
## 2551 -1.62197 -0.880204     9E    EWR   CVG  -0.64284107 -1.50396013 -0.8621557
## 2552 -1.62197 -0.880204     EV    EWR   MHT  -1.13156685 -1.22323611 -0.7597368
## 2553 -1.62197 -0.880204     US    LGA   CLT  -0.67678036 -1.06282238 -0.8062908
## 2554 -1.62197 -0.880204     WN    LGA   MDW  -0.43105991 -1.06282238 -0.8062908
## 2555 -1.62197 -0.880204     UA    JFK   SFO   2.09538082 -1.00266723 -0.5548989
## 2556 -1.62197 -0.880204     B6    EWR   MCO  -0.14325473 -1.22323611 -0.7597368
## 2557 -1.62197 -0.880204     9E    JFK   MSP  -0.01835814 -1.00266723 -0.5548989
## 2558 -1.62197 -0.880204     FL    LGA   ATL  -0.38082976 -1.06282238 -0.7597368
## 2559 -1.62197 -0.880204     UA    LGA   DEN   0.78396666 -1.06282238 -0.8062908
## 2560 -1.62197 -0.880204     DL    JFK   MCO  -0.13375173 -1.00266723 -0.5548989
## 2561 -1.62197 -0.880204     B6    JFK   PIT  -0.95372497 -1.00266723 -0.5548989
## 2562 -1.62197 -0.880204     DL    JFK   LAS   1.63652162 -1.00266723 -0.5548989
## 2563 -1.62197 -0.880204     DL    JFK   TPA  -0.05093986 -1.00266723 -0.5548989
## 2564 -1.62197 -0.880204     DL    JFK   MIA   0.06309615 -1.00266723 -0.5548989
## 2565 -1.62197 -0.880204     DL    LGA   DEN   0.78396666 -1.06282238 -0.7597368
## 2566 -1.62197 -0.880204     US    EWR   CLT  -0.69714394 -1.22323611 -0.7597368
## 2567 -1.62197 -0.880204     MQ    LGA   BNA  -0.37811462 -1.06282238 -0.7597368
## 2568 -1.62197 -0.880204     9E    JFK   BUF  -1.00667026 -1.00266723 -0.5548989
## 2569 -1.62197 -0.880204     B6    JFK   SJU   0.75410009 -1.00266723 -0.5548989
## 2570 -1.62197 -0.880204     EV    EWR   SYR  -1.15057285 -1.50396013 -0.8621557
## 2571 -1.62197 -0.880204     EV    EWR   MSP  -0.04686715 -1.50396013 -0.8621557
## 2572 -1.62197 -0.880204     AA    LGA   ORD  -0.42019933 -1.06282238 -0.7597368
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## 2577 -1.62197 -0.880204    AA    LGA   DFW  0.47036763 -1.06282238 -0.7597368
## 2578 -1.62197 -0.880204    UA    EWR   MCO -0.14325473 -1.22323611 -0.7597368
## 2579 -1.62197 -0.880204    DL    JFK   SJU  0.75410009 -1.00266723 -0.5548989
## 2580 -1.62197 -0.880204    MQ    LGA   RDU -0.83018595 -1.06282238 -0.7597368
## 2581 -1.62197 -0.880204    UA    JFK   LAX  1.94469037 -1.00266723 -0.5548989
## 2582 -1.62197 -0.880204    US    LGA   CLT -0.67678036 -1.06282238 -0.7597368
## 2583 -1.62197 -0.880204    UA    EWR   SFO  2.06687181 -1.22323611 -0.7597368
## 2584 -1.62197 -0.880204    9E    JFK   DCA -1.12613656 -1.00266723 -0.5548989
## 2585 -1.62197 -0.880204    AA    JFK   SJU  0.75410009 -1.00266723 -0.5548989
## 2586 -1.62197 -0.880204    EV    EWR   DTW -0.75280437 -1.22323611 -0.7597368
## 2587 -1.62197 -0.880204    EV    EWR   XNA  0.12011416 -1.22323611 -0.7597368
## 2588 -1.62197 -0.880204    MQ    LGA   CLE -0.84647681 -1.06282238 -0.7597368
## 2589 -1.62197 -0.880204    UA    EWR   MIA  0.05766586 -1.22323611 -0.7597368
## 2590 -1.62197 -0.880204    UA    EWR   SAN  1.87681179 -1.22323611 -0.7597368
## 2591 -1.62197 -0.880204    AA    JFK   LAX  1.94469037 -0.89238279 -0.5548989
## 2592 -1.62197 -0.880204    B6    JFK   AUS  0.64956708 -1.00266723 -0.5548989
## 2593 -1.62197 -0.880204    B6    JFK   TPA -0.05093986 -0.89238279 -0.5548989
## 2594 -1.62197 -0.880204    UA    EWR   IAH  0.48530091 -1.22323611 -0.7597368
## 2595 -1.62197 -0.880204    DL    LGA   ATL -0.38082976 -1.06282238 -0.7597368
## 2596 -1.62197 -0.880204    US    LGA   BOS -1.16550614 -0.95253794 -0.7597368
## 2597 -1.62197 -0.880204    MQ    LGA   DTW -0.73379837 -0.95253794 -0.7597368
## 2598 -1.62197 -0.880204    EV    EWR   CVG -0.64284107 -1.00266723 -0.6573179
## 2599 -1.62197 -0.880204    UA    EWR   LAS  1.60801262 -1.00266723 -0.6573179
## 2600 -1.62197 -0.880204    UA    EWR   STT  0.80297267 -1.00266723 -0.6573179
## 2601 -1.62197 -0.880204    B6    JFK   RDU -0.83561624 -0.89238279 -0.5548989
## 2602 -1.62197 -0.880204    AA    LGA   DFW  0.47036763 -0.95253794 -0.7597368
## 2603 -1.62197 -0.880204    AA    EWR   DFW  0.44728891 -1.00266723 -0.6573179
## 2604 -1.62197 -0.880204    9E    JFK   ROC -1.05690041 -0.89238279 -0.5548989
## 2605 -1.62197 -0.880204    UA    EWR   PBI -0.02650357 -1.00266723 -0.6573179
## 2606 -1.62197 -0.880204    B6    JFK   BUF -1.00667026 -0.89238279 -0.5548989
## 2607 -1.62197 -0.880204    B6    JFK   BOS -1.16143342 -0.89238279 -0.5548989
## 2608 -1.62197 -0.880204    VX    JFK   LAS  1.63652162 -0.89238279 -0.5548989
## 2609 -1.62197 -0.880204    B6    LGA   PBI -0.01021271 -0.95253794 -0.7597368
## 2610 -1.62197 -0.880204    UA    EWR   EGE  0.92786925 -1.00266723 -0.6573179
## 2611 -1.62197 -0.880204    AA    LGA   ORD -0.42019933 -0.95253794 -0.7597368
## 2612 -1.62197 -0.880204    WN    LGA   MKE -0.41341148 -0.95253794 -0.7597368
## 2613 -1.62197 -0.880204    MQ    LGA   BNA -0.37811462 -0.95253794 -0.7597368
## 2614 -1.62197 -0.880204    UA    EWR   MCO -0.14325473 -0.72194321 -0.6573179
## 2615 -1.62197 -0.880204    DL    LGA   ATL -0.38082976 -0.83222765 -0.8062908
## 2616 -1.62197 -0.880204    US    LGA   DCA -1.12477899 -0.83222765 -0.8062908
## 2617 -1.62197 -0.880204    EV    EWR   ATL -0.40255090 -1.00266723 -0.6573179
## 2618 -1.62197 -0.880204    B6    JFK   LAS  1.63652162 -0.89238279 -0.5548989
## 2619 -1.62197 -0.880204    DL    LGA   MSP -0.03057629 -0.83222765 -0.8062908
##          humid  wind_dir wind_speed   precip   pressure     visib
## 1    0.10705783 0.560192  0.6891804 -0.144053 -0.80700427  0.365368
## 2    0.24984275 0.560192  0.2760156 -0.144053 -0.83553305  0.365368
## 3    0.24270350 0.560192  0.4825980 -0.144053 -0.73568232  0.365368
## 4    0.24270350 0.560192  0.4825980 -0.144053 -0.73568232  0.365368
## 5    0.39160777 0.366496  0.0694332 -0.144053 -0.76421110  0.365368
## 6    0.10705783 0.560192  0.6891804 -0.144053 -0.80700427  0.365368
```

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## 7     0.39160777  0.366496   0.0694332 -0.144053 -0.76421110  0.365368
## 8    -0.24072543  0.560192   0.8957627 -0.144053 -0.86406183  0.365368
## 9    -0.24072543  0.560192   0.8957627 -0.144053 -0.86406183  0.365368
## 10    0.24270350  0.560192   0.4825980 -0.144053 -0.73568232  0.365368
## 11    0.24270350  0.560192   0.4825980 -0.144053 -0.73568232  0.365368
## 12   -0.24072543  0.560192   0.8957627 -0.144053 -0.86406183  0.365368
## 13    0.24270350  0.560192   0.4825980 -0.144053 -0.73568232  0.365368
## 14    0.39160777  0.366496   0.0694332 -0.144053 -0.76421110  0.365368
## 15   -0.24072543  0.560192   0.8957627 -0.144053 -0.86406183  0.365368
## 16   -0.24072543  0.560192   0.8957627 -0.144053 -0.86406183  0.365368
## 17    0.39160777  0.366496   0.0694332 -0.144053 -0.76421110  0.365368
## 18    0.39160777  0.366496   0.0694332 -0.144053 -0.76421110  0.365368
## 19    0.24270350  0.560192   0.4825980 -0.144053 -0.73568232  0.365368
## 20    0.39160777  0.366496   0.0694332 -0.144053 -0.76421110  0.365368
## 21    0.39160777  0.366496   0.0694332 -0.144053 -0.76421110  0.365368
## 22    0.24270350  0.560192   0.4825980 -0.144053 -0.73568232  0.365368
## 23   -0.24072543  0.560192   0.8957627 -0.144053 -0.86406183  0.365368
## 24    0.24270350  0.560192   0.4825980 -0.144053 -0.73568232  0.365368
## 25    0.24270350  0.560192   0.4825980 -0.144053 -0.73568232  0.365368
## 26   -0.11221900  0.463344   0.6891804 -0.144053 -0.83553305  0.365368
## 27    0.24270350  0.560192   0.4825980 -0.144053 -0.73568232  0.365368
## 28    0.24984275  0.560192   0.4825980 -0.144053 -0.74994671  0.365368
## 29   -0.11221900  0.463344   0.6891804 -0.144053 -0.83553305  0.365368
## 30    0.24270350  0.560192   0.4825980 -0.144053 -0.73568232  0.365368
## 31   -0.11221900  0.463344   0.6891804 -0.144053 -0.83553305  0.365368
## 32   -0.11221900  0.463344   0.6891804 -0.144053 -0.83553305  0.365368
## 33    0.24984275  0.366496   0.6891804 -0.144053 -0.79273988  0.365368
## 34   -0.11221900  0.463344   0.6891804 -0.144053 -0.83553305  0.365368
## 35    0.24984275  0.560192   0.4825980 -0.144053 -0.74994671  0.365368
## 36    0.24984275  0.560192   0.4825980 -0.144053 -0.74994671  0.365368
## 37   -0.11221900  0.463344   0.6891804 -0.144053 -0.83553305  0.365368
## 38    0.24984275  0.366496   0.6891804 -0.144053 -0.79273988  0.365368
## 39    0.24984275  0.366496   0.6891804 -0.144053 -0.79273988  0.365368
## 40    0.24984275  0.366496   0.6891804 -0.144053 -0.79273988  0.365368
## 41    0.24984275  0.366496   0.6891804 -0.144053 -0.79273988  0.365368
## 42   -0.11221900  0.463344   0.6891804 -0.144053 -0.83553305  0.365368
## 43    0.24984275  0.560192   0.4825980 -0.144053 -0.74994671  0.365368
## 44    0.24984275  0.560192   0.4825980 -0.144053 -0.74994671  0.365368
## 45    0.24984275  0.366496   0.6891804 -0.144053 -0.79273988  0.365368
## 46    0.24984275  0.560192   0.4825980 -0.144053 -0.74994671  0.365368
## 47    0.24984275  0.560192   0.4825980 -0.144053 -0.74994671  0.365368
## 49   -0.11221900  0.463344   0.6891804 -0.144053 -0.83553305  0.365368
## 50   -0.11221900  0.463344   0.6891804 -0.144053 -0.83553305  0.365368
## 51   -0.11221900  0.463344   0.6891804 -0.144053 -0.83553305  0.365368
## 52    0.13663471  0.463344  -0.1371492 -0.144053 -0.79273988  0.365368
## 53   -0.00156069  0.560192   1.1023451 -0.144053 -0.73568232  0.365368
## 54   -0.00156069  0.560192   1.1023451 -0.144053 -0.73568232  0.365368
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## 56   -0.00156069  0.560192   1.1023451 -0.144053 -0.73568232  0.365368
## 57    0.13663471  0.463344  -0.1371492 -0.144053 -0.79273988  0.365368
## 58    0.13663471  0.463344  -0.1371492 -0.144053 -0.79273988  0.365368
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## 60   -0.00156069  0.560192   1.1023451 -0.144053 -0.73568232  0.365368
## 61   -0.00156069  0.560192   1.1023451 -0.144053 -0.73568232  0.365368
```

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## 62   -0.00156069  0.560192  1.1023451 -0.144053 -0.73568232  0.365368
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## 64   -0.00156069  0.560192  1.1023451 -0.144053 -0.73568232  0.365368
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## 67   -0.00156069  0.560192  1.1023451 -0.144053 -0.73568232  0.365368
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## 75    0.13663471  0.463344 -0.1371492 -0.144053 -0.79273988  0.365368
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## 77    0.13663471  0.463344 -0.1371492 -0.144053 -0.79273988  0.365368
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## 79   -0.00156069  0.560192  1.1023451 -0.144053 -0.73568232  0.365368
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## 81   -0.11221900  0.560192  1.3089275 -0.144053 -0.79273988  0.365368
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## 605  -0.94547099  1.044432   0.8957627 -0.144053  0.14870983  0.365368
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## 2562  0.65932949  0.269648  0.2760156 -0.144053  1.90322974  0.365368
## 2563  0.65932949  0.269648  0.2760156 -0.144053  1.90322974  0.365368
## 2564  0.65932949  0.269648  0.2760156 -0.144053  1.90322974  0.365368
## 2565  0.24270350  0.269648 -0.3437315 -0.144053  1.80337902  0.365368
## 2566  0.63740181  0.366496 -0.7568963 -0.144053  1.81764341 -0.131406
## 2567  0.24270350  0.269648 -0.3437315 -0.144053  1.80337902  0.365368
## 2568  0.65932949  0.269648  0.2760156 -0.144053  1.90322974  0.365368
```

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## 2569  0.65932949  0.269648   0.2760156 -0.144053  1.90322974  0.365368
## 2570  1.10859204  0.075952  -0.9634787 -0.144053  1.74632146 -0.628181
## 2571  1.10859204  0.075952  -0.9634787 -0.144053  1.74632146 -0.628181
## 2572  0.24270350  0.269648  -0.3437315 -0.144053  1.80337902  0.365368
## 2573  0.65932949  0.269648   0.2760156 -0.144053  1.90322974  0.365368
## 2574  0.63740181  0.366496  -0.7568963 -0.144053  1.81764341 -0.131406
## 2575  0.63740181  0.366496  -0.7568963 -0.144053  1.81764341 -0.131406
## 2576  0.63740181  0.366496  -0.7568963 -0.144053  1.81764341 -0.131406
## 2577  0.24270350  0.269648  -0.3437315 -0.144053  1.80337902  0.365368
## 2578  0.63740181  0.366496  -0.7568963 -0.144053  1.81764341 -0.131406
## 2579  0.65932949  0.269648   0.2760156 -0.144053  1.90322974  0.365368
## 2580  0.24270350  0.269648  -0.3437315 -0.144053  1.80337902  0.365368
## 2581  0.65932949  0.269648   0.2760156 -0.144053  1.90322974  0.365368
## 2582  0.24270350  0.269648  -0.3437315 -0.144053  1.80337902  0.365368
## 2583  0.63740181  0.366496  -0.7568963 -0.144053  1.81764341 -0.131406
## 2584  0.65932949  0.269648   0.2760156 -0.144053  1.90322974  0.365368
## 2585  0.65932949  0.269648   0.2760156 -0.144053  1.90322974  0.365368
## 2586  0.63740181  0.366496  -0.7568963 -0.144053  1.81764341 -0.131406
## 2587  0.63740181  0.366496  -0.7568963 -0.144053  1.81764341 -0.131406
## 2588  0.24270350  0.269648  -0.3437315 -0.144053  1.80337902  0.365368
## 2589  0.63740181  0.366496  -0.7568963 -0.144053  1.81764341 -0.131406
## 2590  0.63740181  0.366496  -0.7568963 -0.144053  1.81764341 -0.131406
## 2591  0.38548842  0.366496   0.0694332 -0.144053  1.88896535  0.365368
## 2592  0.65932949  0.269648   0.2760156 -0.144053  1.90322974  0.365368
## 2593  0.38548842  0.366496   0.0694332 -0.144053  1.88896535  0.365368
## 2594  0.63740181  0.366496  -0.7568963 -0.144053  1.81764341 -0.131406
## 2595  0.24270350  0.269648  -0.3437315 -0.144053  1.80337902  0.365368
## 2596 -0.00156069  0.172800  -0.1371492 -0.144053  1.77485024  0.365368
## 2597 -0.00156069  0.172800  -0.1371492 -0.144053  1.77485024  0.365368
## 2598  0.37324971  0.269648  -0.3437315 -0.144053  1.78911463 -0.131406
## 2599  0.37324971  0.269648  -0.3437315 -0.144053  1.78911463 -0.131406
## 2600  0.37324971  0.269648  -0.3437315 -0.144053  1.78911463 -0.131406
## 2601  0.38548842  0.366496   0.0694332 -0.144053  1.88896535  0.365368
## 2602 -0.00156069  0.172800  -0.1371492 -0.144053  1.77485024  0.365368
## 2603  0.37324971  0.269648  -0.3437315 -0.144053  1.78911463 -0.131406
## 2604  0.38548842  0.366496   0.0694332 -0.144053  1.88896535  0.365368
## 2605  0.37324971  0.269648  -0.3437315 -0.144053  1.78911463 -0.131406
## 2606  0.38548842  0.366496   0.0694332 -0.144053  1.88896535  0.365368
## 2607  0.38548842  0.366496   0.0694332 -0.144053  1.88896535  0.365368
## 2608  0.38548842  0.366496   0.0694332 -0.144053  1.88896535  0.365368
## 2609 -0.00156069  0.172800  -0.1371492 -0.144053  1.77485024  0.365368
## 2610  0.37324971  0.269648  -0.3437315 -0.144053  1.78911463 -0.131406
## 2611 -0.00156069  0.172800  -0.1371492 -0.144053  1.77485024  0.365368
## 2612 -0.00156069  0.172800  -0.1371492 -0.144053  1.77485024  0.365368
## 2613 -0.00156069  0.172800  -0.1371492 -0.144053  1.77485024  0.365368
## 2614 -0.23001656  0.172800   0.4825980 -0.144053  1.70352829 -0.131406
## 2615 -0.34679423  0.269648   1.1023451 -0.144053  1.70352829  0.365368
## 2616 -0.34679423  0.269648   1.1023451 -0.144053  1.70352829  0.365368
## 2617  0.37324971  0.269648  -0.3437315 -0.144053  1.78911463 -0.131406
## 2618  0.38548842  0.366496   0.0694332 -0.144053  1.88896535  0.365368
## 2619 -0.34679423  0.269648   1.1023451 -0.144053  1.70352829  0.365368
##                              name        lat         lon        alt
## 1                      Miami Intl -1.8123380  0.61269947 -0.6144832
## 2               Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
```

```
## 3                    Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 4                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 5                 San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 6  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 7                      Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 8     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 9            Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 10             Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 11                 Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 12                         Miami Intl -1.8123380  0.61269947 -0.6144832
## 13                 Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 14                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 15                 Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 16           Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 17             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 18              Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 19 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 20                    Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 21             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 22              Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 23                        Denver Intl  0.6779008 -1.02642040  5.2044253
## 24                      Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 25      Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 26                    Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 27                Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 28                 San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 29                 Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 30                       Orlando Intl -1.3457160  0.54423506 -0.5200587
## 31               NW Arkansas Regional  0.0442452 -0.32954219  0.7578907
## 32                         Miami Intl -1.8123380  0.61269947 -0.6144832
## 33             Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 34                 Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 35                 Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 36      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 37               General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 38                    Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 39               Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 40               Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 41                        Denver Intl  0.6779008 -1.02642040  5.2044253
## 42      George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 43                 San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 44                 San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 45      George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 46                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 47                 San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 49             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 50                         Miami Intl -1.8123380  0.61269947 -0.6144832
## 51     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 52                       Orlando Intl -1.3457160  0.54423506 -0.5200587
## 53 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 54                 San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 55                 Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 56           Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 57               Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
```

```
## 58                    Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 59                             Memphis Intl -0.1751494 -0.03844859 -0.2571724
## 60                        Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 61         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 62                    Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 63                      Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 64                         Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 66                        Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 67                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 68                        Myrtle Beach Intl -0.4163541  0.70427481 -0.5962421
## 69                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 70                              Denver Intl  0.6779008 -1.02642040  5.2044253
## 71                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 72                   Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 73                        Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 75                      Jackson Hole Airport  1.3409206 -1.43411078  6.2988908
## 76                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 77                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 78                           San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 79                              Tampa Intl -1.4260644  0.46193454 -0.5951691
## 80                         Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 81                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 82          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 83                        Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 84                              Denver Intl  0.6779008 -1.02642040  5.2044253
## 86                        Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 87                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 88                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 89                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 90                     Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 91                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 92                              Eagle Co Rgnl  0.6391181 -1.17730781  6.3943883
## 93                              Tampa Intl -1.4260644  0.46193454 -0.5951691
## 94          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 95                        Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 96                            Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 97                       Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 98                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 99             Asheville Regional Airport -0.1054472  0.46135936  1.6999895
## 100         Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 101         Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 102                    Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 103                            Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 104                       Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 106         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 107         Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 108                        Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 109   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 110                        Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 111                             Orlando Intl -1.3457160  0.54423506 -0.5200587
## 112         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 113                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 114         Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 115                      Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
```

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## 116                Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 117                           Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 118                          Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 119                        Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 120                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 121                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 122                     Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 123                    Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 124                         Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 125                          Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 126                               Tampa Intl -1.4260644  0.46193454 -0.5951691
## 127                       Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 128                 Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 129                   Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 130                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 131                          Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 132          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 133            Akron Canton Regional Airport  0.8645443  0.53528067  0.6945834
## 134                       Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 136     General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 137                    Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 138                Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 139                       Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 140                       Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 141            George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 142                          William P Hobby -1.1304683 -0.39489005 -0.5737090
## 143                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 144                       San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 145                     Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 146         Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 147                       Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 148                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 149            Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 150     General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 151                    General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 152                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 153                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 154                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 155          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 156     General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 157                       Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 158                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 160                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 162                    Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 163                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 164                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 165                          William P Hobby -1.1304683 -0.39489005 -0.5737090
## 166                     Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 167                             Orlando Intl -1.3457160  0.54423506 -0.5200587
## 168                         Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 169                      Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 170                        Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 172                         Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 173                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
```

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## 174                    Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 175                        Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 176  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 177                        Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 178                         Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 179             George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 181            Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 183                       Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 184  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 185                    Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 186                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 187                      Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 190             George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 191                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 192                      Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 193                         Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 194                                 Miami Intl -1.8123380  0.61269947 -0.6144832
## 195                     Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 196                    Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 197          Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 198                           Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 199               Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 200               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 201                        Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 202       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 203                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 204                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 205                                Denver Intl  0.6779008 -1.02642040  5.2044253
## 206                  Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 207                      Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 208                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 209            Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 210               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 211                         Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 212          Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 213                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 214                        Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 215                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 217                        Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 218                   Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 219                   Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 220                                Denver Intl  0.6779008 -1.02642040  5.2044253
## 221                       Gerald R Ford Intl  1.2123232  0.26096187  0.2288991
## 222                   General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 223                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 224                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 226                         San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 227                         Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 228                                 Miami Intl -1.8123380  0.61269947 -0.6144832
## 229                      Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 230            Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 231                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 232                    Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 233                         Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
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## 234            Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 235                       Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 236                     Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 237                       Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 238                              Denver Intl  0.6779008 -1.02642040  5.2044253
## 239                    Syracuse Hancock Intl  1.2530980  0.89398502 -0.1713320
## 240                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 241            Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 242                 Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 245                              Denver Intl  0.6779008 -1.02642040  5.2044253
## 247                          Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 248            Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 249                  Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 251                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 252                           Piedmont Triad  0.0116544  0.63644667  0.3694628
## 253           Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 254                          San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 255                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 256               Manchester Regional Airport  1.2214787  1.20796870 -0.3376478
## 257                            Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 258                   Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 259           George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 260                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 261                        Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 263                              Denver Intl  0.6779008 -1.02642040  5.2044253
## 264                         San Antonio Intl -1.1502446 -0.60939731  0.2449941
## 265                       Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 266                       Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 267                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 268           George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 269                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 270                      San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 271                          San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 273                      San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 275                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 276                             Orlando Intl -1.3457160  0.54423506 -0.5200587
## 277                               Tampa Intl -1.4260644  0.46193454 -0.5951691
## 278                      Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 279                             Orlando Intl -1.3457160  0.54423506 -0.5200587
## 281                       Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 282                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 283                            Portland Intl  1.6916448 -2.23138155 -0.5908771
## 284                            Nashville Intl  0.0163844  0.18329100  0.0196630
## 285                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 286                        Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 287                            Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 288                 Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 289                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 290                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 291                      Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 292                  Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 294                      San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 297                    Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 298          Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
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## 299        Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 300                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 301     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 302                          Tampa Intl -1.4260644  0.46193454 -0.5951691
## 303                 Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 304                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 305             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 306                 Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 307                  San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 308             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 310              Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 311                    Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 312              Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 313                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 316                         Eppley Afld  0.9330617 -0.43624548  0.4327701
## 317                          Tampa Intl -1.4260644  0.46193454 -0.5951691
## 318     Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 319                    Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 320                  Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 321                    Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 322                 Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 323              Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 324     George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 328                    Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 330             Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 332             Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 333              Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 336     Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 339                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 340                   William P Hobby -1.1304683 -0.39489005 -0.5737090
## 341     George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 342                    Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 343                       Portland Intl  1.6916448 -2.23138155 -0.5908771
## 344                    Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 346                Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 347  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 348                       Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 349                    Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 350                  San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 351     Theodore Francis Green State  1.0090719  1.20899616 -0.5640520
## 352     Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 353        Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 354                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 355                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 356                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 358               Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 359              Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 365                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 366                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 367              Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 368     George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 369     Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 370     Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 371              Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
```

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## 372              Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 373                      Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 374                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 375              Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 376                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 377                  Los Angeles Intl   -0.3698385 -1.94974778 -0.4878686
## 378      Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 379            Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 380      Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 381                 Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 382                  Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 383        George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 384               Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 385               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 386                          Tampa Intl -1.4260644  0.46193454 -0.5951691
## 387          Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 388             Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 389    Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 390                  Los Angeles Intl   -0.3698385 -1.94974778 -0.4878686
## 391                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 392              Austin Bergstrom Intl  -1.0332709 -0.55562484 -0.0414983
## 393            Phoenix Sky Harbor Intl  -0.4598049 -1.51974410  0.5947939
## 394              Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 395      Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 396               Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 397                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 398               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 399                         Denver Intl  0.6779008 -1.02642040  5.2044253
## 400                 Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 401                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 402     Fort Lauderdale Hollywood Intl  -1.7628935  0.62196347 -0.6134102
## 403                      Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 404                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 405        Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 406                  Los Angeles Intl   -0.3698385 -1.94974778 -0.4878686
## 407              Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 408                  Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 410                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 411                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 412                  Los Angeles Intl   -0.3698385 -1.94974778 -0.4878686
## 413      Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 414                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 415     Fort Lauderdale Hollywood Intl  -1.7628935  0.62196347 -0.6134102
## 416                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 418                 Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 420                         Denver Intl  0.6779008 -1.02642040  5.2044253
## 421                 Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 422        George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 423                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 424                 San Francisco Intl   0.2809249 -2.21641654 -0.6091182
## 425                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 426                         Denver Intl  0.6779008 -1.02642040  5.2044253
## 427                         Denver Intl  0.6779008 -1.02642040  5.2044253
## 428      Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
```

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## 429                     Burlington Intl  1.4939500  1.09250243 -0.2636104
## 430         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 432          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 433                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 434              Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 435                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 436                       Portland Intl  1.6916448 -2.23138155 -0.5908771
## 437                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 438                     Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 439             Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 440                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 442                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 443   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 444                      San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 445                      Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 446                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 447                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 448               Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 450                         Denver Intl  0.6779008 -1.02642040  5.2044253
## 451         Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 452         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 453                    Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 455                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 457               Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 458               Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 459                         Denver Intl  0.6779008 -1.02642040  5.2044253
## 460                  Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 462              Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 463               Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 464                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 465                    Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 466                  Jackson Hole Airport  1.3409206 -1.43411078  6.2988908
## 467               Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 468         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 469              Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 470   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 471               Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 472                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 473                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 474          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 475                       Eagle Co Rgnl  0.6391181 -1.17730781  6.3943883
## 476                         Denver Intl  0.6779008 -1.02642040  5.2044253
## 477                General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 479                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 480         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 481                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 482               Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 483               Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 484                 Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 485          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 486                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 487              Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 488         Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 489             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
```

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## 490                Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 491      General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 492                Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 493                            San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 494                            Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 495                                    Orlando Intl -1.3457160  0.54423506 -0.5200587
## 496          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 497                              Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 498                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 499                          Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 501                                Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 502              Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 503                                      Miami Intl -1.8123380  0.61269947 -0.6144832
## 504                                    Orlando Intl -1.3457160  0.54423506 -0.5200587
## 506              Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 507                  Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 508      Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 509              Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 510                                    Orlando Intl -1.3457160  0.54423506 -0.5200587
## 511                              William P Hobby -1.1304683 -0.39489005 -0.5737090
## 512                              Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 514          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 515          George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 516                              Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 517                            Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 518                                    Orlando Intl -1.3457160  0.54423506 -0.5200587
## 519                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 520                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 523              Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 524                          Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 525                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 526                          Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 527      General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 528  Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 529              Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 530          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 531      Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 532                Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 533                                      Denver Intl  0.6779008 -1.02642040  5.2044253
## 534                                      Miami Intl -1.8123380  0.61269947 -0.6144832
## 535                              Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 536              Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 537                              Piedmont Triad  0.0116544  0.63644667  0.3694628
## 538                                    Orlando Intl -1.3457160  0.54423506 -0.5200587
## 539                              Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 540                              William P Hobby -1.1304683 -0.39489005 -0.5737090
## 541          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 542                                      Albany Intl  1.1888578  1.04891285 -0.3172607
## 543                                      Eppley Afld  0.9330617 -0.43624548  0.4327701
## 544              Sarasota Bradenton Intl -1.5287348  0.46051347 -0.5908771
## 545                              Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 546                                      Miami Intl -1.8123380  0.61269947 -0.6144832
## 547                                    Orlando Intl -1.3457160  0.54423506 -0.5200587
## 548              Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
```

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## 549                         Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 551                                    Orlando Intl -1.3457160  0.54423506 -0.5200587
## 553                         Dane Co Rgnl Truax Fld  1.2581731  0.00451842  0.3286886
## 554                            Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 555                               Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 556                 George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 558                         Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 559                 Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 560                        Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 561          Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 562                            Kansas City Intl  0.5780587 -0.35690904  0.4778363
## 563                            Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 564                                   Orlando Intl -1.3457160  0.54423506 -0.5200587
## 565                                   Norfolk Intl  0.1527062  0.88760463 -0.5951691
## 566                            Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 567           Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 569 Greenville-Spartanburg International -0.2011451  0.48306744  0.4113100
## 570                 Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 571                              Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 572                                   Orlando Intl -1.3457160  0.54423506 -0.5200587
## 573          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 574                            San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 576                         Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 577                         Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 578                            Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 579                                   Orlando Intl -1.3457160  0.54423506 -0.5200587
## 580                        Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 581           Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 582               Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 584                            Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 585           Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 586                               Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 587                         Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 588          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 589     Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 590                               Nashville Intl  0.0163844  0.18329100  0.0196630
## 591 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 593                                 Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 594           Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 596                         Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 597                                   Denver Intl  0.6779008 -1.02642040  5.2044253
## 598                 George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 599                         Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 600                         Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 601                              Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 602                         Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 603                         Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 604                            San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 605                                   Denver Intl  0.6779008 -1.02642040  5.2044253
## 607                        Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 608                        Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 609 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 610                         Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 611     Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
```

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## 612                      Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 613                     Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 614                          Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 615                      Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 616                      Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 617                      Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 618                          Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 619                              Portland Intl  1.6916448 -2.23138155 -0.5908771
## 621                                Denver Intl  0.6779008 -1.02642040  5.2044253
## 622                      Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 624                            San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 625                              Portland Intl  1.6916448 -2.23138155 -0.5908771
## 626                       NW Arkansas Regional  0.0442452 -0.32954219  0.7578907
## 628                           Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 630       General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 631                       Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 635                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 636                    Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 637                    Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 638                             Nashville Intl  0.0163844  0.18329100  0.0196630
## 639                          Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 641                                 Miami Intl -1.8123380  0.61269947 -0.6144832
## 643                    Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 644                    Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 645         John Wayne Arpt Orange Co -0.4170768 -1.91345620 -0.5629789
## 646       Norman Y Mineta San Jose Intl  0.2355446 -2.18644317 -0.5565409
## 648                           Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 649                                    Bob Hope -0.3241470 -1.94642633  0.2117310
## 650                       Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 651                 Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 652                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 654                      Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 655                      Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 656                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 657                          Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 658       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 659                      General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 660                               Orlando Intl -1.3457160  0.54423506 -0.5200587
## 661                      Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 662                       Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 663                      Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 664                             Nashville Intl  0.0163844  0.18329100  0.0196630
## 665                           Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 666                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 667                            Sacramento Intl  0.4714656 -2.16370474 -0.5940961
## 668                        Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 669                          Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 670                    Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 671                    Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 672                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 673                           Des Moines Intl  0.9739163 -0.28626762  0.4048720
## 674                                 Tampa Intl -1.4260644  0.46193454 -0.5951691
## 675                           Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 676                          San Antonio Intl -1.1502446 -0.60939731  0.2449941
```

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## 677                        Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 678                      Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 680   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 682                    Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 683                     Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 684         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 686                         Mc Ghee Tyson -0.0391080  0.36373385  0.4295511
## 687      Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 689                     Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 690                      Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 691                             Miami Intl -1.8123380  0.61269947 -0.6144832
## 693      Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 694                     Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 695                Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 696   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 697                      Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 698                        Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 699      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 700      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 702                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 703                     Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 704                  Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 706                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 707               Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 709                           Orlando Intl -1.3457160  0.54423506 -0.5200587
## 710                     Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 711                        Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 712                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 713                  Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 714         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 715      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 716                             Tampa Intl -1.4260644  0.46193454 -0.5951691
## 717   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 719                           Orlando Intl -1.3457160  0.54423506 -0.5200587
## 720                        Nashville Intl  0.0163844  0.18329100  0.0196630
## 721                            Denver Intl  0.6779008 -1.02642040  5.2044253
## 722          Theodore Francis Green State  1.0090719  1.20899616 -0.5640520
## 723                         Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 725                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 726                     Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 727                  Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 729      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 730                  Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 737                     Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 738           Manchester Regional Airport  1.2214787  1.20796870 -0.3376478
## 739      Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 743         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 744                Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 745                Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 746      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 747      Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 748               Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 749                        Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 750                             Tampa Intl -1.4260644  0.46193454 -0.5951691
```

```
## 751                   Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 752          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 753                        Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 754                       Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 755                 Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 756                                Miami Intl -1.8123380  0.61269947 -0.6144832
## 757                    Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 758          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 759          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 760                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 761                  Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 762                         Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 763                        Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 764                           Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 765        Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 766                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 767                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 768                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 769                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 770                           Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 771                  Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 772                   Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 773                        Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 774        George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 775                               Denver Intl  0.6779008 -1.02642040  5.2044253
## 776                              Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 777                               Orlando Intl -1.3457160  0.54423506 -0.5200587
## 778                              Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 779                   Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 780           John Wayne Arpt Orange Co -0.4170768 -1.91345620 -0.5629789
## 781                         Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 782        Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 784                    Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 785                   Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 786                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 787                        Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 788          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 789                         Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 790                    Syracuse Hancock Intl  1.2530980  0.89398502 -0.1713320
## 791                        Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 792        George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 793                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 794                                Tampa Intl -1.4260644  0.46193454 -0.5951691
## 795                           Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 796                               Denver Intl  0.6779008 -1.02642040  5.2044253
## 797        Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 798                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 799                 Sarasota Bradenton Intl -1.5287348  0.46051347 -0.5908771
## 800  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 801                                Tampa Intl -1.4260644  0.46193454 -0.5951691
## 802                              Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 803                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 804                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 805                             Piedmont Triad  0.0116544  0.63644667  0.3694628
```

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## 806                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 807                          Richmond Intl  0.2607803  0.81241725 -0.4438753
## 808                         San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 809                     San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 810   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 811                         San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 812                      Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 813                  Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 815                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 816                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 817                          Orlando Intl -1.3457160  0.54423506 -0.5200587
## 818                  Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 819                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 821                            Miami Intl -1.8123380  0.61269947 -0.6144832
## 822                            Tampa Intl -1.4260644  0.46193454 -0.5951691
## 823                        Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 824                  Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 825                    Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 826    George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 828   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 829              Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 831   Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 832    Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 833                    Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 834               Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 835               Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 837                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 839                General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 840    Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 841                    Gerald R Ford Intl  1.2123232  0.26096187  0.2288991
## 843                        Nashville Intl  0.0163844  0.18329100  0.0196630
## 844             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 845             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 846               Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 848                    Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 849             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 850    George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 852             Sarasota Bradenton Intl -1.5287348  0.46051347 -0.5908771
## 853             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 855   Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 856                  Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 857                 Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 858                     San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 859                     San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 860                General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 861                          Memphis Intl -0.1751494 -0.03844859 -0.2571724
## 862    Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 863                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 864             Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 865                        Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 866   Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 867                     San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 868                   Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 869                Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
```

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## 870                            Kansas City Intl  0.5780587 -0.35690904  0.4778363
## 871                               Denver Intl  0.6779008 -1.02642040  5.2044253
## 872                         Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 873                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 874                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 875                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 876                               Denver Intl  0.6779008 -1.02642040  5.2044253
## 877                   Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 878                   Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 879                          Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 880                          Burlington Intl  1.4939500  1.09250243 -0.2636104
## 881                               Tampa Intl -1.4260644  0.46193454 -0.5951691
## 882                  Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 883          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 884                               Tampa Intl -1.4260644  0.46193454 -0.5951691
## 885            Akron Canton Regional Airport  0.8645443  0.53528067  0.6945834
## 886                        Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 887                          William P Hobby -1.1304683 -0.39489005 -0.5737090
## 888                    Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 891                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 892                     Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 893                 Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 894                      Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 895                     Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 896                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 897                     Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 898                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 899                   General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 900      General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 901                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 902                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 903      General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 904                   Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 905                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 906                       Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 907           Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 910          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 911                               Long Beach -0.3919318 -1.93250701 -0.5586869
## 913                    Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 914                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 915                                 Bob Hope -0.3241470 -1.94642633  0.2117310
## 916                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 917                 Sarasota Bradenton Intl -1.5287348  0.46051347 -0.5908771
## 918                 Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 919                    Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 920                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 921                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 923          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 924                     Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 926          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 927          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 928                       Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 929                       Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 930                          Palm Beach Intl -1.6548155  0.62580611 -0.6026802
```

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## 931                       Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 932 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 934              Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 935                    Kansas City Intl  0.5780587 -0.35690904  0.4778363
## 936              Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 937              Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 939                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 940                          Denver Intl  0.6779008 -1.02642040  5.2044253
## 941 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 942                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 943 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 944       Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 945       Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 946                   San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 947                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 948                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 949       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 950         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 951                 Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 952                  Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 953               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 954               Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 955     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 956                  Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 957                          Denver Intl  0.6779008 -1.02642040  5.2044253
## 958               Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 959                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 960               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 961                       Nashville Intl  0.0163844  0.18329100  0.0196630
## 962                          Tampa Intl -1.4260644  0.46193454 -0.5951691
## 963               General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 964                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 965               General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 966                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 967                       Gerald R Ford Intl  1.2123232  0.26096187  0.2288991
## 968       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 969                  Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 971         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 972                        Norfolk Intl  0.1527062  0.88760463 -0.5951691
## 973             Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 974                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 975                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 976                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 977                   Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 978 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 979     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 980                       Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 981     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 984                       Piedmont Triad  0.0116544  0.63644667  0.3694628
## 985                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 987                 Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 988                   San Antonio Intl -1.1502446 -0.60939731  0.2449941
## 989                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 990             James M Cox Dayton Intl  0.6851084  0.34858492  0.4595952
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## 991                Detroit Metro Wayne Co   1.0940122   0.40680076   0.0690213
## 992      Cincinnati Northern Kentucky Intl   0.5340241   0.31843810   0.3383456
## 993               Dallas Fort Worth Intl  -0.5549386  -0.51314595   0.0282470
## 994                        Nashville Intl   0.0163844   0.18329100   0.0196630
## 995                 Austin Bergstrom Intl  -1.0332709  -0.55562484  -0.0414983
## 996                        Mc Carran Intl   0.0085224  -1.73087520   1.6742374
## 997            Savannah Hilton Head Intl  -0.6911021   0.55141837  -0.5683440
## 998       Hartsfield Jackson Atlanta Intl  -0.4239710   0.33455562   0.4778363
## 1000             Detroit Metro Wayne Co    1.0940122   0.40680076   0.0690213
## 1001                    Los Angeles Intl  -0.3698385  -1.94974778  -0.4878686
## 1002                   Chicago Ohare Intl   1.0526201   0.10082969   0.0937004
## 1003                      Mc Carran Intl    0.0085224  -1.73087520   1.6742374
## 1004      Hartsfield Jackson Atlanta Intl  -0.4239710   0.33455562   0.4778363
## 1005              Dallas Fort Worth Intl  -0.5549386  -0.51314595   0.0282470
## 1006              Charlotte Douglas Intl  -0.1447776   0.56882963   0.1795408
## 1007      Ronald Reagan Washington Natl    0.4991970   0.83137098  -0.6069722
## 1008          Baltimore Washington Intl    0.5564202   0.85620313  -0.4664085
## 1009  General Edward Lawrence Logan Intl    1.1209004   1.23690808  -0.6026802
## 1010                         Denver Intl   0.6779008  -1.02642040   5.2044253
## 1013                          Miami Intl  -1.8123380   0.61269947  -0.6144832
## 1014                    Los Angeles Intl  -0.3698385  -1.94974778  -0.4878686
## 1016               Raleigh Durham Intl   -0.0273073   0.71374418  -0.1563099
## 1017      George Bush Intercontinental    -1.0704596  -0.39909517  -0.5189857
## 1018                          Tampa Intl  -1.4260644   0.46193454  -0.5951691
## 1020           Phoenix Sky Harbor Intl   -0.4598049  -1.51974410   0.5947939
## 1021                   Chicago Ohare Intl   1.0526201   0.10082969   0.0937004
## 1022      Cincinnati Northern Kentucky Intl   0.5340241   0.31843810   0.3383456
## 1024       Fort Lauderdale Hollywood Intl  -1.7628935   0.62196347  -0.6134102
## 1026       Fort Lauderdale Hollywood Intl  -1.7628935   0.62196347  -0.6134102
## 1028            Cleveland Hopkins Intl    0.9522711   0.50787982   0.2256800
## 1029          Baltimore Washington Intl    0.5564202   0.85620313  -0.4664085
## 1030                        Norfolk Intl   0.1527062   0.88760463  -0.5951691
## 1031                      Mc Carran Intl    0.0085224  -1.73087520   1.6742374
## 1032          Minneapolis St Paul Intl    1.5665406  -0.25660018   0.2793303
## 1033                    Los Angeles Intl  -0.3698385  -1.94974778  -0.4878686
## 1034             Detroit Metro Wayne Co    1.0940122   0.40680076   0.0690213
## 1035              Charlotte Douglas Intl  -0.1447776   0.56882963   0.1795408
## 1036                            Bob Hope  -0.3241470  -1.94642633   0.2117310
## 1037                    Los Angeles Intl  -0.3698385  -1.94974778  -0.4878686
## 1038                 Seattle Tacoma Intl   2.0209313  -2.21200773  -0.1584559
## 1040             Detroit Metro Wayne Co    1.0940122   0.40680076   0.0690213
## 1042              Lambert St Louis Intl    0.4808967  -0.06489225   0.0400501
## 1044                          Miami Intl  -1.8123380   0.61269947  -0.6144832
## 1046                          Tampa Intl  -1.4260644   0.46193454  -0.5951691
## 1047              Charlotte Douglas Intl  -0.1447776   0.56882963   0.1795408
## 1048              General Mitchell Intl    1.2240747   0.10138490   0.1527157
## 1049                    Los Angeles Intl  -0.3698385  -1.94974778  -0.4878686
## 1050                       Richmond Intl   0.2607803   0.81241725  -0.4438753
## 1051               Raleigh Durham Intl   -0.0273073   0.71374418  -0.1563099
## 1053                      Mc Carran Intl    0.0085224  -1.73087520   1.6742374
## 1054       Fort Lauderdale Hollywood Intl  -1.7628935   0.62196347  -0.6134102
## 1055                   Chicago Ohare Intl   1.0526201   0.10082969   0.0937004
## 1056           Phoenix Sky Harbor Intl   -0.4598049  -1.51974410   0.5947939
## 1057               Salt Lake City Intl    0.8419412  -1.51747116   3.9125267
```

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## 1058                        Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1059                Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 1061             Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1063          Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 1065                  Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1068                        Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1069              Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1071              Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1076 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1077                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1078    Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1079                   Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 1080                    Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1085 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1086        George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1091          Manchester Regional Airport  1.2214787  1.20796870 -0.3376478
## 1092                       Richmond Intl  0.2607803  0.81241725 -0.4438753
## 1093           Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1096                       Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1097                     Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1098 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1099        Theodore Francis Green State  1.0090719  1.20899616 -0.5640520
## 1100                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1101   Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1103                    Burlington Intl  1.4939500  1.09250243 -0.2636104
## 1104              Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 1106              Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 1107           Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 1108               Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1109      Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1110             Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1111             Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1112          Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1113                         Miami Intl -1.8123380  0.61269947 -0.6144832
## 1114                    Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1115             Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1116              General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 1117                       Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1118               San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1119             Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1120    Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1121               Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1122             Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1123              Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1124                         Miami Intl -1.8123380  0.61269947 -0.6144832
## 1125              Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1126                  Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1127          Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1128                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1129             Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1130              Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1131                  Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1132           Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1133    Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
```

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## 1134                    Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1135     Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 1136                  Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1137                Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1138                    Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1139                  Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1140                  Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 1141                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1142      Louisville International Airport  0.3791852  0.24659638 -0.0854915
## 1143     Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 1144                    Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1145     Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1146                    Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 1147       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1148     Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 1149     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1150                          Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1151                              Miami Intl -1.8123380  0.61269947 -0.6144832
## 1152                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1153                        William P Hobby -1.1304683 -0.39489005 -0.5737090
## 1154                      NW Arkansas Regional  0.0442452 -0.32954219  0.7578907
## 1155                          Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1156                    Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1157                              Miami Intl -1.8123380  0.61269947 -0.6144832
## 1158     John Wayne Arpt Orange Co -0.4170768 -1.91345620 -0.5629789
## 1159                    San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1160                              Miami Intl -1.8123380  0.61269947 -0.6144832
## 1161       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1162               Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1163                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1164             General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 1165                    San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1166                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1167                    San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1168                    Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 1170                    Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1171                  Sarasota Bradenton Intl -1.5287348  0.46051347 -0.5908771
## 1172     Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 1173                    Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1174                  Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 1175                              Miami Intl -1.8123380  0.61269947 -0.6144832
## 1176                          Denver Intl  0.6779008 -1.02642040  5.2044253
## 1177                              Miami Intl -1.8123380  0.61269947 -0.6144832
## 1178             Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1179             Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1180                    San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1181     Manchester Regional Airport  1.2214787  1.20796870 -0.3376478
## 1182                    Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1183       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1184                          Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1185                          Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1186                    Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 1187     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1188                          Eppley Afld  0.9330617 -0.43624548  0.4327701
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## 1189                      Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1190                James M Cox Dayton Intl  0.6851084  0.34858492  0.4595952
## 1191                            Denver Intl  0.6779008 -1.02642040  5.2044253
## 1192                     Myrtle Beach Intl -0.4163541  0.70427481 -0.5962421
## 1193                       Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1194         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1195                      Gerald R Ford Intl  1.2123232  0.26096187  0.2288991
## 1196                 Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1197            Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 1198                      Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1199      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1200                    Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1201       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1202                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1203                     Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 1204  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1205  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1206                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1207                Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1208                        San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 1209                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1210                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1211                      Kansas City Intl  0.5780587 -0.35690904  0.4778363
## 1212                 Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1213       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1214                            Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1215                            Miami Intl -1.8123380  0.61269947 -0.6144832
## 1216                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1217              Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1218                        Honolulu Intl -2.6043784 -4.60609709 -0.6091182
## 1219      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1220                          Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1221                   NW Arkansas Regional  0.0442452 -0.32954219  0.7578907
## 1222                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1223                      Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1224                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1225                       Burlington Intl  1.4939500  1.09250243 -0.2636104
## 1226      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1227                 Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 1228  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1229                            Miami Intl -1.8123380  0.61269947 -0.6144832
## 1230                      Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1231                       Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1232                 Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1233                   Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1235                 General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 1236                     Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 1237                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1238                            Denver Intl  0.6779008 -1.02642040  5.2044253
## 1239                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1240                 Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1241                        Nashville Intl  0.0163844  0.18329100  0.0196630
## 1242      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1243              Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
```

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## 1244                    Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1245                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1246                  Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1247                        Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1248                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1249                   Sarasota Bradenton Intl -1.5287348  0.46051347 -0.5908771
## 1250                     Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 1251                     Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1252                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1253                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1254                     Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1255                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1257                       Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 1258                          Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1259                     Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1260                     General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 1261                               Memphis Intl -0.1751494 -0.03844859 -0.2571724
## 1263            Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1264                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1265                                 Miami Intl -1.8123380  0.61269947 -0.6144832
## 1266                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1268          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1269                     Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1270                          Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 1272                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1273                        Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1274                             Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1275                  Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1276                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1277                             Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1278                        Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1279            Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1280                                 Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1281          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1282          Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1284                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1285                          Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1286                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1287                           William P Hobby -1.1304683 -0.39489005 -0.5737090
## 1288                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1290                      Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 1291                    Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1292                     Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 1293                      Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 1294                       Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1295                 Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 1296          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1297                          Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1298                        Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1299 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1300                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1303      Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 1304          Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1305                     Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
```

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## 1306       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1308                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1309                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1310       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1311                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1312             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1313                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1314                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1315                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1317                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 1318                   Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 1319              Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1320       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1322                 Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 1323             Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1325             Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1327                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1328               Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 1329             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1330                        Norfolk Intl  0.1527062  0.88760463 -0.5951691
## 1331                    Kansas City Intl  0.5780587 -0.35690904  0.4778363
## 1332                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1333         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1334       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1335                     Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 1336       Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1338       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1340       Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1341                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1342             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1343               Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 1344             Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1346             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1347               Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1348                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1349                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1350                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 1351             Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1352         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1353                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1354                 Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1356                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1357       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1358       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1359                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1360                          Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1361                  Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1362              Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1364                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1366               Syracuse Hancock Intl  1.2530980  0.89398502 -0.1713320
## 1367       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1368                     Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 1369                       Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1370             Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
```

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## 1371                  James M Cox Dayton Intl  0.6851084  0.34858492  0.4595952
## 1372                             Albany Intl  1.1888578  1.04891285 -0.3172607
## 1374        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1375              Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1376                 Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1377                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1378        George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1379                         Memphis Intl -0.1751494 -0.03844859 -0.2571724
## 1380                 Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1381                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1382 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1383                        San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 1385 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1387                     Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1388                         Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1389                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1390                     San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1391                        William P Hobby -1.1304683 -0.39489005 -0.5737090
## 1392        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1393                  Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1394                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1395                           Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1396                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1397                   Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1398                     Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1399        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1400                           Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1402                             Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1403                             Miami Intl -1.8123380  0.61269947 -0.6144832
## 1404                 Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1405                             Miami Intl -1.8123380  0.61269947 -0.6144832
## 1406                           Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1407                          Portland Intl  1.6916448 -2.23138155 -0.5908771
## 1408                   Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 1409                          Portland Intl  1.6916448 -2.23138155 -0.5908771
## 1410                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1411             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1412                        Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1413             Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1414                          Norfolk Intl  0.1527062  0.88760463 -0.5951691
## 1415                           Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1416                             Miami Intl -1.8123380  0.61269947 -0.6144832
## 1419                     Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1420                         Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1421             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1422                   Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1423        John Wayne Arpt Orange Co -0.4170768 -1.91345620 -0.5629789
## 1425                   Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 1426                        Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1427                             Miami Intl -1.8123380  0.61269947 -0.6144832
## 1428                 Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 1429                               Bob Hope -0.3241470 -1.94642633  0.2117310
## 1430             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1431             Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
```

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## 1432             Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1433                        Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1434          George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1435                      San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1436                     General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 1438                         Des Moines Intl  0.9739163 -0.28626762  0.4048720
## 1439       Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 1440                Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1441             Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1442                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1443                      Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1444                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 1445                         Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1446                     Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 1447                  Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1448                   Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1449       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1450                  Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1451                    Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 1452                        Will Rogers World -0.1130772 -0.55097583  0.7664748
## 1455                       Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 1457                      San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1460                      Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 1461                     Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1462                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1463  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1464                          Piedmont Triad  0.0116544  0.63644667  0.3694628
## 1466                        Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1467                  Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1468       Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 1469                         Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1472                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1473       Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1474                           Portland Intl  1.6916448 -2.23138155 -0.5908771
## 1475                        Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1476                      Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 1477                  Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1478                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1480       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1481  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1482                   Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1483       Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1484          George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1486                      Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1487                              Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1488                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1489       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1490                         Burlington Intl  1.4939500  1.09250243 -0.2636104
## 1493                   Syracuse Hancock Intl  1.2530980  0.89398502 -0.1713320
## 1494                    Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1495  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1497                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1498                  Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1499                               Miami Intl -1.8123380  0.61269947 -0.6144832
```

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## 1500                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1501     Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1502                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1503                          Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1504                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1505                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1506              Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1507                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 1508           Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 1509     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1510     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1511 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1512                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1513                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1514                         Denver Intl  0.6779008 -1.02642040  5.2044253
## 1515                 Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 1516                   San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1517                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1518                     William P Hobby -1.1304683 -0.39489005 -0.5737090
## 1519                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1520                       Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1521                    Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1522               Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1523                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1524               General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 1525                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1526     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1527                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1528                 Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 1529                          Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1530              Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1531                   San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1533               Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1534                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 1535             Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1536                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1537               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1538       Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1539             Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1540 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1541                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1542                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1543               Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 1544                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1545                          Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1546        Manchester Regional Airport  1.2214787  1.20796870 -0.3376478
## 1547                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1548       Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1549               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1550                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1551                   Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1552                        Yampa Valley  0.7875625 -1.19747300  6.4609146
## 1553                 Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1554     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
```

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## 1555                  Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1556 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1557                         Denver Intl  0.6779008 -1.02642040  5.2044253
## 1558               Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1559                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1560                 San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1561    Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1562                         Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1564                     San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 1565               Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1566     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1567                   Kansas City Intl  0.5780587 -0.35690904  0.4778363
## 1568                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1569                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1570                     Honolulu Intl -2.6043784 -4.60609709 -0.6091182
## 1571             Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 1572     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1573             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1574                 Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1575                 Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1576 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1577                     Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1578               Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1579                         Miami Intl -1.8123380  0.61269947 -0.6144832
## 1580             Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1581                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1582                 Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1583               Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1584                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1586     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1587         Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1588                         Miami Intl -1.8123380  0.61269947 -0.6144832
## 1589                   Eagle Co Rgnl  0.6391181 -1.17730781  6.3943883
## 1590           Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1591             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1593 Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 1594           Sarasota Bradenton Intl -1.5287348  0.46051347 -0.5908771
## 1595     Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1596           Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1597                 Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 1598             Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1599                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1600                     Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1601                       Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1602                       Key West Intl -2.0313232  0.51394606 -0.6198482
## 1603                 San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1604                 Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1606               Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 1607         Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 1608                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1609             Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 1610           Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1611                     Burlington Intl  1.4939500  1.09250243 -0.2636104
## 1612                         Denver Intl  0.6779008 -1.02642040  5.2044253
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## 1613              Akron Canton Regional Airport  0.8645443  0.53528067  0.6945834
## 1614                         Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 1615                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1616                  Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 1617              Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1618                          Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1619          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1620                        Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1622                        Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 1623            Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1624          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1626                          Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1627                          Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 1628                            Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1629                        Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1630                            William P Hobby -1.1304683 -0.39489005 -0.5737090
## 1631                    Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1632                                Bradley Intl  1.0455904  1.12410191 -0.4374373
## 1633                    Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1634                                  Miami Intl -1.8123380  0.61269947 -0.6144832
## 1635                              Honolulu Intl -2.6043784 -4.60609709 -0.6091182
## 1636          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1638              Manchester Regional Airport  1.2214787  1.20796870 -0.3376478
## 1640            George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1641          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1642                              Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1643            George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1646                          Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 1647                  Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1648                            Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1649                    Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1650                      Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1651                    Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1652                              Richmond Intl  0.2607803  0.81241725 -0.4438753
## 1653                    Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1654  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1655                          San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1656    Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 1657          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1658                          Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 1659                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1660                            Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1661                    Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1662              Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1663                              Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1664            George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1665      Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 1666                    Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1667                          Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 1668                        General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 1669                            Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 1670                          San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1671          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1672                      Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
```

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## 1673                          Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 1674                        Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1675                      Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 1676                       Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 1677                                  Denver Intl  0.6779008 -1.02642040  5.2044253
## 1678                                 Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1679                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 1680                           Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1681           Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1682                                   Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1683                               Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1684                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 1685                           Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1686                          Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1687                    Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1688                                   Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1689                       Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1690                               Nashville Intl  0.0163844  0.18329100  0.0196630
## 1691           George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1692                             Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1693                     Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1694                       Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1695                       Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 1696                           San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1697           Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1698                     Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1699                       Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 1701                               Richmond Intl  0.2607803  0.81241725 -0.4438753
## 1702                           Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1703                                 Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1704           Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1705                               Nashville Intl  0.0163844  0.18329100  0.0196630
## 1706           Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1707                              San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 1708           Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 1709                                 Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1710                             Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1711                           San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1712                                   Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1713           Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1714           George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1715                             Burlington Intl  1.4939500  1.09250243 -0.2636104
## 1716                    Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1717                           Kansas City Intl  0.5780587 -0.35690904  0.4778363
## 1718           Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1719                             Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1720                               Nashville Intl  0.0163844  0.18329100  0.0196630
## 1721                                   Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1722                         Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 1723                               Norfolk Intl  0.1527062  0.88760463 -0.5951691
## 1724                        Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1726                             Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1728                       Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 1729                       Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
```

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## 1730                               Bradley Intl  1.0455904  1.12410191 -0.4374373
## 1731                              Piedmont Triad  0.0116544  0.63644667  0.3694628
## 1733                           Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1734                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 1735                          Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 1736                                Portland Intl  1.6916448 -2.23138155 -0.5908771
## 1737                                   Long Beach -0.3919318 -1.93250701 -0.5586869
## 1738                          Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1739                          Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1740                        Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1741                                Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1742                              Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1743                                  Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1744                        Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1745                              Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1746                           Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1747              Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1748                           Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1749                          Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1751                           San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1753                             Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 1755                             Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 1756                                    Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1757                         Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1758                                   Albany Intl  1.1888578  1.04891285 -0.3172607
## 1759     General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1760                                  Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1761                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 1762     General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1763              Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1764                            Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 1765     Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 1766                                    Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1767                         Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1768                           Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1769                                  Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1771                           Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1772              Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1774                                    Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1776                          Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1779                           Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1780                         Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1781          George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1782                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 1783                           San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1784                              Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1785                          Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1786                              Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1787                                    Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1788              Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1789                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 1790          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1791                           Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1792                        Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
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## 1793                        Miami Intl -1.8123380  0.61269947 -0.6144832
## 1794                 Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1795             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1796             Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1797             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1798                      Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1799               Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1800                      Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1801    Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 1802                      Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1803               San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1804                    Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1806                        Miami Intl -1.8123380  0.61269947 -0.6144832
## 1807             Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1808                      Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1809    Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1810                      Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1811                 Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1812               Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 1813               San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1814                        Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1815                 Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1816                 Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1818                        Miami Intl -1.8123380  0.61269947 -0.6144832
## 1819           Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1820                      Memphis Intl -0.1751494 -0.03844859 -0.2571724
## 1821             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1822    Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1823             Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1824               Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1825             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1826               Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1827             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1828   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1829           Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 1830                        Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1831    Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1832                   Burlington Intl  1.4939500  1.09250243 -0.2636104
## 1833                 Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1834             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1835                 Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 1836    Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1837   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1838                 Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1839               Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1840                   San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 1841                      Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1842             Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1843                        Miami Intl -1.8123380  0.61269947 -0.6144832
## 1844                 Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1845                   Burlington Intl  1.4939500  1.09250243 -0.2636104
## 1846                 Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1847                 Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1848               Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
```

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## 1849                    Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1850                  Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1851                    Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1852 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1853      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1854                       Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1855                          Denver Intl  0.6779008 -1.02642040  5.2044253
## 1856                       Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1857     Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1859                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 1860                       Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 1862                 Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1864       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1865                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 1866             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1867             Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 1868                     Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 1869             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1870         Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1871             Sarasota Bradenton Intl -1.5287348  0.46051347 -0.5908771
## 1872                         Nashville Intl  0.0163844  0.18329100  0.0196630
## 1873             Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1874             Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1875       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1876                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1878                       Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1880      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1881      George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1882                 Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1883                 San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1885                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 1887             Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1888                   Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 1889                     Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 1890                 Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1891             Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1892                          Denver Intl  0.6779008 -1.02642040  5.2044253
## 1893                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1894             Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 1895                         Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1896      Akron Canton Regional Airport  0.8645443  0.53528067  0.6945834
## 1897                           Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1898                 Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 1899                           Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1900                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1901                         Nashville Intl  0.0163844  0.18329100  0.0196630
## 1902             Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 1903                     William P Hobby -1.1304683 -0.39489005 -0.5737090
## 1904                    Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1905       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1906                 San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1907             Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1908 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1909                   Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
```

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## 1910                         Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1911                    Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1912                       Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 1913                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1914                      Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1915                                 Miami Intl -1.8123380  0.61269947 -0.6144832
## 1916                    Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1917                      Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1918                                Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1919                                 Denver Intl  0.6779008 -1.02642040  5.2044253
## 1920                           Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 1921                            Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1922                         Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1923                        Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 1924                           William P Hobby -1.1304683 -0.39489005 -0.5737090
## 1925                       Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1926                      Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1927                     Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 1928                                   Bob Hope -0.3241470 -1.94642633  0.2117310
## 1929            Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1930                                Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1931                    Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1932              Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 1933                         Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 1934                    Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1935                                Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1936          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1937          Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1938                       Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 1940                            Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1941            Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1942                                 Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1943                    Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1944                         Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1945                  Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 1946  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1947                           Kansas City Intl  0.5780587 -0.35690904  0.4778363
## 1948                      Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1949                                Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1951  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1952                    Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 1953 Greenville-Spartanburg International -0.2011451  0.48306744  0.4113100
## 1954                      Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1955  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 1957                     Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 1959                            Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 1960                                 Tampa Intl -1.4260644  0.46193454 -0.5951691
## 1961                                 Denver Intl  0.6779008 -1.02642040  5.2044253
## 1962                       Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 1963                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1964                         Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 1965                                 Miami Intl -1.8123380  0.61269947 -0.6144832
## 1966                     Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 1968                     Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
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## 1969              Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 1970                    Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 1971                    Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1972                    Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 1973            George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 1975        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1976        Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 1977                        Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 1978            Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 1979        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 1980                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1981                            Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1982                              Denver Intl  0.6779008 -1.02642040  5.2044253
## 1983                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 1984                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 1985              James M Cox Dayton Intl  0.6851084  0.34858492  0.4595952
## 1986                            Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1988                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 1989                          Nashville Intl  0.0163844  0.18329100  0.0196630
## 1990            Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 1991                  San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 1992                    Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 1993                              Denver Intl  0.6779008 -1.02642040  5.2044253
## 1995            Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 1997                            Orlando Intl -1.3457160  0.54423506 -0.5200587
## 1998                            Memphis Intl -0.1751494 -0.03844859 -0.2571724
## 1999                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2000              Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 2001 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2002                        Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2003                    Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2004              Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2005            Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 2006                          San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 2007                  Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2008                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2012                  Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 2013                              Denver Intl  0.6779008 -1.02642040  5.2044253
## 2014                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2015                          Nashville Intl  0.0163844  0.18329100  0.0196630
## 2016                    Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2019                            Richmond Intl  0.2607803  0.81241725 -0.4438753
## 2020                            Portland Intl  1.6916448 -2.23138155 -0.5908771
## 2022        Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2023        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2024                            Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2025                  Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 2027                            Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2028                  Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 2030            Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2031                    Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 2032    Norman Y Mineta San Jose Intl  0.2355446 -2.18644317 -0.5565409
## 2033            Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2034                  Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
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## 2035                  Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 2036                 Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2037                   Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 2038           John Wayne Arpt Orange Co -0.4170768 -1.91345620 -0.5629789
## 2039                 Columbia Metropolitan -0.3704940  0.55697189 -0.3698380
## 2040              Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 2041                 Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 2042                 Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2043 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2044                     Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2045                        Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 2046                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2047                     San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2048                   Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2049                          Richmond Intl  0.2607803  0.81241725 -0.4438753
## 2050                            Eppley Afld  0.9330617 -0.43624548  0.4327701
## 2051           Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2052                             Miami Intl -1.8123380  0.61269947 -0.6144832
## 2053       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2055                         Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2056                             Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2057                   Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 2058                        Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2059                 Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 2060                     San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2062             Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 2063                     Will Rogers World -0.1130772 -0.55097583  0.7664748
## 2064                           Mc Ghee Tyson -0.0391080  0.36373385  0.4295511
## 2065 Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 2066                   Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 2067                     Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 2068 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2069                           Mc Ghee Tyson -0.0391080  0.36373385  0.4295511
## 2070                   Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 2071                             Miami Intl -1.8123380  0.61269947 -0.6144832
## 2072                         Piedmont Triad  0.0116544  0.63644667  0.3694628
## 2074                     Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 2076                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2077                             Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2078       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2079       Akron Canton Regional Airport  0.8645443  0.53528067  0.6945834
## 2080                     Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2081       Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2083                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2085                          Nashville Intl  0.0163844  0.18329100  0.0196630
## 2086                       Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 2087       Louisville International Airport  0.3791852  0.24659638 -0.0854915
## 2088                   Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2089       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2090                     Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2091                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2092                   Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 2093             Theodore Francis Green State  1.0090719  1.20899616 -0.5640520
## 2094                   Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
```

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## 2095                 Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2096                              Burlington Intl  1.4939500  1.09250243 -0.2636104
## 2099                        Syracuse Hancock Intl  1.2530980  0.89398502 -0.1713320
## 2100                         Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 2102           General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2105                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 2106                            Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2107                 George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2108                        Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2109                 Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2110                        Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2111              Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2112                        Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2113              Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2114               Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2115           General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2116                      Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 2117                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 2118                             Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 2119                           Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2120                        Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2121         Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 2122                                 Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2123                        Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2124                              Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2125                             Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 2126                                  Denver Intl  0.6779008 -1.02642040  5.2044253
## 2127                            Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2128                                   Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2129                          San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2130                            Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2131                       Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 2132                          Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 2133               Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2134                             Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2135         Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 2136           General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2137                 Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2138                          NW Arkansas Regional  0.0442452 -0.32954219  0.7578907
## 2139                             Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2140                           Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2141         Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 2142                          San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2143                                 Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2144                            Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2145                 Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2146                            Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2147                            Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2148                          San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2149                 John Wayne Arpt Orange Co -0.4170768 -1.91345620 -0.5629789
## 2151                 Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2152                        Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2153                                 Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2154                             Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
```

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## 2155                         Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 2156                         Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 2157           George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2158                         Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2159                         San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2160                         Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 2161               Manchester Regional Airport  1.2214787  1.20796870 -0.3376478
## 2162                                  Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2163                                  Miami Intl -1.8123380  0.61269947 -0.6144832
## 2164                                Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2165                                Eppley Afld  0.9330617 -0.43624548  0.4327701
## 2166                         Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2167               Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 2168                     Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2169       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2170                     Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2171                                  Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2172                 Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 2173                                 Denver Intl  0.6779008 -1.02642040  5.2044253
## 2174             Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 2175                              Nashville Intl  0.0163844  0.18329100  0.0196630
## 2176             James M Cox Dayton Intl  0.6851084  0.34858492  0.4595952
## 2177                         Myrtle Beach Intl -0.4163541  0.70427481 -0.5962421
## 2178         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2179                                Memphis Intl -0.1751494 -0.03844859 -0.2571724
## 2180                              San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 2182                 Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 2183                       Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2184                     Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2185                                 Denver Intl  0.6779008 -1.02642040  5.2044253
## 2186                         Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2187                             Burlington Intl  1.4939500  1.09250243 -0.2636104
## 2188                                Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2189                       Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 2190                         San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2191       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2192                              Richmond Intl  0.2607803  0.81241725 -0.4438753
## 2193         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2194                         Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2195                                  Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2196         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2197           George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2198                   Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2199                       Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 2200       Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2201                                  Miami Intl -1.8123380  0.61269947 -0.6144832
## 2202                                  Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2203                       NW Arkansas Regional  0.0442452 -0.32954219  0.7578907
## 2204                           Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2205                   Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2206       Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2207                   Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 2208                           Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2209                     Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
```

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## 2210                            Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2211         Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2212                      Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 2215                          Burlington Intl  1.4939500  1.09250243 -0.2636104
## 2216                  Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2217                       Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2218                     Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 2219         Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2220                          Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2221                            Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2222                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 2223                            Nashville Intl  0.0163844  0.18329100  0.0196630
## 2224         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2225                  Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 2226                         Gerald R Ford Intl  1.2123232  0.26096187  0.2288991
## 2227                     General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 2228  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2229                Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 2230         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2231                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2232                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2233                            Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2235                            Nashville Intl  0.0163844  0.18329100  0.0196630
## 2236                        Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2237                               Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2238                      Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 2239               Sarasota Bradenton Intl -1.5287348  0.46051347 -0.5908771
## 2240                   Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2241        George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2242                  Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2243                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2244                        Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2245                               Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2246                               Memphis Intl -0.1751494 -0.03844859 -0.2571724
## 2247                     General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 2248                    Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2249         Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2250                        San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2251         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2252                       Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 2253         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2254                  Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2255  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2256                          Burlington Intl  1.4939500  1.09250243 -0.2636104
## 2257         Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2259                 Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 2260                               Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2261                       Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2262              Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 2263                               Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2264                  Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 2265                        Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2266                               Miami Intl -1.8123380  0.61269947 -0.6144832
## 2267        Akron Canton Regional Airport  0.8645443  0.53528067  0.6945834
```

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## 2268                          Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2269          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2270  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2271  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2272                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2273          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2274               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2275               Syracuse Hancock Intl  1.2530980  0.89398502 -0.1713320
## 2276                  Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2277                  San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2278                Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2279                General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 2280                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 2281  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2282          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2283                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2285  George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2286  Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 2287          Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2288               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2289                      Richmond Intl  0.2607803  0.81241725 -0.4438753
## 2290          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2291                    William P Hobby -1.1304683 -0.39489005 -0.5737090
## 2292                    Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2293  Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2294          Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2295          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2296               Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2297               Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2298               Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 2300          Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 2301                     Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2302                       Honolulu Intl -2.6043784 -4.60609709 -0.6091182
## 2303          Dane Co Rgnl Truax Fld  1.2581731  0.00451842  0.3286886
## 2304               Charleston Afb Intl -0.5546166  0.62950758 -0.5747820
## 2305          Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2306               Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 2307  Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 2308                  Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2309                  San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2310          Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2312          Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 2313                    Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2314  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2315               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2316                        Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2317                    Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2318                        Norfolk Intl  0.1527062  0.88760463 -0.5951691
## 2319               Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 2320                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 2321                          Miami Intl -1.8123380  0.61269947 -0.6144832
## 2322          Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2323  George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2324               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
```

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## 2325                  Southwest Florida Intl -1.6808348  0.51424111 -0.5908771
## 2326                              Denver Intl  0.6779008 -1.02642040  5.2044253
## 2327                             Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2328                    Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 2329        Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2330              Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2331                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2332                    Indianapolis Intl  0.6523539  0.20909267  0.2321181
## 2334                   San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2335                General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 2336                        Richmond Intl  0.2607803  0.81241725 -0.4438753
## 2337                    Gerald R Ford Intl  1.2123232  0.26096187  0.2288991
## 2338        Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2339                     Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 2340                General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 2341                           Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2343                              Denver Intl  0.6779008 -1.02642040  5.2044253
## 2344                   San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2345                        Nashville Intl  0.0163844  0.18329100  0.0196630
## 2346            Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 2347               Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 2348    Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2349                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2350                  Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 2351    Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2352            Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 2353  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2354    Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2355        Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2356                           Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2357              Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2358                             Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2359                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2360                   Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2363            Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 2364                        Nashville Intl  0.0163844  0.18329100  0.0196630
## 2365                           Miami Intl -1.8123380  0.61269947 -0.6144832
## 2366                        Nashville Intl  0.0163844  0.18329100  0.0196630
## 2367        Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2368    Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2369                  Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2370                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2371                    Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 2372             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 2373  General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2375             Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 2376              Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2378    Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 2379                         Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2380                 Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 2381        Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2383    Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2384                       San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 2385                      Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
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## 2386                      Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 2387 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2388               Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 2389                             Bob Hope -0.3241470 -1.94642633  0.2117310
## 2390 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2391            Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 2392                          Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2395         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2396         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2397               Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2398                     Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2399                 Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 2401                  San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2402         George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2403                       Burlington Intl  1.4939500  1.09250243 -0.2636104
## 2404                  Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 2405                         Nashville Intl  0.0163844  0.18329100  0.0196630
## 2406                       Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 2407                  NW Arkansas Regional  0.0442452 -0.32954219  0.7578907
## 2408                      Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2409                 Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 2410                  San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2411            Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 2412         Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2413 General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2414      Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2415                     Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 2416                          Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2417                             Miami Intl -1.8123380  0.61269947 -0.6144832
## 2418        Norman Y Mineta San Jose Intl  0.2355446 -2.18644317 -0.5565409
## 2419           Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 2420                  Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 2421                            Long Beach -0.3919318 -1.93250701 -0.5586869
## 2422                        Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2423             Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 2425                         Richmond Intl  0.2607803  0.81241725 -0.4438753
## 2426                     Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2427              Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 2428                     Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2429                     Philadelphia Intl  0.6797219  0.95214614 -0.5844391
## 2430              Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2431         John Wayne Arpt Orange Co -0.4170768 -1.91345620 -0.5629789
## 2432                  San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2434              Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2435                          Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2436                 Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 2437            Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 2438                               Yeager  0.4144209  0.52513007  0.4295511
## 2439                             Miami Intl -1.8123380  0.61269947 -0.6144832
## 2440      Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 2441                    Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 2442        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2443        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2444                       Pittsburgh Intl  0.7893832  0.61657727  0.6688313
```

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## 2445                         Des Moines Intl  0.9739163 -0.28626762  0.4048720
## 2446                    General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 2447                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2448                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2449                     Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 2450                            Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2451                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2452                         Sacramento Intl  0.4714656 -2.16370474 -0.5940961
## 2453                       Gerald R Ford Intl  1.2123232  0.26096187  0.2288991
## 2454        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2455                      Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2456                  Phoenix Sky Harbor Intl -0.4598049 -1.51974410  0.5947939
## 2457                     Salt Lake City Intl  0.8419412 -1.51747116  3.9125267
## 2458                       Will Rogers World -0.1130772 -0.55097583  0.7664748
## 2459                              Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2460                      Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 2461              Baltimore Washington Intl  0.5564202  0.85620313 -0.4664085
## 2462           George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2463        Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2464                            Mc Ghee Tyson -0.0391080  0.36373385  0.4295511
## 2465    General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2466                     Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 2467                              Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2469    General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2470                         Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2471                        Port Columbus Intl  0.7020300  0.43782506  0.2514322
## 2472 Greenville-Spartanburg International -0.2011451  0.48306744  0.4113100
## 2475        Louis Armstrong New Orleans Intl -1.0688743 -0.05736306 -0.6187752
## 2476                    Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 2477                            Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2480                      Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2481                      Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 2482                           Richmond Intl  0.2607803  0.81241725 -0.4438753
## 2483                        Jacksonville Intl -0.9802516  0.51876575 -0.5908771
## 2486          Theodore Francis Green State  1.0090719  1.20899616 -0.5640520
## 2487                      Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2489                            Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2492                     Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 2495    General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2496                      Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2497                    Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 2498                     Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 2499                   Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2500        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2501                     Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2502        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2503                   Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 2504         Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2505                     Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2506                   Washington Dulles Intl  0.5155615  0.80326498 -0.2872166
## 2507    General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2508                              Miami Intl -1.8123380  0.61269947 -0.6144832
## 2509                      Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 2510                       San Francisco Intl  0.2809249 -2.21641654 -0.6091182
```

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## 2511                Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2512                      Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2513                                 Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2514                      Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2515          Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 2516                              Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 2517   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2518                      Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2519                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 2520                      Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2521                          San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2522            Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2523                       Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2524                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 2525                Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2526                                  Denver Intl  0.6779008 -1.02642040  5.2044253
## 2527                         NW Arkansas Regional  0.0442452 -0.32954219  0.7578907
## 2528                          San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2529                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 2530                            Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2531          Louisville International Airport  0.3791852  0.24659638 -0.0854915
## 2532                                 Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2533                               Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2534   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2535                            Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2536        Fort Lauderdale Hollywood Intl -1.7628935  0.62196347 -0.6134102
## 2537           John Wayne Arpt Orange Co -0.4170768 -1.91345620 -0.5629789
## 2538                          Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2539                             Nashville Intl  0.0163844  0.18329100  0.0196630
## 2540                            Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2541                                   Miami Intl -1.8123380  0.61269947 -0.6144832
## 2542               Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2543                      General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 2544                           Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2545                       Seattle Tacoma Intl  2.0209313 -2.21200773 -0.1584559
## 2546                            Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2547                Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2548                     Lambert St Louis Intl  0.4808967 -0.06489225  0.0400501
## 2549                                   Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2550          George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2551          Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 2552          Manchester Regional Airport  1.2214787  1.20796870 -0.3376478
## 2553                      Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2554                        Chicago Midway Intl  1.0185227  0.11107645  0.0421961
## 2555                          San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2556                                 Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2557                   Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 2558                Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2559                                  Denver Intl  0.6779008 -1.02642040  5.2044253
## 2560                                 Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2561                              Pittsburgh Intl  0.7893832  0.61657727  0.6688313
## 2562                               Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2563                                   Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2564                                   Miami Intl -1.8123380  0.61269947 -0.6144832
```

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## 2565                            Denver Intl  0.6779008 -1.02642040  5.2044253
## 2566              Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2567                        Nashville Intl  0.0163844  0.18329100  0.0196630
## 2568                  Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 2569                    Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2570                 Syracuse Hancock Intl  1.2530980  0.89398502 -0.1713320
## 2571             Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
## 2572                    Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2573        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2574                        Piedmont Triad  0.0116544  0.63644667  0.3694628
## 2575                 Portland Intl Jetport  1.3477934  1.28368991 -0.5404458
## 2576                       Gerald R Ford Intl  1.2123232  0.26096187  0.2288991
## 2577                 Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2578                            Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2579                    Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2580                    Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2581                        Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2582              Charlotte Douglas Intl -0.1447776  0.56882963  0.1795408
## 2583                    San Francisco Intl  0.2809249 -2.21641654 -0.6091182
## 2584     Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2585                    Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2586                Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2587                 NW Arkansas Regional  0.0442452 -0.32954219  0.7578907
## 2588               Cleveland Hopkins Intl  0.9522711  0.50787982  0.2256800
## 2589                            Miami Intl -1.8123380  0.61269947 -0.6144832
## 2590                       San Diego Intl -0.5838393 -1.86784040 -0.6048262
## 2591                        Los Angeles Intl -0.3698385 -1.94974778 -0.4878686
## 2592                 Austin Bergstrom Intl -1.0332709 -0.55562484 -0.0414983
## 2593                            Tampa Intl -1.4260644  0.46193454 -0.5951691
## 2594        George Bush Intercontinental -1.0704596 -0.39909517 -0.5189857
## 2595        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2596   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2597                Detroit Metro Wayne Co  1.0940122  0.40680076  0.0690213
## 2598      Cincinnati Northern Kentucky Intl  0.5340241  0.31843810  0.3383456
## 2599                         Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2600                    Chicago Ohare Intl  0.0116544  0.40680076 -0.1584559
## 2601                    Raleigh Durham Intl -0.0273073  0.71374418 -0.1563099
## 2602                 Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2603                 Dallas Fort Worth Intl -0.5549386 -0.51314595  0.0282470
## 2604                Greater Rochester Intl  1.2544573  0.78870554 -0.0232572
## 2605                         Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2606                  Buffalo Niagara Intl  1.2228893  0.71746205  0.1537887
## 2607   General Edward Lawrence Logan Intl  1.1209004  1.23690808 -0.6026802
## 2608                         Mc Carran Intl  0.0085224 -1.73087520  1.6742374
## 2609                         Palm Beach Intl -1.6548155  0.62580611 -0.6026802
## 2610                            Eagle Co Rgnl  0.6391181 -1.17730781  6.3943883
## 2611                    Chicago Ohare Intl  1.0526201  0.10082969  0.0937004
## 2612                 General Mitchell Intl  1.2240747  0.10138490  0.1527157
## 2613                        Nashville Intl  0.0163844  0.18329100  0.0196630
## 2614                            Orlando Intl -1.3457160  0.54423506 -0.5200587
## 2615        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2616     Ronald Reagan Washington Natl  0.4991970  0.83137098 -0.6069722
## 2617        Hartsfield Jackson Atlanta Intl -0.4239710  0.33455562  0.4778363
## 2618                         Mc Carran Intl  0.0085224 -1.73087520  1.6742374
```

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## 2619            Minneapolis St Paul Intl  1.5665406 -0.25660018  0.2793303
##          tz dst          tzone     year.y                     type
## 1   0.686322   A    America/New_York -1.9865668  Fixed wing multi engine
## 2  -0.242399   A      America/Chicago  1.8110816  Fixed wing multi engine
## 3   0.686322   A    America/New_York  1.6384612  Fixed wing multi engine
## 4  -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 5  -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 6   0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 7  -2.099842   A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 8   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 9  -0.242399   A      America/Chicago -1.8139464  Fixed wing multi engine
## 10  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 11  0.686322   A    America/New_York  1.6384612  Fixed wing multi engine
## 12  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 13  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 14 -2.099842   A America/Los_Angeles  0.4301185  Fixed wing multi engine
## 15 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 16  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 17  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 18  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 19  0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 20  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 21  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 22  0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 23 -1.171121   A      America/Denver -1.6413261  Fixed wing multi engine
## 24 -2.099842   A America/Los_Angeles  0.2574981  Fixed wing multi engine
## 25 -0.242399   A      America/Chicago  0.6027389  Fixed wing multi engine
## 26  0.686322   A    America/New_York -1.6413261  Fixed wing multi engine
## 27 -1.171121   A      America/Denver -0.0877426  Fixed wing multi engine
## 28 -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 29 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 30  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 31 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 32  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 33  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 34 -0.242399   A      America/Chicago -0.6056038  Fixed wing multi engine
## 35  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 36  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 37 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 38  0.686322   A    America/New_York -1.9865668  Fixed wing multi engine
## 39 -2.099842   A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 40 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 41 -1.171121   A      America/Denver  1.8110816  Fixed wing multi engine
## 42 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 43 -2.099842   A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 44 -2.099842   A America/Los_Angeles  0.6027389  Fixed wing multi engine
## 45 -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
## 46 -2.099842   A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 47 -2.099842   A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 49  0.686322   A    America/New_York  1.6384612  Fixed wing multi engine
## 50  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 51  0.686322   A    America/New_York -2.1591872  Fixed wing multi engine
## 52  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 53  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
```

```
## 54    -2.099842    A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 55     0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 56    -0.242399    A       America/Chicago  0.9479797  Fixed wing multi engine
## 57     0.686322    A     America/New_York  0.6027389  Fixed wing multi engine
## 58     0.686322    A     America/New_York -0.4329834  Fixed wing multi engine
## 59    -0.242399    A       America/Chicago  0.0848777  Fixed wing multi engine
## 60     0.686322    A     America/New_York -0.7782242  Fixed wing multi engine
## 61     0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 62     0.686322    A     America/New_York -0.4329834  Fixed wing multi engine
## 63    -0.242399    A       America/Chicago -1.8139464  Fixed wing multi engine
## 64     0.686322    A     America/New_York  1.1206000  Fixed wing multi engine
## 66    -0.242399    A       America/Chicago  0.9479797  Fixed wing multi engine
## 67    -2.099842    A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 68     0.686322    A     America/New_York -0.4329834  Fixed wing multi engine
## 69     0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 70    -1.171121    A        America/Denver  0.0848777  Fixed wing multi engine
## 71    -0.242399    A       America/Chicago  0.0848777  Fixed wing multi engine
## 72     0.686322    A     America/New_York -4.4032522  Fixed wing multi engine
## 73     0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 75    -1.171121    A        America/Denver -0.4329834  Fixed wing multi engine
## 76     0.686322    A     America/New_York -0.4329834  Fixed wing multi engine
## 77     0.686322    A     America/New_York  0.2574981  Fixed wing multi engine
## 78    -2.099842    A America/Los_Angeles  0.6027389  Fixed wing multi engine
## 79     0.686322    A     America/New_York  0.6027389  Fixed wing multi engine
## 80     0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 81     0.686322    A     America/New_York -0.0877426  Fixed wing multi engine
## 82     0.686322    A     America/New_York  0.2574981  Fixed wing multi engine
## 83    -0.242399    A       America/Chicago -0.6056038  Fixed wing multi engine
## 84    -1.171121    A        America/Denver -0.2603630  Fixed wing multi engine
## 86     0.686322    A     America/New_York -0.6056038  Fixed wing multi engine
## 87    -0.242399    A       America/Chicago  0.0848777 Fixed wing single engine
## 88    -0.242399    A       America/Chicago -1.6413261  Fixed wing multi engine
## 89     0.686322    A     America/New_York  0.7753593  Fixed wing multi engine
## 90     0.686322    A     America/New_York  1.6384612  Fixed wing multi engine
## 91    -2.099842    A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 92    -1.171121    A        America/Denver -0.4329834  Fixed wing multi engine
## 93     0.686322    A     America/New_York  1.2932204  Fixed wing multi engine
## 94     0.686322    A     America/New_York  0.9479797 Fixed wing single engine
## 95    -0.242399    A       America/Chicago -0.0877426  Fixed wing multi engine
## 96    -2.099842    A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 97     0.686322    A     America/New_York -0.4329834  Fixed wing multi engine
## 98    -2.099842    A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 99     0.686322    A     America/New_York -0.0877426  Fixed wing multi engine
## 100    0.686322    A     America/New_York -1.9865668  Fixed wing multi engine
## 101    0.686322    A     America/New_York -1.9865668  Fixed wing multi engine
## 102    0.686322    A     America/New_York -0.2603630  Fixed wing multi engine
## 103   -2.099842    A America/Los_Angeles -0.2603630  Fixed wing multi engine
## 104    0.686322    A     America/New_York -0.0877426  Fixed wing multi engine
## 106   -0.242399    A       America/Chicago  1.1206000  Fixed wing multi engine
## 107    0.686322    A     America/New_York -0.2603630  Fixed wing multi engine
## 108    0.686322    A     America/New_York -0.6056038  Fixed wing multi engine
## 109    0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 110   -0.242399    A       America/Chicago -1.8139464  Fixed wing multi engine
## 111    0.686322    A     America/New_York -0.0877426  Fixed wing multi engine
```

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## 112  -0.242399  A      America/Chicago -0.6056038  Fixed wing multi engine
## 113   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 114   0.686322  A      America/New_York -1.4687057  Fixed wing multi engine
## 115   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 116   0.686322  A      America/New_York -1.9865668  Fixed wing multi engine
## 117  -2.099842  A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 118   0.686322  A      America/New_York  0.6027389  Fixed wing multi engine
## 119   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 120   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 121   0.686322  A      America/New_York -0.2603630  Fixed wing multi engine
## 122  -0.242399  A      America/Chicago  0.4301185  Fixed wing multi engine
## 123   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 124  -2.099842  A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 125   0.686322  A      America/New_York -0.7782242  Fixed wing multi engine
## 126   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 127  -0.242399  A      America/Chicago  0.0848777  Fixed wing multi engine
## 128  -0.242399  A      America/Chicago  0.0848777  Fixed wing multi engine
## 129   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 130   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 131   0.686322  A      America/New_York -1.6413261  Fixed wing multi engine
## 132   0.686322  A      America/New_York  0.7753593  Fixed wing multi engine
## 133   0.686322  A      America/New_York -0.2603630  Fixed wing multi engine
## 134   0.686322  A      America/New_York -0.0877426  Fixed wing multi engine
## 136   0.686322  A      America/New_York  0.7753593  Fixed wing multi engine
## 137   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 138   0.686322  A      America/New_York -0.2603630  Fixed wing multi engine
## 139  -0.242399  A      America/Chicago -1.4687057  Fixed wing multi engine
## 140   0.686322  A      America/New_York -0.0877426  Fixed wing multi engine
## 141  -0.242399  A      America/Chicago  1.1206000  Fixed wing multi engine
## 142  -0.242399  A      America/Chicago  0.7753593  Fixed wing multi engine
## 143   0.686322  A      America/New_York -0.0877426  Fixed wing multi engine
## 144  -2.099842  A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 145  -0.242399  A      America/Chicago -4.4032522 Fixed wing single engine
## 146  -0.242399  A      America/Chicago  0.0848777  Fixed wing multi engine
## 147   0.686322  A      America/New_York -0.0877426  Fixed wing multi engine
## 148   0.686322  A      America/New_York  0.4301185  Fixed wing multi engine
## 149   0.686322  A      America/New_York -1.4687057  Fixed wing multi engine
## 150   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 151  -0.242399  A      America/Chicago  0.9479797  Fixed wing multi engine
## 152   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 153   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 154  -0.242399  A      America/Chicago  0.0848777  Fixed wing multi engine
## 155   0.686322  A      America/New_York -2.1591872  Fixed wing multi engine
## 156   0.686322  A      America/New_York  1.1206000  Fixed wing multi engine
## 157   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 158  -0.242399  A      America/Chicago  0.9479797 Fixed wing single engine
## 160   0.686322  A      America/New_York  1.1206000  Fixed wing multi engine
## 162   0.686322  A      America/New_York  1.6384612  Fixed wing multi engine
## 163   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 164   0.686322  A      America/New_York  0.0848777  Fixed wing multi engine
## 165  -0.242399  A      America/Chicago -0.2603630  Fixed wing multi engine
## 166   0.686322  A      America/New_York -4.4032522  Fixed wing multi engine
## 167   0.686322  A      America/New_York  1.8110816                Rotorcraft
## 168  -2.099842  A America/Los_Angeles -1.2960853  Fixed wing multi engine
```

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## 169 -1.171121   A       America/Denver -0.2603630  Fixed wing multi engine
## 170  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 172 -2.099842   A America/Los_Angeles -2.3318076  Fixed wing multi engine
## 173 -0.242399   A        America/Chicago  0.0848777  Fixed wing multi engine
## 174 -1.171121   N        America/Phoenix  0.9479797  Fixed wing multi engine
## 175  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 176  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 177 -0.242399   A        America/Chicago  0.4301185  Fixed wing multi engine
## 178 -0.242399   A        America/Chicago -0.0877426  Fixed wing multi engine
## 179 -0.242399   A        America/Chicago  1.8110816  Fixed wing multi engine
## 181  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 183 -2.099842   A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 184  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 185  0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 186 -2.099842   A America/Los_Angeles -2.1591872  Fixed wing multi engine
## 187  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 190 -0.242399   A        America/Chicago -0.4329834  Fixed wing multi engine
## 191 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 192  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 193 -0.242399   A        America/Chicago  0.0848777  Fixed wing multi engine
## 194  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 195  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 196  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 197  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 198  0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 199 -0.242399   A        America/Chicago -0.6056038  Fixed wing multi engine
## 200  0.686322   A     America/New_York  1.2932204  Fixed wing multi engine
## 201  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 202  0.686322   A     America/New_York -1.2960853  Fixed wing multi engine
## 203  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 204 -0.242399   A        America/Chicago  0.0848777  Fixed wing multi engine
## 205 -1.171121   A       America/Denver -1.9865668  Fixed wing multi engine
## 206  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 207  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 208  0.686322   A     America/New_York  1.4658408  Fixed wing multi engine
## 209  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 210  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 211  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 212  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 213  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 214  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 215 -2.099842   A America/Los_Angeles -1.1234649  Fixed wing multi engine
## 217 -0.242399   A        America/Chicago  0.9479797  Fixed wing multi engine
## 218 -0.242399   A        America/Chicago  0.0848777  Fixed wing multi engine
## 219 -0.242399   A        America/Chicago -1.8139464  Fixed wing multi engine
## 220 -1.171121   A       America/Denver -1.9865668  Fixed wing multi engine
## 221  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 222 -0.242399   A        America/Chicago  0.6027389  Fixed wing multi engine
## 223  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 224 -2.099842   A America/Los_Angeles -2.8496687  Fixed wing multi engine
## 226 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 227 -0.242399   A        America/Chicago  0.9479797  Fixed wing multi engine
## 228  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 229  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
```

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## 230   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 231  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 232   0.686322   A     America/New_York -1.9865668  Fixed wing multi engine
## 233  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 234   0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 235   0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 236   0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 237  -0.242399   A      America/Chicago  1.2932204  Fixed wing multi engine
## 238  -1.171121   A       America/Denver  1.6384612  Fixed wing multi engine
## 239   0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 240   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 241   0.686322   A     America/New_York -2.1591872  Fixed wing multi engine
## 242  -0.242399   A      America/Chicago  0.2574981  Fixed wing multi engine
## 245  -1.171121   A       America/Denver -1.6413261  Fixed wing multi engine
## 247   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 248   0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 249  -1.171121   N      America/Phoenix -0.6056038  Fixed wing multi engine
## 251   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 252   0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 253   0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 254  -2.099842   A America/Los_Angeles  0.9479797  Fixed wing multi engine
## 255  -0.242399   A      America/Chicago -2.5044280  Fixed wing multi engine
## 256   0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 257  -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 258  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 259  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 260   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 261  -2.099842   A America/Los_Angeles -1.8139464  Fixed wing multi engine
## 263  -1.171121   A       America/Denver -1.6413261  Fixed wing multi engine
## 264  -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
## 265  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 266   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 267   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 268  -0.242399   A      America/Chicago -0.7782242  Fixed wing multi engine
## 269   0.686322   A     America/New_York -1.2960853  Fixed wing multi engine
## 270  -2.099842   A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 271  -2.099842   A America/Los_Angeles  0.0848777 Fixed wing single engine
## 273  -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 275   0.686322   A     America/New_York -1.9865668  Fixed wing multi engine
## 276   0.686322   A     America/New_York -2.1591872  Fixed wing multi engine
## 277   0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 278  -0.242399   A      America/Chicago  1.8110816  Fixed wing multi engine
## 279   0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 281  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 282   0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 283  -2.099842   A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 284  -0.242399   A      America/Chicago -4.4032522  Fixed wing multi engine
## 285  -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
## 286   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 287  -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 288  -0.242399   A      America/Chicago -1.6413261  Fixed wing multi engine
## 289   0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 290   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 291  -2.099842   A America/Los_Angeles  1.4658408  Fixed wing multi engine
```

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## 292   0.686322   A    America/New_York   0.0848777  Fixed wing multi engine
## 294  -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 297   0.686322   A    America/New_York  -0.6056038  Fixed wing multi engine
## 298  -0.242399   A      America/Chicago  0.9479797  Fixed wing multi engine
## 299   0.686322   A    America/New_York   0.9479797  Fixed wing multi engine
## 300   0.686322   A    America/New_York  -0.2603630  Fixed wing multi engine
## 301   0.686322   A    America/New_York  -0.6056038  Fixed wing multi engine
## 302   0.686322   A    America/New_York  -2.3318076  Fixed wing multi engine
## 303  -1.171121   A      America/Denver   0.2574981  Fixed wing multi engine
## 304   0.686322   A    America/New_York  -4.2306318 Fixed wing single engine
## 305  -1.171121   N     America/Phoenix  -0.9508445  Fixed wing multi engine
## 306  -1.171121   A      America/Denver  -2.5044280  Fixed wing multi engine
## 307  -2.099842   A America/Los_Angeles   0.0848777  Fixed wing multi engine
## 308  -1.171121   N     America/Phoenix  -0.6056038  Fixed wing multi engine
## 310   0.686322   A    America/New_York  -0.6056038  Fixed wing multi engine
## 311  -2.099842   A America/Los_Angeles -1.4687057  Fixed wing multi engine
## 312  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 313   0.686322   A    America/New_York  -0.2603630  Fixed wing multi engine
## 316  -0.242399   A      America/Chicago  0.4301185  Fixed wing multi engine
## 317   0.686322   A    America/New_York   0.0848777  Fixed wing multi engine
## 318   0.686322   A    America/New_York   0.7753593  Fixed wing multi engine
## 319   0.686322   A    America/New_York   0.9479797  Fixed wing multi engine
## 320   0.686322   A    America/New_York   0.0848777  Fixed wing multi engine
## 321  -2.099842   A America/Los_Angeles   0.9479797  Fixed wing multi engine
## 322  -2.099842   A America/Los_Angeles   1.4658408  Fixed wing multi engine
## 323  -0.242399   A      America/Chicago -0.6056038  Fixed wing multi engine
## 324  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 328   0.686322   A    America/New_York   0.0848777  Fixed wing multi engine
## 330   0.686322   A    America/New_York  -0.6056038  Fixed wing multi engine
## 332   0.686322   A    America/New_York  -0.4329834  Fixed wing multi engine
## 333  -0.242399   A      America/Chicago  0.7753593  Fixed wing multi engine
## 336   0.686322   A    America/New_York  -0.2603630  Fixed wing multi engine
## 339  -0.242399   A      America/Chicago -4.4032522 Fixed wing single engine
## 340  -0.242399   A      America/Chicago  0.6027389  Fixed wing multi engine
## 341  -0.242399   A      America/Chicago -0.6056038  Fixed wing multi engine
## 342  -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 343  -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 344   0.686322   A    America/New_York  -0.7782242  Fixed wing multi engine
## 346  -0.242399   A      America/Chicago -1.9865668  Fixed wing multi engine
## 347   0.686322   A    America/New_York   0.4301185  Fixed wing multi engine
## 348  -2.099842   A America/Los_Angeles -0.2603630  Fixed wing multi engine
## 349  -2.099842   A America/Los_Angeles  1.2932204  Fixed wing multi engine
## 350  -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 351   0.686322   A    America/New_York  -0.0877426  Fixed wing multi engine
## 352   0.686322   A    America/New_York   0.6027389  Fixed wing multi engine
## 353   0.686322   A    America/New_York   0.0848777  Fixed wing multi engine
## 354   0.686322   A    America/New_York   1.8110816                Rotorcraft
## 355   0.686322   A    America/New_York   0.7753593  Fixed wing multi engine
## 356   0.686322   A    America/New_York   0.0848777  Fixed wing multi engine
## 358   0.686322   A    America/New_York   0.9479797  Fixed wing multi engine
## 359   0.686322   A    America/New_York   0.9479797  Fixed wing multi engine
## 365   0.686322   A    America/New_York   0.4301185  Fixed wing multi engine
## 366   0.686322   A    America/New_York   0.4301185  Fixed wing multi engine
## 367   0.686322   A    America/New_York  -0.0877426  Fixed wing multi engine
```

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## 368  -0.242399    A      America/Chicago   0.0848777   Fixed wing multi engine
## 369   0.686322    A     America/New_York   0.7753593   Fixed wing multi engine
## 370   0.686322    A     America/New_York   1.8110816   Fixed wing multi engine
## 371  -0.242399    A      America/Chicago   0.0848777   Fixed wing multi engine
## 372   0.686322    A     America/New_York   0.2574981   Fixed wing multi engine
## 373  -2.099842    A America/Los_Angeles  -0.0877426   Fixed wing multi engine
## 374   0.686322    A     America/New_York  -0.6056038   Fixed wing multi engine
## 375   0.686322    A     America/New_York   0.0848777   Fixed wing multi engine
## 376  -0.242399    A      America/Chicago   0.0848777   Fixed wing multi engine
## 377  -2.099842    A America/Los_Angeles  -0.4329834   Fixed wing multi engine
## 378   0.686322    A     America/New_York  -0.2603630   Fixed wing multi engine
## 379  -0.242399    A      America/Chicago  -1.4687057   Fixed wing multi engine
## 380   0.686322    A     America/New_York   1.1206000   Fixed wing multi engine
## 381  -0.242399    A      America/Chicago   0.7753593   Fixed wing multi engine
## 382   0.686322    A     America/New_York   0.6027389   Fixed wing multi engine
## 383  -0.242399    A      America/Chicago  -0.2603630   Fixed wing multi engine
## 384  -0.242399    A      America/Chicago  -0.7782242   Fixed wing multi engine
## 385   0.686322    A     America/New_York   0.0848777   Fixed wing multi engine
## 386   0.686322    A     America/New_York  -1.6413261   Fixed wing multi engine
## 387   0.686322    A     America/New_York   1.6384612   Fixed wing multi engine
## 388   0.686322    A     America/New_York   0.0848777   Fixed wing multi engine
## 389   0.686322    A     America/New_York   0.0848777   Fixed wing multi engine
## 390  -2.099842    A America/Los_Angeles  -1.9865668   Fixed wing multi engine
## 391  -0.242399    A      America/Chicago   0.0848777   Fixed wing multi engine
## 392  -0.242399    A      America/Chicago  -0.4329834   Fixed wing multi engine
## 393  -1.171121    N      America/Phoenix   1.6384612   Fixed wing multi engine
## 394   0.686322    A     America/New_York   0.6027389   Fixed wing multi engine
## 395   0.686322    A     America/New_York  -0.2603630   Fixed wing multi engine
## 396  -0.242399    A      America/Chicago   0.0848777   Fixed wing multi engine
## 397   0.686322    A     America/New_York   0.2574981   Fixed wing multi engine
## 398   0.686322    A     America/New_York   1.2932204   Fixed wing multi engine
## 399  -1.171121    A       America/Denver  -1.4687057   Fixed wing multi engine
## 400  -1.171121    A       America/Denver  -0.6056038   Fixed wing multi engine
## 401   0.686322    A     America/New_York  -0.2603630   Fixed wing multi engine
## 402   0.686322    A     America/New_York   0.4301185   Fixed wing multi engine
## 403  -2.099842    A America/Los_Angeles   0.9479797   Fixed wing multi engine
## 404   0.686322    A     America/New_York   0.2574981   Fixed wing multi engine
## 405   0.686322    A     America/New_York   0.0848777   Fixed wing multi engine
## 406  -2.099842    A America/Los_Angeles   0.7753593   Fixed wing multi engine
## 407   0.686322    A     America/New_York  -1.8139464   Fixed wing multi engine
## 408   0.686322    A     America/New_York   1.8110816   Fixed wing multi engine
## 410  -0.242399    A      America/Chicago   0.0848777   Fixed wing multi engine
## 411   0.686322    A     America/New_York   0.0848777   Fixed wing multi engine
## 412  -2.099842    A America/Los_Angeles   0.4301185   Fixed wing multi engine
## 413   0.686322    A     America/New_York  -0.9508445   Fixed wing multi engine
## 414  -0.242399    A      America/Chicago  -0.2603630   Fixed wing multi engine
## 415   0.686322    A     America/New_York   0.0848777   Fixed wing multi engine
## 416   0.686322    A     America/New_York   0.6027389   Fixed wing multi engine
## 418  -2.099842    A America/Los_Angeles   1.1206000   Fixed wing multi engine
## 420  -1.171121    A       America/Denver  -1.2960853   Fixed wing multi engine
## 421  -2.099842    A America/Los_Angeles   0.0848777   Fixed wing multi engine
## 422  -0.242399    A      America/Chicago   0.4301185   Fixed wing multi engine
## 423  -0.242399    A      America/Chicago   0.0848777 Fixed wing single engine
## 424  -2.099842    A America/Los_Angeles  -2.6770484   Fixed wing multi engine
```

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## 425   0.686322   A     America/New_York -0.9508445  Fixed wing multi engine
## 426  -1.171121   A        America/Denver  0.4301185  Fixed wing multi engine
## 427  -1.171121   A        America/Denver -1.8139464  Fixed wing multi engine
## 428   0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 429   0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 430  -0.242399   A       America/Chicago -0.9508445  Fixed wing multi engine
## 432   0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 433   0.686322   A     America/New_York -2.3318076  Fixed wing multi engine
## 434   0.686322   A     America/New_York  1.2932204  Fixed wing multi engine
## 435   0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 436  -2.099842   A America/Los_Angeles -1.8139464  Fixed wing multi engine
## 437   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 438   0.686322   A     America/New_York  1.2932204  Fixed wing multi engine
## 439  -0.242399   A       America/Chicago -0.6056038  Fixed wing multi engine
## 440   0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 442  -0.242399   A       America/Chicago  1.1206000  Fixed wing multi engine
## 443   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 444  -2.099842   A America/Los_Angeles  0.4301185  Fixed wing multi engine
## 445  -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 446   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 447  -0.242399   A       America/Chicago -1.8139464  Fixed wing multi engine
## 448  -0.242399   A       America/Chicago -2.5044280  Fixed wing multi engine
## 450  -1.171121   A        America/Denver  1.6384612  Fixed wing multi engine
## 451   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 452   0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 453  -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 455   0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 457   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 458   0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 459  -1.171121   A        America/Denver -0.6056038  Fixed wing multi engine
## 460   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 462   0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 463   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 464   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 465  -2.099842   A America/Los_Angeles -1.4687057  Fixed wing multi engine
## 466  -1.171121   A        America/Denver -0.6056038  Fixed wing multi engine
## 467   0.686322   A     America/New_York  1.2932204  Fixed wing multi engine
## 468  -0.242399   A       America/Chicago -1.6413261  Fixed wing multi engine
## 469   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 470   0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 471  -0.242399   A       America/Chicago  0.0848777  Fixed wing multi engine
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## 473   0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 474   0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 475  -1.171121   A        America/Denver -0.6056038  Fixed wing multi engine
## 476  -1.171121   A        America/Denver  0.4301185  Fixed wing multi engine
## 477  -0.242399   A       America/Chicago  1.1206000  Fixed wing multi engine
## 479   0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 480   0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 481  -0.242399   A       America/Chicago -4.4032522 Fixed wing single engine
## 482   0.686322   A     America/New_York  1.8110816  Fixed wing multi engine
## 483   0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 484  -0.242399   A       America/Chicago -0.0877426  Fixed wing multi engine
## 485   0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
```

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## 486  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 487   0.686322   A     America/New_York  1.8110816  Fixed wing multi engine
## 488   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 489  -1.171121   N      America/Phoenix  1.6384612  Fixed wing multi engine
## 490   0.686322   A     America/New_York -1.9865668  Fixed wing multi engine
## 491   0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 492   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
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## 495   0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 496   0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 497  -2.099842   A America/Los_Angeles -2.6770484  Fixed wing multi engine
## 498   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 499  -1.171121   A       America/Denver -1.6413261  Fixed wing multi engine
## 501  -2.099842   A America/Los_Angeles -0.2603630  Fixed wing multi engine
## 502   0.686322   A     America/New_York -0.7782242  Fixed wing multi engine
## 503   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 504   0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 506   0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 507  -0.242399   A      America/Chicago  0.7753593  Fixed wing multi engine
## 508   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 509  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 510   0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 511  -0.242399   A      America/Chicago  0.6027389  Fixed wing multi engine
## 512  -2.099842   A America/Los_Angeles -1.4687057  Fixed wing multi engine
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## 515  -0.242399   A      America/Chicago -0.4329834  Fixed wing multi engine
## 516  -2.099842   A America/Los_Angeles -2.8496687  Fixed wing multi engine
## 517   0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 518   0.686322   A     America/New_York -1.2960853  Fixed wing multi engine
## 519   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 520   0.686322   A     America/New_York -2.3318076  Fixed wing multi engine
## 523   0.686322   A     America/New_York  1.2932204  Fixed wing multi engine
## 524  -1.171121   A       America/Denver -0.0877426  Fixed wing multi engine
## 525   0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 526   0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 527   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 528   0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 529   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 530   0.686322   A     America/New_York  1.8110816  Fixed wing multi engine
## 531   0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 532   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 533  -1.171121   A       America/Denver  0.9479797  Fixed wing multi engine
## 534   0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
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## 536   0.686322   A     America/New_York  1.6384612  Fixed wing multi engine
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## 539  -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
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## 542   0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 543  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 544   0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
```

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## 545  -2.099842   A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 546   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 547   0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 548   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 549  -1.171121   N      America/Phoenix -0.4329834  Fixed wing multi engine
## 551   0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 553  -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
## 554  -0.242399   A      America/Chicago -0.4329834  Fixed wing multi engine
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## 556  -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
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## 559   0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 560   0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 561  -0.242399   A      America/Chicago  0.9479797  Fixed wing multi engine
## 562  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
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## 571  -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
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## 573   0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
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## 577   0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 578   0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 579   0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
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## 584  -0.242399   A      America/Chicago  0.7753593  Fixed wing multi engine
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## 590  -0.242399   A      America/Chicago  0.9479797  Fixed wing multi engine
## 591   0.686322   A     America/New_York -0.7782242  Fixed wing multi engine
## 593  -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 594   0.686322   A     America/New_York -1.9865668  Fixed wing multi engine
## 596   0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 597  -1.171121   A       America/Denver  1.2932204  Fixed wing multi engine
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## 600   0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 601  -2.099842   A America/Los_Angeles  1.2932204  Fixed wing multi engine
## 602   0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 603   0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 604  -2.099842   A America/Los_Angeles  1.4658408  Fixed wing multi engine
## 605  -1.171121   A       America/Denver -1.6413261  Fixed wing multi engine
## 607  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
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## 608   0.686322    A    America/New_York  1.2932204  Fixed wing multi engine
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## 610  -0.242399    A     America/Chicago  0.2574981  Fixed wing multi engine
## 611   0.686322    A    America/New_York  0.9479797  Fixed wing multi engine
## 612  -0.242399    A     America/Chicago  0.2574981  Fixed wing multi engine
## 613   0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 614  -0.242399    A     America/Chicago -0.2603630  Fixed wing multi engine
## 615   0.686322    A    America/New_York  1.2932204  Fixed wing multi engine
## 616  -0.242399    A     America/Chicago -1.4687057 Fixed wing single engine
## 617  -0.242399    A     America/Chicago  0.0848777  Fixed wing multi engine
## 618  -0.242399    A     America/Chicago  0.0848777  Fixed wing multi engine
## 619  -2.099842    A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 621  -1.171121    A       America/Denver  1.1206000  Fixed wing multi engine
## 622  -0.242399    A     America/Chicago -0.7782242  Fixed wing multi engine
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## 625  -2.099842    A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 626  -0.242399    A     America/Chicago  0.0848777  Fixed wing multi engine
## 628  -2.099842    A America/Los_Angeles -1.9865668  Fixed wing multi engine
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## 637   0.686322    A    America/New_York -0.4329834  Fixed wing multi engine
## 638  -0.242399    A     America/Chicago  0.0848777  Fixed wing multi engine
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## 643   0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 644  -0.242399    A     America/Chicago  0.0848777  Fixed wing multi engine
## 645  -2.099842    A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 646  -2.099842    A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 648   0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 649  -2.099842    A America/Los_Angeles  0.9479797  Fixed wing multi engine
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## 652  -2.099842    A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 654  -0.242399    A     America/Chicago  1.1206000  Fixed wing multi engine
## 655  -0.242399    A     America/Chicago -1.8139464  Fixed wing multi engine
## 656  -2.099842    A America/Los_Angeles  0.9479797  Fixed wing multi engine
## 657   0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 658   0.686322    A    America/New_York -0.2603630  Fixed wing multi engine
## 659  -0.242399    A     America/Chicago -0.4329834  Fixed wing multi engine
## 660   0.686322    A    America/New_York  1.1206000  Fixed wing multi engine
## 661   0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 662   0.686322    A    America/New_York  0.6027389  Fixed wing multi engine
## 663  -0.242399    A     America/Chicago  0.0848777  Fixed wing multi engine
## 664  -0.242399    A     America/Chicago -0.0877426  Fixed wing multi engine
## 665  -2.099842    A America/Los_Angeles -2.3318076  Fixed wing multi engine
## 666  -2.099842    A America/Los_Angeles  0.6027389  Fixed wing multi engine
## 667  -2.099842    A America/Los_Angeles -0.2603630  Fixed wing multi engine
## 668  -1.171121    A       America/Denver  1.2932204  Fixed wing multi engine
## 669  -0.242399    A     America/Chicago  1.1206000  Fixed wing multi engine
## 670  -1.171121    N      America/Phoenix -0.0877426  Fixed wing multi engine
## 671  -1.171121    N      America/Phoenix -0.0877426  Fixed wing multi engine
## 672   0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
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## 673  -0.242399   A    America/Chicago  0.0848777  Fixed wing multi engine
## 674   0.686322   A   America/New_York -1.6413261  Fixed wing multi engine
## 675   0.686322   A   America/New_York  0.9479797  Fixed wing multi engine
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## 680   0.686322   A   America/New_York -1.2960853  Fixed wing multi engine
## 682  -2.099842   A America/Los_Angeles -0.0877426 Fixed wing multi engine
## 683   0.686322   A   America/New_York  0.9479797  Fixed wing multi engine
## 684  -0.242399   A    America/Chicago -0.6056038  Fixed wing multi engine
## 686   0.686322   A   America/New_York -0.0877426  Fixed wing multi engine
## 687   0.686322   A   America/New_York -0.6056038  Fixed wing multi engine
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## 696   0.686322   A   America/New_York  0.0848777  Fixed wing multi engine
## 697   0.686322   A   America/New_York -4.2306318 Fixed wing single engine
## 698   0.686322   A   America/New_York  1.1206000  Fixed wing multi engine
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## 702  -2.099842   A America/Los_Angeles -0.6056038 Fixed wing multi engine
## 703  -0.242399   A    America/Chicago -2.3318076  Fixed wing multi engine
## 704   0.686322   A   America/New_York  0.6027389  Fixed wing multi engine
## 706  -2.099842   A America/Los_Angeles  0.4301185 Fixed wing multi engine
## 707   0.686322   A   America/New_York  0.0848777  Fixed wing multi engine
## 709   0.686322   A   America/New_York  0.6027389  Fixed wing multi engine
## 710  -0.242399   A    America/Chicago  0.2574981  Fixed wing multi engine
## 711   0.686322   A   America/New_York -0.6056038  Fixed wing multi engine
## 712  -2.099842   A America/Los_Angeles -0.7782242 Fixed wing multi engine
## 713   0.686322   A   America/New_York  0.0848777  Fixed wing multi engine
## 714  -0.242399   A    America/Chicago -0.4329834  Fixed wing multi engine
## 715   0.686322   A   America/New_York -0.6056038  Fixed wing multi engine
## 716   0.686322   A   America/New_York  1.4658408  Fixed wing multi engine
## 717   0.686322   A   America/New_York -0.4329834  Fixed wing multi engine
## 719   0.686322   A   America/New_York  1.1206000  Fixed wing multi engine
## 720  -0.242399   A    America/Chicago  0.0848777  Fixed wing multi engine
## 721  -1.171121   A     America/Denver  0.4301185  Fixed wing multi engine
## 722   0.686322   A   America/New_York  0.0848777  Fixed wing multi engine
## 723  -2.099842   A America/Los_Angeles  1.8110816 Fixed wing multi engine
## 725  -2.099842   A America/Los_Angeles  0.0848777 Fixed wing multi engine
## 726   0.686322   A   America/New_York  1.1206000  Fixed wing multi engine
## 727   0.686322   A   America/New_York -0.6056038  Fixed wing multi engine
## 729   0.686322   A   America/New_York  0.6027389  Fixed wing multi engine
## 730   0.686322   A   America/New_York  0.2574981  Fixed wing multi engine
## 737   0.686322   A   America/New_York  0.9479797  Fixed wing multi engine
## 738   0.686322   A   America/New_York  0.0848777  Fixed wing multi engine
## 739   0.686322   A   America/New_York  0.6027389  Fixed wing multi engine
## 743  -0.242399   A    America/Chicago  1.1206000  Fixed wing multi engine
## 744   0.686322   A   America/New_York -0.7782242  Fixed wing multi engine
## 745   0.686322   A   America/New_York -0.2603630  Fixed wing multi engine
## 746   0.686322   A   America/New_York  0.9479797 Fixed wing single engine
```

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## 747   0.686322   A    America/New_York -2.3318076  Fixed wing multi engine
## 748   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 749   0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 750   0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 751   0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 752   0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 753  -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 754  -0.242399   A     America/Chicago  1.8110816  Fixed wing multi engine
## 755   0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 756   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 757   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 758   0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 759   0.686322   A    America/New_York -0.7782242  Fixed wing multi engine
## 760   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 761  -0.242399   A     America/Chicago -1.6413261  Fixed wing multi engine
## 762  -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 763   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 764   0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 765  -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 766   0.686322   A    America/New_York -1.9865668  Fixed wing multi engine
## 767   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 768   0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 769   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 770   0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 771  -1.171121   N     America/Phoenix -0.6056038  Fixed wing multi engine
## 772  -0.242399   A     America/Chicago -1.4687057  Fixed wing multi engine
## 773   0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 774  -0.242399   A     America/Chicago -1.2960853  Fixed wing multi engine
## 775  -1.171121   A      America/Denver -1.8139464  Fixed wing multi engine
## 776  -2.099842   A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 777   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 778  -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 779   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 780  -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 781  -2.099842   A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 782   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 784   0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 785   0.686322   A    America/New_York -1.6413261  Fixed wing multi engine
## 786  -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 787  -2.099842   A America/Los_Angeles  1.6384612  Fixed wing multi engine
## 788   0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 789  -2.099842   A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 790   0.686322   A    America/New_York  0.0848777 Fixed wing single engine
## 791  -2.099842   A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 792  -0.242399   A     America/Chicago -1.6413261  Fixed wing multi engine
## 793  -2.099842   A America/Los_Angeles -2.6770484  Fixed wing multi engine
## 794   0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 795   0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 796  -1.171121   A      America/Denver -0.4329834  Fixed wing multi engine
## 797   0.686322   A    America/New_York -2.3318076  Fixed wing multi engine
## 798   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 799   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 800   0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 801   0.686322   A    America/New_York -0.9508445  Fixed wing multi engine
```

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## 802  -2.099842   A America/Los_Angeles -0.2603630   Fixed wing multi engine
## 803   0.686322   A     America/New_York  0.6027389   Fixed wing multi engine
## 804   0.686322   A     America/New_York  0.2574981   Fixed wing multi engine
## 805   0.686322   A     America/New_York  0.0848777   Fixed wing multi engine
## 806   0.686322   A     America/New_York -0.2603630   Fixed wing multi engine
## 807   0.686322   A     America/New_York  0.0848777   Fixed wing multi engine
## 808  -2.099842   A America/Los_Angeles  0.4301185   Fixed wing multi engine
## 809  -2.099842   A America/Los_Angeles -0.0877426   Fixed wing multi engine
## 810   0.686322   A     America/New_York -0.6056038   Fixed wing multi engine
## 811  -2.099842   A America/Los_Angeles -0.6056038   Fixed wing multi engine
## 812   0.686322   A     America/New_York  0.0848777   Fixed wing multi engine
## 813   0.686322   A     America/New_York  0.0848777   Fixed wing multi engine
## 815  -2.099842   A America/Los_Angeles -2.6770484   Fixed wing multi engine
## 816  -2.099842   A America/Los_Angeles -0.7782242   Fixed wing multi engine
## 817   0.686322   A     America/New_York -0.4329834   Fixed wing multi engine
## 818   0.686322   A     America/New_York  0.0848777   Fixed wing multi engine
## 819  -2.099842   A America/Los_Angeles  0.9479797   Fixed wing multi engine
## 821   0.686322   A     America/New_York -2.1591872   Fixed wing multi engine
## 822   0.686322   A     America/New_York -0.9508445   Fixed wing multi engine
## 823  -2.099842   A America/Los_Angeles  0.0848777   Fixed wing multi engine
## 824   0.686322   A     America/New_York -1.6413261   Fixed wing multi engine
## 825   0.686322   A     America/New_York -0.4329834   Fixed wing multi engine
## 826  -0.242399   A       America/Chicago  0.0848777   Fixed wing multi engine
## 828   0.686322   A     America/New_York  0.6027389   Fixed wing multi engine
## 829   0.686322   A     America/New_York -0.6056038   Fixed wing multi engine
## 831   0.686322   A     America/New_York -0.2603630   Fixed wing multi engine
## 832   0.686322   A     America/New_York  0.2574981   Fixed wing multi engine
## 833   0.686322   A     America/New_York -0.2603630   Fixed wing multi engine
## 834  -0.242399   A       America/Chicago -0.6056038   Fixed wing multi engine
## 835   0.686322   A     America/New_York  0.6027389   Fixed wing multi engine
## 837   0.686322   A     America/New_York  0.2574981   Fixed wing multi engine
## 839  -0.242399   A       America/Chicago  1.2932204   Fixed wing multi engine
## 840   0.686322   A     America/New_York  0.7753593   Fixed wing multi engine
## 841   0.686322   A     America/New_York -0.0877426   Fixed wing multi engine
## 843  -0.242399   A       America/Chicago  0.0848777   Fixed wing multi engine
## 844  -1.171121   N       America/Phoenix  1.6384612   Fixed wing multi engine
## 845  -1.171121   N       America/Phoenix  0.6027389   Fixed wing multi engine
## 846  -2.099842   A America/Los_Angeles -0.9508445   Fixed wing multi engine
## 848  -0.242399   A       America/Chicago  0.0848777   Fixed wing multi engine
## 849   0.686322   A     America/New_York -0.2603630   Fixed wing multi engine
## 850  -0.242399   A       America/Chicago  0.0848777   Fixed wing multi engine
## 852   0.686322   A     America/New_York -1.8139464   Fixed wing multi engine
## 853   0.686322   A     America/New_York  1.8110816   Fixed wing multi engine
## 855   0.686322   A     America/New_York -0.2603630   Fixed wing multi engine
## 856   0.686322   A     America/New_York  0.2574981   Fixed wing multi engine
## 857   0.686322   A     America/New_York  0.0848777   Fixed wing multi engine
## 858  -2.099842   A America/Los_Angeles -2.3318076   Fixed wing multi engine
## 859  -2.099842   A America/Los_Angeles  1.8110816   Fixed wing multi engine
## 860  -0.242399   A       America/Chicago -0.4329834   Fixed wing multi engine
## 861  -0.242399   A       America/Chicago  0.0848777   Fixed wing multi engine
## 862   0.686322   A     America/New_York  0.7753593   Fixed wing multi engine
## 863   0.686322   A     America/New_York  0.6027389   Fixed wing multi engine
## 864   0.686322   A     America/New_York -0.0877426   Fixed wing multi engine
## 865  -2.099842   A America/Los_Angeles  0.2574981   Fixed wing multi engine
```

```
## 866   0.686322   A     America/New_York   0.0848777   Fixed wing multi engine
## 867  -2.099842   A America/Los_Angeles   0.6027389   Fixed wing multi engine
## 868   0.686322   A     America/New_York   0.0848777   Fixed wing multi engine
## 869  -0.242399   A      America/Chicago   0.0848777   Fixed wing multi engine
## 870  -0.242399   A      America/Chicago   0.7753593   Fixed wing multi engine
## 871  -1.171121   A       America/Denver  -0.2603630   Fixed wing multi engine
## 872   0.686322   A     America/New_York  -0.0877426   Fixed wing multi engine
## 873  -2.099842   A America/Los_Angeles   0.7753593   Fixed wing multi engine
## 874   0.686322   A     America/New_York  -2.1591872   Fixed wing multi engine
## 875   0.686322   A     America/New_York  -1.2960853   Fixed wing multi engine
## 876  -1.171121   A       America/Denver  -0.2603630   Fixed wing multi engine
## 877   0.686322   A     America/New_York  -0.0877426   Fixed wing multi engine
## 878   0.686322   A     America/New_York   0.0848777   Fixed wing multi engine
## 879   0.686322   A     America/New_York   0.2574981   Fixed wing multi engine
## 880   0.686322   A     America/New_York   0.4301185   Fixed wing multi engine
## 881   0.686322   A     America/New_York  -1.9865668   Fixed wing multi engine
## 882  -0.242399   A      America/Chicago   0.0848777   Fixed wing multi engine
## 883   0.686322   A     America/New_York   1.2932204   Fixed wing multi engine
## 884   0.686322   A     America/New_York  -0.0877426   Fixed wing multi engine
## 885   0.686322   A     America/New_York  -0.0877426   Fixed wing multi engine
## 886   0.686322   A     America/New_York   0.0848777   Fixed wing multi engine
## 887  -0.242399   A      America/Chicago   0.9479797   Fixed wing multi engine
## 888  -0.242399   A      America/Chicago  -1.2960853   Fixed wing multi engine
## 891  -0.242399   A      America/Chicago   0.0848777   Fixed wing multi engine
## 892   0.686322   A     America/New_York   0.2574981   Fixed wing multi engine
## 893  -1.171121   N      America/Phoenix  -0.0877426   Fixed wing multi engine
## 894  -0.242399   A      America/Chicago  -0.6056038   Fixed wing multi engine
## 895   0.686322   A     America/New_York   0.7753593   Fixed wing multi engine
## 896   0.686322   A     America/New_York   0.2574981   Fixed wing multi engine
## 897  -1.171121   A       America/Denver  -0.2603630   Fixed wing multi engine
## 898  -0.242399   A      America/Chicago   0.0848777   Fixed wing multi engine
## 899  -0.242399   A      America/Chicago   0.9479797   Fixed wing multi engine
## 900   0.686322   A     America/New_York   0.0848777   Fixed wing multi engine
## 901   0.686322   A     America/New_York  -0.2603630   Fixed wing multi engine
## 902  -0.242399   A      America/Chicago  -0.6056038   Fixed wing multi engine
## 903   0.686322   A     America/New_York   1.1206000   Fixed wing multi engine
## 904   0.686322   A     America/New_York   0.6027389   Fixed wing multi engine
## 905   0.686322   A     America/New_York  -0.0877426   Fixed wing multi engine
## 906  -0.242399   A      America/Chicago  -1.2960853   Fixed wing multi engine
## 907   0.686322   A     America/New_York  -0.2603630   Fixed wing multi engine
## 910   0.686322   A     America/New_York  -1.9865668   Fixed wing multi engine
## 911  -2.099842   A America/Los_Angeles   0.4301185   Fixed wing multi engine
## 913  -0.242399   A      America/Chicago   0.2574981   Fixed wing multi engine
## 914  -2.099842   A America/Los_Angeles   0.7753593   Fixed wing multi engine
## 915  -2.099842   A America/Los_Angeles   0.0848777   Fixed wing multi engine
## 916  -2.099842   A America/Los_Angeles  -2.6770484   Fixed wing multi engine
## 917   0.686322   A     America/New_York   0.4301185   Fixed wing multi engine
## 918  -1.171121   N      America/Phoenix   0.6027389   Fixed wing multi engine
## 919   0.686322   A     America/New_York  -0.6056038   Fixed wing multi engine
## 920   0.686322   A     America/New_York   0.0848777   Fixed wing multi engine
## 921   0.686322   A     America/New_York   0.7753593   Fixed wing multi engine
## 923   0.686322   A     America/New_York   0.0848777   Fixed wing multi engine
## 924  -2.099842   A America/Los_Angeles   0.6027389   Fixed wing multi engine
## 926   0.686322   A     America/New_York  -0.4329834   Fixed wing multi engine
```

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## 927   0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 928  -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
## 929  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 930   0.686322   A    America/New_York -1.6413261  Fixed wing multi engine
## 931   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 932   0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 934  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 935  -0.242399   A      America/Chicago  0.2574981  Fixed wing multi engine
## 936  -0.242399   A      America/Chicago -2.3318076  Fixed wing multi engine
## 937   0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 939   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 940  -1.171121   A       America/Denver -1.8139464  Fixed wing multi engine
## 941   0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 942   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 943   0.686322   A    America/New_York -1.2960853  Fixed wing multi engine
## 944   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 945   0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 946  -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 947  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 948  -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 949   0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 950  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 951   0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 952   0.686322   A    America/New_York  1.2932204  Fixed wing multi engine
## 953   0.686322   A    America/New_York  1.2932204  Fixed wing multi engine
## 954   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 955   0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 956   0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 957  -1.171121   A       America/Denver -1.4687057  Fixed wing multi engine
## 958  -0.242399   A      America/Chicago -0.6056038  Fixed wing multi engine
## 959   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 960   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 961  -0.242399   A      America/Chicago  0.2574981  Fixed wing multi engine
## 962   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 963  -0.242399   A      America/Chicago  0.7753593  Fixed wing multi engine
## 964   0.686322   A    America/New_York -1.6413261  Fixed wing multi engine
## 965  -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 966  -2.099842   A America/Los_Angeles -1.1234649  Fixed wing multi engine
## 967   0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 968   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 969  -0.242399   A      America/Chicago  1.1206000  Fixed wing multi engine
## 971  -0.242399   A      America/Chicago -0.7782242  Fixed wing multi engine
## 972   0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 973   0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 974  -2.099842   A America/Los_Angeles -2.8496687  Fixed wing multi engine
## 975  -0.242399   A      America/Chicago  1.4658408  Fixed wing multi engine
## 976   0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 977   0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 978   0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 979   0.686322   A    America/New_York -2.1591872  Fixed wing multi engine
## 980  -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 981   0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 984   0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 985  -2.099842   A America/Los_Angeles  0.9479797  Fixed wing multi engine
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## 987    0.686322    A     America/New_York -0.6056038  Fixed wing multi engine
## 988   -0.242399    A      America/Chicago -0.2603630  Fixed wing multi engine
## 989    0.686322    A     America/New_York  1.1206000  Fixed wing multi engine
## 990    0.686322    A     America/New_York  0.2574981  Fixed wing multi engine
## 991    0.686322    A     America/New_York  0.4301185  Fixed wing multi engine
## 992    0.686322    A     America/New_York  0.4301185  Fixed wing multi engine
## 993   -0.242399    A      America/Chicago  0.0848777  Fixed wing multi engine
## 994   -0.242399    A      America/Chicago  0.0848777  Fixed wing multi engine
## 995   -0.242399    A      America/Chicago  0.0848777  Fixed wing multi engine
## 996   -2.099842    A America/Los_Angeles -1.1234649  Fixed wing multi engine
## 997    0.686322    A     America/New_York -0.2603630  Fixed wing multi engine
## 998    0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 1000   0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 1001  -2.099842    A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 1002  -0.242399    A      America/Chicago -0.6056038  Fixed wing multi engine
## 1003  -2.099842    A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1004   0.686322    A     America/New_York -2.1591872  Fixed wing multi engine
## 1005  -0.242399    A      America/Chicago -1.8139464  Fixed wing multi engine
## 1006   0.686322    A     America/New_York -0.0877426  Fixed wing multi engine
## 1007   0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 1008   0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 1009   0.686322    A     America/New_York -0.6056038  Fixed wing multi engine
## 1010  -1.171121    A       America/Denver -0.0877426  Fixed wing multi engine
## 1013   0.686322    A     America/New_York -2.1591872  Fixed wing multi engine
## 1014  -2.099842    A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 1016   0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 1017  -0.242399    A      America/Chicago -0.6056038  Fixed wing multi engine
## 1018   0.686322    A     America/New_York -0.6056038  Fixed wing multi engine
## 1020  -1.171121    N      America/Phoenix  0.7753593  Fixed wing multi engine
## 1021  -0.242399    A      America/Chicago  0.0848777  Fixed wing multi engine
## 1022   0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 1024   0.686322    A     America/New_York  1.1206000  Fixed wing multi engine
## 1026   0.686322    A     America/New_York  0.4301185  Fixed wing multi engine
## 1028   0.686322    A     America/New_York -0.4329834  Fixed wing multi engine
## 1029   0.686322    A     America/New_York  0.2574981  Fixed wing multi engine
## 1030   0.686322    A     America/New_York  0.6027389  Fixed wing multi engine
## 1031  -2.099842    A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1032  -0.242399    A      America/Chicago  0.0848777  Fixed wing multi engine
## 1033  -2.099842    A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1034   0.686322    A     America/New_York  0.4301185  Fixed wing multi engine
## 1035   0.686322    A     America/New_York -2.3318076  Fixed wing multi engine
## 1036  -2.099842    A America/Los_Angeles  0.9479797  Fixed wing multi engine
## 1037  -2.099842    A America/Los_Angeles -0.2603630  Fixed wing multi engine
## 1038  -2.099842    A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1040   0.686322    A     America/New_York  0.9479797  Fixed wing multi engine
## 1042  -0.242399    A      America/Chicago -1.8139464  Fixed wing multi engine
## 1044   0.686322    A     America/New_York -2.3318076  Fixed wing multi engine
## 1046   0.686322    A     America/New_York -1.9865668  Fixed wing multi engine
## 1047   0.686322    A     America/New_York  1.2932204  Fixed wing multi engine
## 1048  -0.242399    A      America/Chicago  0.4301185  Fixed wing multi engine
## 1049  -2.099842    A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 1050   0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 1051   0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 1053  -2.099842    A America/Los_Angeles -0.2603630  Fixed wing multi engine
```

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## 1054  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1055 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1056 -1.171121   N      America/Phoenix  0.0848777  Fixed wing multi engine
## 1057 -1.171121   A       America/Denver  0.0848777  Fixed wing multi engine
## 1058  0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 1059  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1061  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 1063  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 1065  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 1068  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 1069  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 1071  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 1076  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1077 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 1078  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1079  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1080  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 1085  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 1086 -0.242399   A      America/Chicago  1.4658408  Fixed wing multi engine
## 1091  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1092  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1093  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1096  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1097 -2.099842   A America/Los_Angeles  0.4301185  Fixed wing multi engine
## 1098  0.686322   A     America/New_York -0.7782242  Fixed wing multi engine
## 1099  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1100 -2.099842   A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 1101  0.686322   A     America/New_York  1.6384612  Fixed wing multi engine
## 1103  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 1104  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1106  0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 1107  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 1108  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1109  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 1110 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1111 -0.242399   A      America/Chicago -7.3377986 Fixed wing single engine
## 1112 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1113  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1114  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1115  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1116 -0.242399   A      America/Chicago -0.4329834  Fixed wing multi engine
## 1117  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 1118 -2.099842   A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 1119  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1120  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1121 -0.242399   A      America/Chicago  1.8110816  Fixed wing multi engine
## 1122  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1123  0.686322   A     America/New_York -0.7782242  Fixed wing multi engine
## 1124  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1125  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1126 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1127 -0.242399   A      America/Chicago -1.4687057  Fixed wing multi engine
## 1128 -2.099842   A America/Los_Angeles -0.9508445  Fixed wing multi engine
## 1129  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
```

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## 1130  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1131  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1132  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1133  0.686322   A     America/New_York  1.2932204  Fixed wing multi engine
## 1134  0.686322   A     America/New_York -2.1591872  Fixed wing multi engine
## 1135  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1136 -1.171121   N      America/Phoenix -0.0877426  Fixed wing multi engine
## 1137 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1138  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1139 -1.171121   N      America/Phoenix -1.1234649  Fixed wing multi engine
## 1140 -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
## 1141 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1142  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1143 -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
## 1144  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1145  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1146 -1.171121   A       America/Denver -0.2603630  Fixed wing multi engine
## 1147  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1148 -0.242399   A      America/Chicago  1.2932204  Fixed wing multi engine
## 1149  0.686322   A     America/New_York -2.1591872  Fixed wing multi engine
## 1150 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 1151  0.686322   A     America/New_York -1.9865668  Fixed wing multi engine
## 1152 -2.099842   A America/Los_Angeles  0.9479797  Fixed wing multi engine
## 1153 -0.242399   A      America/Chicago  0.9479797  Fixed wing multi engine
## 1154 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1155 -2.099842   A America/Los_Angeles  1.2932204  Fixed wing multi engine
## 1156 -0.242399   A      America/Chicago -0.4329834  Fixed wing multi engine
## 1157  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1158 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 1159 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1160  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1161  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1162  0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 1163 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 1164 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1165 -2.099842   A America/Los_Angeles -0.9508445  Fixed wing multi engine
## 1166 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 1167 -2.099842   A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 1168 -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 1170  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1171  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1172  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1173  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1174  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1175  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1176 -1.171121   A       America/Denver  0.9479797  Fixed wing multi engine
## 1177  0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 1178 -0.242399   A      America/Chicago -0.4329834  Fixed wing multi engine
## 1179 -0.242399   A      America/Chicago  0.6027389  Fixed wing multi engine
## 1180 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1181  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1182  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1183  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1184 -2.099842   A America/Los_Angeles -0.2603630  Fixed wing multi engine
```

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## 1185  0.686322   A    America/New_York -2.1591872  Fixed wing multi engine
## 1186  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1187  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 1188 -0.242399   A     America/Chicago  0.7753593  Fixed wing multi engine
## 1189  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1190  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1191 -1.171121   A      America/Denver -0.6056038  Fixed wing multi engine
## 1192  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1193  0.686322   A    America/New_York -1.8139464  Fixed wing multi engine
## 1194  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1195  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 1196  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 1197  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1198  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 1199  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1200  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1201  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1202 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 1203  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1204  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1205  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 1206 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1207  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1208 -2.099842   A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 1209 -0.242399   A     America/Chicago  0.7753593  Fixed wing multi engine
## 1210 -0.242399   A     America/Chicago -0.7782242  Fixed wing multi engine
## 1211 -0.242399   A     America/Chicago  0.4301185  Fixed wing multi engine
## 1212 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1213  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1214  0.686322   A    America/New_York -0.7782242  Fixed wing multi engine
## 1215  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1216 -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 1217  0.686322   A    America/New_York -1.4687057  Fixed wing multi engine
## 1218 -3.957285   N    Pacific/Honolulu  1.6384612  Fixed wing multi engine
## 1219  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1220 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 1221 -0.242399   A     America/Chicago  0.6027389  Fixed wing multi engine
## 1222 -0.242399   A     America/Chicago -0.4329834  Fixed wing multi engine
## 1223  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 1224 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 1225  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1226  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 1227  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 1228  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 1229  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1230  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 1231  0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 1232  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 1233 -0.242399   A     America/Chicago  0.7753593  Fixed wing multi engine
## 1235 -0.242399   A     America/Chicago -0.7782242  Fixed wing multi engine
## 1236  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1237 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1238 -1.171121   A      America/Denver -0.6056038  Fixed wing multi engine
## 1239 -0.242399   A     America/Chicago  0.7753593  Fixed wing multi engine
```

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## 1240  0.686322  A     America/New_York -0.6056038  Fixed wing multi engine
## 1241 -0.242399  A      America/Chicago  0.0848777  Fixed wing multi engine
## 1242  0.686322  A     America/New_York -0.4329834  Fixed wing multi engine
## 1243 -1.171121  N      America/Phoenix  0.0848777  Fixed wing multi engine
## 1244 -1.171121  N      America/Phoenix  1.2932204  Fixed wing multi engine
## 1245 -2.099842  A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1246 -0.242399  A      America/Chicago -2.3318076  Fixed wing multi engine
## 1247 -0.242399  A      America/Chicago  0.0848777  Fixed wing multi engine
## 1248  0.686322  A     America/New_York  0.0848777  Fixed wing multi engine
## 1249  0.686322  A     America/New_York -1.9865668  Fixed wing multi engine
## 1250  0.686322  A     America/New_York  1.1206000  Fixed wing multi engine
## 1251  0.686322  A     America/New_York  0.2574981  Fixed wing multi engine
## 1252  0.686322  A     America/New_York  0.0848777  Fixed wing multi engine
## 1253 -2.099842  A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 1254  0.686322  A     America/New_York  0.0848777  Fixed wing multi engine
## 1255 -2.099842  A America/Los_Angeles -2.6770484  Fixed wing multi engine
## 1257  0.686322  A     America/New_York  0.2574981  Fixed wing multi engine
## 1258  0.686322  A     America/New_York  0.2574981  Fixed wing multi engine
## 1259  0.686322  A     America/New_York  0.0848777  Fixed wing multi engine
## 1260 -0.242399  A      America/Chicago  0.2574981  Fixed wing multi engine
## 1261 -0.242399  A      America/Chicago  0.0848777  Fixed wing multi engine
## 1263  0.686322  A     America/New_York  1.2932204  Fixed wing multi engine
## 1264  0.686322  A     America/New_York -0.0877426  Fixed wing multi engine
## 1265  0.686322  A     America/New_York -2.3318076  Fixed wing multi engine
## 1266 -2.099842  A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 1268  0.686322  A     America/New_York -1.9865668  Fixed wing multi engine
## 1269  0.686322  A     America/New_York  0.0848777  Fixed wing multi engine
## 1270  0.686322  A     America/New_York  0.0848777  Fixed wing multi engine
## 1272 -2.099842  A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 1273  0.686322  A     America/New_York -0.0877426  Fixed wing multi engine
## 1274  0.686322  A     America/New_York -2.5044280  Fixed wing multi engine
## 1275 -0.242399  A      America/Chicago  0.2574981  Fixed wing multi engine
## 1276 -2.099842  A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 1277  0.686322  A     America/New_York -0.4329834  Fixed wing multi engine
## 1278  0.686322  A     America/New_York  1.2932204  Fixed wing multi engine
## 1279  0.686322  A     America/New_York  0.2574981  Fixed wing multi engine
## 1280  0.686322  A     America/New_York -1.9865668  Fixed wing multi engine
## 1281  0.686322  A     America/New_York  1.1206000  Fixed wing multi engine
## 1282  0.686322  A     America/New_York  0.0848777  Fixed wing multi engine
## 1284 -2.099842  A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 1285 -2.099842  A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1286 -0.242399  A      America/Chicago -1.8139464  Fixed wing multi engine
## 1287 -0.242399  A      America/Chicago  0.7753593  Fixed wing multi engine
## 1288 -2.099842  A America/Los_Angeles  1.4658408  Fixed wing multi engine
## 1290 -0.242399  A      America/Chicago -2.5044280  Fixed wing multi engine
## 1291 -1.171121  N      America/Phoenix -0.0877426  Fixed wing multi engine
## 1292  0.686322  A     America/New_York -0.2603630  Fixed wing multi engine
## 1293 -1.171121  A      America/Denver -0.2603630  Fixed wing multi engine
## 1294 -0.242399  A      America/Chicago  0.9479797  Fixed wing multi engine
## 1295  0.686322  A     America/New_York -0.6056038  Fixed wing multi engine
## 1296  0.686322  A     America/New_York  0.0848777  Fixed wing multi engine
## 1297  0.686322  A     America/New_York  0.7753593  Fixed wing multi engine
## 1298 -0.242399  A      America/Chicago -2.3318076  Fixed wing multi engine
## 1299  0.686322  A     America/New_York  1.8110816  Fixed wing multi engine
```

```
## 1300 -0.242399   A    America/Chicago -0.4329834  Fixed wing multi engine
## 1303 -0.242399   A    America/Chicago  1.4658408  Fixed wing multi engine
## 1304  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1305  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1306  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1308 -2.099842   A America/Los_Angeles 0.4301185  Fixed wing multi engine
## 1309  0.686322   A    America/New_York -4.2306318 Fixed wing single engine
## 1310  0.686322   A    America/New_York -0.0877426 Fixed wing multi engine
## 1311 -2.099842   A America/Los_Angeles 0.9479797  Fixed wing multi engine
## 1312 -1.171121   N    America/Phoenix  0.9479797  Fixed wing multi engine
## 1313  0.686322   A    America/New_York 0.4301185  Fixed wing multi engine
## 1314 -2.099842   A America/Los_Angeles -2.8496687 Fixed wing multi engine
## 1315  0.686322   A    America/New_York 1.1206000  Fixed wing multi engine
## 1317  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1318  0.686322   A    America/New_York 1.1206000  Fixed wing multi engine
## 1319  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1320  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1322 -2.099842   A America/Los_Angeles 0.4301185  Fixed wing multi engine
## 1323 -0.242399   A    America/Chicago  0.0848777  Fixed wing multi engine
## 1325 -0.242399   A    America/Chicago -1.8139464  Fixed wing multi engine
## 1327  0.686322   A    America/New_York -0.0877426 Fixed wing multi engine
## 1328 -0.242399   A    America/Chicago -0.9508445  Fixed wing multi engine
## 1329  0.686322   A    America/New_York -0.0877426 Fixed wing multi engine
## 1330  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1331 -0.242399   A    America/Chicago  0.4301185  Fixed wing multi engine
## 1332  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1333 -0.242399   A    America/Chicago -0.7782242  Fixed wing multi engine
## 1334  0.686322   A    America/New_York 1.2932204  Fixed wing multi engine
## 1335  0.686322   A    America/New_York 1.2932204  Fixed wing multi engine
## 1336  0.686322   A    America/New_York 0.9479797  Fixed wing multi engine
## 1338  0.686322   A    America/New_York -2.5044280 Fixed wing multi engine
## 1340  0.686322   A    America/New_York 1.1206000  Fixed wing multi engine
## 1341 -2.099842   A America/Los_Angeles -0.7782242 Fixed wing multi engine
## 1342  0.686322   A    America/New_York 1.8110816  Fixed wing multi engine
## 1343  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1344 -0.242399   A    America/Chicago  0.0848777  Fixed wing multi engine
## 1346  0.686322   A    America/New_York -0.0877426 Fixed wing multi engine
## 1347  0.686322   A    America/New_York 1.1206000  Fixed wing multi engine
## 1348  0.686322   A    America/New_York -0.2603630 Fixed wing multi engine
## 1349  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1350  0.686322   A    America/New_York -1.9865668 Fixed wing multi engine
## 1351  0.686322   A    America/New_York 0.2574981  Fixed wing multi engine
## 1352 -0.242399   A    America/Chicago -0.0877426  Fixed wing multi engine
## 1353 -2.099842   A America/Los_Angeles -0.7782242 Fixed wing multi engine
## 1354 -0.242399   A    America/Chicago  1.2932204  Fixed wing multi engine
## 1356  0.686322   A    America/New_York 0.4301185  Fixed wing multi engine
## 1357  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1358  0.686322   A    America/New_York -0.2603630 Fixed wing multi engine
## 1359 -2.099842   A America/Los_Angeles -1.1234649 Fixed wing multi engine
## 1360  0.686322   A    America/New_York -1.8139464 Fixed wing multi engine
## 1361 -0.242399   A    America/Chicago -0.6056038  Fixed wing multi engine
## 1362  0.686322   A    America/New_York 0.0848777  Fixed wing multi engine
## 1364  0.686322   A    America/New_York -0.0877426 Fixed wing multi engine
## 1366  0.686322   A    America/New_York 1.1206000  Fixed wing multi engine
```

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## 1367  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1368  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1369 -2.099842   A America/Los_Angeles  0.4301185  Fixed wing multi engine
## 1370 -0.242399   A     America/Chicago  -0.4329834  Fixed wing multi engine
## 1371  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1372  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1374  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1375 -1.171121   N     America/Phoenix   1.2932204  Fixed wing multi engine
## 1376 -0.242399   A     America/Chicago   0.0848777  Fixed wing multi engine
## 1377 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 1378 -0.242399   A     America/Chicago   0.0848777  Fixed wing multi engine
## 1379 -0.242399   A     America/Chicago  -0.2603630  Fixed wing multi engine
## 1380  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1381 -2.099842   A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 1382  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1383 -2.099842   A America/Los_Angeles  0.9479797  Fixed wing multi engine
## 1385  0.686322   A     America/New_York  1.6384612  Fixed wing multi engine
## 1387  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1388 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1389 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 1390 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 1391 -0.242399   A     America/Chicago   0.0848777  Fixed wing multi engine
## 1392  0.686322   A     America/New_York  1.2932204  Fixed wing multi engine
## 1393  0.686322   A     America/New_York  1.2932204  Fixed wing multi engine
## 1394 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 1395  0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 1396 -2.099842   A America/Los_Angeles  0.9479797  Fixed wing multi engine
## 1397  0.686322   A     America/New_York -4.4032522  Fixed wing multi engine
## 1398 -0.242399   A     America/Chicago   0.0848777  Fixed wing multi engine
## 1399  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 1400  0.686322   A     America/New_York -1.2960853  Fixed wing multi engine
## 1402  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 1403  0.686322   A     America/New_York -2.3318076  Fixed wing multi engine
## 1404 -0.242399   A     America/Chicago   0.0848777  Fixed wing multi engine
## 1405  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1406  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1407 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 1408 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 1409 -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 1410 -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 1411  0.686322   A     America/New_York  1.6384612  Fixed wing multi engine
## 1412  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1413  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 1414  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 1415  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1416  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1419 -0.242399   A     America/Chicago   0.0848777  Fixed wing multi engine
## 1420 -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 1421  0.686322   A     America/New_York -2.1591872  Fixed wing multi engine
## 1422  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 1423 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 1425 -2.099842   A America/Los_Angeles -0.2603630  Fixed wing multi engine
## 1426  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 1427  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
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## 1428  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1429 -2.099842   A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 1430  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1431 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1432  0.686322   A    America/New_York -2.8496687  Fixed wing multi engine
## 1433 -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 1434 -0.242399   A      America/Chicago -0.6056038  Fixed wing multi engine
## 1435 -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 1436 -0.242399   A      America/Chicago  1.6384612  Fixed wing multi engine
## 1438 -0.242399   A      America/Chicago  0.6027389  Fixed wing multi engine
## 1439 -0.242399   A      America/Chicago  1.1206000  Fixed wing multi engine
## 1440 -1.171121   N      America/Phoenix  0.0848777  Fixed wing multi engine
## 1441  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1442 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1443  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 1444  0.686322   A    America/New_York -2.3318076  Fixed wing multi engine
## 1445  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1446 -1.171121   A       America/Denver  0.0848777  Fixed wing multi engine
## 1447  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1448  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1449  0.686322   A    America/New_York -1.6413261  Fixed wing multi engine
## 1450  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1451  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1452 -0.242399   A      America/Chicago  0.6027389  Fixed wing multi engine
## 1455  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1457 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 1460  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 1461 -0.242399   A      America/Chicago -0.6056038  Fixed wing multi engine
## 1462  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1463  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 1464  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1466 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 1467  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 1468 -0.242399   A      America/Chicago  1.1206000  Fixed wing multi engine
## 1469  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 1472 -0.242399   A      America/Chicago -1.8139464  Fixed wing multi engine
## 1473  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 1474 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 1475 -2.099842   A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 1476  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 1477  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1478  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1480  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1481  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1482  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1483  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1484 -0.242399   A      America/Chicago  1.2932204  Fixed wing multi engine
## 1486  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 1487  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 1488  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 1489  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1490  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1493  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1494  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
```

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## 1495  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1497 -0.242399   A       America/Chicago  0.0848777  Fixed wing multi engine
## 1498  0.686322   A     America/New_York  1.8110816  Fixed wing multi engine
## 1499  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1500  0.686322   A     America/New_York  1.8110816  Fixed wing multi engine
## 1501  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 1502  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 1503  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 1504  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 1505  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1506  0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 1507  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1508  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1509  0.686322   A     America/New_York -2.5044280  Fixed wing multi engine
## 1510  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1511  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1512  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1513  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1514 -1.171121   A       America/Denver -0.2603630  Fixed wing multi engine
## 1515 -1.171121   A       America/Denver -0.2603630  Fixed wing multi engine
## 1516 -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 1517  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1518 -0.242399   A       America/Chicago  0.9479797  Fixed wing multi engine
## 1519 -0.242399   A       America/Chicago  0.0848777  Fixed wing multi engine
## 1520 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1521 -2.099842   A America/Los_Angeles  0.2574981  Fixed wing multi engine
## 1522  0.686322   A     America/New_York -2.5044280  Fixed wing multi engine
## 1523  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 1524 -0.242399   A       America/Chicago -0.0877426  Fixed wing multi engine
## 1525  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1526  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1527  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1528 -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 1529  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1530  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 1531 -2.099842   A America/Los_Angeles -2.6770484  Fixed wing multi engine
## 1533  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1534  0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 1535 -0.242399   A       America/Chicago  0.6027389  Fixed wing multi engine
## 1536  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1537  0.686322   A     America/New_York  1.6384612  Fixed wing multi engine
## 1538  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 1539 -0.242399   A       America/Chicago  1.1206000  Fixed wing multi engine
## 1540  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1541  0.686322   A     America/New_York -2.1591872  Fixed wing multi engine
## 1542  0.686322   A     America/New_York -4.7484929  Fixed wing multi engine
## 1543  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1544  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1545  0.686322   A     America/New_York  1.2932204  Fixed wing multi engine
## 1546  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1547  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1548  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1549  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 1550  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
```

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## 1551  0.686322   A    America/New_York -2.3318076  Fixed wing multi engine
## 1552 -1.171121   A      America/Denver -0.0877426  Fixed wing multi engine
## 1553  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1554  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1555  0.686322   A    America/New_York -4.4032522  Fixed wing multi engine
## 1556  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1557 -1.171121   A      America/Denver  1.1206000  Fixed wing multi engine
## 1558  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1559 -2.099842   A America/Los_Angeles -0.9508445  Fixed wing multi engine
## 1560 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 1561  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 1562  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 1564 -2.099842   A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 1565  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1566  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1567 -0.242399   A      America/Chicago  0.4301185  Fixed wing multi engine
## 1568 -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 1569 -2.099842   A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 1570 -3.957285   N     Pacific/Honolulu  1.4658408  Fixed wing multi engine
## 1571 -0.242399   A      America/Chicago  0.7753593  Fixed wing multi engine
## 1572  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 1573  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1574  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 1575  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 1576  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1577 -2.099842   A America/Los_Angeles  1.6384612  Fixed wing multi engine
## 1578 -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
## 1579  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1580 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1581 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 1582 -0.242399   A      America/Chicago -2.5044280  Fixed wing multi engine
## 1583  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1584  0.686322   A    America/New_York  0.9479797 Fixed wing single engine
## 1586  0.686322   A    America/New_York -0.9508445  Fixed wing multi engine
## 1587 -1.171121   N     America/Phoenix -0.6056038  Fixed wing multi engine
## 1588  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 1589 -1.171121   A      America/Denver -0.4329834  Fixed wing multi engine
## 1590  0.686322   A    America/New_York -0.7782242  Fixed wing multi engine
## 1591  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1593 -0.242399   A      America/Chicago -0.2603630  Fixed wing multi engine
## 1594  0.686322   A    America/New_York -2.5044280  Fixed wing multi engine
## 1595  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1596  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1597  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1598 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1599 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1600  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 1601  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1602  0.686322   A    America/New_York  1.2932204  Fixed wing multi engine
## 1603 -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 1604 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1606 -2.099842   A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 1607  0.686322   A    America/New_York -1.6413261  Fixed wing multi engine
## 1608 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
```

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## 1609 -0.242399   A      America/Chicago -0.4329834  Fixed wing multi engine
## 1610 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1611  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1612 -1.171121   A       America/Denver  1.1206000  Fixed wing multi engine
## 1613  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 1614  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1615  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 1616  0.686322   A     America/New_York -0.7782242  Fixed wing multi engine
## 1617  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1618 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1619  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1620  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1622 -1.171121   A       America/Denver -0.2603630  Fixed wing multi engine
## 1623  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 1624  0.686322   A     America/New_York -2.5044280  Fixed wing multi engine
## 1626 -0.242399   A      America/Chicago -1.2960853  Fixed wing multi engine
## 1627  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1628 -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 1629  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1630 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1631  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1632  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1633 -0.242399   A      America/Chicago -2.3318076  Fixed wing multi engine
## 1634  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 1635 -3.957285   N      Pacific/Honolulu  0.0848777  Fixed wing multi engine
## 1636  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1638  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1640 -0.242399   A      America/Chicago -0.4329834  Fixed wing multi engine
## 1641  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1642 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1643 -0.242399   A      America/Chicago -0.2603630  Fixed wing multi engine
## 1646  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1647 -0.242399   A      America/Chicago -1.6413261  Fixed wing multi engine
## 1648  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 1649  0.686322   A     America/New_York  1.8110816  Fixed wing multi engine
## 1650  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1651  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1652  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1653  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1654  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 1655 -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 1656 -0.242399   A      America/Chicago  1.1206000  Fixed wing multi engine
## 1657  0.686322   A     America/New_York -2.5044280  Fixed wing multi engine
## 1658  0.686322   A     America/New_York -4.2306318 Fixed wing single engine
## 1659  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1660  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1661  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1662  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 1663  0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 1664 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1665  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1666  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1667  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1668 -0.242399   A      America/Chicago  0.2574981  Fixed wing multi engine
```

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## 1669  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1670 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1671  0.686322   A    America/New_York -0.7782242  Fixed wing multi engine
## 1672  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1673  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1674 -0.242399   A     America/Chicago -0.2603630  Fixed wing multi engine
## 1675  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1676 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1677 -1.171121   A      America/Denver -0.4329834  Fixed wing multi engine
## 1678  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1679  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1680  0.686322   A    America/New_York -5.9568356  Fixed wing multi engine
## 1681  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1682  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1683 -2.099842   A America/Los_Angeles -0.2603630  Fixed wing multi engine
## 1684  0.686322   A    America/New_York -1.6413261  Fixed wing multi engine
## 1685 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1686  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1687 -0.242399   A     America/Chicago  0.6027389  Fixed wing multi engine
## 1688  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1689  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1690 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1691 -0.242399   A     America/Chicago -0.0877426  Fixed wing multi engine
## 1692 -2.099842   A America/Los_Angeles -2.6770484  Fixed wing multi engine
## 1693 -1.171121   N     America/Phoenix -0.7782242  Fixed wing multi engine
## 1694  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 1695 -0.242399   A     America/Chicago -0.6056038  Fixed wing multi engine
## 1696 -2.099842   A America/Los_Angeles -0.2603630  Fixed wing multi engine
## 1697  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1698  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1699 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1701  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1702  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1703  0.686322   A    America/New_York -2.5044280  Fixed wing multi engine
## 1704  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 1705 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1706  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1707 -2.099842   A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 1708  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1709  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 1710  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 1711 -2.099842   A America/Los_Angeles -2.1591872  Fixed wing multi engine
## 1712  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1713  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1714 -0.242399   A     America/Chicago -0.6056038  Fixed wing multi engine
## 1715  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1716 -0.242399   A     America/Chicago -1.6413261  Fixed wing multi engine
## 1717 -0.242399   A     America/Chicago  0.6027389  Fixed wing multi engine
## 1718  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1719  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 1720 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1721  0.686322   A    America/New_York -1.9865668  Fixed wing multi engine
## 1722 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 1723  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
```

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## 1724 -0.242399   A     America/Chicago -0.4329834  Fixed wing multi engine
## 1726 -2.099842    A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1728  0.686322    A    America/New_York -0.2603630  Fixed wing multi engine
## 1729  0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 1730  0.686322    A    America/New_York -0.0877426  Fixed wing multi engine
## 1731  0.686322    A    America/New_York -0.0877426  Fixed wing multi engine
## 1733 -0.242399    A     America/Chicago -0.0877426  Fixed wing multi engine
## 1734  0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 1735 -2.099842    A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1736 -2.099842    A America/Los_Angeles  0.4301185  Fixed wing multi engine
## 1737 -2.099842    A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 1738  0.686322    A    America/New_York  0.7753593  Fixed wing multi engine
## 1739  0.686322    A    America/New_York  0.2574981  Fixed wing multi engine
## 1740  0.686322    A    America/New_York  1.2932204  Fixed wing multi engine
## 1741 -2.099842    A America/Los_Angeles  1.8110816               Rotorcraft
## 1742 -2.099842    A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 1743  0.686322    A    America/New_York  0.9479797  Fixed wing multi engine
## 1744  0.686322    A    America/New_York -0.0877426  Fixed wing multi engine
## 1745 -2.099842    A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 1746 -0.242399    A     America/Chicago  0.9479797  Fixed wing multi engine
## 1747  0.686322    A    America/New_York -0.2603630  Fixed wing multi engine
## 1748  0.686322    A    America/New_York -0.6056038  Fixed wing multi engine
## 1749 -0.242399    A     America/Chicago -0.4329834  Fixed wing multi engine
## 1751 -2.099842    A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 1753  0.686322    A    America/New_York  1.1206000  Fixed wing multi engine
## 1755  0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 1756  0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 1757  0.686322    A    America/New_York  0.6027389  Fixed wing multi engine
## 1758  0.686322    A    America/New_York  0.2574981  Fixed wing multi engine
## 1759  0.686322    A    America/New_York -0.2603630  Fixed wing multi engine
## 1760  0.686322    A    America/New_York  1.8110816  Fixed wing multi engine
## 1761  0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 1762  0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 1763  0.686322    A    America/New_York  1.2932204  Fixed wing multi engine
## 1764  0.686322    A    America/New_York  0.6027389  Fixed wing multi engine
## 1765 -0.242399    A     America/Chicago  1.8110816  Fixed wing multi engine
## 1766  0.686322    A    America/New_York -1.1234649  Fixed wing multi engine
## 1767  0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 1768  0.686322    A    America/New_York  0.4301185  Fixed wing multi engine
## 1769  0.686322    A    America/New_York  0.2574981  Fixed wing multi engine
## 1771  0.686322    A    America/New_York  1.6384612  Fixed wing multi engine
## 1772  0.686322    A    America/New_York  1.4658408  Fixed wing multi engine
## 1774  0.686322    A    America/New_York  0.0848777  Fixed wing multi engine
## 1776  0.686322    A    America/New_York  1.8110816  Fixed wing multi engine
## 1779  0.686322    A    America/New_York  0.4301185  Fixed wing multi engine
## 1780  0.686322    A    America/New_York -0.7782242  Fixed wing multi engine
## 1781 -0.242399    A     America/Chicago -0.7782242  Fixed wing multi engine
## 1782  0.686322    A    America/New_York -2.1591872  Fixed wing multi engine
## 1783 -2.099842    A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 1784  0.686322    A    America/New_York  0.7753593  Fixed wing multi engine
## 1785 -0.242399    A     America/Chicago  0.0848777  Fixed wing multi engine
## 1786  0.686322    A    America/New_York  0.6027389  Fixed wing multi engine
## 1787  0.686322    A    America/New_York  1.8110816  Fixed wing multi engine
## 1788  0.686322    A    America/New_York  1.1206000  Fixed wing multi engine
```

```
## 1789  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1790  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1791  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 1792  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1793  0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 1794 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1795 -1.171121   N      America/Phoenix -0.4329834  Fixed wing multi engine
## 1796 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1797  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1798  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1799  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1800  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1801 -0.242399   A      America/Chicago  0.9479797  Fixed wing multi engine
## 1802  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1803 -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 1804 -2.099842   A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 1806  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1807  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1808  0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 1809  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1810  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 1811 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1812 -2.099842   A America/Los_Angeles  0.9479797  Fixed wing multi engine
## 1813 -2.099842   A America/Los_Angeles  1.4658408  Fixed wing multi engine
## 1814  0.686322   A     America/New_York -0.7782242  Fixed wing multi engine
## 1815 -0.242399   A      America/Chicago  0.0848777 Fixed wing single engine
## 1816  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1818  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1819 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 1820 -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
## 1821  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1822  0.686322   A     America/New_York -2.6770484  Fixed wing multi engine
## 1823  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 1824  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1825 -1.171121   N      America/Phoenix  0.7753593  Fixed wing multi engine
## 1826  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 1827  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 1828  0.686322   A     America/New_York  1.6384612  Fixed wing multi engine
## 1829  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 1830  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 1831  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1832  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1833  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1834  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 1835  0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 1836  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1837  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 1838 -2.099842   A America/Los_Angeles -0.9508445  Fixed wing multi engine
## 1839 -0.242399   A      America/Chicago -0.2603630  Fixed wing multi engine
## 1840 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 1841  0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 1842  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 1843  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 1844 -2.099842   A America/Los_Angeles -2.6770484  Fixed wing multi engine
```

```
## 1845  0.686322    A      America/New_York  0.9479797  Fixed wing multi engine
## 1846  0.686322    A      America/New_York -0.6056038  Fixed wing multi engine
## 1847 -0.242399    A       America/Chicago  0.0848777  Fixed wing multi engine
## 1848 -0.242399    A       America/Chicago  0.2574981  Fixed wing multi engine
## 1849 -0.242399    A       America/Chicago -6.6473171 Fixed wing single engine
## 1850  0.686322    A      America/New_York  0.4301185  Fixed wing multi engine
## 1851 -0.242399    A       America/Chicago  0.0848777  Fixed wing multi engine
## 1852  0.686322    A      America/New_York -0.0877426  Fixed wing multi engine
## 1853  0.686322    A      America/New_York  0.2574981  Fixed wing multi engine
## 1854  0.686322    A      America/New_York  0.7753593  Fixed wing multi engine
## 1855 -1.171121    A        America/Denver  0.0848777  Fixed wing multi engine
## 1856  0.686322    A      America/New_York  0.6027389  Fixed wing multi engine
## 1857  0.686322    A      America/New_York -0.4329834  Fixed wing multi engine
## 1859  0.686322    A      America/New_York  0.0848777  Fixed wing multi engine
## 1860 -2.099842    A America/Los_Angeles   1.6384612  Fixed wing multi engine
## 1862  0.686322    A      America/New_York  0.7753593  Fixed wing multi engine
## 1864  0.686322    A      America/New_York  0.0848777  Fixed wing multi engine
## 1865  0.686322    A      America/New_York -2.5044280  Fixed wing multi engine
## 1866 -1.171121    N       America/Phoenix  1.6384612  Fixed wing multi engine
## 1867  0.686322    A      America/New_York  1.8110816  Fixed wing multi engine
## 1868  0.686322    A      America/New_York -0.0877426  Fixed wing multi engine
## 1869  0.686322    A      America/New_York -0.2603630  Fixed wing multi engine
## 1870 -0.242399    A       America/Chicago -1.8139464  Fixed wing multi engine
## 1871  0.686322    A      America/New_York -2.1591872  Fixed wing multi engine
## 1872 -0.242399    A       America/Chicago  0.0848777  Fixed wing multi engine
## 1873  0.686322    A      America/New_York  0.0848777  Fixed wing multi engine
## 1874  0.686322    A      America/New_York -0.0877426  Fixed wing multi engine
## 1875  0.686322    A      America/New_York  0.0848777  Fixed wing multi engine
## 1876 -2.099842    A America/Los_Angeles  -2.6770484  Fixed wing multi engine
## 1878  0.686322    A      America/New_York -0.0877426  Fixed wing multi engine
## 1880  0.686322    A      America/New_York -0.2603630  Fixed wing multi engine
## 1881 -0.242399    A       America/Chicago -0.2603630  Fixed wing multi engine
## 1882 -0.242399    A       America/Chicago  1.8110816  Fixed wing multi engine
## 1883 -2.099842    A America/Los_Angeles  -1.9865668  Fixed wing multi engine
## 1885  0.686322    A      America/New_York  0.0848777  Fixed wing multi engine
## 1887  0.686322    A      America/New_York  0.0848777  Fixed wing multi engine
## 1888  0.686322    A      America/New_York -4.4032522  Fixed wing multi engine
## 1889  0.686322    A      America/New_York  0.6027389  Fixed wing multi engine
## 1890 -0.242399    A       America/Chicago  0.0848777  Fixed wing multi engine
## 1891  0.686322    A      America/New_York  0.0848777  Fixed wing multi engine
## 1892 -1.171121    A        America/Denver -1.2960853  Fixed wing multi engine
## 1893 -2.099842    A America/Los_Angeles   1.1206000  Fixed wing multi engine
## 1894 -0.242399    A       America/Chicago  1.6384612  Fixed wing multi engine
## 1895  0.686322    A      America/New_York -0.6056038  Fixed wing multi engine
## 1896  0.686322    A      America/New_York -0.0877426  Fixed wing multi engine
## 1897  0.686322    A      America/New_York -0.6056038  Fixed wing multi engine
## 1898  0.686322    A      America/New_York -0.0877426  Fixed wing multi engine
## 1899  0.686322    A      America/New_York -2.5044280  Fixed wing multi engine
## 1900 -2.099842    A America/Los_Angeles  -0.7782242  Fixed wing multi engine
## 1901 -0.242399    A       America/Chicago  0.0848777  Fixed wing multi engine
## 1902  0.686322    A      America/New_York -0.6056038  Fixed wing multi engine
## 1903 -0.242399    A       America/Chicago  0.7753593  Fixed wing multi engine
## 1904 -0.242399    A       America/Chicago  0.0848777  Fixed wing multi engine
## 1905  0.686322    A      America/New_York  0.0848777  Fixed wing multi engine
```

```
## 1906 -2.099842   A America/Los_Angeles  1.6384612  Fixed wing multi engine
## 1907  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1908  0.686322   A    America/New_York  1.6384612  Fixed wing multi engine
## 1909 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 1910 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1911 -1.171121   N     America/Phoenix  1.2932204  Fixed wing multi engine
## 1912 -0.242399   A     America/Chicago  0.4301185  Fixed wing multi engine
## 1913  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1914  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1915  0.686322   A    America/New_York -2.1591872  Fixed wing multi engine
## 1916 -0.242399   A     America/Chicago -2.3318076  Fixed wing multi engine
## 1917  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1918  0.686322   A    America/New_York -1.4687057  Fixed wing multi engine
## 1919 -1.171121   A      America/Denver -0.0877426  Fixed wing multi engine
## 1920  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 1921  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 1922 -0.242399   A     America/Chicago -2.3318076  Fixed wing multi engine
## 1923  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1924 -0.242399   A     America/Chicago -0.6056038  Fixed wing multi engine
## 1925  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 1926  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1927  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1928 -2.099842   A America/Los_Angeles  0.4301185  Fixed wing multi engine
## 1929  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1930  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 1931 -1.171121   N     America/Phoenix  0.2574981  Fixed wing multi engine
## 1932  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1933  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 1934 -1.171121   N     America/Phoenix -0.4329834  Fixed wing multi engine
## 1935  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 1936  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 1937  0.686322   A    America/New_York -1.4687057  Fixed wing multi engine
## 1938  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1940  0.686322   A    America/New_York  1.2932204  Fixed wing multi engine
## 1941  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1942  0.686322   A    America/New_York -1.2960853  Fixed wing multi engine
## 1943 -0.242399   A     America/Chicago -1.8139464  Fixed wing multi engine
## 1944 -0.242399   A     America/Chicago -0.0877426  Fixed wing multi engine
## 1945 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 1946  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 1947 -0.242399   A     America/Chicago  0.6027389  Fixed wing multi engine
## 1948  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1949  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1951  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 1952  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 1953  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 1954  0.686322   A    America/New_York -2.1591872  Fixed wing multi engine
## 1955  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 1957  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 1959  0.686322   A    America/New_York  1.6384612  Fixed wing multi engine
## 1960  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 1961 -1.171121   A      America/Denver  0.0848777  Fixed wing multi engine
## 1962  0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 1963  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
```

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## 1964  0.686322    A     America/New_York   0.0848777  Fixed wing multi engine
## 1965  0.686322    A     America/New_York  -0.4329834  Fixed wing multi engine
## 1966 -0.242399    A      America/Chicago   0.0848777  Fixed wing multi engine
## 1968  0.686322    A     America/New_York   0.0848777  Fixed wing multi engine
## 1969  0.686322    A     America/New_York   0.0848777  Fixed wing multi engine
## 1970 -0.242399    A      America/Chicago   0.0848777  Fixed wing multi engine
## 1971  0.686322    A     America/New_York  -0.2603630  Fixed wing multi engine
## 1972  0.686322    A     America/New_York   0.6027389  Fixed wing multi engine
## 1973 -0.242399    A      America/Chicago   0.0848777  Fixed wing multi engine
## 1975  0.686322    A     America/New_York  -0.0877426  Fixed wing multi engine
## 1976  0.686322    A     America/New_York  -1.6413261  Fixed wing multi engine
## 1977 -2.099842    A America/Los_Angeles  -2.5044280  Fixed wing multi engine
## 1978  0.686322    A     America/New_York   0.2574981  Fixed wing multi engine
## 1979  0.686322    A     America/New_York  -2.5044280  Fixed wing multi engine
## 1980  0.686322    A     America/New_York  -4.4032522  Fixed wing multi engine
## 1981  0.686322    A     America/New_York  -0.0877426  Fixed wing multi engine
## 1982 -1.171121    A       America/Denver  -0.4329834  Fixed wing multi engine
## 1983  0.686322    A     America/New_York  -1.6413261  Fixed wing multi engine
## 1984 -0.242399    A      America/Chicago  -2.3318076  Fixed wing multi engine
## 1985  0.686322    A     America/New_York   0.2574981  Fixed wing multi engine
## 1986  0.686322    A     America/New_York   1.1206000  Fixed wing multi engine
## 1988  0.686322    A     America/New_York   0.9479797  Fixed wing multi engine
## 1989 -0.242399    A      America/Chicago   0.0848777  Fixed wing multi engine
## 1990 -1.171121    N       America/Phoenix   1.6384612  Fixed wing multi engine
## 1991 -2.099842    A America/Los_Angeles   1.8110816  Fixed wing multi engine
## 1992  0.686322    A     America/New_York  -0.0877426  Fixed wing multi engine
## 1993 -1.171121    A       America/Denver   0.4301185  Fixed wing multi engine
## 1995  0.686322    A     America/New_York   0.0848777  Fixed wing multi engine
## 1997  0.686322    A     America/New_York   1.8110816  Fixed wing multi engine
## 1998 -0.242399    A      America/Chicago   0.0848777  Fixed wing multi engine
## 1999 -0.242399    A      America/Chicago  -0.7782242  Fixed wing multi engine
## 2000 -0.242399    A      America/Chicago   0.0848777  Fixed wing multi engine
## 2001  0.686322    A     America/New_York   0.0848777  Fixed wing multi engine
## 2002 -2.099842    A America/Los_Angeles   0.9479797  Fixed wing multi engine
## 2003 -0.242399    A      America/Chicago   0.0848777  Fixed wing multi engine
## 2004  0.686322    A     America/New_York   0.0848777  Fixed wing multi engine
## 2005  0.686322    A     America/New_York   0.4301185  Fixed wing multi engine
## 2006 -2.099842    A America/Los_Angeles  -0.0877426  Fixed wing multi engine
## 2007  0.686322    A     America/New_York   0.0848777  Fixed wing multi engine
## 2008  0.686322    A     America/New_York   0.0848777  Fixed wing multi engine
## 2012 -0.242399    A      America/Chicago  -0.2603630  Fixed wing multi engine
## 2013 -1.171121    A       America/Denver   1.6384612  Fixed wing multi engine
## 2014 -0.242399    A      America/Chicago   0.0848777  Fixed wing multi engine
## 2015 -0.242399    A      America/Chicago  -0.6056038  Fixed wing multi engine
## 2016 -0.242399    A      America/Chicago   0.0848777  Fixed wing multi engine
## 2019  0.686322    A     America/New_York   0.0848777  Fixed wing multi engine
## 2020 -2.099842    A America/Los_Angeles  -0.0877426  Fixed wing multi engine
## 2022  0.686322    A     America/New_York   0.7753593  Fixed wing multi engine
## 2023  0.686322    A     America/New_York  -2.1591872  Fixed wing multi engine
## 2024  0.686322    A     America/New_York   1.8110816  Fixed wing multi engine
## 2025  0.686322    A     America/New_York   0.0848777  Fixed wing multi engine
## 2027  0.686322    A     America/New_York  -0.0877426  Fixed wing multi engine
## 2028 -2.099842    A America/Los_Angeles   0.7753593  Fixed wing multi engine
## 2030  0.686322    A     America/New_York   1.1206000  Fixed wing multi engine
```

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## 2031  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 2032 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 2033  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 2034 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 2035 -2.099842   A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 2036  0.686322   A     America/New_York -2.3318076  Fixed wing multi engine
## 2037  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 2038 -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 2039  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2040 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2041 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2042  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2043  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 2044  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2045  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2046 -2.099842   A America/Los_Angeles -0.9508445  Fixed wing multi engine
## 2047 -2.099842   A America/Los_Angeles -0.2603630  Fixed wing multi engine
## 2048  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2049  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2050 -0.242399   A      America/Chicago  0.7753593  Fixed wing multi engine
## 2051  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2052  0.686322   A     America/New_York -2.5044280  Fixed wing multi engine
## 2053  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 2055 -2.099842   A America/Los_Angeles -0.2603630  Fixed wing multi engine
## 2056  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2057 -0.242399   A      America/Chicago  0.2574981  Fixed wing multi engine
## 2058  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 2059  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 2060 -2.099842   A America/Los_Angeles  1.2932204  Fixed wing multi engine
## 2062  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 2063 -0.242399   A      America/Chicago  0.2574981  Fixed wing multi engine
## 2064  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 2065  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 2066  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 2067  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 2068  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 2069  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 2070  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 2071  0.686322   A     America/New_York -1.2960853  Fixed wing multi engine
## 2072  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 2074  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2076 -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 2077  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2078  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2079  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2080 -0.242399   A      America/Chicago -2.8496687 Fixed wing single engine
## 2081  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 2083 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 2085 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2086  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2087  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2088  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2089  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 2090  0.686322   A     America/New_York  1.2932204  Fixed wing multi engine
```

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## 2091 -2.099842    A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 2092  0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 2093  0.686322    A     America/New_York -0.6056038  Fixed wing multi engine
## 2094  0.686322    A     America/New_York -1.6413261  Fixed wing multi engine
## 2095  0.686322    A     America/New_York  0.6027389  Fixed wing multi engine
## 2096  0.686322    A     America/New_York -0.2603630  Fixed wing multi engine
## 2099  0.686322    A     America/New_York  1.1206000  Fixed wing multi engine
## 2100  0.686322    A     America/New_York  0.2574981  Fixed wing multi engine
## 2102  0.686322    A     America/New_York  0.9479797  Fixed wing multi engine
## 2105  0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 2106  0.686322    A     America/New_York  0.7753593  Fixed wing multi engine
## 2107 -0.242399    A      America/Chicago -1.2960853  Fixed wing multi engine
## 2108  0.686322    A     America/New_York  0.2574981  Fixed wing multi engine
## 2109  0.686322    A     America/New_York -0.0877426  Fixed wing multi engine
## 2110 -0.242399    A      America/Chicago  0.0848777  Fixed wing multi engine
## 2111  0.686322    A     America/New_York -1.8139464  Fixed wing multi engine
## 2112  0.686322    A     America/New_York  0.2574981  Fixed wing multi engine
## 2113  0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 2114  0.686322    A     America/New_York -0.4329834  Fixed wing multi engine
## 2115  0.686322    A     America/New_York -0.6056038  Fixed wing multi engine
## 2116 -0.242399    A      America/Chicago  0.2574981  Fixed wing multi engine
## 2117  0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 2118  0.686322    A     America/New_York  1.2932204  Fixed wing multi engine
## 2119  0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 2120  0.686322    A     America/New_York -0.2603630  Fixed wing multi engine
## 2121  0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 2122  0.686322    A     America/New_York  0.2574981  Fixed wing multi engine
## 2123  0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 2124  0.686322    A     America/New_York -0.4329834  Fixed wing multi engine
## 2125  0.686322    A     America/New_York -0.0877426  Fixed wing multi engine
## 2126 -1.171121    A       America/Denver  0.4301185  Fixed wing multi engine
## 2127  0.686322    A     America/New_York  0.0848777  Fixed wing multi engine
## 2128  0.686322    A     America/New_York -0.4329834  Fixed wing multi engine
## 2129 -2.099842    A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 2130 -0.242399    A      America/Chicago  0.0848777  Fixed wing multi engine
## 2131 -1.171121    N      America/Phoenix -0.6056038  Fixed wing multi engine
## 2132 -0.242399    A      America/Chicago -0.0877426  Fixed wing multi engine
## 2133  0.686322    A     America/New_York -0.4329834  Fixed wing multi engine
## 2134 -2.099842    A America/Los_Angeles  0.9479797  Fixed wing multi engine
## 2135 -0.242399    A      America/Chicago  0.4301185  Fixed wing multi engine
## 2136  0.686322    A     America/New_York  1.1206000  Fixed wing multi engine
## 2137  0.686322    A     America/New_York  0.2574981  Fixed wing multi engine
## 2138 -0.242399    A      America/Chicago  0.0848777  Fixed wing multi engine
## 2139 -2.099842    A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 2140  0.686322    A     America/New_York -0.6056038  Fixed wing multi engine
## 2141 -0.242399    A      America/Chicago  0.2574981  Fixed wing multi engine
## 2142 -2.099842    A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 2143  0.686322    A     America/New_York  1.1206000  Fixed wing multi engine
## 2144 -0.242399    A      America/Chicago -0.0877426  Fixed wing multi engine
## 2145  0.686322    A     America/New_York  0.9479797  Fixed wing multi engine
## 2146 -0.242399    A      America/Chicago  0.0848777  Fixed wing multi engine
## 2147 -0.242399    A      America/Chicago -1.1234649  Fixed wing multi engine
## 2148 -2.099842    A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 2149 -2.099842    A America/Los_Angeles -0.6056038  Fixed wing multi engine
```

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## 2151  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2152  0.686322   A    America/New_York -1.6413261  Fixed wing multi engine
## 2153  0.686322   A    America/New_York -1.9865668  Fixed wing multi engine
## 2154 -2.099842   A America/Los_Angeles -2.6770484  Fixed wing multi engine
## 2155 -2.099842   A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 2156 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 2157 -0.242399   A     America/Chicago -0.2603630  Fixed wing multi engine
## 2158 -0.242399   A     America/Chicago -1.6413261  Fixed wing multi engine
## 2159 -2.099842   A America/Los_Angeles -2.8496687  Fixed wing multi engine
## 2160 -0.242399   A     America/Chicago -0.6056038  Fixed wing multi engine
## 2161  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 2162  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 2163  0.686322   A    America/New_York -1.4687057  Fixed wing multi engine
## 2164  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 2165 -0.242399   A     America/Chicago  0.4301185  Fixed wing multi engine
## 2166  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2167 -0.242399   A     America/Chicago  0.9479797  Fixed wing multi engine
## 2168  0.686322   A    America/New_York  1.6384612  Fixed wing multi engine
## 2169  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2170  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2171  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 2172 -1.171121   N     America/Phoenix  1.4658408  Fixed wing multi engine
## 2173 -1.171121   A      America/Denver -0.6056038  Fixed wing multi engine
## 2174  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 2175 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 2176  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2177  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 2178  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2179 -0.242399   A     America/Chicago -0.4329834  Fixed wing multi engine
## 2180 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 2182  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2183  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 2184  0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 2185 -1.171121   A      America/Denver  1.6384612  Fixed wing multi engine
## 2186  0.686322   A    America/New_York -1.6413261  Fixed wing multi engine
## 2187  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 2188  0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 2189 -0.242399   A     America/Chicago  0.4301185  Fixed wing multi engine
## 2190 -2.099842   A America/Los_Angeles  0.6027389  Fixed wing multi engine
## 2191  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 2192  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 2193  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 2194  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2195  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 2196  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2197 -0.242399   A     America/Chicago  1.2932204  Fixed wing multi engine
## 2198  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2199 -0.242399   A     America/Chicago  0.6027389  Fixed wing multi engine
## 2200  0.686322   A    America/New_York  1.2932204  Fixed wing multi engine
## 2201  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2202  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2203 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 2204 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 2205  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
```

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## 2206  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2207  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 2208 -2.099842   A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 2209  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2210 -2.099842   A America/Los_Angeles -1.4687057  Fixed wing multi engine
## 2211  0.686322   A     America/New_York  0.9479797  Fixed wing multi engine
## 2212 -0.242399   A       America/Chicago  0.7753593  Fixed wing multi engine
## 2215  0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 2216  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 2217 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 2218  0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 2219  0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 2220  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 2221 -2.099842   A America/Los_Angeles  0.9479797  Fixed wing multi engine
## 2222  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2223 -0.242399   A       America/Chicago  0.7753593  Fixed wing multi engine
## 2224  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 2225  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 2226  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 2227 -0.242399   A       America/Chicago  0.4301185  Fixed wing multi engine
## 2228  0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 2229 -1.171121   N       America/Phoenix -0.2603630  Fixed wing multi engine
## 2230  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 2231 -2.099842   A America/Los_Angeles -0.9508445  Fixed wing multi engine
## 2232  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 2233 -2.099842   A America/Los_Angeles  0.6027389  Fixed wing multi engine
## 2235 -0.242399   A       America/Chicago  0.0848777  Fixed wing multi engine
## 2236 -0.242399   A       America/Chicago  0.0848777  Fixed wing multi engine
## 2237  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 2238 -2.099842   A America/Los_Angeles -0.9508445  Fixed wing multi engine
## 2239  0.686322   A     America/New_York -2.5044280  Fixed wing multi engine
## 2240  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 2241 -0.242399   A       America/Chicago  1.1206000  Fixed wing multi engine
## 2242  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2243 -2.099842   A America/Los_Angeles  1.6384612  Fixed wing multi engine
## 2244 -0.242399   A       America/Chicago -2.3318076  Fixed wing multi engine
## 2245  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 2246 -0.242399   A       America/Chicago  0.2574981  Fixed wing multi engine
## 2247 -0.242399   A       America/Chicago -0.6056038  Fixed wing multi engine
## 2248 -0.242399   A       America/Chicago  0.0848777  Fixed wing multi engine
## 2249  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2250 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 2251  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 2252 -0.242399   A       America/Chicago  0.7753593  Fixed wing multi engine
## 2253  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2254  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2255  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2256  0.686322   A     America/New_York  1.6384612  Fixed wing multi engine
## 2257  0.686322   A     America/New_York -2.3318076  Fixed wing multi engine
## 2259  0.686322   A     America/New_York -4.2306318 Fixed wing single engine
## 2260  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 2261 -2.099842   A America/Los_Angeles  1.2932204  Fixed wing multi engine
## 2262 -0.242399   A       America/Chicago  0.0848777  Fixed wing multi engine
## 2263  0.686322   A     America/New_York -1.1234649  Fixed wing multi engine
```

```
## 2264  0.686322   A     America/New_York  1.8110816                 Rotorcraft
## 2265  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2266  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2267  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2268  0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 2269  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2270  0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 2271  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 2272 -2.099842   A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 2273  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2274  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 2275  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 2276 -0.242399   A       America/Chicago  0.0848777  Fixed wing multi engine
## 2277 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 2278  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2279 -0.242399   A       America/Chicago -0.2603630  Fixed wing multi engine
## 2280  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 2281  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2282  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 2283  0.686322   A     America/New_York -0.9508445  Fixed wing multi engine
## 2285 -0.242399   A       America/Chicago -1.1234649  Fixed wing multi engine
## 2286  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 2287  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 2288  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2289  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2290  0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 2291 -0.242399   A       America/Chicago -0.4329834  Fixed wing multi engine
## 2292  0.686322   A     America/New_York  1.6384612  Fixed wing multi engine
## 2293  0.686322   A     America/New_York  0.4301185  Fixed wing multi engine
## 2294  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2295  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 2296  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2297 -0.242399   A       America/Chicago -0.4329834  Fixed wing multi engine
## 2298 -0.242399   A       America/Chicago -0.0877426  Fixed wing multi engine
## 2300  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2301 -2.099842   A America/Los_Angeles  1.6384612  Fixed wing multi engine
## 2302 -3.957285   N     Pacific/Honolulu  0.0848777  Fixed wing multi engine
## 2303 -0.242399   A       America/Chicago -0.6056038  Fixed wing multi engine
## 2304  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2305  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 2306  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 2307 -0.242399   A       America/Chicago -0.0877426  Fixed wing multi engine
## 2308 -0.242399   A       America/Chicago  0.0848777  Fixed wing multi engine
## 2309 -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 2310  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 2312 -0.242399   A       America/Chicago -0.0877426  Fixed wing multi engine
## 2313  0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 2314  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2315  0.686322   A     America/New_York  1.8110816  Fixed wing multi engine
## 2316  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2317  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 2318  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2319  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 2320  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
```

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## 2321  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2322  0.686322   A     America/New_York -2.5044280  Fixed wing multi engine
## 2323 -0.242399   A      America/Chicago -1.2960853  Fixed wing multi engine
## 2324  0.686322   A     America/New_York  1.8110816  Fixed wing multi engine
## 2325  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 2326 -1.171121   A       America/Denver -1.6413261  Fixed wing multi engine
## 2327  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 2328  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 2329  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 2330 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2331 -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 2332  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2334 -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 2335 -0.242399   A      America/Chicago -0.4329834  Fixed wing multi engine
## 2336  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 2337  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 2338  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2339  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2340 -0.242399   A      America/Chicago  0.2574981  Fixed wing multi engine
## 2341  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 2343 -1.171121   A       America/Denver -1.9865668  Fixed wing multi engine
## 2344 -2.099842   A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 2345 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2346 -0.242399   A      America/Chicago  0.6027389  Fixed wing multi engine
## 2347  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2348  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2349 -2.099842   A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 2350 -1.171121   A       America/Denver -0.2603630  Fixed wing multi engine
## 2351  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2352 -0.242399   A      America/Chicago  0.9479797  Fixed wing multi engine
## 2353  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 2354  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 2355  0.686322   A     America/New_York -0.2603630  Fixed wing multi engine
## 2356  0.686322   A     America/New_York  1.8110816  Fixed wing multi engine
## 2357 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2358  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 2359 -0.242399   A      America/Chicago -0.0877426  Fixed wing multi engine
## 2360 -0.242399   A      America/Chicago  0.6027389  Fixed wing multi engine
## 2363  0.686322   A     America/New_York  0.2574981  Fixed wing multi engine
## 2364 -0.242399   A      America/Chicago  1.1206000  Fixed wing multi engine
## 2365  0.686322   A     America/New_York -1.6413261  Fixed wing multi engine
## 2366 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2367  0.686322   A     America/New_York -0.6056038  Fixed wing multi engine
## 2368  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2369  0.686322   A     America/New_York  1.1206000  Fixed wing multi engine
## 2370 -2.099842   A America/Los_Angeles  1.8110816  Fixed wing multi engine
## 2371  0.686322   A     America/New_York  0.6027389  Fixed wing multi engine
## 2372 -1.171121   N      America/Phoenix  1.2932204  Fixed wing multi engine
## 2373  0.686322   A     America/New_York  0.7753593  Fixed wing multi engine
## 2375 -1.171121   N      America/Phoenix -0.9508445  Fixed wing multi engine
## 2376 -0.242399   A      America/Chicago -1.8139464  Fixed wing multi engine
## 2378  0.686322   A     America/New_York  0.0848777  Fixed wing multi engine
## 2379 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 2380 -0.242399   A      America/Chicago  0.2574981  Fixed wing multi engine
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## 2381  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2383  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2384 -2.099842   A America/Los_Angeles  0.9479797  Fixed wing multi engine
## 2385 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 2386 -0.242399   A    America/Chicago   0.4301185  Fixed wing multi engine
## 2387  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2388  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 2389 -2.099842   A America/Los_Angeles  0.6027389  Fixed wing multi engine
## 2390  0.686322   A    America/New_York -1.4687057  Fixed wing multi engine
## 2391  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2392  0.686322   A    America/New_York -1.9865668  Fixed wing multi engine
## 2395 -0.242399   A    America/Chicago  -0.4329834  Fixed wing multi engine
## 2396  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2397  0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 2398 -0.242399   A    America/Chicago   0.0848777  Fixed wing multi engine
## 2399 -1.171121   A     America/Denver  -0.2603630  Fixed wing multi engine
## 2401 -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 2402 -0.242399   A    America/Chicago  -1.2960853  Fixed wing multi engine
## 2403  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 2404 -0.242399   A    America/Chicago   0.4301185  Fixed wing multi engine
## 2405 -0.242399   A    America/Chicago  -0.6056038  Fixed wing multi engine
## 2406  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 2407 -0.242399   A    America/Chicago  -4.4032522  Fixed wing multi engine
## 2408  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 2409 -2.099842   A America/Los_Angeles -1.4687057  Fixed wing multi engine
## 2410 -2.099842   A America/Los_Angeles -2.6770484  Fixed wing multi engine
## 2411  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 2412  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 2413  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 2414  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2415  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2416  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 2417  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2418 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 2419 -0.242399   A    America/Chicago   0.0848777  Fixed wing multi engine
## 2420 -0.242399   A    America/Chicago   0.0848777  Fixed wing multi engine
## 2421 -2.099842   A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 2422 -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 2423  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 2425  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 2426 -0.242399   A    America/Chicago   0.2574981  Fixed wing multi engine
## 2427  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 2428 -0.242399   A    America/Chicago   0.0848777  Fixed wing multi engine
## 2429  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 2430  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 2431 -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 2432 -2.099842   A America/Los_Angeles -2.1591872  Fixed wing multi engine
## 2434  0.686322   A    America/New_York -1.4687057  Fixed wing multi engine
## 2435  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 2436 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 2437  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2438  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2439  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 2440 -0.242399   A    America/Chicago   1.1206000  Fixed wing multi engine
```

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## 2441 -0.242399   A     America/Chicago -2.3318076  Fixed wing multi engine
## 2442  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2443  0.686322   A    America/New_York -1.1234649  Fixed wing multi engine
## 2444  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 2445 -0.242399   A     America/Chicago  0.2574981  Fixed wing multi engine
## 2446 -0.242399   A     America/Chicago -0.0877426  Fixed wing multi engine
## 2447  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2448 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 2449 -1.171121   A      America/Denver  0.7753593  Fixed wing multi engine
## 2450  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 2451 -0.242399   A     America/Chicago  1.1206000  Fixed wing multi engine
## 2452 -2.099842   A America/Los_Angeles  0.2574981  Fixed wing multi engine
## 2453  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 2454  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2455  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 2456 -1.171121   N     America/Phoenix -0.2603630  Fixed wing multi engine
## 2457 -1.171121   A      America/Denver  0.0848777  Fixed wing multi engine
## 2458 -0.242399   A     America/Chicago  0.2574981  Fixed wing multi engine
## 2459  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2460 -0.242399   A     America/Chicago  0.2574981  Fixed wing multi engine
## 2461  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2462 -0.242399   A     America/Chicago -0.4329834  Fixed wing multi engine
## 2463  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2464  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 2465  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2466  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 2467  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 2469  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2470  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 2471  0.686322   A    America/New_York -4.2306318 Fixed wing single engine
## 2472  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2475 -0.242399   A     America/Chicago  0.7753593  Fixed wing multi engine
## 2476 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 2477  0.686322   A    America/New_York  0.7753593  Fixed wing multi engine
## 2480 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 2481 -0.242399   A     America/Chicago  0.9479797  Fixed wing multi engine
## 2482  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 2483  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 2486  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2487  0.686322   A    America/New_York  1.6384612  Fixed wing multi engine
## 2489 -2.099842   A America/Los_Angeles  0.4301185  Fixed wing multi engine
## 2492  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 2495  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2496  0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 2497 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 2498  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2499 -0.242399   A     America/Chicago  0.0848777  Fixed wing multi engine
## 2500  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2501  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 2502  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2503  0.686322   A    America/New_York -0.7782242  Fixed wing multi engine
## 2504  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 2505  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2506  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
```

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## 2507  0.686322   A      America/New_York -0.0877426  Fixed wing multi engine
## 2508  0.686322   A      America/New_York  0.0848777  Fixed wing multi engine
## 2509 -0.242399   A        America/Chicago  0.4301185  Fixed wing multi engine
## 2510 -2.099842   A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 2511  0.686322   A      America/New_York  0.2574981  Fixed wing multi engine
## 2512  0.686322   A      America/New_York  0.0848777  Fixed wing multi engine
## 2513  0.686322   A      America/New_York  0.4301185  Fixed wing multi engine
## 2514  0.686322   A      America/New_York -0.0877426  Fixed wing multi engine
## 2515  0.686322   A      America/New_York -0.2603630  Fixed wing multi engine
## 2516  0.686322   A      America/New_York  0.6027389  Fixed wing multi engine
## 2517  0.686322   A      America/New_York  0.7753593  Fixed wing multi engine
## 2518  0.686322   A      America/New_York  0.2574981  Fixed wing multi engine
## 2519  0.686322   A      America/New_York -1.6413261  Fixed wing multi engine
## 2520  0.686322   A      America/New_York -0.6056038  Fixed wing multi engine
## 2521 -2.099842   A America/Los_Angeles  0.0848777  Fixed wing multi engine
## 2522  0.686322   A      America/New_York -0.2603630  Fixed wing multi engine
## 2523 -0.242399   A        America/Chicago -0.6056038  Fixed wing multi engine
## 2524  0.686322   A      America/New_York  0.0848777  Fixed wing multi engine
## 2525  0.686322   A      America/New_York -0.6056038  Fixed wing multi engine
## 2526 -1.171121   A         America/Denver -0.0877426  Fixed wing multi engine
## 2527 -0.242399   A        America/Chicago  0.0848777  Fixed wing multi engine
## 2528 -2.099842   A America/Los_Angeles -0.7782242  Fixed wing multi engine
## 2529  0.686322   A      America/New_York -1.8139464  Fixed wing multi engine
## 2530 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 2531  0.686322   A      America/New_York  0.0848777  Fixed wing multi engine
## 2532  0.686322   A      America/New_York -0.0877426  Fixed wing multi engine
## 2533 -2.099842   A America/Los_Angeles -0.0877426  Fixed wing multi engine
## 2534  0.686322   A      America/New_York  0.7753593  Fixed wing multi engine
## 2535 -2.099842   A America/Los_Angeles  1.2932204  Fixed wing multi engine
## 2536  0.686322   A      America/New_York  0.0848777  Fixed wing multi engine
## 2537 -2.099842   A America/Los_Angeles -0.4329834  Fixed wing multi engine
## 2538 -0.242399   A        America/Chicago -0.6056038  Fixed wing multi engine
## 2539 -0.242399   A        America/Chicago -0.2603630  Fixed wing multi engine
## 2540 -2.099842   A America/Los_Angeles  1.6384612  Fixed wing multi engine
## 2541  0.686322   A      America/New_York -2.5044280  Fixed wing multi engine
## 2542  0.686322   A      America/New_York -2.1591872  Fixed wing multi engine
## 2543 -0.242399   A        America/Chicago  0.0848777  Fixed wing multi engine
## 2544  0.686322   A      America/New_York -0.2603630  Fixed wing multi engine
## 2545 -2.099842   A America/Los_Angeles  0.7753593  Fixed wing multi engine
## 2546 -2.099842   A America/Los_Angeles -2.5044280  Fixed wing multi engine
## 2547  0.686322   A      America/New_York -0.0877426  Fixed wing multi engine
## 2548 -0.242399   A        America/Chicago -0.0877426  Fixed wing multi engine
## 2549  0.686322   A      America/New_York -1.1234649  Fixed wing multi engine
## 2550 -0.242399   A        America/Chicago  1.1206000  Fixed wing multi engine
## 2551  0.686322   A      America/New_York -0.0877426  Fixed wing multi engine
## 2552  0.686322   A      America/New_York -0.2603630  Fixed wing multi engine
## 2553  0.686322   A      America/New_York  1.2932204  Fixed wing multi engine
## 2554 -0.242399   A        America/Chicago  0.7753593  Fixed wing multi engine
## 2555 -2.099842   A America/Los_Angeles -1.6413261  Fixed wing multi engine
## 2556  0.686322   A      America/New_York  1.8110816  Fixed wing multi engine
## 2557 -0.242399   A        America/Chicago  0.9479797  Fixed wing multi engine
## 2558  0.686322   A      America/New_York -0.4329834  Fixed wing multi engine
## 2559 -1.171121   A         America/Denver  0.0848777  Fixed wing multi engine
## 2560  0.686322   A      America/New_York -2.3318076  Fixed wing multi engine
```

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## 2561  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 2562 -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 2563  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 2564  0.686322   A    America/New_York -0.9508445  Fixed wing multi engine
## 2565 -1.171121   A      America/Denver -1.6413261  Fixed wing multi engine
## 2566  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 2567 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2568  0.686322   A    America/New_York  0.9479797  Fixed wing multi engine
## 2569  0.686322   A    America/New_York  1.8110816  Fixed wing multi engine
## 2570  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2571 -0.242399   A      America/Chicago  0.6027389  Fixed wing multi engine
## 2572 -0.242399   A      America/Chicago -2.3318076  Fixed wing multi engine
## 2573  0.686322   A    America/New_York  0.2574981  Fixed wing multi engine
## 2574  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2575  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 2576  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2577 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2578  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 2579  0.686322   A    America/New_York -0.7782242  Fixed wing multi engine
## 2580  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2581 -2.099842   A America/Los_Angeles -1.2960853  Fixed wing multi engine
## 2582  0.686322   A    America/New_York -0.4329834  Fixed wing multi engine
## 2583 -2.099842   A America/Los_Angeles -0.6056038  Fixed wing multi engine
## 2584  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 2585  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2586  0.686322   A    America/New_York  1.2932204  Fixed wing multi engine
## 2587 -0.242399   A      America/Chicago  0.6027389  Fixed wing multi engine
## 2588  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2589  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 2590 -2.099842   A America/Los_Angeles  0.4301185  Fixed wing multi engine
## 2591 -2.099842   A America/Los_Angeles -2.6770484  Fixed wing multi engine
## 2592 -0.242399   A      America/Chicago  0.9479797  Fixed wing multi engine
## 2593  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 2594 -0.242399   A      America/Chicago -0.6056038  Fixed wing multi engine
## 2595  0.686322   A    America/New_York -1.8139464  Fixed wing multi engine
## 2596  0.686322   A    America/New_York  1.1206000  Fixed wing multi engine
## 2597  0.686322   A    America/New_York  0.0848777  Fixed wing multi engine
## 2598  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 2599 -2.099842   A America/Los_Angeles -1.9865668  Fixed wing multi engine
## 2600  0.686322   A    America/New_York -0.6056038  Fixed wing multi engine
## 2601  0.686322   A    America/New_York  0.6027389  Fixed wing multi engine
## 2602 -0.242399   A      America/Chicago -2.3318076  Fixed wing multi engine
## 2603 -0.242399   A      America/Chicago -2.3318076  Fixed wing multi engine
## 2604  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
## 2605  0.686322   A    America/New_York -0.0877426  Fixed wing multi engine
## 2606  0.686322   A    America/New_York  1.6384612  Fixed wing multi engine
## 2607  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 2608 -2.099842   A America/Los_Angeles  1.4658408  Fixed wing multi engine
## 2609  0.686322   A    America/New_York  0.4301185  Fixed wing multi engine
## 2610 -1.171121   A      America/Denver -0.6056038  Fixed wing multi engine
## 2611 -0.242399   A      America/Chicago -2.8496687 Fixed wing single engine
## 2612 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2613 -0.242399   A      America/Chicago  0.0848777  Fixed wing multi engine
## 2614  0.686322   A    America/New_York -0.2603630  Fixed wing multi engine
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## 2615  0.686322   A     America/New_York -1.8139464  Fixed wing multi engine
## 2616  0.686322   A     America/New_York -0.4329834  Fixed wing multi engine
## 2617  0.686322   A     America/New_York -0.0877426  Fixed wing multi engine
## 2618 -2.099842   A America/Los_Angeles  1.1206000  Fixed wing multi engine
## 2619 -0.242399   A     America/Chicago -2.3318076  Fixed wing multi engine
##                          manufacturer            model    engines      seats
## 1                              BOEING          757-223  0.0573826  0.5916775
## 2                              BOEING        737-924ER  0.0573826  0.7878896
## 3                              AIRBUS         A320-232  0.0573826  0.9237287
## 4                              BOEING          757-224  0.0573826  0.5916775
## 5                              BOEING        737-924ER  0.0573826  0.7878896
## 6                              AIRBUS         A320-232  0.0573826  0.9237287
## 7                              BOEING          737-824  0.0573826  0.1539737
## 8                              BOEING         A320-232  0.0573826  0.1539737
## 9     MCDONNELL DOUGLAS AIRCRAFT CO            MD-88  0.0573826  0.0483211
## 10                             AIRBUS         A320-232  0.0573826  0.9237287
## 11                             AIRBUS         A320-232  0.0573826  0.9237287
## 12                             BOEING         A320-232  0.0573826  0.1539737
## 13                             BOEING         A320-232  0.0573826  0.1539737
## 14                             BOEING          737-824  0.0573826  0.1539737
## 15                             BOEING         A320-232  0.0573826  0.1539737
## 16                             BOEING          737-7H4  0.0573826  0.0181346
## 17                             BOEING         A320-232  0.0573826  0.1539737
## 18                            EMBRAER       EMB-145LR  0.0573826 -1.2647904
## 19                             AIRBUS         A320-232  0.0573826  0.9237287
## 20                             AIRBUS         A320-232  0.0573826  0.9237287
## 21                   AIRBUS INDUSTRIE         A321-211  0.0573826  0.9086355
## 22                             AIRBUS         A320-232  0.0573826  0.9237287
## 23                             BOEING          757-222  0.0573826  0.5916775
## 24                             AIRBUS         A320-232  0.0573826  0.9237287
## 25                            EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 26                   AIRBUS INDUSTRIE         A320-211  0.0573826  0.6520505
## 27                             BOEING          737-832  0.0573826  0.7577031
## 28                             BOEING          757-231  0.0573826  0.5916775
## 29                             BOEING         A320-232  0.0573826  0.1539737
## 30                             BOEING         A320-232  0.0573826  0.1539737
## 31                             BOEING         A320-232  0.0573826  0.1539737
## 32                             BOEING         A320-232  0.0573826  0.1539737
## 33                   AIRBUS INDUSTRIE         A319-131  0.0573826  0.6067708
## 34                             BOEING          737-824  0.0573826  0.1539737
## 35                             AIRBUS         A320-232  0.0573826  0.9237287
## 36                             BOEING         A320-232  0.0573826  0.1539737
## 37                             BOEING          717-200  0.0573826 -0.5855948
## 38                             BOEING          757-222  0.0573826  0.5916775
## 39                             BOEING          737-890  0.0573826  0.1539737
## 40                             BOEING         A320-232  0.0573826  0.1539737
## 41                             BOEING        737-924ER  0.0573826  0.7878896
## 42                   AIRBUS INDUSTRIE         A320-232  0.0573826  0.9237287
## 43                             AIRBUS         A320-214  0.0573826  0.6520505
## 44                             AIRBUS         A320-232  0.0573826  0.9237287
## 45                             BOEING          737-924  0.0573826  0.7878896
## 46                             BOEING          767-223  0.0573826  1.7538567
## 47                             BOEING          767-223  0.0573826  1.7538567
## 49                             AIRBUS         A321-231  0.0573826  3.6254178
```

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## 50                           BOEING       A320-232  0.0573826  0.1539737
## 51   MCDONNELL DOUGLAS AIRCRAFT CO           MD-88  0.0573826  0.0483211
## 52                           AIRBUS       A320-232  0.0573826  0.9237287
## 53                           BOEING       A320-232  0.0573826  0.1539737
## 54                           BOEING        757-222  0.0573826  0.5916775
## 55                           BOEING       A320-232  0.0573826  0.1539737
## 56                   BOMBARDIER INC     CL-600-2D24  0.0573826 -0.6610610
## 57                          EMBRAER      EMB-145XR  0.0573826 -1.2647904
## 58                 AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 59                          EMBRAER      EMB-145XR  0.0573826 -1.2647904
## 60                           BOEING        757-26D  0.0573826  0.5916775
## 61                           BOEING       A320-232  0.0573826  0.1539737
## 62                 AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 63                MCDONNELL DOUGLAS   DC-9-82(MD-82)  0.0573826  0.5011181
## 64                          EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 66                          EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 67                           BOEING        757-222  0.0573826  0.5916775
## 68                          EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 69                           BOEING       A320-232  0.0573826  0.1539737
## 70                 AIRBUS INDUSTRIE       A320-214  0.0573826  0.6520505
## 71                           BOEING       A320-232  0.0573826  0.1539737
## 72             GULFSTREAM AEROSPACE          G1159B  0.0573826 -1.7628672
## 73                           BOEING       A320-232  0.0573826  0.1539737
## 75                           BOEING        737-724  0.0573826  0.1539737
## 76                          EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 77                           AIRBUS       A319-114  0.0573826  0.0936008
## 78                           BOEING        737-824  0.0573826  0.1539737
## 79                          EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 80                           BOEING      737-924ER  0.0573826  0.7878896
## 81                 AIRBUS INDUSTRIE       A319-114  0.0573826  0.0936008
## 82                           AIRBUS       A319-114  0.0573826  0.0936008
## 83                 AIRBUS INDUSTRIE       A319-131  0.0573826  0.6067708
## 84                           BOEING        757-224  0.0573826  0.5916775
## 86                           BOEING        737-724  0.0573826  0.1539737
## 87               HURLEY JAMES LARRY      FALCON-XP -11.5529141 -2.0647319
## 88                MCDONNELL DOUGLAS   DC-9-83(MD-83)  0.0573826  0.5011181
## 89                          EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 90                          EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 91                           BOEING        757-2Q8  0.0573826  0.5916775
## 92                           BOEING        737-724  0.0573826  0.1539737
## 93                           BOEING      737-924ER  0.0573826  0.7878896
## 94                CIRRUS DESIGN CORP           SR22 -11.5529141 -2.0345454
## 95                 AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 96                           AIRBUS       A320-214  0.0573826  0.6520505
## 97                 AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 98                           AIRBUS       A320-232  0.0573826  0.9237287
## 99                          EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 100  MCDONNELL DOUGLAS AIRCRAFT CO           MD-88  0.0573826  0.0483211
## 101  MCDONNELL DOUGLAS AIRCRAFT CO           MD-88  0.0573826  0.0483211
## 102                AIRBUS INDUSTRIE       A319-112  0.0573826  0.6067708
## 103                          BOEING        737-832  0.0573826  0.7577031
## 104                         EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 106                          BOEING        737-824  0.0573826  0.1539737
## 107                          BOEING        737-824  0.0573826  0.1539737
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## 108                     EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 109            AIRBUS INDUSTRIE        A319-131   0.0573826  0.6067708
## 110           MCDONNELL DOUGLAS   DC-9-82(MD-82)  0.0573826  0.5011181
## 111            AIRBUS INDUSTRIE        A320-232   0.0573826  0.9237287
## 112                      BOEING         767-322   0.0573826  2.8858493
## 113                      BOEING        A320-232   0.0573826  0.1539737
## 114 MCDONNELL DOUGLAS AIRCRAFT CO          MD-88  0.0573826  0.0483211
## 115                     EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 116                      BOEING         737-5H4   0.0573826  0.1539737
## 117            AIRBUS INDUSTRIE        A320-232   0.0573826  0.9237287
## 118                      AIRBUS        A320-232   0.0573826  0.9237287
## 119                      BOEING        A320-232   0.0573826  0.1539737
## 120                      BOEING        A320-232   0.0573826  0.1539737
## 121            AIRBUS INDUSTRIE        A319-114   0.0573826  0.0936008
## 122                      BOEING         737-7H4   0.0573826  0.0181346
## 123                      AIRBUS        A320-212   0.0573826  0.6520505
## 124                      BOEING         757-222   0.0573826  0.5916775
## 125                      BOEING         757-224   0.0573826  0.5916775
## 126                      AIRBUS        A320-232   0.0573826  0.9237287
## 127                      BOEING        A320-232   0.0573826  0.1539737
## 128                      AIRBUS        A319-114   0.0573826  0.0936008
## 129                      BOEING        A320-232   0.0573826  0.1539737
## 130                      BOEING        A320-232   0.0573826  0.1539737
## 131 MCDONNELL DOUGLAS CORPORATION          MD-88  0.0573826  0.0483211
## 132              BOMBARDIER INC      CL-600-2D24  0.0573826 -0.6610610
## 133                      BOEING         717-200   0.0573826 -0.5855948
## 134                     EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 136                     EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 137                     EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 138                      BOEING         737-7H4   0.0573826  0.0181346
## 139                      BOEING         757-222   0.0573826  0.5916775
## 140                      BOEING         737-924   0.0573826  0.7878896
## 141                      BOEING       737-924ER   0.0573826  0.7878896
## 142                     EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 143                     EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 144                      BOEING         757-222   0.0573826  0.5916775
## 145                       PIPER     PA-32R-300 -11.5529141 -1.9892657
## 146                      AIRBUS        A319-114   0.0573826  0.0936008
## 147                     EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 148              BOMBARDIER INC      CL-600-2C10  0.0573826 -0.8874595
## 149            AIRBUS INDUSTRIE        A320-232   0.0573826  0.9237287
## 150                      BOEING        A320-232   0.0573826  0.1539737
## 151                      BOEING         737-7H4   0.0573826  0.0181346
## 152                     EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 153                      BOEING        A320-232   0.0573826  0.1539737
## 154                      BOEING        A320-232   0.0573826  0.1539737
## 155                      BOEING         757-232   0.0573826  0.5916775
## 156                     EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 157                      BOEING        A320-232   0.0573826  0.1539737
## 158               FRIEDEMANN JON VANS AIRCRAFT RV6 -11.5529141 -2.0647319
## 160                      BOEING         737-824   0.0573826  0.1539737
## 162                     EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 163                      BOEING        A320-232   0.0573826  0.1539737
## 164                      BOEING        A320-232   0.0573826  0.1539737
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## 165                          BOEING          737-7H4   0.0573826  0.0181346
## 166            GULFSTREAM AEROSPACE           G1159B   0.0573826 -1.7628672
## 167          ROBINSON HELICOPTER CO              R66 -11.5529141 -2.0194522
## 168                          BOEING          757-224   0.0573826  0.5916775
## 169                          BOEING          737-832   0.0573826  0.7577031
## 170                         EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 172                          BOEING          767-223   0.0573826  1.7538567
## 173                          BOEING          A320-232  0.0573826  0.1539737
## 174                          BOEING          737-7H4   0.0573826  0.0181346
## 175                         EMBRAER       EMB-145XR   0.0573826 -1.2647904
## 176                          AIRBUS         A319-114   0.0573826  0.0936008
## 177                          BOEING          737-7BD   0.0573826  0.1539737
## 178                AIRBUS INDUSTRIE         A319-131   0.0573826  0.6067708
## 179                          BOEING            787-8   0.0573826  1.8293228
## 181                          BOEING          717-200   0.0573826 -0.5855948
## 183                          BOEING        737-924ER   0.0573826  0.7878896
## 184                         EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 185                AIRBUS INDUSTRIE         A320-211   0.0573826  0.6520505
## 186                          BOEING          757-222   0.0573826  0.5916775
## 187                  BOMBARDIER INC       CL-600-2B19  0.0573826 -1.2647904
## 190                AIRBUS INDUSTRIE         A320-232   0.0573826  0.9237287
## 191                          BOEING          757-231   0.0573826  0.5916775
## 192                         EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 193                          BOEING          A320-232  0.0573826  0.1539737
## 194                          BOEING          A320-232  0.0573826  0.1539737
## 195                  BOMBARDIER INC       CL-600-2D24  0.0573826 -0.6610610
## 196                          BOEING          A320-232  0.0573826  0.1539737
## 197                         EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 198 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88   0.0573826  0.0483211
## 199                          BOEING          737-824   0.0573826  0.1539737
## 200                          AIRBUS         A321-231   0.0573826  3.6254178
## 201                          BOEING          A320-232  0.0573826  0.1539737
## 202                AIRBUS INDUSTRIE         A320-232   0.0573826  0.9237287
## 203                          BOEING          A320-232  0.0573826  0.1539737
## 204                          BOEING          A320-232  0.0573826  0.1539737
## 205                          BOEING          757-222   0.0573826  0.5916775
## 206                  BOMBARDIER INC       CL-600-2B19  0.0573826 -1.2647904
## 207                          BOEING          A320-232  0.0573826  0.1539737
## 208                          BOEING          737-824   0.0573826  0.1539737
## 209                          BOEING          757-232   0.0573826  0.5916775
## 210                         EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 211                          BOEING          A320-232  0.0573826  0.1539737
## 212                          BOEING          A320-232  0.0573826  0.1539737
## 213                          BOEING          737-724   0.0573826  0.1539737
## 214                          BOEING          A320-232  0.0573826  0.1539737
## 215                          BOEING          757-224   0.0573826  0.5916775
## 217                          BOEING          737-7H4   0.0573826  0.0181346
## 218                         EMBRAER       EMB-145XR   0.0573826 -1.2647904
## 219               MCDONNELL DOUGLAS   DC-9-82(MD-82)  0.0573826  0.5011181
## 220                          BOEING          757-222   0.0573826  0.5916775
## 221                         EMBRAER       EMB-145XR   0.0573826 -1.2647904
## 222                          BOEING          737-7H4   0.0573826  0.0181346
## 223                          BOEING          737-832   0.0573826  0.7577031
## 224                          BOEING          767-223   0.0573826  1.7538567
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## 226                        BOEING        737-832  0.0573826  0.7577031
## 227              BOMBARDIER INC      CL-600-2D24  0.0573826 -0.6610610
## 228                        BOEING        737-824  0.0573826  0.1539737
## 229              BOMBARDIER INC      CL-600-2D24  0.0573826 -0.6610610
## 230                        BOEING        717-200  0.0573826 -0.5855948
## 231                        BOEING       A320-232  0.0573826  0.1539737
## 232 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88  0.0573826  0.0483211
## 233            AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 234                        AIRBUS       A320-232  0.0573826  0.9237287
## 235              BOMBARDIER INC      CL-600-2B19  0.0573826 -1.2647904
## 236                       EMBRAER       EMB-145XR  0.0573826 -1.2647904
## 237                       EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 238                        BOEING        737-7H4  0.0573826  0.0181346
## 239                       EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 240                        BOEING       A320-232  0.0573826  0.1539737
## 241 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88  0.0573826  0.0483211
## 242                        AIRBUS       A319-114  0.0573826  0.0936008
## 245            AIRBUS INDUSTRIE       A320-211  0.0573826  0.6520505
## 247            AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 248                       EMBRAER       EMB-145LR  0.0573826 -1.2647904
## 249            AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 251                        BOEING       A320-232  0.0573826  0.1539737
## 252                       EMBRAER       EMB-145LR  0.0573826 -1.2647904
## 253                       EMBRAER       EMB-145LR  0.0573826 -1.2647904
## 254                        AIRBUS       A320-232  0.0573826  0.9237287
## 255           MCDONNELL DOUGLAS  DC-9-83(MD-83)  0.0573826  0.5011181
## 256                       EMBRAER        EMB-145  0.0573826 -1.2647904
## 257                        BOEING       A320-232  0.0573826  0.1539737
## 258                        BOEING       A320-232  0.0573826  0.1539737
## 259                        BOEING       A320-232  0.0573826  0.1539737
## 260                        AIRBUS       A321-211  0.0573826  0.9086355
## 261                        BOEING        757-222  0.0573826  0.5916775
## 263                        BOEING        757-222  0.0573826  0.5916775
## 264            AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 265                        BOEING       A320-232  0.0573826  0.1539737
## 266                        BOEING       A320-232  0.0573826  0.1539737
## 267                        BOEING       A320-232  0.0573826  0.1539737
## 268                        BOEING        757-224  0.0573826  0.5916775
## 269                        BOEING        767-323  0.0573826  2.8858493
## 270                        BOEING        757-222  0.0573826  0.5916775
## 271                   PAIR MIKE E      FALCON XP -11.5529141 -2.0647319
## 273                        BOEING        757-224  0.0573826  0.5916775
## 275 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88  0.0573826  0.0483211
## 276 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88  0.0573826  0.0483211
## 277 MCDONNELL DOUGLAS CORPORATION         MD-88  0.0573826  0.0483211
## 278                        BOEING        737-8H4  0.0573826  0.0181346
## 279                        AIRBUS       A320-232  0.0573826  0.9237287
## 281                        BOEING        737-824  0.0573826  0.1539737
## 282                       EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 283                        BOEING      737-924ER  0.0573826  0.7878896
## 284           GULFSTREAM AEROSPACE        G1159B  0.0573826 -1.7628672
## 285            AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 286                        BOEING       A320-232  0.0573826  0.1539737
## 287                        BOEING        757-222  0.0573826  0.5916775
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## 288             AIRBUS INDUSTRIE         A320-212    0.0573826  0.6520505
## 289              BOMBARDIER INC       CL-600-2D24    0.0573826 -0.6610610
## 290                      BOEING          A320-232    0.0573826  0.1539737
## 291                      BOEING           737-832    0.0573826  0.7577031
## 292                     EMBRAER         EMB-145XR    0.0573826 -1.2647904
## 294                      BOEING           757-222    0.0573826  0.5916775
## 297              BOMBARDIER INC       CL-600-2B19    0.0573826 -1.2647904
## 298              BOMBARDIER INC       CL-600-2D24    0.0573826 -0.6610610
## 299                     EMBRAER    ERJ 190-100 IGW   0.0573826 -1.7930536
## 300             AIRBUS INDUSTRIE         A320-232    0.0573826  0.9237287
## 301                      BOEING           767-332    0.0573826  2.8858493
## 302 MCDONNELL DOUGLAS AIRCRAFT CO          MD-88    0.0573826  0.0483211
## 303                      AIRBUS          A320-232    0.0573826  0.9237287
## 304                      CESSNA              172N -11.5529141 -2.0345454
## 305             AIRBUS INDUSTRIE         A320-232    0.0573826  0.9237287
## 306                      BOEING           757-232    0.0573826  0.5916775
## 307                      BOEING           737-824    0.0573826  0.1539737
## 308                      BOEING           737-832    0.0573826  0.7577031
## 310              BOMBARDIER INC       CL-600-2B19    0.0573826 -1.2647904
## 311                      BOEING           757-2Q8    0.0573826  0.5916775
## 312                      BOEING          A320-232    0.0573826  0.1539737
## 313                      BOEING           737-824    0.0573826  0.1539737
## 316                     EMBRAER         EMB-145XR    0.0573826 -1.2647904
## 317                      BOEING          A320-232    0.0573826  0.1539737
## 318                      AIRBUS          A320-232    0.0573826  0.9237287
## 319              BOMBARDIER INC       CL-600-2D24    0.0573826 -0.6610610
## 320                     EMBRAER         EMB-145XR    0.0573826 -1.2647904
## 321                      AIRBUS          A320-214    0.0573826  0.6520505
## 322                      BOEING           737-824    0.0573826  0.1539737
## 323             AIRBUS INDUSTRIE         A319-131    0.0573826  0.6067708
## 324                      BOEING           737-824    0.0573826  0.1539737
## 328                      BOEING          A320-232    0.0573826  0.1539737
## 330                      BOEING           737-724    0.0573826  0.1539737
## 332                      BOEING           737-724    0.0573826  0.1539737
## 333                     EMBRAER    ERJ 190-100 IGW   0.0573826 -1.7930536
## 336                      BOEING           737-832    0.0573826  0.7577031
## 339                       PIPER        PA-32R-300 -11.5529141 -1.9892657
## 340                     EMBRAER    ERJ 190-100 IGW   0.0573826 -1.7930536
## 341             AIRBUS INDUSTRIE         A319-131    0.0573826  0.6067708
## 342                      BOEING           737-824    0.0573826  0.1539737
## 343                      AIRBUS          A320-232    0.0573826  0.9237287
## 344             AIRBUS INDUSTRIE         A320-232    0.0573826  0.9237287
## 346                      BOEING           737-5H4    0.0573826  0.1539737
## 347                      AIRBUS          A320-232    0.0573826  0.9237287
## 348                      BOEING           737-832    0.0573826  0.7577031
## 349                      AIRBUS          A320-232    0.0573826  0.9237287
## 350                      BOEING           737-824    0.0573826  0.1539737
## 351                     EMBRAER         EMB-145LR    0.0573826 -1.2647904
## 352                      AIRBUS          A320-232    0.0573826  0.9237287
## 353                      BOEING          A320-232    0.0573826  0.1539737
## 354       ROBINSON HELICOPTER CO              R66 -11.5529141 -2.0194522
## 355                     EMBRAER    ERJ 190-100 IGW   0.0573826 -1.7930536
## 356                      AIRBUS          A320-232    0.0573826  0.9237287
## 358                     EMBRAER    ERJ 190-100 IGW   0.0573826 -1.7930536
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## 359                           EMBRAER ERJ 190-100 IGW 0.0573826 -1.7930536
## 365                            AIRBUS         A320-232 0.0573826  0.9237287
## 366                            AIRBUS         A320-232 0.0573826  0.9237287
## 367                   AIRBUS INDUSTRIE         A321-211 0.0573826  0.9086355
## 368                            AIRBUS         A320-232 0.0573826  0.9237287
## 369                            AIRBUS         A320-232 0.0573826  0.9237287
## 370                            AIRBUS         A320-232 0.0573826  0.9237287
## 371                            BOEING         A320-232 0.0573826  0.1539737
## 372                            AIRBUS         A319-114 0.0573826  0.0936008
## 373                   AIRBUS INDUSTRIE         A320-232 0.0573826  0.9237287
## 374                            BOEING          737-824 0.0573826  0.1539737
## 375                            BOEING         A320-232 0.0573826  0.1539737
## 376                            BOEING         A320-232 0.0573826  0.1539737
## 377                            BOEING          737-824 0.0573826  0.1539737
## 378                            BOEING          737-832 0.0573826  0.7577031
## 379 MCDONNELL DOUGLAS AIRCRAFT CO            MD-88 0.0573826  0.0483211
## 380                            BOEING          737-732 0.0573826  0.1539737
## 381                            BOEING          737-7H4 0.0573826  0.0181346
## 382                            AIRBUS         A320-232 0.0573826  0.9237287
## 383                   AIRBUS INDUSTRIE         A320-232 0.0573826  0.9237287
## 384                   AIRBUS INDUSTRIE         A319-131 0.0573826  0.6067708
## 385                            BOEING         A320-232 0.0573826  0.1539737
## 386 MCDONNELL DOUGLAS AIRCRAFT CO            MD-88 0.0573826  0.0483211
## 387                            BOEING          737-7H4 0.0573826  0.0181346
## 388                           EMBRAER       EMB-145LR 0.0573826 -1.2647904
## 389                           EMBRAER       EMB-145LR 0.0573826 -1.2647904
## 390                            BOEING          757-222 0.0573826  0.5916775
## 391                            BOEING         A320-232 0.0573826  0.1539737
## 392                            BOEING          737-724 0.0573826  0.1539737
## 393                            AIRBUS         A321-231 0.0573826  3.6254178
## 394                            BOEING          737-824 0.0573826  0.1539737
## 395                           EMBRAER       EMB-145LR 0.0573826 -1.2647904
## 396                            BOEING         A320-232 0.0573826  0.1539737
## 397                            AIRBUS         A320-232 0.0573826  0.9237287
## 398                            AIRBUS         A321-231 0.0573826  3.6254178
## 399                            BOEING          757-222 0.0573826  0.5916775
## 400                            BOEING          737-832 0.0573826  0.7577031
## 401                   AIRBUS INDUSTRIE         A320-232 0.0573826  0.9237287
## 402                            BOEING          737-824 0.0573826  0.1539737
## 403                            AIRBUS         A320-232 0.0573826  0.9237287
## 404                            AIRBUS         A320-211 0.0573826  0.6520505
## 405                           EMBRAER ERJ 190-100 IGW 0.0573826 -1.7930536
## 406                            AIRBUS         A320-214 0.0573826  0.6520505
## 407 MCDONNELL DOUGLAS AIRCRAFT CO            MD-88 0.0573826  0.0483211
## 408                            BOEING        737-924ER 0.0573826  0.7878896
## 410                            BOEING         A320-232 0.0573826  0.1539737
## 411                            BOEING         A320-232 0.0573826  0.1539737
## 412                            AIRBUS         A320-232 0.0573826  0.9237287
## 413                            BOEING          757-251 0.0573826  0.5916775
## 414                            BOEING          737-824 0.0573826  0.1539737
## 415                            BOEING         A320-232 0.0573826  0.1539737
## 416                            AIRBUS         A320-232 0.0573826  0.9237287
## 418                            BOEING          737-890 0.0573826  0.1539737
## 420                   AIRBUS INDUSTRIE         A320-232 0.0573826  0.9237287
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## 421                       BOEING        737-832  0.0573826  0.7577031
## 422                       BOEING        737-824  0.0573826  0.1539737
## 423             LAMBERT RICHARD       FALCON XP -11.5529141 -2.0647319
## 424                       BOEING        767-223  0.0573826  1.7538567
## 425                       BOEING        757-224  0.0573826  0.5916775
## 426                       BOEING        737-7H4  0.0573826  0.0181346
## 427                       BOEING        757-222  0.0573826  0.5916775
## 428 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88  0.0573826  0.0483211
## 429                      EMBRAER     EMB-145XR  0.0573826 -1.2647904
## 430             AIRBUS INDUSTRIE      A320-232  0.0573826  0.9237287
## 432             AIRBUS INDUSTRIE      A320-232  0.0573826  0.9237287
## 433 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88  0.0573826  0.0483211
## 434                       AIRBUS     A321-231  0.0573826  3.6254178
## 435 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88  0.0573826  0.0483211
## 436                       BOEING        757-222  0.0573826  0.5916775
## 437                       BOEING      A320-232  0.0573826  0.1539737
## 438                      EMBRAER ERJ 190-100 IGW  0.0573826 -1.7930536
## 439             AIRBUS INDUSTRIE      A320-212  0.0573826  0.6520505
## 440             AIRBUS INDUSTRIE      A320-212  0.0573826  0.6520505
## 442              BOMBARDIER INC    CL-600-2D24  0.0573826 -0.6610610
## 443                       BOEING      A320-232  0.0573826  0.1539737
## 444                       AIRBUS     A320-232  0.0573826  0.9237287
## 445                       BOEING        737-832  0.0573826  0.7577031
## 446                       BOEING      A320-232  0.0573826  0.1539737
## 447            MCDONNELL DOUGLAS  DC-9-83(MD-83)  0.0573826  0.5011181
## 448            MCDONNELL DOUGLAS  DC-9-83(MD-83)  0.0573826  0.5011181
## 450                       AIRBUS     A320-214  0.0573826  0.6520505
## 451                       BOEING      A320-232  0.0573826  0.1539737
## 452              BOMBARDIER INC    CL-600-2D24  0.0573826 -0.6610610
## 453                       BOEING      A320-232  0.0573826  0.1539737
## 455              BOMBARDIER INC    CL-600-2B19  0.0573826 -1.2647904
## 457                       BOEING      A320-232  0.0573826  0.1539737
## 458              BOMBARDIER INC    CL-600-2D24  0.0573826 -0.6610610
## 459                       BOEING        757-224  0.0573826  0.5916775
## 460                      EMBRAER     EMB-145XR  0.0573826 -1.2647904
## 462                       AIRBUS     A320-232  0.0573826  0.9237287
## 463                       AIRBUS     A319-114  0.0573826  0.0936008
## 464                       BOEING      A320-232  0.0573826  0.1539737
## 465                       BOEING        757-222  0.0573826  0.5916775
## 466                       BOEING        737-724  0.0573826  0.1539737
## 467                      EMBRAER ERJ 190-100 IGW  0.0573826 -1.7930536
## 468                       BOEING        757-222  0.0573826  0.5916775
## 469                       BOEING      A320-232  0.0573826  0.1539737
## 470                       AIRBUS     A320-232  0.0573826  0.9237287
## 471                       BOEING      A320-232  0.0573826  0.1539737
## 472                       AIRBUS     A320-232  0.0573826  0.9237287
## 473                      EMBRAER ERJ 190-100 IGW  0.0573826 -1.7930536
## 474                       AIRBUS     A320-232  0.0573826  0.9237287
## 475                       BOEING        737-724  0.0573826  0.1539737
## 476                       BOEING        737-7H4  0.0573826  0.0181346
## 477                       BOEING        737-7H4  0.0573826  0.0181346
## 479             AIRBUS INDUSTRIE      A320-232  0.0573826  0.9237287
## 480                      EMBRAER     EMB-145LR  0.0573826 -1.2647904
## 481                        PIPER    PA-32R-300 -11.5529141 -1.9892657
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## 482                        EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 483                 BOMBARDIER INC       CL-600-2B19  0.0573826 -1.2647904
## 484                         BOEING           737-7H4  0.0573826  0.0181346
## 485                         AIRBUS          A320-232  0.0573826  0.9237287
## 486                         BOEING          A320-232  0.0573826  0.1539737
## 487                         AIRBUS          A321-231  0.0573826  3.6254178
## 488                         BOEING           717-200  0.0573826 -0.5855948
## 489                         AIRBUS          A321-231  0.0573826  3.6254178
## 490 MCDONNELL DOUGLAS AIRCRAFT CO             MD-88  0.0573826  0.0483211
## 491                         AIRBUS          A320-232  0.0573826  0.9237287
## 492               AIRBUS INDUSTRIE          A319-114  0.0573826  0.0936008
## 493                         AIRBUS          A320-214  0.0573826  0.6520505
## 494                        EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 495                         AIRBUS          A320-232  0.0573826  0.9237287
## 496                         BOEING           737-724  0.0573826  0.1539737
## 497                         BOEING           767-223  0.0573826  1.7538567
## 498                         BOEING          A320-232  0.0573826  0.1539737
## 499                         BOEING           757-232  0.0573826  0.5916775
## 501                         BOEING           737-824  0.0573826  0.1539737
## 502                         BOEING           737-7H4  0.0573826  0.0181346
## 503                         BOEING          A320-232  0.0573826  0.1539737
## 504 MCDONNELL DOUGLAS AIRCRAFT CO             MD-88  0.0573826  0.0483211
## 506               AIRBUS INDUSTRIE          A320-211  0.0573826  0.6520505
## 507                         BOEING           737-7H4  0.0573826  0.0181346
## 508                         BOEING          A320-232  0.0573826  0.1539737
## 509                         BOEING          A320-232  0.0573826  0.1539737
## 510                         AIRBUS          A320-232  0.0573826  0.9237287
## 511                        EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 512                         BOEING           757-2Q8  0.0573826  0.5916775
## 514 MCDONNELL DOUGLAS AIRCRAFT CO             MD-88  0.0573826  0.0483211
## 515                         BOEING           737-724  0.0573826  0.1539737
## 516                         BOEING           767-223  0.0573826  1.7538567
## 517                        EMBRAER         EMB-145XR  0.0573826 -1.2647904
## 518                         BOEING           757-224  0.0573826  0.5916775
## 519                 BOMBARDIER INC       CL-600-2C10  0.0573826 -0.8874595
## 520 MCDONNELL DOUGLAS AIRCRAFT CO             MD-88  0.0573826  0.0483211
## 523                         BOEING           737-7H4  0.0573826  0.0181346
## 524                         BOEING           737-832  0.0573826  0.7577031
## 525                        EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 526                         BOEING           757-232  0.0573826  0.5916775
## 527                         BOEING          A320-232  0.0573826  0.1539737
## 528                 BOMBARDIER INC       CL-600-2B19  0.0573826 -1.2647904
## 529               AIRBUS INDUSTRIE          A321-211  0.0573826  0.9086355
## 530                         AIRBUS          A320-232  0.0573826  0.9237287
## 531                        EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 532                         BOEING           737-732  0.0573826  0.1539737
## 533                         BOEING           737-7H4  0.0573826  0.0181346
## 534                         BOEING           737-824  0.0573826  0.1539737
## 535               AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 536                         AIRBUS          A321-231  0.0573826  3.6254178
## 537                        EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 538                         AIRBUS          A320-232  0.0573826  0.9237287
## 539                         BOEING           757-224  0.0573826  0.5916775
## 540                         BOEING           737-7H4  0.0573826  0.0181346
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## 541                       AIRBUS          A320-232  0.0573826  0.9237287
## 542                      EMBRAER        EMB-145XR  0.0573826 -1.2647904
## 543                      EMBRAER        EMB-145XR  0.0573826 -1.2647904
## 544                       AIRBUS          A320-232  0.0573826  0.9237287
## 545                       BOEING           767-223  0.0573826  1.7538567
## 546                       BOEING          A320-232  0.0573826  0.1539737
## 547             AIRBUS INDUSTRIE          A320-212  0.0573826  0.6520505
## 548                       BOEING          A320-232  0.0573826  0.1539737
## 549             AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 551                       AIRBUS          A320-232  0.0573826  0.9237287
## 553                      EMBRAER        EMB-145LR  0.0573826 -1.2647904
## 554                       BOEING           737-724  0.0573826  0.1539737
## 555                       BOEING           737-824  0.0573826  0.1539737
## 556             AIRBUS INDUSTRIE          A319-131  0.0573826  0.6067708
## 558                       AIRBUS          A320-211  0.0573826  0.6520505
## 559             AIRBUS INDUSTRIE          A319-114  0.0573826  0.0936008
## 560               BOMBARDIER INC        CL-600-2B19  0.0573826 -1.2647904
## 561                      EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 562                       AIRBUS          A319-114  0.0573826  0.0936008
## 563                      EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 564                       BOEING           737-824  0.0573826  0.1539737
## 565               BOMBARDIER INC        CL-600-2B19  0.0573826 -1.2647904
## 566            MCDONNELL DOUGLAS   DC-9-82(MD-82)  0.0573826  0.5011181
## 567                       BOEING           757-251  0.0573826  0.5916775
## 569                      EMBRAER        EMB-145LR  0.0573826 -1.2647904
## 570                       BOEING          A320-232  0.0573826  0.1539737
## 571                       BOEING          A320-232  0.0573826  0.1539737
## 572                       AIRBUS          A320-232  0.0573826  0.9237287
## 573                       BOEING          A320-232  0.0573826  0.1539737
## 574          GULFSTREAM AEROSPACE             G-IV  0.0573826 -1.7628672
## 576                       BOEING          A320-232  0.0573826  0.1539737
## 577               BOMBARDIER INC        CL-600-2B19  0.0573826 -1.2647904
## 578                       AIRBUS          A320-232  0.0573826  0.9237287
## 579             AIRBUS INDUSTRIE          A320-212  0.0573826  0.6520505
## 580                       BOEING          A320-232  0.0573826  0.1539737
## 581             AIRBUS INDUSTRIE          A319-114  0.0573826  0.0936008
## 582               BOMBARDIER INC        CL-600-2D24  0.0573826 -0.6610610
## 584                      EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 585                       BOEING           757-2Q8  0.0573826  0.5916775
## 586             AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 587 MCDONNELL DOUGLAS AIRCRAFT CO            MD-88  0.0573826  0.0483211
## 588                       BOEING           737-724  0.0573826  0.1539737
## 589                       BOEING          A320-232  0.0573826  0.1539737
## 590               BOMBARDIER INC        CL-600-2D24  0.0573826 -0.6610610
## 591             AIRBUS INDUSTRIE          A319-131  0.0573826  0.6067708
## 593                       BOEING           737-832  0.0573826  0.7577031
## 594 MCDONNELL DOUGLAS AIRCRAFT CO            MD-88  0.0573826  0.0483211
## 596               BOMBARDIER INC        CL-600-2D24  0.0573826 -0.6610610
## 597                       BOEING           737-7H4  0.0573826  0.0181346
## 598                       BOEING           757-224  0.0573826  0.5916775
## 599 MCDONNELL DOUGLAS AIRCRAFT CO            MD-88  0.0573826  0.0483211
## 600                       BOEING           737-824  0.0573826  0.1539737
## 601                       AIRBUS          A320-232  0.0573826  0.9237287
## 602             AIRBUS INDUSTRIE          A320-211  0.0573826  0.6520505
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## 603                        BOEING          737-724  0.0573826  0.1539737
## 604                        AIRBUS          A320-214  0.0573826  0.6520505
## 605              AIRBUS INDUSTRIE          A320-211  0.0573826  0.6520505
## 607                        BOEING          A320-232  0.0573826  0.1539737
## 608                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 609                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 610                        AIRBUS          A319-114  0.0573826  0.0936008
## 611                BOMBARDIER INC        CL-600-2D24  0.0573826 -0.6610610
## 612                        BOEING           737-7H4  0.0573826  0.0181346
## 613                        BOEING          A320-232  0.0573826  0.1539737
## 614              AIRBUS INDUSTRIE          A319-131  0.0573826  0.6067708
## 615                        AIRBUS          A321-231  0.0573826  3.6254178
## 616                    MARZ BARRY          KITFOX IV -11.5529141 -2.0647319
## 617                        BOEING          A320-232  0.0573826  0.1539737
## 618                        BOEING          A320-232  0.0573826  0.1539737
## 619              AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 621                        AIRBUS          A320-214  0.0573826  0.6520505
## 622              AIRBUS INDUSTRIE          A319-131  0.0573826  0.6067708
## 624                        BOEING           737-724  0.0573826  0.1539737
## 625                        BOEING           737-832  0.0573826  0.7577031
## 626                        BOEING          A320-232  0.0573826  0.1539737
## 628                        BOEING           757-222  0.0573826  0.5916775
## 630                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 631                        BOEING           737-8H4  0.0573826  0.0181346
## 635                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 636 MCDONNELL DOUGLAS AIRCRAFT CO             MD-88  0.0573826  0.0483211
## 637                        BOEING           737-724  0.0573826  0.1539737
## 638                        BOEING          A320-232  0.0573826  0.1539737
## 639                        BOEING          A320-232  0.0573826  0.1539737
## 641                        BOEING          A320-232  0.0573826  0.1539737
## 643                        BOEING          A320-232  0.0573826  0.1539737
## 644                        AIRBUS          A319-114  0.0573826  0.0936008
## 645                        BOEING           737-824  0.0573826  0.1539737
## 646                        AIRBUS          A320-232  0.0573826  0.9237287
## 648              AIRBUS INDUSTRIE          A319-114  0.0573826  0.0936008
## 649                        AIRBUS          A320-232  0.0573826  0.9237287
## 650                        BOEING          A320-232  0.0573826  0.1539737
## 651                        BOEING           737-7H4  0.0573826  0.0181346
## 652                        BOEING           757-222  0.0573826  0.5916775
## 654                BOMBARDIER INC        CL-600-2D24  0.0573826 -0.6610610
## 655             MCDONNELL DOUGLAS    DC-9-83(MD-83)  0.0573826  0.5011181
## 656                        AIRBUS          A320-214  0.0573826  0.6520505
## 657                        BOEING          A320-232  0.0573826  0.1539737
## 658                        BOEING           767-332  0.0573826  2.8858493
## 659                        BOEING           737-7H4  0.0573826  0.0181346
## 660                        AIRBUS          A320-232  0.0573826  0.9237287
## 661              AIRBUS INDUSTRIE          A321-211  0.0573826  0.9086355
## 662                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 663                        BOEING          A320-232  0.0573826  0.1539737
## 664                       EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 665                        BOEING           767-223  0.0573826  1.7538567
## 666                        BOEING           737-824  0.0573826  0.1539737
## 667              AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 668                        AIRBUS          A320-232  0.0573826  0.9237287
```

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## 669            BOMBARDIER INC    CL-600-2D24    0.0573826 -0.6610610
## 670          AIRBUS INDUSTRIE       A320-232    0.0573826  0.9237287
## 671                    BOEING        737-832    0.0573826  0.7577031
## 672                    BOEING       A320-232    0.0573826  0.1539737
## 673                   EMBRAER     EMB-145XR    0.0573826 -1.2647904
## 674 MCDONNELL DOUGLAS AIRCRAFT CO      MD-88    0.0573826  0.0483211
## 675                    AIRBUS       A320-232    0.0573826  0.9237287
## 676            BOMBARDIER INC    CL-600-2D24    0.0573826 -0.6610610
## 677                    AIRBUS       A319-114    0.0573826  0.0936008
## 678                    BOEING       A320-232    0.0573826  0.1539737
## 680          AIRBUS INDUSTRIE       A320-232    0.0573826  0.9237287
## 682                    BOEING        737-824    0.0573826  0.1539737
## 683            BOMBARDIER INC    CL-600-2D24    0.0573826 -0.6610610
## 684                    BOEING        737-724    0.0573826  0.1539737
## 686            BOMBARDIER INC    CL-600-2B19    0.0573826 -1.2647904
## 687                    BOEING        757-232    0.0573826  0.5916775
## 689                    BOEING        757-222    0.0573826  0.5916775
## 690            BOMBARDIER INC    CL-600-2B19    0.0573826 -1.2647904
## 691                    BOEING        737-824    0.0573826  0.1539737
## 693                   EMBRAER     EMB-145LR    0.0573826 -1.2647904
## 694                    BOEING        737-7H4    0.0573826  0.0181346
## 695                    BOEING        737-724    0.0573826  0.1539737
## 696                    BOEING       A320-232    0.0573826  0.1539737
## 697                    CESSNA           172N -11.5529141 -2.0345454
## 698            BOMBARDIER INC    CL-600-2D24    0.0573826 -0.6610610
## 699          AIRBUS INDUSTRIE       A320-232    0.0573826  0.9237287
## 700                    BOEING        737-832    0.0573826  0.7577031
## 702                    BOEING        737-824    0.0573826  0.1539737
## 703         MCDONNELL DOUGLAS  DC-9-82(MD-82)   0.0573826  0.5011181
## 704                    AIRBUS       A320-232    0.0573826  0.9237287
## 706                    AIRBUS       A320-232    0.0573826  0.9237287
## 707                    BOEING       A320-232    0.0573826  0.1539737
## 709                    AIRBUS       A320-232    0.0573826  0.9237287
## 710                    BOEING        737-7H4    0.0573826  0.0181346
## 711          AIRBUS INDUSTRIE       A320-232    0.0573826  0.9237287
## 712                    BOEING        757-231    0.0573826  0.5916775
## 713                    BOEING       A320-232    0.0573826  0.1539737
## 714          AIRBUS INDUSTRIE       A320-232    0.0573826  0.9237287
## 715                    BOEING        737-724    0.0573826  0.1539737
## 716                    BOEING        737-824    0.0573826  0.1539737
## 717                    BOEING        737-824    0.0573826  0.1539737
## 719                    AIRBUS       A320-232    0.0573826  0.9237287
## 720                    BOEING       A320-232    0.0573826  0.1539737
## 721                    AIRBUS       A320-232    0.0573826  0.9237287
## 722                   EMBRAER     EMB-145XR    0.0573826 -1.2647904
## 723                    AIRBUS       A320-232    0.0573826  0.9237287
## 725                    BOEING       A320-232    0.0573826  0.1539737
## 726                   EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 727                    BOEING        737-824    0.0573826  0.1539737
## 729                    AIRBUS       A320-232    0.0573826  0.9237287
## 730                    AIRBUS       A320-211    0.0573826  0.6520505
## 737                    AIRBUS       A320-232    0.0573826  0.9237287
## 738                   EMBRAER     EMB-145LR    0.0573826 -1.2647904
## 739            BOMBARDIER INC    CL-600-2C10    0.0573826 -0.8874595
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## 743                          BOEING     737-824   0.0573826   0.1539737
## 744                        CANADAIR  CL-600-2B19   0.0573826  -1.2647904
## 745                         EMBRAER   EMB-145LR   0.0573826  -1.2647904
## 746              CIRRUS DESIGN CORP         SR22 -11.5529141  -2.0345454
## 747                          BOEING     757-232   0.0573826   0.5916775
## 748                          BOEING    A320-232   0.0573826   0.1539737
## 749                          AIRBUS    A320-232   0.0573826   0.9237287
## 750                          AIRBUS    A320-232   0.0573826   0.9237287
## 751                          AIRBUS    A319-114   0.0573826   0.0936008
## 752                          BOEING     717-200   0.0573826  -0.5855948
## 753                          BOEING    A320-232   0.0573826   0.1539737
## 754                          BOEING     737-8H4   0.0573826   0.0181346
## 755                          BOEING     737-7H4   0.0573826   0.0181346
## 756                          BOEING    A320-232   0.0573826   0.1539737
## 757                          AIRBUS    A320-232   0.0573826   0.9237287
## 758                          AIRBUS    A319-114   0.0573826   0.0936008
## 759                          BOEING     757-2Q8   0.0573826   0.5916775
## 760                          BOEING    A320-232   0.0573826   0.1539737
## 761                AIRBUS INDUSTRIE    A320-211   0.0573826   0.6520505
## 762                          BOEING     757-224   0.0573826   0.5916775
## 763                          BOEING    A320-232   0.0573826   0.1539737
## 764                AIRBUS INDUSTRIE    A319-131   0.0573826   0.6067708
## 765                          AIRBUS    A319-114   0.0573826   0.0936008
## 766                          BOEING     737-4B7   0.0573826   0.1539737
## 767                         EMBRAER   EMB-145LR   0.0573826  -1.2647904
## 768                         EMBRAER   EMB-145LR   0.0573826  -1.2647904
## 769                          BOEING    A320-232   0.0573826   0.1539737
## 770                         EMBRAER   EMB-145XR   0.0573826  -1.2647904
## 771                AIRBUS INDUSTRIE    A319-132   0.0573826   0.6067708
## 772                AIRBUS INDUSTRIE    A320-232   0.0573826   0.9237287
## 773                         EMBRAER   EMB-145LR   0.0573826  -1.2647904
## 774                AIRBUS INDUSTRIE    A320-232   0.0573826   0.9237287
## 775                          BOEING     757-222   0.0573826   0.5916775
## 776                          BOEING   737-924ER   0.0573826   0.7878896
## 777                          BOEING    A320-232   0.0573826   0.1539737
## 778                AIRBUS INDUSTRIE    A320-232   0.0573826   0.9237287
## 779                         EMBRAER   EMB-145LR   0.0573826  -1.2647904
## 780                          BOEING     737-724   0.0573826   0.1539737
## 781                          BOEING     757-222   0.0573826   0.5916775
## 782                          BOEING    A320-232   0.0573826   0.1539737
## 784                          BOEING     737-824   0.0573826   0.1539737
## 785    MCDONNELL DOUGLAS AIRCRAFT CO       MD-88   0.0573826   0.0483211
## 786                          BOEING    A320-232   0.0573826   0.1539737
## 787                          BOEING     737-890   0.0573826   0.1539737
## 788                AIRBUS INDUSTRIE    A319-114   0.0573826   0.0936008
## 789                          BOEING     767-223   0.0573826   1.7538567
## 790                  BARKER JACK L  ZODIAC 601HDS -11.5529141  -2.0647319
## 791                          BOEING     757-232   0.0573826   0.5916775
## 792                          BOEING     757-222   0.0573826   0.5916775
## 793                          BOEING     767-223   0.0573826   1.7538567
## 794                          AIRBUS    A320-232   0.0573826   0.9237287
## 795                  BOMBARDIER INC  CL-600-2B19   0.0573826  -1.2647904
## 796                          BOEING     737-7H4   0.0573826   0.0181346
## 797    MCDONNELL DOUGLAS AIRCRAFT CO       MD-88   0.0573826   0.0483211
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## 798                                    BOEING           A320-232  0.0573826  0.1539737
## 799                                    AIRBUS           A320-232  0.0573826  0.9237287
## 800                                   EMBRAER   ERJ 190-100 IGW   0.0573826 -1.7930536
## 801                 AIRBUS INDUSTRIE           A320-212  0.0573826  0.6520505
## 802                                    BOEING            737-832  0.0573826  0.7577031
## 803                                    AIRBUS           A320-232  0.0573826  0.9237287
## 804                                    AIRBUS           A320-232  0.0573826  0.9237287
## 805                                   EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 806                                   EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 807                                   EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 808                                    AIRBUS           A320-232  0.0573826  0.9237287
## 809                                    BOEING            737-824  0.0573826  0.1539737
## 810                                    BOEING            737-824  0.0573826  0.1539737
## 811                                    BOEING            737-824  0.0573826  0.1539737
## 812                                   EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 813                                   EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 815                                    BOEING            767-223  0.0573826  1.7538567
## 816                                    BOEING            757-231  0.0573826  0.5916775
## 817                 AIRBUS INDUSTRIE           A320-212  0.0573826  0.6520505
## 818                                    BOEING           A320-232  0.0573826  0.1539737
## 819                                    AIRBUS           A320-214  0.0573826  0.6520505
## 821                                    BOEING            757-223  0.0573826  0.5916775
## 822                 AIRBUS INDUSTRIE           A320-232  0.0573826  0.9237287
## 823                                    BOEING           A320-232  0.0573826  0.1539737
## 824                 AIRBUS INDUSTRIE           A320-211  0.0573826  0.6520505
## 825                                    BOEING            737-724  0.0573826  0.1539737
## 826                                    BOEING            737-824  0.0573826  0.1539737
## 828                                    AIRBUS           A320-232  0.0573826  0.9237287
## 829                                    BOEING            737-724  0.0573826  0.1539737
## 831                                   EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 832                                    AIRBUS           A320-232  0.0573826  0.9237287
## 833                 AIRBUS INDUSTRIE           A320-232  0.0573826  0.9237287
## 834                                   EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 835                                    AIRBUS           A320-232  0.0573826  0.9237287
## 837                                    AIRBUS           A320-232  0.0573826  0.9237287
## 839                                    BOEING            737-7H4  0.0573826  0.0181346
## 840                                    AIRBUS           A320-232  0.0573826  0.9237287
## 841                  BOMBARDIER INC          CL-600-2B19  0.0573826 -1.2647904
## 843                                    BOEING           A320-232  0.0573826  0.1539737
## 844                                    AIRBUS           A321-231  0.0573826  3.6254178
## 845                                    AIRBUS           A320-232  0.0573826  0.9237287
## 846                 AIRBUS INDUSTRIE           A320-232  0.0573826  0.9237287
## 848                                    BOEING           A320-232  0.0573826  0.1539737
## 849                 AIRBUS INDUSTRIE           A319-112  0.0573826  0.6067708
## 850                 AIRBUS INDUSTRIE           A320-232  0.0573826  0.9237287
## 852  MCDONNELL DOUGLAS AIRCRAFT CO              MD-88  0.0573826  0.0483211
## 853                                    AIRBUS           A321-231  0.0573826  3.6254178
## 855                                    BOEING            717-200  0.0573826 -0.5855948
## 856                  BOMBARDIER INC          CL-600-2C10  0.0573826 -0.8874595
## 857                                   EMBRAER          EMB-145XR  0.0573826 -1.2647904
## 858                                    BOEING            767-223  0.0573826  1.7538567
## 859                                    AIRBUS           A320-214  0.0573826  0.6520505
## 860                                   EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 861                                    AIRBUS           A320-212  0.0573826  0.6520505
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## 862                          AIRBUS        A320-232  0.0573826   0.9237287
## 863                         EMBRAER      EMB-145XR  0.0573826  -1.2647904
## 864                AIRBUS INDUSTRIE        A320-232  0.0573826   0.9237287
## 865                          BOEING         737-824  0.0573826   0.1539737
## 866                          BOEING        A320-232  0.0573826   0.1539737
## 867                          AIRBUS        A320-232  0.0573826   0.9237287
## 868                          BOEING        A320-232  0.0573826   0.1539737
## 869                          BOEING        A320-232  0.0573826   0.1539737
## 870                         EMBRAER      EMB-145XR  0.0573826  -1.2647904
## 871                          BOEING         737-824  0.0573826   0.1539737
## 872                          BOEING         737-832  0.0573826   0.7577031
## 873                          AIRBUS        A320-214  0.0573826   0.6520505
## 874  MCDONNELL DOUGLAS AIRCRAFT CO           MD-88  0.0573826   0.0483211
## 875                          BOEING         757-224  0.0573826   0.5916775
## 876                          BOEING         737-824  0.0573826   0.1539737
## 877                AIRBUS INDUSTRIE        A320-232  0.0573826   0.9237287
## 878                          BOEING        A320-232  0.0573826   0.1539737
## 879                          AIRBUS        A319-114  0.0573826   0.0936008
## 880                          AIRBUS        A320-232  0.0573826   0.9237287
## 881  MCDONNELL DOUGLAS AIRCRAFT CO           MD-88  0.0573826   0.0483211
## 882                          BOEING        A320-232  0.0573826   0.1539737
## 883                          BOEING         737-732  0.0573826   0.1539737
## 884                          BOEING         737-824  0.0573826   0.1539737
## 885                          BOEING         717-200  0.0573826  -0.5855948
## 886                         EMBRAER      EMB-145LR  0.0573826  -1.2647904
## 887                         EMBRAER  ERJ 190-100 IGW  0.0573826  -1.7930536
## 888                          BOEING         737-3H4  0.0573826   0.1539737
## 891                          BOEING        A320-232  0.0573826   0.1539737
## 892                         EMBRAER      EMB-145XR  0.0573826  -1.2647904
## 893                          BOEING         737-824  0.0573826   0.1539737
## 894                          BOEING         737-7H4  0.0573826   0.0181346
## 895                         EMBRAER  ERJ 190-100 IGW  0.0573826  -1.7930536
## 896                         EMBRAER      EMB-145XR  0.0573826  -1.2647904
## 897                          BOEING         737-832  0.0573826   0.7577031
## 898                          BOEING        A320-232  0.0573826   0.1539737
## 899                          BOEING         737-7H4  0.0573826   0.0181346
## 900                          BOEING        A320-232  0.0573826   0.1539737
## 901                          BOEING         737-832  0.0573826   0.7577031
## 902                          BOEING         737-724  0.0573826   0.1539737
## 903                         EMBRAER  ERJ 190-100 IGW  0.0573826  -1.7930536
## 904                         EMBRAER  ERJ 190-100 IGW  0.0573826  -1.7930536
## 905                          BOEING         737-824  0.0573826   0.1539737
## 906                          BOEING         757-224  0.0573826   0.5916775
## 907                         EMBRAER      EMB-145LR  0.0573826  -1.2647904
## 910  MCDONNELL DOUGLAS AIRCRAFT CO           MD-88  0.0573826   0.0483211
## 911                          AIRBUS        A320-232  0.0573826   0.9237287
## 913                         EMBRAER      EMB-145XR  0.0573826  -1.2647904
## 914                          AIRBUS        A320-214  0.0573826   0.6520505
## 915                          AIRBUS        A320-232  0.0573826   0.9237287
## 916                          BOEING         767-223  0.0573826   1.7538567
## 917                          AIRBUS        A320-232  0.0573826   0.9237287
## 918                          AIRBUS        A320-232  0.0573826   0.9237287
## 919                        CANADAIR      CL-600-2B19  0.0573826  -1.2647904
## 920                          BOEING        A320-232  0.0573826   0.1539737
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## 921                     AIRBUS            A320-232 0.0573826  0.9237287
## 923                     BOEING             757-251 0.0573826  0.5916775
## 924                     AIRBUS            A320-232 0.0573826  0.9237287
## 926                     BOEING             757-224 0.0573826  0.5916775
## 927           AIRBUS INDUSTRIE            A319-114 0.0573826  0.0936008
## 928           AIRBUS INDUSTRIE            A319-131 0.0573826  0.6067708
## 929                     BOEING            A320-232 0.0573826  0.1539737
## 930                     BOEING             757-222 0.0573826  0.5916775
## 931                    EMBRAER           EMB-145XR 0.0573826 -1.2647904
## 932                    EMBRAER     ERJ 190-100 IGW 0.0573826 -1.7930536
## 934                     BOEING            A320-232 0.0573826  0.1539737
## 935                     AIRBUS            A319-114 0.0573826  0.0936008
## 936 MCDONNELL DOUGLAS AIRCRAFT CO            MD-88 0.0573826  0.0483211
## 937           AIRBUS INDUSTRIE            A321-211 0.0573826  0.9086355
## 939                     BOEING             737-924 0.0573826  0.7878896
## 940                     BOEING             757-222 0.0573826  0.5916775
## 941             BOMBARDIER INC          CL-600-2D24 0.0573826 -0.6610610
## 942                     BOEING            A320-232 0.0573826  0.1539737
## 943           AIRBUS INDUSTRIE            A320-232 0.0573826  0.9237287
## 944                    EMBRAER           EMB-145XR 0.0573826 -1.2647904
## 945                    EMBRAER     ERJ 190-100 IGW 0.0573826 -1.7930536
## 946                     BOEING             757-2Q8 0.0573826  0.5916775
## 947                     BOEING            A320-232 0.0573826  0.1539737
## 948                     BOEING             757-231 0.0573826  0.5916775
## 949                     AIRBUS            A320-232 0.0573826  0.9237287
## 950                     AIRBUS            A320-232 0.0573826  0.9237287
## 951                    EMBRAER           EMB-145LR 0.0573826 -1.2647904
## 952                     AIRBUS            A320-232 0.0573826  0.9237287
## 953                     AIRBUS            A321-211 0.0573826  0.9086355
## 954                    EMBRAER           EMB-145LR 0.0573826 -1.2647904
## 955                     BOEING             757-232 0.0573826  0.5916775
## 956             BOMBARDIER INC          CL-600-2D24 0.0573826 -0.6610610
## 957                     BOEING             757-222 0.0573826  0.5916775
## 958           AIRBUS INDUSTRIE            A320-232 0.0573826  0.9237287
## 959                     BOEING            A320-232 0.0573826  0.1539737
## 960                     BOEING            A320-232 0.0573826  0.1539737
## 961                    EMBRAER           EMB-145XR 0.0573826 -1.2647904
## 962                     AIRBUS            A320-232 0.0573826  0.9237287
## 963                     BOEING             737-7H4 0.0573826  0.0181346
## 964                     BOEING             757-222 0.0573826  0.5916775
## 965                    EMBRAER           EMB-145LR 0.0573826 -1.2647904
## 966                     BOEING             757-224 0.0573826  0.5916775
## 967                    EMBRAER           EMB-145XR 0.0573826 -1.2647904
## 968                     BOEING            A320-232 0.0573826  0.1539737
## 969                     BOEING             737-7H4 0.0573826  0.0181346
## 971                     BOEING             757-224 0.0573826  0.5916775
## 972                    EMBRAER           EMB-145XR 0.0573826 -1.2647904
## 973             BOMBARDIER INC          CL-600-2B19 0.0573826 -1.2647904
## 974                     BOEING             767-223 0.0573826  1.7538567
## 975                    EMBRAER     ERJ 190-100 IGW 0.0573826 -1.7930536
## 976                     AIRBUS            A320-232 0.0573826  0.9237287
## 977             BOMBARDIER INC          CL-600-2D24 0.0573826 -0.6610610
## 978                     BOEING             737-824 0.0573826  0.1539737
## 979                     BOEING             757-232 0.0573826  0.5916775
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## 980           AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 981                   BOEING         737-832   0.0573826  0.7577031
## 984                   EMBRAER        EMB-145LR 0.0573826 -1.2647904
## 985                   AIRBUS         A320-232  0.0573826  0.9237287
## 987           AIRBUS INDUSTRIE       A320-212  0.0573826  0.6520505
## 988                   BOEING         737-824   0.0573826  0.1539737
## 989            BOMBARDIER INC        CL-600-2D24 0.0573826 -0.6610610
## 990                   EMBRAER        EMB-145XR 0.0573826 -1.2647904
## 991            BOMBARDIER INC        CL-600-2C10 0.0573826 -0.8874595
## 992            BOMBARDIER INC        CL-600-2B19 0.0573826 -1.2647904
## 993                   BOEING         A320-232  0.0573826  0.1539737
## 994                   BOEING         A320-232  0.0573826  0.1539737
## 995           AIRBUS INDUSTRIE       A319-114  0.0573826  0.0936008
## 996           AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 997                   EMBRAER        EMB-145LR 0.0573826 -1.2647904
## 998                   BOEING         737-732   0.0573826  0.1539737
## 1000                  BOEING         A320-232  0.0573826  0.1539737
## 1001                  BOEING         757-2Q8   0.0573826  0.5916775
## 1002          AIRBUS INDUSTRIE       A319-131  0.0573826  0.6067708
## 1003                  BOEING         A320-232  0.0573826  0.1539737
## 1004                  BOEING         757-232   0.0573826  0.5916775
## 1005          MCDONNELL DOUGLAS      DC-9-82(MD-82) 0.0573826 0.5011181
## 1006          AIRBUS INDUSTRIE       A321-211  0.0573826  0.9086355
## 1007                  BOEING         A320-232  0.0573826  0.1539737
## 1008                  EMBRAER        EMB-145XR 0.0573826 -1.2647904
## 1009          AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 1010          AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 1013                  BOEING         757-223   0.0573826  0.5916775
## 1014                  AIRBUS         A320-214  0.0573826  0.6520505
## 1016                  BOEING         A320-232  0.0573826  0.1539737
## 1017                  BOEING         757-224   0.0573826  0.5916775
## 1018                  BOEING         737-824   0.0573826  0.1539737
## 1020                  AIRBUS         A320-232  0.0573826  0.9237287
## 1021                  BOEING         A320-232  0.0573826  0.1539737
## 1022                  EMBRAER        EMB-145LR 0.0573826 -1.2647904
## 1024                  BOEING         737-924ER 0.0573826  0.7878896
## 1026                  AIRBUS         A320-232  0.0573826  0.9237287
## 1028                  BOEING         737-724   0.0573826  0.1539737
## 1029                  BOEING         737-7H4   0.0573826  0.0181346
## 1030           BOMBARDIER INC        CL-600-2B19 0.0573826 -1.2647904
## 1031          AIRBUS INDUSTRIE       A319-131  0.0573826  0.6067708
## 1032           BOMBARDIER INC        CL-600-2C10 0.0573826 -0.8874595
## 1033                  BOEING         A320-232  0.0573826  0.1539737
## 1034           BOMBARDIER INC        CL-600-2C10 0.0573826 -0.8874595
## 1035                  BOEING         737-401   0.0573826  0.1539737
## 1036                  AIRBUS         A320-232  0.0573826  0.9237287
## 1037                  BOEING         737-824   0.0573826  0.1539737
## 1038                  BOEING         A320-232  0.0573826  0.1539737
## 1040           BOMBARDIER INC        CL-600-2D24 0.0573826 -0.6610610
## 1042          MCDONNELL DOUGLAS      DC-9-82(MD-82) 0.0573826 0.5011181
## 1044 MCDONNELL DOUGLAS AIRCRAFT CO     MD-88   0.0573826  0.0483211
## 1046          AIRBUS INDUSTRIE       A320-211  0.0573826  0.6520505
## 1047                  AIRBUS         A321-231  0.0573826  3.6254178
## 1048                  BOEING         737-7H4   0.0573826  0.0181346
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## 1049                         BOEING        757-231  0.0573826  0.5916775
## 1050                        EMBRAER      EMB-145XR  0.0573826 -1.2647904
## 1051                         BOEING       A320-232  0.0573826  0.1539737
## 1053                         BOEING        737-832  0.0573826  0.7577031
## 1054                         BOEING        737-832  0.0573826  0.7577031
## 1055                         AIRBUS       A319-131  0.0573826  0.6067708
## 1056                         BOEING        737-832  0.0573826  0.7577031
## 1057                         BOEING        737-832  0.0573826  0.7577031
## 1058 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88  0.0573826  0.0483211
## 1059                        EMBRAER      EMB-145XR  0.0573826 -1.2647904
## 1061                 BOMBARDIER INC     CL-600-2B19  0.0573826 -1.2647904
## 1063                 BOMBARDIER INC     CL-600-2B19  0.0573826 -1.2647904
## 1065                         BOEING        737-824  0.0573826  0.1539737
## 1068               AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 1069                         BOEING        737-724  0.0573826  0.1539737
## 1071                         BOEING        737-824  0.0573826  0.1539737
## 1076                         BOEING       A320-232  0.0573826  0.1539737
## 1077                         AIRBUS       A320-214  0.0573826  0.6520505
## 1078                         BOEING       A320-232  0.0573826  0.1539737
## 1079                 BOMBARDIER INC     CL-600-2B19  0.0573826 -1.2647904
## 1080                         BOEING        737-724  0.0573826  0.1539737
## 1085                         AIRBUS       A320-232  0.0573826  0.9237287
## 1086                         BOEING        737-824  0.0573826  0.1539737
## 1091                        EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 1092                        EMBRAER      EMB-145XR  0.0573826 -1.2647904
## 1093                         BOEING       A320-232  0.0573826  0.1539737
## 1096                         BOEING       A320-232  0.0573826  0.1539737
## 1097                         AIRBUS       A320-232  0.0573826  0.9237287
## 1098               AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 1099                        EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 1100                         BOEING        767-223  0.0573826  1.7538567
## 1101                        EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 1103                        EMBRAER      EMB-145XR  0.0573826 -1.2647904
## 1104                        EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 1106                        EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 1107                        EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 1108               AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 1109                        EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 1110                         BOEING       A320-232  0.0573826  0.1539737
## 1111                         CESSNA            150 -11.5529141 -2.0647319
## 1112                         BOEING       A320-232  0.0573826  0.1539737
## 1113                         BOEING       A320-232  0.0573826  0.1539737
## 1114               AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 1115                 BOMBARDIER INC     CL-600-2B19  0.0573826 -1.2647904
## 1116                        EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 1117                         AIRBUS       A320-232  0.0573826  0.9237287
## 1118                         BOEING        757-222  0.0573826  0.5916775
## 1119                         BOEING       A320-232  0.0573826  0.1539737
## 1120                         BOEING        717-200  0.0573826 -0.5855948
## 1121                         BOEING        737-8H4  0.0573826  0.0181346
## 1122                        EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 1123               AIRBUS INDUSTRIE       A319-131  0.0573826  0.6067708
## 1124                         BOEING       A320-232  0.0573826  0.1539737
## 1125                         AIRBUS       A320-232  0.0573826  0.9237287
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## 1126                        BOEING        A320-232  0.0573826  0.1539737
## 1127         AIRBUS INDUSTRIE              A320-212  0.0573826  0.6520505
## 1128                        BOEING         757-224   0.0573826  0.5916775
## 1129                       EMBRAER       EMB-145XR   0.0573826 -1.2647904
## 1130                        BOEING        A320-232   0.0573826  0.1539737
## 1131                        AIRBUS        A320-232   0.0573826  0.9237287
## 1132         AIRBUS INDUSTRIE              A319-112  0.0573826  0.6067708
## 1133          BOMBARDIER INC             CL-600-2D24 0.0573826 -0.6610610
## 1134                        BOEING         737-401   0.0573826  0.1539737
## 1135                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 1136         AIRBUS INDUSTRIE              A319-132  0.0573826  0.6067708
## 1137                        BOEING        A320-232   0.0573826  0.1539737
## 1138                       EMBRAER       EMB-145XR   0.0573826 -1.2647904
## 1139         AIRBUS INDUSTRIE              A320-232  0.0573826  0.9237287
## 1140         AIRBUS INDUSTRIE              A319-131  0.0573826  0.6067708
## 1141                        BOEING        A320-232   0.0573826  0.1539737
## 1142                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 1143         AIRBUS INDUSTRIE              A319-114  0.0573826  0.0936008
## 1144         AIRBUS INDUSTRIE              A320-232  0.0573826  0.9237287
## 1145                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 1146                        BOEING         737-832   0.0573826  0.7577031
## 1147                        AIRBUS        A320-211   0.0573826  0.6520505
## 1148                       EMBRAER     ERJ 190-100 IGW 0.0573826 -1.7930536
## 1149                        BOEING         757-232   0.0573826  0.5916775
## 1150                        AIRBUS        A320-232   0.0573826  0.9237287
## 1151 MCDONNELL DOUGLAS AIRCRAFT CO          MD-88    0.0573826  0.0483211
## 1152                        AIRBUS        A320-214   0.0573826  0.6520505
## 1153                        BOEING         737-7H4   0.0573826  0.0181346
## 1154                        BOEING        A320-232   0.0573826  0.1539737
## 1155                        BOEING        737-924ER  0.0573826  0.7878896
## 1156                        BOEING         737-824   0.0573826  0.1539737
## 1157                        BOEING        A320-232   0.0573826  0.1539737
## 1158                        BOEING         737-724   0.0573826  0.1539737
## 1159                        BOEING        A320-232   0.0573826  0.1539737
## 1160                        BOEING        A320-232   0.0573826  0.1539737
## 1161                        BOEING        A320-232   0.0573826  0.1539737
## 1162 MCDONNELL DOUGLAS CORPORATION          MD-88    0.0573826  0.0483211
## 1163                        BOEING         757-231   0.0573826  0.5916775
## 1164                        BOEING         717-200   0.0573826 -0.5855948
## 1165                        BOEING         757-2Q8   0.0573826  0.5916775
## 1166                        AIRBUS        A320-232   0.0573826  0.9237287
## 1167                        AIRBUS        A320-214   0.0573826  0.6520505
## 1168                        BOEING         757-2Q8   0.0573826  0.5916775
## 1170                        AIRBUS        A320-232   0.0573826  0.9237287
## 1171                        AIRBUS        A320-232   0.0573826  0.9237287
## 1172          BOMBARDIER INC             CL-600-2B19 0.0573826 -1.2647904
## 1173                        BOEING         757-324   0.0573826  2.0557214
## 1174                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 1175                        BOEING        A320-232   0.0573826  0.1539737
## 1176                        BOEING         737-7H4   0.0573826  0.0181346
## 1177         AIRBUS INDUSTRIE              A320-211  0.0573826  0.6520505
## 1178                        BOEING         737-724   0.0573826  0.1539737
## 1179                       EMBRAER       EMB-145XR   0.0573826 -1.2647904
## 1180                        BOEING        A320-232   0.0573826  0.1539737
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## 1181                         EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 1182                          BOEING         A320-232  0.0573826  0.1539737
## 1183                          AIRBUS         A320-232  0.0573826  0.9237287
## 1184                          BOEING          737-832  0.0573826  0.7577031
## 1185 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88  0.0573826  0.0483211
## 1186                          BOEING         A320-232  0.0573826  0.1539737
## 1187                          BOEING          717-200  0.0573826 -0.5855948
## 1188                         EMBRAER         EMB-145XR  0.0573826 -1.2647904
## 1189                          BOEING         A320-232  0.0573826  0.1539737
## 1190                         EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 1191              AIRBUS INDUSTRIE         A320-212  0.0573826  0.6520505
## 1192                         EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 1193              AIRBUS INDUSTRIE         A320-211  0.0573826  0.6520505
## 1194                          BOEING         A320-232  0.0573826  0.1539737
## 1195                         EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 1196                          AIRBUS         A320-232  0.0573826  0.9237287
## 1197               BOMBARDIER INC       CL-600-2B19  0.0573826 -1.2647904
## 1198                          BOEING          757-232  0.0573826  0.5916775
## 1199                          BOEING          737-824  0.0573826  0.1539737
## 1200                          BOEING         A320-232  0.0573826  0.1539737
## 1201                          AIRBUS         A319-114  0.0573826  0.0936008
## 1202                          BOEING          757-224  0.0573826  0.5916775
## 1203                         EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 1204                          BOEING          737-824  0.0573826  0.1539737
## 1205               BOMBARDIER INC       CL-600-2D24  0.0573826 -0.6610610
## 1206                          BOEING         A320-232  0.0573826  0.1539737
## 1207                          AIRBUS         A320-232  0.0573826  0.9237287
## 1208                          BOEING        737-924ER  0.0573826  0.7878896
## 1209                         EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 1210              AIRBUS INDUSTRIE         A320-232  0.0573826  0.9237287
## 1211                         EMBRAER         EMB-145XR  0.0573826 -1.2647904
## 1212                          BOEING         A320-232  0.0573826  0.1539737
## 1213                          BOEING          757-251  0.0573826  0.5916775
## 1214              AIRBUS INDUSTRIE         A320-232  0.0573826  0.9237287
## 1215                          BOEING         A320-232  0.0573826  0.1539737
## 1216                          BOEING          757-231  0.0573826  0.5916775
## 1217              AIRBUS INDUSTRIE         A320-212  0.0573826  0.6520505
## 1218                          AIRBUS         A330-243  0.0573826  3.5952314
## 1219              AIRBUS INDUSTRIE         A319-114  0.0573826  0.0936008
## 1220              AIRBUS INDUSTRIE         A320-232  0.0573826  0.9237287
## 1221                         EMBRAER         EMB-145XR  0.0573826 -1.2647904
## 1222              AIRBUS INDUSTRIE         A320-232  0.0573826  0.9237287
## 1223                          BOEING          737-724  0.0573826  0.1539737
## 1224                          BOEING          757-324  0.0573826  2.0557214
## 1225              AIRBUS INDUSTRIE         A320-232  0.0573826  0.9237287
## 1226                          AIRBUS         A320-232  0.0573826  0.9237287
## 1227               BOMBARDIER INC       CL-600-2B19  0.0573826 -1.2647904
## 1228                          AIRBUS         A320-232  0.0573826  0.9237287
## 1229                          BOEING         A320-232  0.0573826  0.1539737
## 1230                          AIRBUS         A320-232  0.0573826  0.9237287
## 1231                          AIRBUS         A320-232  0.0573826  0.9237287
## 1232                          AIRBUS         A320-232  0.0573826  0.9237287
## 1233                          BOEING          737-7BD  0.0573826  0.1539737
## 1235                          BOEING          737-3H4  0.0573826  0.1539737
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## 1236              BOMBARDIER INC      CL-600-2B19   0.0573826 -1.2647904
## 1237                     BOEING          A320-232   0.0573826  0.1539737
## 1238                     BOEING           737-7H4   0.0573826  0.0181346
## 1239                     BOEING           737-824   0.0573826  0.1539737
## 1240              BOMBARDIER INC      CL-600-2B19   0.0573826 -1.2647904
## 1241                     BOEING          A320-232   0.0573826  0.1539737
## 1242            AIRBUS INDUSTRIE        A320-232   0.0573826  0.9237287
## 1243            AIRBUS INDUSTRIE        A320-232   0.0573826  0.9237287
## 1244                     AIRBUS          A321-231   0.0573826  3.6254178
## 1245                     AIRBUS          A320-232   0.0573826  0.9237287
## 1246 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88   0.0573826  0.0483211
## 1247                     BOEING          A320-232   0.0573826  0.1539737
## 1248            AIRBUS INDUSTRIE        A321-211   0.0573826  0.9086355
## 1249 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88   0.0573826  0.0483211
## 1250                    EMBRAER   ERJ 190-100 IGW   0.0573826 -1.7930536
## 1251              BOMBARDIER INC      CL-600-2B19   0.0573826 -1.2647904
## 1252                     BOEING          A320-232   0.0573826  0.1539737
## 1253                     AIRBUS          A320-214   0.0573826  0.6520505
## 1254                    EMBRAER        EMB-145LR   0.0573826 -1.2647904
## 1255                     BOEING          767-223   0.0573826  1.7538567
## 1257                    EMBRAER        EMB-145XR   0.0573826 -1.2647904
## 1258                     AIRBUS          A320-232   0.0573826  0.9237287
## 1259                    EMBRAER        EMB-145LR   0.0573826 -1.2647904
## 1260                    EMBRAER        EMB-145XR   0.0573826 -1.2647904
## 1261            AIRBUS INDUSTRIE        A319-114   0.0573826  0.0936008
## 1263                     AIRBUS          A320-232   0.0573826  0.9237287
## 1264                    EMBRAER        EMB-145LR   0.0573826 -1.2647904
## 1265 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88   0.0573826  0.0483211
## 1266                     BOEING          757-222   0.0573826  0.5916775
## 1268                     BOEING          757-232   0.0573826  0.5916775
## 1269                     BOEING          A320-232   0.0573826  0.1539737
## 1270                     BOEING          A320-232   0.0573826  0.1539737
## 1272                     BOEING          757-222   0.0573826  0.5916775
## 1273                     BOEING          737-832   0.0573826  0.7577031
## 1274 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88   0.0573826  0.0483211
## 1275                     AIRBUS          A319-114   0.0573826  0.0936008
## 1276                     AIRBUS          A320-214   0.0573826  0.6520505
## 1277                     BOEING          757-224   0.0573826  0.5916775
## 1278                     BOEING        737-924ER   0.0573826  0.7878896
## 1279                     AIRBUS          A319-114   0.0573826  0.0936008
## 1280 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88   0.0573826  0.0483211
## 1281                     BOEING          737-732   0.0573826  0.1539737
## 1282                     BOEING          A320-232   0.0573826  0.1539737
## 1284                     BOEING          757-2Q8   0.0573826  0.5916775
## 1285                     BOEING          A320-232   0.0573826  0.1539737
## 1286           MCDONNELL DOUGLAS   DC-9-82(MD-82)   0.0573826  0.5011181
## 1287                    EMBRAER   ERJ 190-100 IGW   0.0573826 -1.7930536
## 1288                     AIRBUS          A320-214   0.0573826  0.6520505
## 1290           MCDONNELL DOUGLAS   DC-9-83(MD-83)   0.0573826  0.5011181
## 1291                     BOEING          737-824   0.0573826  0.1539737
## 1292                    EMBRAER        EMB-145LR   0.0573826 -1.2647904
## 1293                     BOEING          737-832   0.0573826  0.7577031
## 1294                     BOEING           737-7H4   0.0573826  0.0181346
## 1295                     BOEING           737-7H4   0.0573826  0.0181346
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## 1296                 BOMBARDIER INC      CL-600-2C10   0.0573826 -0.8874595
## 1297                        AIRBUS          A320-232   0.0573826  0.9237287
## 1298             MCDONNELL DOUGLAS    DC-9-82(MD-82)   0.0573826  0.5011181
## 1299                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 1300                        BOEING           737-724   0.0573826  0.1539737
## 1303                        BOEING           737-824   0.0573826  0.1539737
## 1304                       EMBRAER         EMB-145LR   0.0573826 -1.2647904
## 1305                        BOEING          A320-232   0.0573826  0.1539737
## 1306                        AIRBUS          A320-232   0.0573826  0.9237287
## 1308                        BOEING           757-324   0.0573826  2.0557214
## 1309                        CESSNA              172N -11.5529141 -2.0345454
## 1310                        BOEING           737-832   0.0573826  0.7577031
## 1311                        AIRBUS          A320-214   0.0573826  0.6520505
## 1312                        BOEING           737-7H4   0.0573826  0.0181346
## 1313                        AIRBUS          A320-232   0.0573826  0.9237287
## 1314                        BOEING           767-223   0.0573826  1.7538567
## 1315                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 1317                        BOEING          A320-232   0.0573826  0.1539737
## 1318                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 1319                        BOEING          A320-232   0.0573826  0.1539737
## 1320                        BOEING           717-200   0.0573826 -0.5855948
## 1322                        AIRBUS          A320-232   0.0573826  0.9237287
## 1323                 BOMBARDIER INC      CL-600-2C10   0.0573826 -0.8874595
## 1325 MCDONNELL DOUGLAS AIRCRAFT CO          MD-88   0.0573826  0.0483211
## 1327              AIRBUS INDUSTRIE          A319-114   0.0573826  0.0936008
## 1328              AIRBUS INDUSTRIE          A320-232   0.0573826  0.9237287
## 1329              AIRBUS INDUSTRIE          A321-211   0.0573826  0.9086355
## 1330                 BOMBARDIER INC      CL-600-2B19   0.0573826 -1.2647904
## 1331                       EMBRAER         EMB-145XR   0.0573826 -1.2647904
## 1332                        BOEING          A320-232   0.0573826  0.1539737
## 1333              AIRBUS INDUSTRIE          A320-232   0.0573826  0.9237287
## 1334                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 1335                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 1336                       EMBRAER    ERJ 190-100 IGW  0.0573826 -1.7930536
## 1338                        BOEING           757-232   0.0573826  0.5916775
## 1340                 BOMBARDIER INC      CL-600-2D24   0.0573826 -0.6610610
## 1341                        BOEING           757-2Q8   0.0573826  0.5916775
## 1342                        AIRBUS          A321-231   0.0573826  3.6254178
## 1343                       EMBRAER         EMB-145LR   0.0573826 -1.2647904
## 1344                        BOEING          A320-232   0.0573826  0.1539737
## 1346                       EMBRAER         EMB-145LR   0.0573826 -1.2647904
## 1347                 BOMBARDIER INC      CL-600-2D24   0.0573826 -0.6610610
## 1348                       EMBRAER         EMB-145LR   0.0573826 -1.2647904
## 1349                        BOEING          A320-232   0.0573826  0.1539737
## 1350              AIRBUS INDUSTRIE          A320-211   0.0573826  0.6520505
## 1351                 BOMBARDIER INC      CL-600-2B19   0.0573826 -1.2647904
## 1352                        BOEING         767-424ER   0.0573826  2.3123064
## 1353                        BOEING           757-224   0.0573826  0.5916775
## 1354                        BOEING           737-7H4   0.0573826  0.0181346
## 1356                        AIRBUS          A320-232   0.0573826  0.9237287
## 1357                        BOEING           737-824   0.0573826  0.1539737
## 1358              AIRBUS INDUSTRIE          A319-114   0.0573826  0.0936008
## 1359                        BOEING           757-224   0.0573826  0.5916775
## 1360              AIRBUS INDUSTRIE          A320-211   0.0573826  0.6520505
```

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## 1361                AIRBUS INDUSTRIE           A319-131  0.0573826  0.6067708
## 1362                AIRBUS INDUSTRIE           A319-114  0.0573826  0.0936008
## 1364                         BOEING             737-832  0.0573826  0.7577031
## 1366                        EMBRAER     ERJ 190-100 IGW  0.0573826 -1.7930536
## 1367                         BOEING             757-251  0.0573826  0.5916775
## 1368                 BOMBARDIER INC          CL-600-2C10  0.0573826 -0.8874595
## 1369                         BOEING             737-824  0.0573826  0.1539737
## 1370                AIRBUS INDUSTRIE           A320-212  0.0573826  0.6520505
## 1371                        EMBRAER          EMB-145XR  0.0573826 -1.2647904
## 1372                        EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 1374                         BOEING            A320-232  0.0573826  0.1539737
## 1375                         AIRBUS            A321-231  0.0573826  3.6254178
## 1376                         BOEING            A320-232  0.0573826  0.1539737
## 1377                         AIRBUS            A320-232  0.0573826  0.9237287
## 1378                         BOEING            A320-232  0.0573826  0.1539737
## 1379                AIRBUS INDUSTRIE           A319-114  0.0573826  0.0936008
## 1380                 BOMBARDIER INC          CL-600-2C10  0.0573826 -0.8874595
## 1381                         BOEING             767-223  0.0573826  1.7538567
## 1382                         BOEING            A320-232  0.0573826  0.1539737
## 1383                         AIRBUS            A320-232  0.0573826  0.9237287
## 1385                        EMBRAER     ERJ 190-100 IGW  0.0573826 -1.7930536
## 1387                         BOEING             737-832  0.0573826  0.7577031
## 1388                         BOEING            A320-232  0.0573826  0.1539737
## 1389                         BOEING             757-231  0.0573826  0.5916775
## 1390                         BOEING             757-231  0.0573826  0.5916775
## 1391                         BOEING             737-7Q8  0.0573826  0.1539737
## 1392                         BOEING             737-732  0.0573826  0.1539737
## 1393                        EMBRAER     ERJ 190-100 IGW  0.0573826 -1.7930536
## 1394                AIRBUS INDUSTRIE           A319-131  0.0573826  0.6067708
## 1395 MCDONNELL DOUGLAS AIRCRAFT CO            MD-88  0.0573826  0.0483211
## 1396                         AIRBUS            A320-214  0.0573826  0.6520505
## 1397           GULFSTREAM AEROSPACE             G1159B  0.0573826 -1.7628672
## 1398                         BOEING            A320-232  0.0573826  0.1539737
## 1399                         BOEING             717-200  0.0573826 -0.5855948
## 1400                         BOEING             757-224  0.0573826  0.5916775
## 1402                         AIRBUS            A320-232  0.0573826  0.9237287
## 1403                         BOEING             767-323  0.0573826  2.8858493
## 1404                         BOEING            A320-232  0.0573826  0.1539737
## 1405                         BOEING            A320-232  0.0573826  0.1539737
## 1406                         AIRBUS            A320-232  0.0573826  0.9237287
## 1407                         BOEING             737-832  0.0573826  0.7577031
## 1408                AIRBUS INDUSTRIE           A320-232  0.0573826  0.9237287
## 1409                         BOEING             757-222  0.0573826  0.5916775
## 1410                         BOEING             757-222  0.0573826  0.5916775
## 1411                         AIRBUS            A321-231  0.0573826  3.6254178
## 1412                AIRBUS INDUSTRIE           A320-232  0.0573826  0.9237287
## 1413                         BOEING             737-724  0.0573826  0.1539737
## 1414                 BOMBARDIER INC          CL-600-2B19  0.0573826 -1.2647904
## 1415                         AIRBUS            A320-232  0.0573826  0.9237287
## 1416                         BOEING            A320-232  0.0573826  0.1539737
## 1419                         BOEING            A320-232  0.0573826  0.1539737
## 1420                AIRBUS INDUSTRIE           A319-131  0.0573826  0.6067708
## 1421                         BOEING             737-4B7  0.0573826  0.1539737
## 1422                        EMBRAER     ERJ 190-100 IGW  0.0573826 -1.7930536
```

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## 1423              AIRBUS INDUSTRIE          A319-131  0.0573826  0.6067708
## 1425                       BOEING            737-832  0.0573826  0.7577031
## 1426                       BOEING            737-724  0.0573826  0.1539737
## 1427                       AIRBUS           A320-212  0.0573826  0.6520505
## 1428                      EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 1429                       AIRBUS           A320-232  0.0573826  0.9237287
## 1430              AIRBUS INDUSTRIE          A321-211  0.0573826  0.9086355
## 1431                       BOEING           A320-232  0.0573826  0.1539737
## 1432                       BOEING            757-232  0.0573826  0.5916775
## 1433                       BOEING            757-231  0.0573826  0.5916775
## 1434              AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 1435                       BOEING            737-824  0.0573826  0.1539737
## 1436                       BOEING            737-7H4  0.0573826  0.0181346
## 1438                      EMBRAER          EMB-145XR  0.0573826 -1.2647904
## 1439               BOMBARDIER INC        CL-600-2D24  0.0573826 -0.6610610
## 1440                       BOEING            737-832  0.0573826  0.7577031
## 1441                       BOEING            717-200  0.0573826 -0.5855948
## 1442                       BOEING           A320-232  0.0573826  0.1539737
## 1443                       BOEING            737-824  0.0573826  0.1539737
## 1444 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88  0.0573826  0.0483211
## 1445                       AIRBUS           A319-114  0.0573826  0.0936008
## 1446                       BOEING            737-832  0.0573826  0.7577031
## 1447               BOMBARDIER INC        CL-600-2B19  0.0573826 -1.2647904
## 1448               BOMBARDIER INC        CL-600-2B19  0.0573826 -1.2647904
## 1449              AIRBUS INDUSTRIE          A320-211  0.0573826  0.6520505
## 1450                      EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 1451                      EMBRAER          EMB-145XR  0.0573826 -1.2647904
## 1452                      EMBRAER          EMB-145XR  0.0573826 -1.2647904
## 1455                       BOEING           A320-232  0.0573826  0.1539737
## 1457                       AIRBUS           A320-232  0.0573826  0.9237287
## 1460               BOMBARDIER INC        CL-600-2D24  0.0573826 -0.6610610
## 1461                       BOEING            737-7H4  0.0573826  0.0181346
## 1462                       BOEING           A320-232  0.0573826  0.1539737
## 1463              AIRBUS INDUSTRIE          A319-114  0.0573826  0.0936008
## 1464                      EMBRAER          EMB-145LR  0.0573826 -1.2647904
## 1466                       AIRBUS           A320-214  0.0573826  0.6520505
## 1467                       BOEING            737-724  0.0573826  0.1539737
## 1468                      EMBRAER     ERJ 190-100 IGW  0.0573826 -1.7930536
## 1469                       BOEING            737-724  0.0573826  0.1539737
## 1472            MCDONNELL DOUGLAS   DC-9-82(MD-82)  0.0573826  0.5011181
## 1473               BOMBARDIER INC        CL-600-2D24  0.0573826 -0.6610610
## 1474                       AIRBUS           A320-232  0.0573826  0.9237287
## 1475                       AIRBUS           A320-232  0.0573826  0.9237287
## 1476                      EMBRAER     ERJ 190-100 IGW  0.0573826 -1.7930536
## 1477                       BOEING           A320-232  0.0573826  0.1539737
## 1478                       BOEING           A320-232  0.0573826  0.1539737
## 1480                       AIRBUS           A320-232  0.0573826  0.9237287
## 1481                       BOEING            737-824  0.0573826  0.1539737
## 1482                       BOEING           A320-232  0.0573826  0.1539737
## 1483                       BOEING           A320-232  0.0573826  0.1539737
## 1484                       BOEING          737-924ER  0.0573826  0.7878896
## 1486                      EMBRAER     ERJ 190-100 IGW  0.0573826 -1.7930536
## 1487                       AIRBUS           A320-232  0.0573826  0.9237287
## 1488                      EMBRAER     ERJ 190-100 IGW  0.0573826 -1.7930536
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## 1489                     AIRBUS      A320-232 0.0573826  0.9237287
## 1490                    EMBRAER    EMB-145LR 0.0573826 -1.2647904
## 1493                     AIRBUS      A320-232 0.0573826  0.9237287
## 1494                     AIRBUS      A320-232 0.0573826  0.9237287
## 1495            AIRBUS INDUSTRIE      A320-232 0.0573826  0.9237287
## 1497                     BOEING      A320-232 0.0573826  0.1539737
## 1498                     AIRBUS      A321-231 0.0573826  3.6254178
## 1499                     BOEING      A320-232 0.0573826  0.1539737
## 1500                     AIRBUS      A320-232 0.0573826  0.9237287
## 1501                     BOEING       737-824 0.0573826  0.1539737
## 1502                     AIRBUS      A320-232 0.0573826  0.9237287
## 1503                     AIRBUS      A320-232 0.0573826  0.9237287
## 1504                     BOEING       737-824 0.0573826  0.1539737
## 1505                     AIRBUS      A320-232 0.0573826  0.9237287
## 1506                     AIRBUS      A320-232 0.0573826  0.9237287
## 1507                     BOEING      A320-232 0.0573826  0.1539737
## 1508                     BOEING       737-7H4 0.0573826  0.0181346
## 1509 MCDONNELL DOUGLAS AIRCRAFT CO       MD-88 0.0573826  0.0483211
## 1510            AIRBUS INDUSTRIE      A319-114 0.0573826  0.0936008
## 1511                     AIRBUS      A320-232 0.0573826  0.9237287
## 1512            AIRBUS INDUSTRIE      A320-232 0.0573826  0.9237287
## 1513                     BOEING      A320-232 0.0573826  0.1539737
## 1514                     BOEING       737-824 0.0573826  0.1539737
## 1515                     BOEING       737-832 0.0573826  0.7577031
## 1516                     BOEING       757-2Q8 0.0573826  0.5916775
## 1517            AIRBUS INDUSTRIE      A319-114 0.0573826  0.0936008
## 1518                     BOEING       737-7H4 0.0573826  0.0181346
## 1519                     BOEING      A320-232 0.0573826  0.1539737
## 1520                     BOEING      A320-232 0.0573826  0.1539737
## 1521                     BOEING       737-824 0.0573826  0.1539737
## 1522 MCDONNELL DOUGLAS AIRCRAFT CO       MD-88 0.0573826  0.0483211
## 1523                     BOEING       737-724 0.0573826  0.1539737
## 1524                     BOEING       717-200 0.0573826 -0.5855948
## 1525                     BOEING      A320-232 0.0573826  0.1539737
## 1526                     AIRBUS      A319-114 0.0573826  0.0936008
## 1527                     AIRBUS      A320-232 0.0573826  0.9237287
## 1528                     BOEING       767-332 0.0573826  2.8858493
## 1529                     AIRBUS      A320-232 0.0573826  0.9237287
## 1530                     AIRBUS      A320-232 0.0573826  0.9237287
## 1531                     BOEING       767-223 0.0573826  1.7538567
## 1533                    EMBRAER    EMB-145LR 0.0573826 -1.2647904
## 1534            AIRBUS INDUSTRIE      A320-211 0.0573826  0.6520505
## 1535                    EMBRAER    EMB-145XR 0.0573826 -1.2647904
## 1536                     AIRBUS      A320-232 0.0573826  0.9237287
## 1537                     AIRBUS      A321-231 0.0573826  3.6254178
## 1538                    EMBRAER ERJ 190-100 IGW 0.0573826 -1.7930536
## 1539            BOMBARDIER INC    CL-600-2D24 0.0573826 -0.6610610
## 1540                     BOEING      A320-232 0.0573826  0.1539737
## 1541 MCDONNELL DOUGLAS AIRCRAFT CO       MD-88 0.0573826  0.0483211
## 1542                CANADAIR LTD        CF-5D 23.2779759 -2.0647319
## 1543                    EMBRAER    EMB-145LR 0.0573826 -1.2647904
## 1544                     BOEING      A320-232 0.0573826  0.1539737
## 1545                     BOEING       737-732 0.0573826  0.1539737
## 1546                    EMBRAER    EMB-145LR 0.0573826 -1.2647904
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## 1547           BOMBARDIER INC   CL-600-2B19   0.0573826 -1.2647904
## 1548                 BOEING       A320-232   0.0573826  0.1539737
## 1549                 AIRBUS       A320-232   0.0573826  0.9237287
## 1550       AIRBUS INDUSTRIE       A320-212   0.0573826  0.6520505
## 1551                 BOEING        757-232   0.0573826  0.5916775
## 1552       AIRBUS INDUSTRIE       A319-131   0.0573826  0.6067708
## 1553                EMBRAER      EMB-145LR   0.0573826 -1.2647904
## 1554                 BOEING       A320-232   0.0573826  0.1539737
## 1555   GULFSTREAM AEROSPACE         G1159B   0.0573826 -1.7628672
## 1556                EMBRAER      EMB-145LR   0.0573826 -1.2647904
## 1557                 AIRBUS       A320-214   0.0573826  0.6520505
## 1558                EMBRAER      EMB-145XR   0.0573826 -1.2647904
## 1559                 BOEING        757-224   0.0573826  0.5916775
## 1560       AIRBUS INDUSTRIE       A320-232   0.0573826  0.9237287
## 1561           BOMBARDIER INC   CL-600-2D24   0.0573826 -0.6610610
## 1562                EMBRAER ERJ 190-100 IGW  0.0573826 -1.7930536
## 1564                 BOEING       737-924ER  0.0573826  0.7878896
## 1565           BOMBARDIER INC   CL-600-2C10   0.0573826 -0.8874595
## 1566                EMBRAER      EMB-145LR   0.0573826 -1.2647904
## 1567                EMBRAER      EMB-145XR   0.0573826 -1.2647904
## 1568                 BOEING        757-231   0.0573826  0.5916775
## 1569                 AIRBUS       A320-214   0.0573826  0.6520505
## 1570                 AIRBUS       A330-243   0.0573826  3.5952314
## 1571                EMBRAER ERJ 190-100 IGW  0.0573826 -1.7930536
## 1572                 BOEING        737-732   0.0573826  0.1539737
## 1573       AIRBUS INDUSTRIE       A319-112   0.0573826  0.6067708
## 1574                 BOEING        737-724   0.0573826  0.1539737
## 1575                 BOEING        757-232   0.0573826  0.5916775
## 1576                 AIRBUS       A320-232   0.0573826  0.9237287
## 1577                 AIRBUS       A320-214   0.0573826  0.6520505
## 1578                 BOEING        737-76Q   0.0573826  0.1539737
## 1579                 BOEING       A320-232   0.0573826  0.1539737
## 1580                 BOEING       A320-232   0.0573826  0.1539737
## 1581                 BOEING        757-33N   0.0573826  2.0557214
## 1582       MCDONNELL DOUGLAS  DC-9-83(MD-83)  0.0573826  0.5011181
## 1583                 AIRBUS       A320-232   0.0573826  0.9237287
## 1584       CIRRUS DESIGN CORP          SR22 -11.5529141 -2.0345454
## 1586                 BOEING        757-251   0.0573826  0.5916775
## 1587       AIRBUS INDUSTRIE       A320-232   0.0573826  0.9237287
## 1588       AIRBUS INDUSTRIE       A319-131   0.0573826  0.6067708
## 1589                 BOEING        737-724   0.0573826  0.1539737
## 1590               CANADAIR   CL-600-2B19   0.0573826 -1.2647904
## 1591       AIRBUS INDUSTRIE       A319-112   0.0573826  0.6067708
## 1593       AIRBUS INDUSTRIE       A319-114   0.0573826  0.0936008
## 1594 MCDONNELL DOUGLAS AIRCRAFT CO     MD-88   0.0573826  0.0483211
## 1595                 BOEING        717-200   0.0573826 -0.5855948
## 1596                EMBRAER      EMB-145LR   0.0573826 -1.2647904
## 1597           BOMBARDIER INC   CL-600-2B19   0.0573826 -1.2647904
## 1598                 BOEING       A320-232   0.0573826  0.1539737
## 1599                 BOEING       A320-232   0.0573826  0.1539737
## 1600                 AIRBUS       A320-232   0.0573826  0.9237287
## 1601                 AIRBUS       A320-232   0.0573826  0.9237287
## 1602                 BOEING        737-732   0.0573826  0.1539737
## 1603                 BOEING        757-222   0.0573826  0.5916775
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## 1604                   BOEING        A320-232   0.0573826   0.1539737
## 1606                   BOEING         757-222   0.0573826   0.5916775
## 1607                   BOEING         737-3H4   0.0573826   0.1539737
## 1608                   BOEING        A320-232   0.0573826   0.1539737
## 1609                   BOEING         737-7H4   0.0573826   0.0181346
## 1610                   AIRBUS        A319-114   0.0573826   0.0936008
## 1611                  EMBRAER       EMB-145LR   0.0573826  -1.2647904
## 1612                   BOEING         737-7H4   0.0573826   0.0181346
## 1613                   BOEING         717-200   0.0573826  -0.5855948
## 1614                  EMBRAER       EMB-145LR   0.0573826  -1.2647904
## 1615                   AIRBUS        A320-232   0.0573826   0.9237287
## 1616                   BOEING         737-3H4   0.0573826   0.1539737
## 1617                   BOEING        A320-232   0.0573826   0.1539737
## 1618                   BOEING        A320-232   0.0573826   0.1539737
## 1619           BOMBARDIER INC      CL-600-2C10   0.0573826  -0.8874595
## 1620                  EMBRAER       EMB-145LR   0.0573826  -1.2647904
## 1622                   BOEING         737-832   0.0573826   0.7577031
## 1623                   AIRBUS        A320-232   0.0573826   0.9237287
## 1624                   BOEING         757-251   0.0573826   0.5916775
## 1626                   BOEING         757-224   0.0573826   0.5916775
## 1627                   BOEING        A320-232   0.0573826   0.1539737
## 1628                   BOEING         757-224   0.0573826   0.5916775
## 1629                   BOEING        A320-232   0.0573826   0.1539737
## 1630                   BOEING        A320-232   0.0573826   0.1539737
## 1631         AIRBUS INDUSTRIE        A321-211   0.0573826   0.9086355
## 1632                  EMBRAER       EMB-145LR   0.0573826  -1.2647904
## 1633       MCDONNELL DOUGLAS   DC-9-82(MD-82)   0.0573826   0.5011181
## 1634                   BOEING         737-824   0.0573826   0.1539737
## 1635                   BOEING       767-424ER   0.0573826   2.3123064
## 1636                   BOEING         737-832   0.0573826   0.7577031
## 1638                  EMBRAER       EMB-145LR   0.0573826  -1.2647904
## 1640                   BOEING         757-224   0.0573826   0.5916775
## 1641                   AIRBUS        A319-114   0.0573826   0.0936008
## 1642                   BOEING        A320-232   0.0573826   0.1539737
## 1643                   BOEING         737-824   0.0573826   0.1539737
## 1646                  EMBRAER       EMB-145XR   0.0573826  -1.2647904
## 1647         AIRBUS INDUSTRIE        A320-211   0.0573826   0.6520505
## 1648         AIRBUS INDUSTRIE        A320-232   0.0573826   0.9237287
## 1649                   AIRBUS        A321-231   0.0573826   3.6254178
## 1650                  EMBRAER       EMB-145XR   0.0573826  -1.2647904
## 1651                  EMBRAER       EMB-145LR   0.0573826  -1.2647904
## 1652           BOMBARDIER INC      CL-600-2B19   0.0573826  -1.2647904
## 1653                  EMBRAER       EMB-145LR   0.0573826  -1.2647904
## 1654           BOMBARDIER INC      CL-600-2D24   0.0573826  -0.6610610
## 1655                   BOEING          757-2Q8   0.0573826   0.5916775
## 1656                  EMBRAER    ERJ 190-100 IGW   0.0573826  -1.7930536
## 1657                   BOEING         757-232   0.0573826   0.5916775
## 1658                   CESSNA             172N -11.5529141  -2.0345454
## 1659         AIRBUS INDUSTRIE        A319-114   0.0573826   0.0936008
## 1660         AIRBUS INDUSTRIE        A320-232   0.0573826   0.9237287
## 1661         AIRBUS INDUSTRIE        A321-211   0.0573826   0.9086355
## 1662           BOMBARDIER INC      CL-600-2D24   0.0573826  -0.6610610
## 1663                   BOEING         757-222   0.0573826   0.5916775
## 1664                   BOEING       767-424ER   0.0573826   2.3123064
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## 1665                      EMBRAER      EMB-145LR   0.0573826 -1.2647904
## 1666          AIRBUS INDUSTRIE      A319-112   0.0573826  0.6067708
## 1667                       BOEING      A320-232   0.0573826  0.1539737
## 1668                      EMBRAER      EMB-145XR   0.0573826 -1.2647904
## 1669                       BOEING      A320-232   0.0573826  0.1539737
## 1670                       BOEING      A320-232   0.0573826  0.1539737
## 1671                       BOEING       757-2Q8   0.0573826  0.5916775
## 1672                       BOEING       737-824   0.0573826  0.1539737
## 1673          AIRBUS INDUSTRIE      A319-112   0.0573826  0.6067708
## 1674                       BOEING       737-7H4   0.0573826  0.0181346
## 1675           BOMBARDIER INC    CL-600-2B19   0.0573826 -1.2647904
## 1676                       BOEING      A320-232   0.0573826  0.1539737
## 1677                       BOEING       737-832   0.0573826  0.7577031
## 1678                       BOEING       737-832   0.0573826  0.7577031
## 1679                       BOEING      A320-232   0.0573826  0.1539737
## 1680                        BEECH        65-A90   0.0573826 -1.9590792
## 1681                       AIRBUS      A320-232   0.0573826  0.9237287
## 1682          AIRBUS INDUSTRIE      A320-212   0.0573826  0.6520505
## 1683                       BOEING       737-832   0.0573826  0.7577031
## 1684          AIRBUS INDUSTRIE      A320-211   0.0573826  0.6520505
## 1685                       BOEING      A320-232   0.0573826  0.1539737
## 1686           BOMBARDIER INC    CL-600-2B19   0.0573826 -1.2647904
## 1687                      EMBRAER      EMB-145XR   0.0573826 -1.2647904
## 1688                       AIRBUS      A320-232   0.0573826  0.9237287
## 1689          AIRBUS INDUSTRIE      A320-212   0.0573826  0.6520505
## 1690                       BOEING      A320-232   0.0573826  0.1539737
## 1691                       BOEING       767-224   0.0573826  1.7538567
## 1692                       BOEING       767-223   0.0573826  1.7538567
## 1693          AIRBUS INDUSTRIE      A320-232   0.0573826  0.9237287
## 1694                      EMBRAER  ERJ 190-100 IGW   0.0573826 -1.7930536
## 1695                       BOEING       737-7H4   0.0573826  0.0181346
## 1696                       BOEING       757-231   0.0573826  0.5916775
## 1697                       BOEING      A320-232   0.0573826  0.1539737
## 1698          AIRBUS INDUSTRIE      A321-211   0.0573826  0.9086355
## 1699                       BOEING      A320-232   0.0573826  0.1539737
## 1701                      EMBRAER      EMB-145LR   0.0573826 -1.2647904
## 1702          AIRBUS INDUSTRIE      A320-232   0.0573826  0.9237287
## 1703 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88   0.0573826  0.0483211
## 1704          AIRBUS INDUSTRIE      A320-212   0.0573826  0.6520505
## 1705                       BOEING      A320-232   0.0573826  0.1539737
## 1706                       BOEING       717-200   0.0573826 -0.5855948
## 1707                       BOEING       767-323   0.0573826  2.8858493
## 1708                       BOEING       737-76N   0.0573826  0.1539737
## 1709                       BOEING       757-224   0.0573826  0.5916775
## 1710                       BOEING       737-824   0.0573826  0.1539737
## 1711                       BOEING       757-222   0.0573826  0.5916775
## 1712                       AIRBUS      A320-232   0.0573826  0.9237287
## 1713                       BOEING       737-924   0.0573826  0.7878896
## 1714                       BOEING       757-224   0.0573826  0.5916775
## 1715                       AIRBUS      A320-232   0.0573826  0.9237287
## 1716          AIRBUS INDUSTRIE      A320-211   0.0573826  0.6520505
## 1717                      EMBRAER      EMB-145XR   0.0573826 -1.2647904
## 1718                       AIRBUS      A320-232   0.0573826  0.9237287
## 1719                       AIRBUS      A320-232   0.0573826  0.9237287
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## 1720                       BOEING         A320-232  0.0573826  0.1539737
## 1721 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88  0.0573826  0.0483211
## 1722                       BOEING         737-890  0.0573826  0.1539737
## 1723              BOMBARDIER INC      CL-600-2B19  0.0573826 -1.2647904
## 1724                       BOEING         737-7H4  0.0573826  0.0181346
## 1726                       BOEING        A320-232  0.0573826  0.1539737
## 1728             AIRBUS INDUSTRIE        A319-114  0.0573826  0.0936008
## 1729                       BOEING        A320-232  0.0573826  0.1539737
## 1730                      EMBRAER       EMB-145LR  0.0573826 -1.2647904
## 1731                      EMBRAER       EMB-145LR  0.0573826 -1.2647904
## 1733             AIRBUS INDUSTRIE        A320-232  0.0573826  0.9237287
## 1734                       BOEING        A320-232  0.0573826  0.1539737
## 1735                       BOEING        A320-232  0.0573826  0.1539737
## 1736                       BOEING         737-824  0.0573826  0.1539737
## 1737             AIRBUS INDUSTRIE        A320-232  0.0573826  0.9237287
## 1738                      EMBRAER  ERJ 190-100 IGW 0.0573826 -1.7930536
## 1739                       AIRBUS        A319-114  0.0573826  0.0936008
## 1740                       AIRBUS        A321-231  0.0573826  3.6254178
## 1741        ROBINSON HELICOPTER CO             R66 -11.5529141 -2.0194522
## 1742                       BOEING         757-222  0.0573826  0.5916775
## 1743                       AIRBUS        A320-232  0.0573826  0.9237287
## 1744                      EMBRAER       EMB-145LR  0.0573826 -1.2647904
## 1745                       BOEING         767-223  0.0573826  1.7538567
## 1746              BOMBARDIER INC      CL-600-2D24  0.0573826 -0.6610610
## 1747                       BOEING         737-832  0.0573826  0.7577031
## 1748                       BOEING         737-824  0.0573826  0.1539737
## 1749                       BOEING         737-7H4  0.0573826  0.0181346
## 1751                       BOEING         737-824  0.0573826  0.1539737
## 1753              BOMBARDIER INC      CL-600-2D24  0.0573826 -0.6610610
## 1755                       BOEING        A320-232  0.0573826  0.1539737
## 1756                       BOEING        A320-232  0.0573826  0.1539737
## 1757              BOMBARDIER INC      CL-600-2B19  0.0573826 -1.2647904
## 1758                      EMBRAER       EMB-145XR  0.0573826 -1.2647904
## 1759             AIRBUS INDUSTRIE        A319-114  0.0573826  0.0936008
## 1760                       BOEING       737-924ER  0.0573826  0.7878896
## 1761                       BOEING        A320-232  0.0573826  0.1539737
## 1762                       BOEING        A320-232  0.0573826  0.1539737
## 1763                      EMBRAER  ERJ 190-100 IGW 0.0573826 -1.7930536
## 1764              BOMBARDIER INC      CL-600-2B19  0.0573826 -1.2647904
## 1765                      EMBRAER  ERJ 190-100 IGW 0.0573826 -1.7930536
## 1766             AIRBUS INDUSTRIE        A320-232  0.0573826  0.9237287
## 1767                       AIRBUS        A320-232  0.0573826  0.9237287
## 1768                       BOEING         737-824  0.0573826  0.1539737
## 1769                       AIRBUS        A320-232  0.0573826  0.9237287
## 1771                      EMBRAER  ERJ 190-100 IGW 0.0573826 -1.7930536
## 1772                      EMBRAER  ERJ 190-100 IGW 0.0573826 -1.7930536
## 1774                       AIRBUS        A320-232  0.0573826  0.9237287
## 1776                       AIRBUS        A320-232  0.0573826  0.9237287
## 1779                       AIRBUS        A320-232  0.0573826  0.9237287
## 1780                     CANADAIR      CL-600-2B19  0.0573826 -1.2647904
## 1781             AIRBUS INDUSTRIE        A319-131  0.0573826  0.6067708
## 1782                       BOEING         757-223  0.0573826  0.5916775
## 1783                       BOEING         757-222  0.0573826  0.5916775
## 1784                       AIRBUS        A320-232  0.0573826  0.9237287
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## 1785                    BOEING          A320-232   0.0573826   0.1539737
## 1786                    AIRBUS          A320-232   0.0573826   0.9237287
## 1787                    AIRBUS          A320-232   0.0573826   0.9237287
## 1788                    AIRBUS          A320-232   0.0573826   0.9237287
## 1789                    BOEING          A320-232   0.0573826   0.1539737
## 1790                    BOEING           737-832   0.0573826   0.7577031
## 1791                    AIRBUS          A320-232   0.0573826   0.9237287
## 1792                    BOEING          A320-232   0.0573826   0.1539737
## 1793                    BOEING           757-222   0.0573826   0.5916775
## 1794                    BOEING          A320-232   0.0573826   0.1539737
## 1795          AIRBUS INDUSTRIE          A320-232   0.0573826   0.9237287
## 1796                    BOEING          A320-232   0.0573826   0.1539737
## 1797          AIRBUS INDUSTRIE          A319-112   0.0573826   0.6067708
## 1798          AIRBUS INDUSTRIE          A320-232   0.0573826   0.9237287
## 1799                    AIRBUS          A320-232   0.0573826   0.9237287
## 1800                    BOEING          A320-232   0.0573826   0.1539737
## 1801                   EMBRAER   ERJ 190-100 IGW   0.0573826  -1.7930536
## 1802                    AIRBUS          A319-114   0.0573826   0.0936008
## 1803                    BOEING           757-2Q8   0.0573826   0.5916775
## 1804                    BOEING         737-924ER   0.0573826   0.7878896
## 1806                    BOEING          A320-232   0.0573826   0.1539737
## 1807                    BOEING           737-924   0.0573826   0.7878896
## 1808                    BOEING           757-222   0.0573826   0.5916775
## 1809                    BOEING          A320-232   0.0573826   0.1539737
## 1810                    AIRBUS          A320-232   0.0573826   0.9237287
## 1811                    BOEING          A320-232   0.0573826   0.1539737
## 1812                    BOEING           737-890   0.0573826   0.1539737
## 1813                    AIRBUS          A320-214   0.0573826   0.6520505
## 1814          AIRBUS INDUSTRIE          A320-232   0.0573826   0.9237287
## 1815     AMERICAN AIRCRAFT INC         FALCON XP -11.5529141  -2.0647319
## 1816                    BOEING           757-33N   0.0573826   2.0557214
## 1818                    BOEING          A320-232   0.0573826   0.1539737
## 1819                    AIRBUS          A319-114   0.0573826   0.0936008
## 1820                   EMBRAER         EMB-145LR   0.0573826  -1.2647904
## 1821          AIRBUS INDUSTRIE          A321-211   0.0573826   0.9086355
## 1822                    BOEING           757-232   0.0573826   0.5916775
## 1823          AIRBUS INDUSTRIE          A320-232   0.0573826   0.9237287
## 1824                    BOEING          A320-232   0.0573826   0.1539737
## 1825                    BOEING           737-7H4   0.0573826   0.0181346
## 1826                   EMBRAER        EMB-145XR   0.0573826  -1.2647904
## 1827          AIRBUS INDUSTRIE          A320-232   0.0573826   0.9237287
## 1828                   EMBRAER   ERJ 190-100 IGW   0.0573826  -1.7930536
## 1829            BOMBARDIER INC        CL-600-2B19   0.0573826  -1.2647904
## 1830                    BOEING           737-732   0.0573826   0.1539737
## 1831                    BOEING          A320-232   0.0573826   0.1539737
## 1832                   EMBRAER         EMB-145LR   0.0573826  -1.2647904
## 1833                    BOEING           737-832   0.0573826   0.7577031
## 1834          AIRBUS INDUSTRIE          A320-232   0.0573826   0.9237287
## 1835                   EMBRAER   ERJ 190-100 IGW   0.0573826  -1.7930536
## 1836                    BOEING          A320-232   0.0573826   0.1539737
## 1837            BOMBARDIER INC        CL-600-2D24   0.0573826  -0.6610610
## 1838                    BOEING           757-224   0.0573826   0.5916775
## 1839                    BOEING           737-7H4   0.0573826   0.0181346
## 1840                    BOEING           737-824   0.0573826   0.1539737
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## 1841 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88   0.0573826   0.0483211
## 1842              AIRBUS INDUSTRIE          A320-212   0.0573826   0.6520505
## 1843                        BOEING          A320-232   0.0573826   0.1539737
## 1844                        BOEING           767-223   0.0573826   1.7538567
## 1845                       EMBRAER   ERJ 190-100 IGW   0.0573826  -1.7930536
## 1846                        BOEING           737-724   0.0573826   0.1539737
## 1847                        AIRBUS          A319-131   0.0573826   0.6067708
## 1848                       EMBRAER        EMB-145XR   0.0573826  -1.2647904
## 1849                        CESSNA      210-5(205) -11.5529141  -2.0043589
## 1850                        BOEING           737-824   0.0573826   0.1539737
## 1851                        BOEING          A320-232   0.0573826   0.1539737
## 1852              AIRBUS INDUSTRIE          A320-232   0.0573826   0.9237287
## 1853                        AIRBUS          A320-232   0.0573826   0.9237287
## 1854                        AIRBUS          A320-232   0.0573826   0.9237287
## 1855                        BOEING           737-7BX   0.0573826   0.1539737
## 1856                        AIRBUS          A320-232   0.0573826   0.9237287
## 1857                       EMBRAER        EMB-145LR   0.0573826  -1.2647904
## 1859                        BOEING          A320-232   0.0573826   0.1539737
## 1860                        AIRBUS          A320-214   0.0573826   0.6520505
## 1862                        AIRBUS          A320-232   0.0573826   0.9237287
## 1864                        BOEING          A320-232   0.0573826   0.1539737
## 1865 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88   0.0573826   0.0483211
## 1866                        AIRBUS          A321-231   0.0573826   3.6254178
## 1867                       EMBRAER   ERJ 190-100 IGW   0.0573826  -1.7930536
## 1868                       EMBRAER        EMB-145LR   0.0573826  -1.2647904
## 1869              AIRBUS INDUSTRIE          A320-214   0.0573826   0.6520505
## 1870 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88   0.0573826   0.0483211
## 1871 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88   0.0573826   0.0483211
## 1872                       EMBRAER        EMB-145LR   0.0573826  -1.2647904
## 1873                BOMBARDIER INC        CL-600-2C10   0.0573826  -0.8874595
## 1874              AIRBUS INDUSTRIE          A320-232   0.0573826   0.9237287
## 1875                        AIRBUS          A319-114   0.0573826   0.0936008
## 1876                        BOEING           767-223   0.0573826   1.7538567
## 1878              AIRBUS INDUSTRIE          A319-114   0.0573826   0.0936008
## 1880              AIRBUS INDUSTRIE          A320-232   0.0573826   0.9237287
## 1881                        BOEING           767-322   0.0573826   2.8858493
## 1882                        BOEING           737-8H4   0.0573826   0.0181346
## 1883                        BOEING           757-222   0.0573826   0.5916775
## 1885                        BOEING          A320-232   0.0573826   0.1539737
## 1887              AIRBUS INDUSTRIE          A319-114   0.0573826   0.0936008
## 1888           GULFSTREAM AEROSPACE           G1159B   0.0573826  -1.7628672
## 1889                BOMBARDIER INC        CL-600-2C10   0.0573826  -0.8874595
## 1890                        BOEING          A320-232   0.0573826   0.1539737
## 1891                        BOEING          A320-232   0.0573826   0.1539737
## 1892              AIRBUS INDUSTRIE          A320-232   0.0573826   0.9237287
## 1893                        AIRBUS          A320-214   0.0573826   0.6520505
## 1894                        BOEING           737-7H4   0.0573826   0.0181346
## 1895                        BOEING           757-224   0.0573826   0.5916775
## 1896                        BOEING           717-200   0.0573826  -0.5855948
## 1897                        BOEING           737-824   0.0573826   0.1539737
## 1898                       EMBRAER        EMB-145LR   0.0573826  -1.2647904
## 1899 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88   0.0573826   0.0483211
## 1900                        BOEING           757-231   0.0573826   0.5916775
## 1901                        BOEING          A320-232   0.0573826   0.1539737
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## 1902                      EMBRAER        EMB-145LR  0.0573826 -1.2647904
## 1903                      EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 1904                       BOEING         A320-232  0.0573826  0.1539737
## 1905                       BOEING          757-251  0.0573826  0.5916775
## 1906                       AIRBUS         A320-214  0.0573826  0.6520505
## 1907             AIRBUS INDUSTRIE         A319-112  0.0573826  0.6067708
## 1908                      EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 1909                       AIRBUS         A320-232  0.0573826  0.9237287
## 1910                       BOEING         A320-232  0.0573826  0.1539737
## 1911                       BOEING        737-924ER  0.0573826  0.7878896
## 1912                       BOEING          737-7H4  0.0573826  0.0181346
## 1913                       BOEING         A320-232  0.0573826  0.1539737
## 1914                       AIRBUS         A319-114  0.0573826  0.0936008
## 1915                       BOEING          757-222  0.0573826  0.5916775
## 1916            MCDONNELL DOUGLAS    DC-9-82(MD-82)  0.0573826  0.5011181
## 1917              BOMBARDIER INC       CL-600-2C10  0.0573826 -0.8874595
## 1918             AIRBUS INDUSTRIE         A320-212  0.0573826  0.6520505
## 1919                       BOEING          737-7H4  0.0573826  0.0181346
## 1920              BOMBARDIER INC       CL-600-2B19  0.0573826 -1.2647904
## 1921                       AIRBUS         A320-232  0.0573826  0.9237287
## 1922            MCDONNELL DOUGLAS    DC-9-82(MD-82)  0.0573826  0.5011181
## 1923                       BOEING         A320-232  0.0573826  0.1539737
## 1924                       BOEING          737-7H4  0.0573826  0.0181346
## 1925                      EMBRAER        EMB-145LR  0.0573826 -1.2647904
## 1926                       BOEING         A320-232  0.0573826  0.1539737
## 1927                      EMBRAER        EMB-145LR  0.0573826 -1.2647904
## 1928                       AIRBUS         A320-232  0.0573826  0.9237287
## 1929                       BOEING          737-832  0.0573826  0.7577031
## 1930                      EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 1931                       BOEING          737-7H4  0.0573826  0.0181346
## 1932                      EMBRAER        EMB-145LR  0.0573826 -1.2647904
## 1933                       AIRBUS         A320-232  0.0573826  0.9237287
## 1934             AIRBUS INDUSTRIE         A320-232  0.0573826  0.9237287
## 1935                       AIRBUS         A320-232  0.0573826  0.9237287
## 1936             AIRBUS INDUSTRIE         A320-212  0.0573826  0.6520505
## 1937                       BOEING          757-222  0.0573826  0.5916775
## 1938                      EMBRAER        EMB-145LR  0.0573826 -1.2647904
## 1940                       BOEING        737-924ER  0.0573826  0.7878896
## 1941                       BOEING          717-200  0.0573826 -0.5855948
## 1942                       BOEING          757-224  0.0573826  0.5916775
## 1943            MCDONNELL DOUGLAS    DC-9-83(MD-83)  0.0573826  0.5011181
## 1944             AIRBUS INDUSTRIE         A319-131  0.0573826  0.6067708
## 1945              BOMBARDIER INC       CL-600-2C10  0.0573826 -0.8874595
## 1946              BOMBARDIER INC       CL-600-2D24  0.0573826 -0.6610610
## 1947                      EMBRAER        EMB-145XR  0.0573826 -1.2647904
## 1948                      EMBRAER        EMB-145LR  0.0573826 -1.2647904
## 1949                       BOEING         A320-232  0.0573826  0.1539737
## 1951                      EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 1952                       BOEING          737-824  0.0573826  0.1539737
## 1953                      EMBRAER        EMB-145LR  0.0573826 -1.2647904
## 1954 MCDONNELL DOUGLAS AIRCRAFT CO            MD-88  0.0573826  0.0483211
## 1955             AIRBUS INDUSTRIE         A319-131  0.0573826  0.6067708
## 1957             AIRBUS INDUSTRIE         A321-211  0.0573826  0.9086355
## 1959                       AIRBUS         A320-232  0.0573826  0.9237287
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## 1960                     AIRBUS        A320-232  0.0573826  0.9237287
## 1961                     BOEING        A320-232  0.0573826  0.1539737
## 1962                     AIRBUS        A320-232  0.0573826  0.9237287
## 1963                    EMBRAER      EMB-145XR  0.0573826 -1.2647904
## 1964                    EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 1965           AIRBUS INDUSTRIE        A320-212  0.0573826  0.6520505
## 1966                     BOEING        A320-232  0.0573826  0.1539737
## 1968            BOMBARDIER INC     CL-600-2B19  0.0573826 -1.2647904
## 1969                     BOEING        A320-232  0.0573826  0.1539737
## 1970                     BOEING        A320-232  0.0573826  0.1539737
## 1971                     BOEING         737-824  0.0573826  0.1539737
## 1972            BOMBARDIER INC     CL-600-2B19  0.0573826 -1.2647904
## 1973                     BOEING      767-424ER  0.0573826  2.3123064
## 1975           AIRBUS INDUSTRIE        A319-114  0.0573826  0.0936008
## 1976           AIRBUS INDUSTRIE        A320-212  0.0573826  0.6520505
## 1977                     BOEING         767-223  0.0573826  1.7538567
## 1978            BOMBARDIER INC     CL-600-2B19  0.0573826 -1.2647904
## 1979                     BOEING         757-232  0.0573826  0.5916775
## 1980       GULFSTREAM AEROSPACE          G1159B  0.0573826 -1.7628672
## 1981                     BOEING         737-832  0.0573826  0.7577031
## 1982                     BOEING         737-832  0.0573826  0.7577031
## 1983 MCDONNELL DOUGLAS AIRCRAFT CO          MD-88  0.0573826  0.0483211
## 1984          MCDONNELL DOUGLAS  DC-9-82(MD-82)  0.0573826  0.5011181
## 1985                    EMBRAER      EMB-145XR  0.0573826 -1.2647904
## 1986                     AIRBUS        A320-232  0.0573826  0.9237287
## 1988            BOMBARDIER INC     CL-600-2D24  0.0573826 -0.6610610
## 1989                     BOEING        A320-232  0.0573826  0.1539737
## 1990                     AIRBUS        A321-231  0.0573826  3.6254178
## 1991                     AIRBUS        A320-214  0.0573826  0.6520505
## 1992                     BOEING         737-824  0.0573826  0.1539737
## 1993                     BOEING         737-7H4  0.0573826  0.0181346
## 1995                     BOEING        A320-232  0.0573826  0.1539737
## 1997                     BOEING       737-924ER  0.0573826  0.7878896
## 1998                    EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 1999           AIRBUS INDUSTRIE        A319-131  0.0573826  0.6067708
## 2000           AIRBUS INDUSTRIE        A319-114  0.0573826  0.0936008
## 2001                     BOEING        A320-232  0.0573826  0.1539737
## 2002                     AIRBUS        A320-214  0.0573826  0.6520505
## 2003                     BOEING        A320-232  0.0573826  0.1539737
## 2004                    EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 2005                    EMBRAER      EMB-145XR  0.0573826 -1.2647904
## 2006                     BOEING         737-832  0.0573826  0.7577031
## 2007                     AIRBUS        A321-211  0.0573826  0.9086355
## 2008                     BOEING        A320-232  0.0573826  0.1539737
## 2012                     BOEING         737-7H4  0.0573826  0.0181346
## 2013                     AIRBUS        A320-214  0.0573826  0.6520505
## 2014                     BOEING        A320-232  0.0573826  0.1539737
## 2015                     BOEING         737-7H4  0.0573826  0.0181346
## 2016                     BOEING        A320-232  0.0573826  0.1539737
## 2019                    EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 2020                     BOEING         737-832  0.0573826  0.7577031
## 2022                     AIRBUS        A320-232  0.0573826  0.9237287
## 2023                     BOEING         757-232  0.0573826  0.5916775
## 2024                     AIRBUS        A320-232  0.0573826  0.9237287
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## 2025                      BOEING          A320-232  0.0573826  0.1539737
## 2027           AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 2028                      BOEING           737-890  0.0573826  0.1539737
## 2030           BOMBARDIER INC         CL-600-2D24  0.0573826 -0.6610610
## 2031                      BOEING           737-724  0.0573826  0.1539737
## 2032                      AIRBUS          A320-232  0.0573826  0.9237287
## 2033           BOMBARDIER INC         CL-600-2B19  0.0573826 -1.2647904
## 2034                      BOEING          A320-232  0.0573826  0.1539737
## 2035                      BOEING         737-924ER  0.0573826  0.7878896
## 2036                      BOEING           737-401  0.0573826  0.1539737
## 2037                     EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 2038                      BOEING           737-724  0.0573826  0.1539737
## 2039                     EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 2040                      BOEING          A320-232  0.0573826  0.1539737
## 2041                      BOEING          A320-232  0.0573826  0.1539737
## 2042           AIRBUS INDUSTRIE          A321-211  0.0573826  0.9086355
## 2043                      BOEING           737-824  0.0573826  0.1539737
## 2044                      BOEING          A320-232  0.0573826  0.1539737
## 2045                      AIRBUS          A319-114  0.0573826  0.0936008
## 2046                      BOEING           757-2Q8  0.0573826  0.5916775
## 2047                      BOEING           757-231  0.0573826  0.5916775
## 2048                      BOEING          A320-232  0.0573826  0.1539737
## 2049                     EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 2050                     EMBRAER         EMB-145XR  0.0573826 -1.2647904
## 2051                      BOEING           767-332  0.0573826  2.8858493
## 2052 MCDONNELL DOUGLAS AIRCRAFT CO         MD-88  0.0573826  0.0483211
## 2053                      AIRBUS          A319-114  0.0573826  0.0936008
## 2055           AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 2056                      BOEING          A320-232  0.0573826  0.1539737
## 2057                      BOEING           737-7H4  0.0573826  0.0181346
## 2058                      AIRBUS          A320-232  0.0573826  0.9237287
## 2059                    CANADAIR         CL-600-2B19  0.0573826 -1.2647904
## 2060                      AIRBUS          A320-232  0.0573826  0.9237287
## 2062           BOMBARDIER INC         CL-600-2B19  0.0573826 -1.2647904
## 2063                     EMBRAER         EMB-145XR  0.0573826 -1.2647904
## 2064           BOMBARDIER INC         CL-600-2B19  0.0573826 -1.2647904
## 2065           BOMBARDIER INC         CL-600-2D24  0.0573826 -0.6610610
## 2066           BOMBARDIER INC         CL-600-2D24  0.0573826 -0.6610610
## 2067           BOMBARDIER INC         CL-600-2D24  0.0573826 -0.6610610
## 2068           AIRBUS INDUSTRIE          A319-114  0.0573826  0.0936008
## 2069                     EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 2070                     EMBRAER         EMB-145XR  0.0573826 -1.2647904
## 2071           AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 2072                     EMBRAER         EMB-145LR  0.0573826 -1.2647904
## 2074                      BOEING          A320-232  0.0573826  0.1539737
## 2076                      BOEING           757-222  0.0573826  0.5916775
## 2077           AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 2078                      BOEING           737-824  0.0573826  0.1539737
## 2079                      BOEING           717-200  0.0573826 -0.5855948
## 2080           LEBLANC GLENN T        FALCON XP -11.5529141 -2.0647319
## 2081           BOMBARDIER INC         CL-600-2D24  0.0573826 -0.6610610
## 2083                      BOEING           757-231  0.0573826  0.5916775
## 2085                      BOEING          A320-232  0.0573826  0.1539737
## 2086                     EMBRAER         EMB-145LR  0.0573826 -1.2647904
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## 2087                  EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 2088                   BOEING       A320-232  0.0573826  0.1539737
## 2089                   AIRBUS       A320-232  0.0573826  0.9237287
## 2090                  EMBRAER  ERJ 190-100 IGW 0.0573826 -1.7930536
## 2091                   BOEING        767-223  0.0573826  1.7538567
## 2092                  EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 2093                  EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 2094        AIRBUS INDUSTRIE       A320-211  0.0573826  0.6520505
## 2095                   AIRBUS       A320-232  0.0573826  0.9237287
## 2096                  EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 2099                   AIRBUS       A320-232  0.0573826  0.9237287
## 2100                   AIRBUS       A320-232  0.0573826  0.9237287
## 2102                  EMBRAER  ERJ 190-100 IGW 0.0573826 -1.7930536
## 2105                   BOEING       A320-232  0.0573826  0.1539737
## 2106                   AIRBUS       A320-232  0.0573826  0.9237287
## 2107        AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 2108          BOMBARDIER INC    CL-600-2C10  0.0573826 -0.8874595
## 2109        AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 2110                   BOEING       A320-232  0.0573826  0.1539737
## 2111                   BOEING        757-232  0.0573826  0.5916775
## 2112                   AIRBUS       A319-114  0.0573826  0.0936008
## 2113                   BOEING       A320-232  0.0573826  0.1539737
## 2114        AIRBUS INDUSTRIE       A319-112  0.0573826  0.6067708
## 2115        AIRBUS INDUSTRIE       A319-131  0.0573826  0.6067708
## 2116                   AIRBUS       A320-211  0.0573826  0.6520505
## 2117                   BOEING       A320-232  0.0573826  0.1539737
## 2118                   AIRBUS       A321-231  0.0573826  3.6254178
## 2119                   BOEING       A320-232  0.0573826  0.1539737
## 2120        AIRBUS INDUSTRIE       A319-112  0.0573826  0.6067708
## 2121                  EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 2122                   AIRBUS       A320-232  0.0573826  0.9237287
## 2123        AIRBUS INDUSTRIE       A321-211  0.0573826  0.9086355
## 2124                   BOEING        737-724  0.0573826  0.1539737
## 2125                  EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 2126                   BOEING        737-7H4  0.0573826  0.0181346
## 2127                   BOEING       A320-232  0.0573826  0.1539737
## 2128        AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 2129        AIRBUS INDUSTRIE       A319-131  0.0573826  0.6067708
## 2130                   BOEING       A320-232  0.0573826  0.1539737
## 2131        AIRBUS INDUSTRIE       A320-232  0.0573826  0.9237287
## 2132        AIRBUS INDUSTRIE       A319-131  0.0573826  0.6067708
## 2133                  EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 2134                   AIRBUS       A320-214  0.0573826  0.6520505
## 2135                   AIRBUS       A320-232  0.0573826  0.9237287
## 2136                  EMBRAER  ERJ 190-100 IGW 0.0573826 -1.7930536
## 2137                   AIRBUS       A320-211  0.0573826  0.6520505
## 2138                   BOEING       A320-232  0.0573826  0.1539737
## 2139                   BOEING        757-231  0.0573826  0.5916775
## 2140                  EMBRAER      EMB-145LR  0.0573826 -1.2647904
## 2141                  EMBRAER      EMB-145XR  0.0573826 -1.2647904
## 2142                   BOEING        757-2Q8  0.0573826  0.5916775
## 2143                   AIRBUS       A320-232  0.0573826  0.9237287
## 2144                   BOEING        737-824  0.0573826  0.1539737
## 2145                   AIRBUS       A320-232  0.0573826  0.9237287
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## 2146                        BOEING        A320-232  0.0573826  0.1539737
## 2147              AIRBUS INDUSTRIE         A320-232  0.0573826  0.9237287
## 2148                        BOEING          757-222  0.0573826  0.5916775
## 2149                        BOEING          737-724  0.0573826  0.1539737
## 2151                        BOEING         A320-232  0.0573826  0.1539737
## 2152 MCDONNELL DOUGLAS CORPORATION            MD-88  0.0573826  0.0483211
## 2153                        BOEING          757-223  0.0573826  0.5916775
## 2154                        BOEING          767-223  0.0573826  1.7538567
## 2155                        BOEING          737-890  0.0573826  0.1539737
## 2156                        BOEING          757-231  0.0573826  0.5916775
## 2157                        BOEING          737-824  0.0573826  0.1539737
## 2158             MCDONNELL DOUGLAS  DC-9-83(MD-83)   0.0573826  0.5011181
## 2159                        BOEING          767-223  0.0573826  1.7538567
## 2160                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 2161                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 2162                        BOEING          737-824  0.0573826  0.1539737
## 2163              AIRBUS INDUSTRIE        A320-212   0.0573826  0.6520505
## 2164                        AIRBUS        A320-232   0.0573826  0.9237287
## 2165                       EMBRAER       EMB-145XR   0.0573826 -1.2647904
## 2166                        BOEING        A320-232   0.0573826  0.1539737
## 2167               BOMBARDIER INC       CL-600-2D24  0.0573826 -0.6610610
## 2168                       EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 2169                        AIRBUS        A319-114   0.0573826  0.0936008
## 2170                        AIRBUS        A320-232   0.0573826  0.9237287
## 2171              AIRBUS INDUSTRIE        A320-212   0.0573826  0.6520505
## 2172                        BOEING          737-7H4  0.0573826  0.0181346
## 2173              AIRBUS INDUSTRIE        A320-212   0.0573826  0.6520505
## 2174               BOMBARDIER INC       CL-600-2B19  0.0573826 -1.2647904
## 2175                        BOEING        A320-232   0.0573826  0.1539737
## 2176                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 2177                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 2178                        BOEING        A320-232   0.0573826  0.1539737
## 2179                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 2180              AIRBUS INDUSTRIE        A320-232   0.0573826  0.9237287
## 2182                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 2183               BOMBARDIER INC       CL-600-2B19  0.0573826 -1.2647904
## 2184                        AIRBUS        A321-231   0.0573826  3.6254178
## 2185                        AIRBUS        A320-214   0.0573826  0.6520505
## 2186                        BOEING          757-232  0.0573826  0.5916775
## 2187                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 2188                        BOEING        737-924ER  0.0573826  0.7878896
## 2189                        BOEING          737-7H4  0.0573826  0.0181346
## 2190                        BOEING          737-824  0.0573826  0.1539737
## 2191                        BOEING          737-824  0.0573826  0.1539737
## 2192                       EMBRAER       EMB-145LR   0.0573826 -1.2647904
## 2193               BOMBARDIER INC       CL-600-2D24  0.0573826 -0.6610610
## 2194                        BOEING        A320-232   0.0573826  0.1539737
## 2195                        AIRBUS        A320-232   0.0573826  0.9237287
## 2196              AIRBUS INDUSTRIE        A319-112   0.0573826  0.6067708
## 2197                        BOEING        737-924ER  0.0573826  0.7878896
## 2198                        BOEING        A320-232   0.0573826  0.1539737
## 2199                       EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 2200                        BOEING          737-732  0.0573826  0.1539737
## 2201                        BOEING        A320-232   0.0573826  0.1539737
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## 2202                         AIRBUS         A320-232  0.0573826  0.9237287
## 2203                        EMBRAER       EMB-145XR  0.0573826 -1.2647904
## 2204                         BOEING         757-231  0.0573826  0.5916775
## 2205               BOMBARDIER INC       CL-600-2D24  0.0573826 -0.6610610
## 2206                         AIRBUS        A319-114  0.0573826  0.0936008
## 2207                        EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 2208                         BOEING         767-223  0.0573826  1.7538567
## 2209                         BOEING        A320-232  0.0573826  0.1539737
## 2210                         BOEING         757-222  0.0573826  0.5916775
## 2211                         AIRBUS        A320-232  0.0573826  0.9237287
## 2212                        EMBRAER       EMB-145XR  0.0573826 -1.2647904
## 2215                        EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 2216                        EMBRAER       EMB-145XR  0.0573826 -1.2647904
## 2217                         BOEING         757-33N  0.0573826  2.0557214
## 2218                         AIRBUS        A320-232  0.0573826  0.9237287
## 2219                         AIRBUS        A320-232  0.0573826  0.9237287
## 2220                         AIRBUS        A320-232  0.0573826  0.9237287
## 2221                         AIRBUS        A320-214  0.0573826  0.6520505
## 2222                         BOEING        A320-232  0.0573826  0.1539737
## 2223                         BOEING         737-7H4  0.0573826  0.0181346
## 2224                        EMBRAER       EMB-145LR  0.0573826 -1.2647904
## 2225                        EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 2226               BOMBARDIER INC       CL-600-2B19  0.0573826 -1.2647904
## 2227                         BOEING         737-7H4  0.0573826  0.0181346
## 2228                        EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 2229              AIRBUS INDUSTRIE        A320-232  0.0573826  0.9237287
## 2230              AIRBUS INDUSTRIE        A319-112  0.0573826  0.6067708
## 2231                         BOEING         757-2Q8  0.0573826  0.5916775
## 2232              AIRBUS INDUSTRIE        A319-112  0.0573826  0.6067708
## 2233                         AIRBUS        A320-232  0.0573826  0.9237287
## 2235                        EMBRAER       EMB-145LR  0.0573826 -1.2647904
## 2236                         BOEING        A320-232  0.0573826  0.1539737
## 2237                         BOEING         737-824  0.0573826  0.1539737
## 2238              AIRBUS INDUSTRIE        A320-232  0.0573826  0.9237287
## 2239 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88  0.0573826  0.0483211
## 2240              AIRBUS INDUSTRIE        A319-112  0.0573826  0.6067708
## 2241                         BOEING         737-824  0.0573826  0.1539737
## 2242               BOMBARDIER INC       CL-600-2C10  0.0573826 -0.8874595
## 2243                         AIRBUS        A320-214  0.0573826  0.6520505
## 2244            MCDONNELL DOUGLAS  DC-9-82(MD-82)  0.0573826  0.5011181
## 2245                         AIRBUS        A320-232  0.0573826  0.9237287
## 2246                         AIRBUS        A319-114  0.0573826  0.0936008
## 2247                        EMBRAER       EMB-145LR  0.0573826 -1.2647904
## 2248                         BOEING        A320-232  0.0573826  0.1539737
## 2249                         AIRBUS        A320-232  0.0573826  0.9237287
## 2250                         BOEING        A320-232  0.0573826  0.1539737
## 2251              AIRBUS INDUSTRIE        A319-112  0.0573826  0.6067708
## 2252                         BOEING         737-7H4  0.0573826  0.0181346
## 2253                         BOEING        A320-232  0.0573826  0.1539737
## 2254                         BOEING        A320-232  0.0573826  0.1539737
## 2255              AIRBUS INDUSTRIE        A319-131  0.0573826  0.6067708
## 2256                        EMBRAER  ERJ 190-100 IGW  0.0573826 -1.7930536
## 2257                         BOEING         757-232  0.0573826  0.5916775
## 2259                         CESSNA            172N -11.5529141 -2.0345454
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## 2260                          AIRBUS        A320-232   0.0573826   0.9237287
## 2261                          AIRBUS        A320-232   0.0573826   0.9237287
## 2262                          AIRBUS        A319-114   0.0573826   0.0936008
## 2263                          BOEING         757-224   0.0573826   0.5916775
## 2264        ROBINSON HELICOPTER CO               R66 -11.5529141  -2.0194522
## 2265                          BOEING         737-832   0.0573826   0.7577031
## 2266                          BOEING        A320-232   0.0573826   0.1539737
## 2267                          BOEING         717-200   0.0573826  -0.5855948
## 2268 MCDONNELL DOUGLAS AIRCRAFT CO             MD-88   0.0573826   0.0483211
## 2269                          AIRBUS        A319-114   0.0573826   0.0936008
## 2270                         EMBRAER  ERJ 190-100 IGW   0.0573826  -1.7930536
## 2271                         EMBRAER  ERJ 190-100 IGW   0.0573826  -1.7930536
## 2272                          BOEING         767-223   0.0573826   1.7538567
## 2273                          BOEING        A320-232   0.0573826   0.1539737
## 2274                AIRBUS INDUSTRIE        A319-112   0.0573826   0.6067708
## 2275                         EMBRAER  ERJ 190-100 IGW   0.0573826  -1.7930536
## 2276                          BOEING        A320-232   0.0573826   0.1539737
## 2277                AIRBUS INDUSTRIE        A320-232   0.0573826   0.9237287
## 2278                          BOEING        A320-232   0.0573826   0.1539737
## 2279                          BOEING         737-7H4   0.0573826   0.0181346
## 2280                          BOEING         737-824   0.0573826   0.1539737
## 2281                          BOEING        A320-232   0.0573826   0.1539737
## 2282                 BOMBARDIER INC      CL-600-2C10   0.0573826  -0.8874595
## 2283                AIRBUS INDUSTRIE        A320-212   0.0573826   0.6520505
## 2285                AIRBUS INDUSTRIE        A320-232   0.0573826   0.9237287
## 2286                 BOMBARDIER INC      CL-600-2B19   0.0573826  -1.2647904
## 2287                AIRBUS INDUSTRIE        A319-112   0.0573826   0.6067708
## 2288                AIRBUS INDUSTRIE        A321-211   0.0573826   0.9086355
## 2289                         EMBRAER        EMB-145LR   0.0573826  -1.2647904
## 2290                          BOEING         757-232   0.0573826   0.5916775
## 2291                          BOEING         737-7H4   0.0573826   0.0181346
## 2292                         EMBRAER  ERJ 190-100 IGW   0.0573826  -1.7930536
## 2293                          AIRBUS        A320-232   0.0573826   0.9237287
## 2294                         EMBRAER        EMB-145LR   0.0573826  -1.2647904
## 2295                          BOEING         717-200   0.0573826  -0.5855948
## 2296                          BOEING        A320-232   0.0573826   0.1539737
## 2297                          BOEING         737-724   0.0573826   0.1539737
## 2298                         EMBRAER        EMB-145LR   0.0573826  -1.2647904
## 2300                         EMBRAER        EMB-145LR   0.0573826  -1.2647904
## 2301                          AIRBUS        A320-214   0.0573826   0.6520505
## 2302                          BOEING       767-424ER   0.0573826   2.3123064
## 2303                         EMBRAER        EMB-145LR   0.0573826  -1.2647904
## 2304                         EMBRAER        EMB-145XR   0.0573826  -1.2647904
## 2305                AIRBUS INDUSTRIE        A319-112   0.0573826   0.6067708
## 2306                        CANADAIR      CL-600-2B19   0.0573826  -1.2647904
## 2307                AIRBUS INDUSTRIE        A319-114   0.0573826   0.0936008
## 2308                          BOEING        A320-232   0.0573826   0.1539737
## 2309                          BOEING         757-222   0.0573826   0.5916775
## 2310                         EMBRAER        EMB-145XR   0.0573826  -1.2647904
## 2312                 BOMBARDIER INC      CL-600-2C10   0.0573826  -0.8874595
## 2313                          AIRBUS        A320-232   0.0573826   0.9237287
## 2314                AIRBUS INDUSTRIE        A319-131   0.0573826   0.6067708
## 2315                          AIRBUS        A321-231   0.0573826   3.6254178
## 2316                          BOEING        A320-232   0.0573826   0.1539737
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## 2317                       AIRBUS         A319-114 0.0573826  0.0936008
## 2318              BOMBARDIER INC       CL-600-2B19 0.0573826 -1.2647904
## 2319              BOMBARDIER INC       CL-600-2D24 0.0573826 -0.6610610
## 2320                       BOEING         A320-232 0.0573826  0.1539737
## 2321                       BOEING         A320-232 0.0573826  0.1539737
## 2322                       BOEING          757-232 0.0573826  0.5916775
## 2323             AIRBUS INDUSTRIE         A320-232 0.0573826  0.9237287
## 2324                       AIRBUS         A321-231 0.0573826  3.6254178
## 2325                       BOEING          757-224 0.0573826  0.5916775
## 2326                       BOEING          757-222 0.0573826  0.5916775
## 2327                       AIRBUS         A320-232 0.0573826  0.9237287
## 2328                      EMBRAER         EMB-145LR 0.0573826 -1.2647904
## 2329              BOMBARDIER INC       CL-600-2D24 0.0573826 -0.6610610
## 2330                       BOEING         A320-232 0.0573826  0.1539737
## 2331                       BOEING          757-224 0.0573826  0.5916775
## 2332                       BOEING         A320-232 0.0573826  0.1539737
## 2334                       BOEING          737-824 0.0573826  0.1539737
## 2335                       BOEING          737-7H4 0.0573826  0.0181346
## 2336              BOMBARDIER INC       CL-600-2B19 0.0573826 -1.2647904
## 2337                      EMBRAER         EMB-145LR 0.0573826 -1.2647904
## 2338                       BOEING         A320-232 0.0573826  0.1539737
## 2339                       BOEING         A320-232 0.0573826  0.1539737
## 2340                      EMBRAER         EMB-145XR 0.0573826 -1.2647904
## 2341             AIRBUS INDUSTRIE         A320-232 0.0573826  0.9237287
## 2343                       BOEING          757-222 0.0573826  0.5916775
## 2344                       BOEING          767-323 0.0573826  2.8858493
## 2345                      EMBRAER         EMB-145LR 0.0573826 -1.2647904
## 2346                      EMBRAER         EMB-145XR 0.0573826 -1.2647904
## 2347              BOMBARDIER INC       CL-600-2B19 0.0573826 -1.2647904
## 2348                       BOEING          737-824 0.0573826  0.1539737
## 2349                       BOEING          767-223 0.0573826  1.7538567
## 2350                       BOEING          737-832 0.0573826  0.7577031
## 2351                       BOEING          737-832 0.0573826  0.7577031
## 2352              BOMBARDIER INC       CL-600-2D24 0.0573826 -0.6610610
## 2353                      EMBRAER    ERJ 190-100 IGW 0.0573826 -1.7930536
## 2354                       BOEING          717-200 0.0573826 -0.5855948
## 2355             AIRBUS INDUSTRIE         A319-112 0.0573826  0.6067708
## 2356                       AIRBUS         A320-232 0.0573826  0.9237287
## 2357                       BOEING         A320-232 0.0573826  0.1539737
## 2358             AIRBUS INDUSTRIE         A320-212 0.0573826  0.6520505
## 2359             AIRBUS INDUSTRIE         A319-131 0.0573826  0.6067708
## 2360                      EMBRAER    ERJ 190-100 IGW 0.0573826 -1.7930536
## 2363              BOMBARDIER INC       CL-600-2B19 0.0573826 -1.2647904
## 2364              BOMBARDIER INC       CL-600-2D24 0.0573826 -0.6610610
## 2365 MCDONNELL DOUGLAS AIRCRAFT CO            MD-88 0.0573826  0.0483211
## 2366                       BOEING         A320-232 0.0573826  0.1539737
## 2367                      EMBRAER         EMB-145LR 0.0573826 -1.2647904
## 2368                       BOEING         A320-232 0.0573826  0.1539737
## 2369              BOMBARDIER INC       CL-600-2D24 0.0573826 -0.6610610
## 2370                       AIRBUS         A320-232 0.0573826  0.9237287
## 2371              BOMBARDIER INC       CL-600-2B19 0.0573826 -1.2647904
## 2372                       AIRBUS         A321-231 0.0573826  3.6254178
## 2373                      EMBRAER    ERJ 190-100 IGW 0.0573826 -1.7930536
## 2375             AIRBUS INDUSTRIE         A320-232 0.0573826  0.9237287
```

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## 2376                    MCDONNELL DOUGLAS    DC-9-82(MD-82)  0.0573826  0.5011181
## 2378                     BOMBARDIER INC      CL-600-2B19     0.0573826 -1.2647904
## 2379                    AIRBUS INDUSTRIE     A320-232        0.0573826  0.9237287
## 2380                             AIRBUS      A319-114        0.0573826  0.0936008
## 2381                    AIRBUS INDUSTRIE     A319-112        0.0573826  0.6067708
## 2383                             BOEING      757-232         0.0573826  0.5916775
## 2384                             AIRBUS      A320-232        0.0573826  0.9237287
## 2385                             BOEING      757-231         0.0573826  0.5916775
## 2386                             BOEING      737-7H4         0.0573826  0.0181346
## 2387                             BOEING      A320-232        0.0573826  0.1539737
## 2388                             AIRBUS      A320-232        0.0573826  0.9237287
## 2389                             AIRBUS      A320-232        0.0573826  0.9237287
## 2390                    AIRBUS INDUSTRIE     A320-232        0.0573826  0.9237287
## 2391                             EMBRAER     EMB-145LR       0.0573826 -1.2647904
## 2392 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88          0.0573826  0.0483211
## 2395                             BOEING      737-724         0.0573826  0.1539737
## 2396                             BOEING      A320-232        0.0573826  0.1539737
## 2397                             AIRBUS      A321-231        0.0573826  3.6254178
## 2398                             BOEING      A320-232        0.0573826  0.1539737
## 2399                             BOEING      737-832         0.0573826  0.7577031
## 2401                             BOEING      757-222         0.0573826  0.5916775
## 2402                             BOEING      757-224         0.0573826  0.5916775
## 2403                             AIRBUS      A320-232        0.0573826  0.9237287
## 2404                             BOEING      737-7H4         0.0573826  0.0181346
## 2405                             BOEING      737-7H4         0.0573826  0.0181346
## 2406                             EMBRAER     EMB-145XR       0.0573826 -1.2647904
## 2407                 GULFSTREAM AEROSPACE     G1159B         0.0573826 -1.7628672
## 2408                             AIRBUS      A320-232        0.0573826  0.9237287
## 2409                    AIRBUS INDUSTRIE     A320-232        0.0573826  0.9237287
## 2410                             BOEING      767-223         0.0573826  1.7538567
## 2411                             BOEING      737-705         0.0573826  0.1539737
## 2412                    AIRBUS INDUSTRIE     A319-112        0.0573826  0.6067708
## 2413                             EMBRAER   ERJ 190-100 IGW   0.0573826 -1.7930536
## 2414                             AIRBUS      A320-232        0.0573826  0.9237287
## 2415                             BOEING      A320-232        0.0573826  0.1539737
## 2416                             AIRBUS      A320-232        0.0573826  0.9237287
## 2417                             BOEING      A320-232        0.0573826  0.1539737
## 2418                             BOEING      A320-232        0.0573826  0.1539737
## 2419                     BOMBARDIER INC      CL-600-2C10     0.0573826 -0.8874595
## 2420                             BOEING      737-7H4         0.0573826  0.0181346
## 2421                             AIRBUS      A320-232        0.0573826  0.9237287
## 2422                             BOEING      737-724         0.0573826  0.1539737
## 2423                             EMBRAER   ERJ 190-100 IGW   0.0573826 -1.7930536
## 2425                     BOMBARDIER INC      CL-600-2B19     0.0573826 -1.2647904
## 2426                             BOEING      737-824         0.0573826  0.1539737
## 2427                             BOEING      737-724         0.0573826  0.1539737
## 2428                             BOEING      A320-232        0.0573826  0.1539737
## 2429                    AIRBUS INDUSTRIE     A319-112        0.0573826  0.6067708
## 2430                     BOMBARDIER INC      CL-600-2C10     0.0573826 -0.8874595
## 2431                    AIRBUS INDUSTRIE     A319-131        0.0573826  0.6067708
## 2432                             BOEING      757-222         0.0573826  0.5916775
## 2434                    AIRBUS INDUSTRIE     A320-212        0.0573826  0.6520505
## 2435                             AIRBUS      A320-232        0.0573826  0.9237287
## 2436                             BOEING      737-832         0.0573826  0.7577031
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## 2437               BOEING            A320-232  0.0573826  0.1539737
## 2438               BOEING            A320-232  0.0573826  0.1539737
## 2439               AIRBUS            A320-211  0.0573826  0.6520505
## 2440       BOMBARDIER INC          CL-600-2D24  0.0573826 -0.6610610
## 2441    MCDONNELL DOUGLAS      DC-9-82(MD-82)   0.0573826  0.5011181
## 2442               BOEING             717-200  0.0573826 -0.5855948
## 2443               BOEING             767-332  0.0573826  2.8858493
## 2444       BOMBARDIER INC          CL-600-2D24  0.0573826 -0.6610610
## 2445              EMBRAER          EMB-145XR   0.0573826 -1.2647904
## 2446               BOEING             737-7H4  0.0573826  0.0181346
## 2447               BOEING            A320-232  0.0573826  0.1539737
## 2448               BOEING            A320-232  0.0573826  0.1539737
## 2449               AIRBUS            A320-232  0.0573826  0.9237287
## 2450               AIRBUS            A320-232  0.0573826  0.9237287
## 2451       BOMBARDIER INC          CL-600-2D24  0.0573826 -0.6610610
## 2452               AIRBUS            A320-232  0.0573826  0.9237287
## 2453              EMBRAER          EMB-145LR   0.0573826 -1.2647904
## 2454               BOEING             757-232  0.0573826  0.5916775
## 2455       BOMBARDIER INC          CL-600-2D24  0.0573826 -0.6610610
## 2456               BOEING             737-832  0.0573826  0.7577031
## 2457               BOEING             737-832  0.0573826  0.7577031
## 2458              EMBRAER          EMB-145XR   0.0573826 -1.2647904
## 2459               BOEING            A320-232  0.0573826  0.1539737
## 2460               BOEING             737-7H4  0.0573826  0.0181346
## 2461       BOMBARDIER INC          CL-600-2B19  0.0573826 -1.2647904
## 2462               BOEING             737-724  0.0573826  0.1539737
## 2463              EMBRAER          EMB-145LR   0.0573826 -1.2647904
## 2464       BOMBARDIER INC          CL-600-2B19  0.0573826 -1.2647904
## 2465               AIRBUS            A319-114  0.0573826  0.0936008
## 2466       BOMBARDIER INC          CL-600-2D24  0.0573826 -0.6610610
## 2467     AIRBUS INDUSTRIE          A319-131  0.0573826  0.6067708
## 2469               BOEING            A320-232  0.0573826  0.1539737
## 2470               BOEING             737-724  0.0573826  0.1539737
## 2471               CESSNA                172N -11.5529141 -2.0345454
## 2472              EMBRAER          EMB-145LR   0.0573826 -1.2647904
## 2475              EMBRAER      ERJ 190-100 IGW  0.0573826 -1.7930536
## 2476              EMBRAER          EMB-145LR   0.0573826 -1.2647904
## 2477               AIRBUS            A320-232  0.0573826  0.9237287
## 2480               BOEING            A320-232  0.0573826  0.1539737
## 2481               BOEING             737-7H4  0.0573826  0.0181346
## 2482              EMBRAER          EMB-145XR   0.0573826 -1.2647904
## 2483              EMBRAER          EMB-145LR   0.0573826 -1.2647904
## 2486              EMBRAER          EMB-145LR   0.0573826 -1.2647904
## 2487              EMBRAER      ERJ 190-100 IGW  0.0573826 -1.7930536
## 2489               AIRBUS            A320-232  0.0573826  0.9237287
## 2492              EMBRAER      ERJ 190-100 IGW  0.0573826 -1.7930536
## 2495     AIRBUS INDUSTRIE          A320-232  0.0573826  0.9237287
## 2496               AIRBUS            A320-232  0.0573826  0.9237287
## 2497               BOEING            A320-232  0.0573826  0.1539737
## 2498               BOEING            A320-232  0.0573826  0.1539737
## 2499               BOEING            A320-232  0.0573826  0.1539737
## 2500               BOEING             717-200  0.0573826 -0.5855948
## 2501               AIRBUS            A319-114  0.0573826  0.0936008
## 2502               BOEING            A320-232  0.0573826  0.1539737
```

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## 2503                    CANADAIR    CL-600-2B19 0.0573826 -1.2647904
## 2504                      AIRBUS       A320-232 0.0573826  0.9237287
## 2505                      BOEING       A320-232 0.0573826  0.1539737
## 2506                     EMBRAER     EMB-145LR 0.0573826 -1.2647904
## 2507            AIRBUS INDUSTRIE       A320-232 0.0573826  0.9237287
## 2508                      BOEING       A320-232 0.0573826  0.1539737
## 2509                      BOEING        737-7H4 0.0573826  0.0181346
## 2510                      BOEING        757-222 0.0573826  0.5916775
## 2511                      AIRBUS       A319-114 0.0573826  0.0936008
## 2512                      AIRBUS       A321-211 0.0573826  0.9086355
## 2513                      AIRBUS       A320-232 0.0573826  0.9237287
## 2514            AIRBUS INDUSTRIE       A321-211 0.0573826  0.9086355
## 2515                     EMBRAER     EMB-145LR 0.0573826 -1.2647904
## 2516                     EMBRAER     EMB-145XR 0.0573826 -1.2647904
## 2517                      AIRBUS       A320-232 0.0573826  0.9237287
## 2518                     EMBRAER     EMB-145XR 0.0573826 -1.2647904
## 2519                      BOEING        757-222 0.0573826  0.5916775
## 2520            AIRBUS INDUSTRIE       A319-112 0.0573826  0.6067708
## 2521            AIRBUS INDUSTRIE       A319-131 0.0573826  0.6067708
## 2522                     EMBRAER     EMB-145LR 0.0573826 -1.2647904
## 2523                      BOEING        737-724 0.0573826  0.1539737
## 2524                      BOEING       A320-232 0.0573826  0.1539737
## 2525                      BOEING        757-232 0.0573826  0.5916775
## 2526                      BOEING        737-824 0.0573826  0.1539737
## 2527                      BOEING       A320-232 0.0573826  0.1539737
## 2528                      BOEING        757-231 0.0573826  0.5916775
## 2529 MCDONNELL DOUGLAS AIRCRAFT CO       MD-88 0.0573826  0.0483211
## 2530                      BOEING        757-231 0.0573826  0.5916775
## 2531                     EMBRAER     EMB-145LR 0.0573826 -1.2647904
## 2532                      BOEING        737-924 0.0573826  0.7878896
## 2533                      BOEING        737-924 0.0573826  0.7878896
## 2534                     EMBRAER ERJ 190-100 IGW 0.0573826 -1.7930536
## 2535                      AIRBUS       A320-232 0.0573826  0.9237287
## 2536                      AIRBUS       A320-232 0.0573826  0.9237287
## 2537                      BOEING        737-724 0.0573826  0.1539737
## 2538            AIRBUS INDUSTRIE       A319-131 0.0573826  0.6067708
## 2539                     EMBRAER     EMB-145LR 0.0573826 -1.2647904
## 2540                      AIRBUS       A320-214 0.0573826  0.6520505
## 2541                      BOEING        767-223 0.0573826  1.7538567
## 2542 MCDONNELL DOUGLAS AIRCRAFT CO       MD-88 0.0573826  0.0483211
## 2543                      BOEING        717-200 0.0573826 -0.5855948
## 2544                      BOEING        737-824 0.0573826  0.1539737
## 2545                      BOEING        737-890 0.0573826  0.1539737
## 2546                      BOEING        767-223 0.0573826  1.7538567
## 2547            AIRBUS INDUSTRIE       A319-114 0.0573826  0.0936008
## 2548                     EMBRAER     EMB-145LR 0.0573826 -1.2647904
## 2549            AIRBUS INDUSTRIE       A320-232 0.0573826  0.9237287
## 2550                      BOEING     737-924ER 0.0573826  0.7878896
## 2551               BOMBARDIER INC    CL-600-2B19 0.0573826 -1.2647904
## 2552                     EMBRAER     EMB-145LR 0.0573826 -1.2647904
## 2553                      AIRBUS       A321-231 0.0573826  3.6254178
## 2554                      BOEING        737-7BD 0.0573826  0.1539737
## 2555                      BOEING        757-222 0.0573826  0.5916775
## 2556                      AIRBUS       A320-232 0.0573826  0.9237287
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## 2557              BOMBARDIER INC    CL-600-2D24  0.0573826 -0.6610610
## 2558                     BOEING       717-200    0.0573826 -0.5855948
## 2559                     BOEING       A320-232   0.0573826  0.1539737
## 2560 MCDONNELL DOUGLAS AIRCRAFT CO     MD-88      0.0573826  0.0483211
## 2561                    EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 2562                     BOEING       757-232    0.0573826  0.5916775
## 2563                     BOEING       737-732    0.0573826  0.1539737
## 2564          AIRBUS INDUSTRIE       A320-212   0.0573826  0.6520505
## 2565          AIRBUS INDUSTRIE       A320-212   0.0573826  0.6520505
## 2566          AIRBUS INDUSTRIE       A320-232   0.0573826  0.9237287
## 2567                     BOEING       A320-232   0.0573826  0.1539737
## 2568              BOMBARDIER INC    CL-600-2D24  0.0573826 -0.6610610
## 2569                     AIRBUS       A320-232   0.0573826  0.9237287
## 2570                    EMBRAER     EMB-145LR    0.0573826 -1.2647904
## 2571                    EMBRAER     EMB-145XR    0.0573826 -1.2647904
## 2572          MCDONNELL DOUGLAS   DC-9-82(MD-82) 0.0573826  0.5011181
## 2573                     AIRBUS       A320-211   0.0573826  0.6520505
## 2574                    EMBRAER     EMB-145LR    0.0573826 -1.2647904
## 2575                    EMBRAER     EMB-145LR    0.0573826 -1.2647904
## 2576                    EMBRAER     EMB-145LR    0.0573826 -1.2647904
## 2577                     BOEING       A320-232   0.0573826  0.1539737
## 2578                     BOEING       737-924ER  0.0573826  0.7878896
## 2579                     BOEING       757-26D    0.0573826  0.5916775
## 2580                     BOEING       A320-232   0.0573826  0.1539737
## 2581                     BOEING       757-224    0.0573826  0.5916775
## 2582          AIRBUS INDUSTRIE       A319-112   0.0573826  0.6067708
## 2583                     BOEING       737-824    0.0573826  0.1539737
## 2584              BOMBARDIER INC    CL-600-2D24  0.0573826 -0.6610610
## 2585                     BOEING       A320-232   0.0573826  0.1539737
## 2586              BOMBARDIER INC    CL-600-2D24  0.0573826 -0.6610610
## 2587                    EMBRAER     EMB-145XR    0.0573826 -1.2647904
## 2588                     BOEING       A320-232   0.0573826  0.1539737
## 2589          AIRBUS INDUSTRIE       A320-232   0.0573826  0.9237287
## 2590                     BOEING       737-824    0.0573826  0.1539737
## 2591                     BOEING       767-223    0.0573826  1.7538567
## 2592                    EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 2593          AIRBUS INDUSTRIE       A320-232   0.0573826  0.9237287
## 2594          AIRBUS INDUSTRIE       A320-232   0.0573826  0.9237287
## 2595                     BOEING       757-232    0.0573826  0.5916775
## 2596                    EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 2597                     BOEING       A320-232   0.0573826  0.1539737
## 2598                    EMBRAER     EMB-145LR    0.0573826 -1.2647904
## 2599                     BOEING       757-222    0.0573826  0.5916775
## 2600                     BOEING       737-724    0.0573826  0.1539737
## 2601                    EMBRAER   ERJ 190-100 IGW  0.0573826 -1.7930536
## 2602          MCDONNELL DOUGLAS   DC-9-82(MD-82) 0.0573826  0.5011181
## 2603          MCDONNELL DOUGLAS   DC-9-82(MD-82) 0.0573826  0.5011181
## 2604              BOMBARDIER INC    CL-600-2B19  0.0573826 -1.2647904
## 2605                     BOEING       737-824    0.0573826  0.1539737
## 2606                     AIRBUS       A320-232   0.0573826  0.9237287
## 2607                     AIRBUS       A320-232   0.0573826  0.9237287
## 2608                     AIRBUS       A320-214   0.0573826  0.6520505
## 2609                     AIRBUS       A320-232   0.0573826  0.9237287
## 2610                     BOEING       737-724    0.0573826  0.1539737
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## 2611               LEBLANC GLENN T        FALCON XP -11.5529141 -2.0647319
## 2612                       BOEING          737-7H4   0.0573826  0.0181346
## 2613                       BOEING         A320-232   0.0573826  0.1539737
## 2614                       BOEING          737-824   0.0573826  0.1539737
## 2615                       BOEING          757-232   0.0573826  0.5916775
## 2616              AIRBUS INDUSTRIE         A319-112   0.0573826  0.6067708
## 2617                      EMBRAER         EMB-145LR   0.0573826 -1.2647904
## 2618                       AIRBUS         A320-232   0.0573826  0.9237287
## 2619 MCDONNELL DOUGLAS AIRCRAFT CO           MD-88   0.0573826  0.0483211
##              engine sched_arr_time_minute sched_arr_time_num_minute
## 1         Turbo-fan            1.20547743                -1.34997330
## 2         Turbo-fan           -0.05530377                -1.62455043
## 3         Turbo-fan            1.26278567                -1.34662479
## 4         Turbo-jet           -0.68569437                -1.25956375
## 5         Turbo-fan            0.46047036                -1.19259372
## 6         Turbo-fan           -1.31608498                -1.69821746
## 7         Turbo-fan           -1.54531792                -1.30979128
## 8         Turbo-fan           -0.22722848                -1.43368584
## 9         Turbo-fan           -0.51376966                -1.45042834
## 10        Turbo-fan           -0.45646143                -1.24616974
## 11        Turbo-fan           -1.65993439                -0.91466808
## 12        Turbo-fan           -0.80031085                -1.26626075
## 13        Turbo-fan            0.63239507                -0.78072802
## 14        Turbo-fan            1.03355272                -1.15910870
## 15        Turbo-fan           -1.08685203                -1.48391336
## 16        Turbo-fan            0.63239507                -1.58436841
## 17        Turbo-fan            0.23123741                -1.40689782
## 18        Turbo-fan           -0.05530377                -1.62455043
## 19        Turbo-fan            1.14816919                -1.55423189
## 20        Turbo-fan            0.63239507                -1.18254821
## 21        Turbo-jet            1.09086096                -1.35667030
## 22        Turbo-fan           -1.08685203                -1.48391336
## 23        Turbo-jet           -0.74300261                -1.26291225
## 24        Turbo-fan            0.74701154                -1.17585121
## 25        Turbo-fan           -0.45646143                -1.24616974
## 26        Turbo-jet           -1.14416027                -1.08544167
## 27        Turbo-jet            0.05931270                -1.01512313
## 28        Turbo-fan            0.91893625                -0.96489561
## 29        Turbo-fan            1.20547743                -1.34997330
## 30        Turbo-fan            1.72125156                -1.11892668
## 31        Turbo-fan            0.63239507                -1.18254821
## 32        Turbo-fan           -0.80031085                -1.06535066
## 33        Turbo-jet           -1.20146850                -1.08879017
## 34        Turbo-fan            0.17392917                -1.41024632
## 35        Turbo-fan           -1.31608498                -0.69366698
## 36        Turbo-fan            0.34585388                -0.99838062
## 37        Turbo-fan            0.63239507                -1.38345831
## 38        Turbo-jet           -0.68569437                -1.05865365
## 39        Turbo-fan            0.05931270                -1.01512313
## 40        Turbo-fan            0.63239507                -0.98163812
## 41        Turbo-fan            1.32009390                -1.14236619
## 42        Turbo-fan            0.51777859                -0.98833512
## 43        Turbo-fan           -0.80031085                -0.86444056
## 44        Turbo-fan           -0.91492732                -0.87113756
```

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## 45       Turbo-fan      0.51777859       -0.98833512
## 46       Turbo-fan     -1.65993439       -0.91466808
## 47       Turbo-fan     -0.22722848       -0.83095554
## 49       Turbo-fan      1.72125156       -1.11892668
## 50       Turbo-fan     -1.08685203       -0.88118307
## 51       Turbo-fan      0.68970330       -0.97828961
## 52       Turbo-fan      1.43471038       -0.93475909
## 53       Turbo-fan     -0.22722848       -1.23277574
## 54       Turbo-jet      0.86162801       -0.76733401
## 55       Turbo-fan     -1.08685203       -1.08209316
## 56       Turbo-fan      0.46047036       -0.99168362
## 57       Turbo-fan      0.17392917       -1.00842613
## 58       Turbo-fan     -0.74300261       -1.06200216
## 59       Turbo-fan     -0.68569437       -1.05865365
## 60       Turbo-jet      0.00200446       -0.41574134
## 61       Turbo-fan      0.91893625       -1.16580571
## 62       Turbo-fan     -0.28453672       -1.03521414
## 63       Turbo-fan     -0.22722848       -1.03186564
## 64       Turbo-fan     -1.37339321       -0.89792558
## 66       Turbo-fan     -0.97223556       -1.07539616
## 67       Turbo-jet     -1.65993439       -0.71375799
## 68       Turbo-fan      0.57508683       -0.98498662
## 69       Turbo-fan      0.05931270       -1.01512313
## 70       Turbo-fan     -1.54531792       -0.90797108
## 71       Turbo-fan      1.20547743       -0.74724300
## 72       Turbo-jet      0.34585388       -0.99838062
## 73       Turbo-fan      1.20547743       -0.34542281
## 75       Turbo-jet      0.40316212       -0.79412202
## 76       Turbo-fan      0.40316212       -0.99503212
## 77       Turbo-fan     -1.37339321       -0.89792558
## 78       Turbo-fan     -1.31608498       -0.69366698
## 79       Turbo-fan      0.91893625       -0.76398551
## 80       Turbo-fan     -1.48800968       -0.70371248
## 81       Turbo-fan     -0.51376966       -0.84769805
## 82       Turbo-fan      0.23123741       -0.80416753
## 83       Turbo-jet      0.91893625       -0.96489561
## 84       Turbo-jet     -0.22722848       -0.83095554
## 86       Turbo-jet     -0.74300261       -0.25836176
## 87    Reciprocating     0.63239507       -0.57981792
## 88       Turbo-fan      0.91893625       -0.56307541
## 89       Turbo-fan     -1.20146850       -0.88788007
## 90       Turbo-fan     -0.22722848       -1.03186564
## 91       Turbo-fan     -0.11261201       -0.62334844
## 92       Turbo-jet     -0.51376966       -0.64678795
## 93       Turbo-fan     -1.14416027       -0.68362147
## 94    Reciprocating     0.51777859       -0.58651492
## 95       Turbo-fan     -1.20146850       -0.88788007
## 96       Turbo-fan     -0.22722848       -0.63004545
## 97       Turbo-fan     -1.54531792       -0.90797108
## 98       Turbo-fan      1.66394332       -0.51954489
## 99       Turbo-fan     -1.54531792       -0.70706098
## 100      Turbo-fan      0.68970330       -0.57646942
## 101      Turbo-fan     -0.57107790       -0.44922636
## 102      Turbo-fan     -1.31608498       -0.69366698
```

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## 103       Turbo-jet       -1.25877674        -0.48940838
## 104       Turbo-fan        1.20547743        -0.74724300
## 106       Turbo-fan        0.57508683        -0.38225632
## 107       Turbo-fan        0.28854565        -0.39899883
## 108       Turbo-fan        1.20547743        -0.54633290
## 109       Turbo-jet        0.40316212        -0.79412202
## 110       Turbo-fan       -1.08685203        -0.68027297
## 111       Turbo-fan       -0.16992025        -0.42578685
## 112       Turbo-fan        1.26278567        -0.34207430
## 113       Turbo-fan        1.20547743        -0.54633290
## 114       Turbo-fan        0.57508683        -0.38225632
## 115       Turbo-fan       -1.14416027        -0.68362147
## 116       Turbo-jet       -0.80031085        -0.66353046
## 117       Turbo-fan        1.26278567        -0.34207430
## 118       Turbo-fan        0.17392917        -0.40569584
## 119       Turbo-fan       -1.08685203        -0.47936287
## 120       Turbo-fan       -0.22722848        -0.22822525
## 121       Turbo-fan       -0.80031085        -0.46262036
## 122       Turbo-fan       -0.22722848        -0.42913535
## 123       Turbo-fan        0.91893625        -0.16125522
## 124       Turbo-jet        1.09086096        -0.15120971
## 125       Turbo-jet       -0.22722848        -0.22822525
## 126       Turbo-fan        0.46047036        -0.18804323
## 127       Turbo-fan       -1.37339321        -0.49610538
## 128       Turbo-fan        0.74701154        -0.37221082
## 129       Turbo-fan        0.05931270        -0.41239284
## 130       Turbo-fan        0.91893625        -0.16125522
## 131       Turbo-jet        1.26278567        -0.14116421
## 132       Turbo-fan       -1.02954379        -0.27510427
## 133       Turbo-fan       -0.11261201        -0.42243834
## 134       Turbo-fan        0.68970330        -0.37555932
## 136       Turbo-fan       -1.31608498        -0.49275688
## 137       Turbo-fan       -0.80031085        -0.46262036
## 138       Turbo-fan       -1.65993439        -0.51284789
## 139       Turbo-jet        0.11662094        -0.40904434
## 140       Turbo-fan        1.37740214         0.26735299
## 141       Turbo-fan       -1.37339321        -0.09428518
## 142       Turbo-fan       -1.54531792        -0.10433069
## 143       Turbo-fan       -0.91492732        -0.26840727
## 144       Turbo-jet        0.00200446        -0.01392115
## 145    Reciprocating      -0.80031085        -0.26171027
## 146       Turbo-fan       -1.65993439        -0.11102769
## 147       Turbo-fan        0.00200446        -0.21483124
## 148       Turbo-fan        0.51777859        -0.18469473
## 149       Turbo-fan        0.00200446        -0.01392115
## 150       Turbo-fan        1.20547743        -0.34542281
## 151       Turbo-fan       -1.37339321        -0.29519528
## 152       Turbo-fan       -0.05530377        -0.21817974
## 153       Turbo-fan       -1.65993439         0.08988241
## 154       Turbo-fan        1.20547743         0.05639739
## 155       Turbo-fan        0.46047036         0.01286687
## 156       Turbo-fan       -1.14416027        -0.28180128
## 157       Turbo-fan        1.20547743        -0.14451271
## 158    Reciprocating       0.63239507         0.02291237
```

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## 160     Turbo-fan     -1.60262616      0.09323091
## 162     Turbo-fan     -0.62838614     -0.25166476
## 163     Turbo-fan     -0.51376966     -0.04405766
## 164     Turbo-fan      1.49201861      0.07313990
## 165     Turbo-fan     -1.08685203      0.12336742
## 166     Turbo-jet     -1.37339321     -0.09428518
## 167   Turbo-shaft     -1.37339321      0.10662491
## 168     Turbo-jet      0.40316212      0.21042846
## 169     Turbo-jet     -1.20146850      0.11667042
## 170     Turbo-fan      0.40316212      0.00951837
## 172     Turbo-fan     -1.37339321      0.30753501
## 173     Turbo-fan      0.63239507      0.22382247
## 174     Turbo-fan     -1.08685203      0.32427752
## 175     Turbo-fan     -1.65993439      0.08988241
## 176     Turbo-fan     -0.85761908     -0.06414867
## 177     Turbo-fan     -0.80031085     -0.06080017
## 178     Turbo-jet     -0.16992025     -0.02396665
## 179     Turbo-fan      0.63239507      0.22382247
## 181     Turbo-fan      0.63239507      0.22382247
## 183     Turbo-fan      0.17392917      0.39794456
## 184     Turbo-fan      0.34585388      0.00616986
## 185     Turbo-jet      1.32009390      0.46491459
## 186     Turbo-jet      1.72125156      0.48835410
## 187     Turbo-fan      1.20547743      0.05639739
## 190     Turbo-fan      0.86162801      0.43812657
## 191     Turbo-fan     -0.51376966      0.55867263
## 192     Turbo-fan     -1.54531792      0.09657941
## 193     Turbo-fan      0.91893625      0.24056498
## 194     Turbo-fan     -0.22722848      0.57541514
## 195     Turbo-fan      0.57508683      0.22047397
## 196     Turbo-fan      0.91893625      0.24056498
## 197     Turbo-fan     -0.51376966      0.15685244
## 198     Turbo-fan     -1.08685203      0.52518762
## 199     Turbo-fan     -0.91492732      0.53523312
## 200     Turbo-fan      1.54932685      0.27739850
## 201     Turbo-fan      1.49201861      0.27404999
## 202     Turbo-fan     -1.31608498      0.51179361
## 203     Turbo-fan      1.49201861      0.27404999
## 204     Turbo-fan     -0.51376966      0.55867263
## 205     Turbo-jet      0.68970330      0.42808107
## 206     Turbo-fan      1.54932685      0.27739850
## 207     Turbo-fan      0.91893625      0.44147508
## 208     Turbo-fan      1.03355272      0.44817208
## 209     Turbo-fan      0.74701154      0.43142957
## 210     Turbo-fan     -1.48800968      0.30083801
## 211     Turbo-fan     -1.65993439      0.29079250
## 212     Turbo-fan      1.49201861      0.27404999
## 213     Turbo-jet     -0.74300261      0.54527863
## 214     Turbo-fan     -0.22722848      0.37450504
## 215     Turbo-jet     -0.05530377      0.58546065
## 217     Turbo-fan      1.20547743      0.25730749
## 218     Turbo-fan      1.03355272      0.24726198
## 219     Turbo-fan     -0.22722848      0.37450504
## 220     Turbo-jet      1.20547743      0.45821758
```

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## 221       Turbo-fan          0.34585388              0.40799006
## 222       Turbo-fan          1.20547743              0.25730749
## 223       Turbo-jet          1.26278567              0.66247618
## 224       Turbo-fan         -1.08685203              0.72609771
## 226       Turbo-jet         -0.91492732              0.73614322
## 227       Turbo-fan          1.09086096              0.45152058
## 228       Turbo-fan          1.72125156              0.68926420
## 229       Turbo-fan          0.11662094              0.59550615
## 230       Turbo-fan         -0.51376966              0.55867263
## 231       Turbo-fan         -0.80031085              0.74284022
## 232       Turbo-fan          0.57508683              0.82320426
## 233       Turbo-fan          0.74701154              0.43142957
## 234       Turbo-fan         -1.48800968              0.70265820
## 235       Turbo-fan          0.00200446              0.38789905
## 236       Turbo-fan         -1.20146850              0.31758052
## 237       Turbo-fan          0.57508683              0.42138407
## 238       Turbo-fan          0.05931270              0.59215765
## 239       Turbo-fan         -0.80031085              0.34102003
## 240       Turbo-fan         -0.22722848              0.77632524
## 241       Turbo-fan          1.09086096              0.85334078
## 242       Turbo-fan          0.05931270              0.59215765
## 245       Turbo-jet         -0.34184495              0.76962824
## 247       Turbo-fan          0.80431978              0.83659827
## 248       Turbo-fan         -0.11261201              0.38120205
## 249       Turbo-fan         -1.65993439              0.89352280
## 251       Turbo-fan          1.20547743              0.65912768
## 252       Turbo-fan         -0.74300261              0.54527863
## 253       Turbo-fan         -1.02954379              0.72944622
## 254       Turbo-fan         -1.43070145              0.90691680
## 255       Turbo-fan          1.49201861              0.87678029
## 256       Turbo-jet          1.37740214              0.46826309
## 257       Turbo-fan          1.49201861              0.87678029
## 258       Turbo-fan         -0.80031085              0.94375032
## 259       Turbo-fan         -0.05530377              0.98728084
## 260       Turbo-fan         -0.80031085              0.74284022
## 261       Turbo-jet         -1.65993439              0.89352280
## 263       Turbo-jet          1.66394332              0.88682579
## 264       Turbo-fan          0.40316212              1.01406885
## 265       Turbo-fan         -1.08685203              0.72609771
## 266       Turbo-fan         -1.60262616              1.29869149
## 267       Turbo-fan         -1.37339321              0.70935521
## 268       Turbo-jet         -0.45646143              0.96384133
## 269       Turbo-fan          1.20547743              1.06094788
## 270       Turbo-jet         -1.65993439              1.09443289
## 271    Reciprocating         0.63239507              1.02746286
## 273       Turbo-jet          1.49201861              1.07769039
## 275       Turbo-fan          1.37740214              0.87008328
## 276       Turbo-fan          1.32009390              1.06764488
## 277       Turbo-jet          1.72125156              1.09108439
## 278       Turbo-fan         -0.80031085              0.74284022
## 279       Turbo-fan          0.46047036              1.01741736
## 281       Turbo-fan          0.80431978              0.83659827
## 282       Turbo-fan          1.26278567              0.86338628
## 283       Turbo-fan         -0.57107790              1.15805442
```

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## 284      Turbo-jet      0.91893625       0.84329527
## 285      Turbo-fan     -0.62838614       1.15470592
## 286      Turbo-fan      1.49201861       0.87678029
## 287      Turbo-jet      1.20547743       1.06094788
## 288      Turbo-fan      1.49201861       1.07769039
## 289      Turbo-fan      1.37740214       1.07099338
## 290      Turbo-fan      0.05931270       1.19488794
## 291      Turbo-fan     -1.25877674       1.31878250
## 292      Turbo-fan      1.26278567       0.86338628
## 294      Turbo-jet     -0.16992025       1.38240403
## 297      Turbo-fan     -0.74300261       0.94709882
## 298      Turbo-fan      0.68970330       1.23172146
## 299      Turbo-fan     -0.62838614       0.95379583
## 300      Turbo-fan      1.49201861       1.27860048
## 301      Turbo-fan      0.74701154       1.23506996
## 302      Turbo-fan      0.86162801       1.44267706
## 303      Turbo-fan      0.46047036       1.41923755
## 304   Reciprocating     1.49201861       1.07769039
## 305      Turbo-fan      1.60663509       1.48620758
## 306      Turbo-fan      1.60663509       1.48620758
## 307      Turbo-fan      0.97624448       1.44937407
## 308      Turbo-jet     -0.57107790       1.55987462
## 310      Turbo-fan      1.20547743       1.06094788
## 311      Turbo-fan      0.51777859       1.42258605
## 312      Turbo-fan     -0.80031085       1.34557052
## 313      Turbo-fan     -1.25877674      -3.10123965
## 316      Turbo-fan      0.80431978       1.23841846
## 317      Turbo-fan      0.63239507       1.42928306
## 318      Turbo-fan      0.68970330       1.43263156
## 319      Turbo-fan      0.11662094       1.39914654
## 320      Turbo-fan      0.28854565       1.20828195
## 321      Turbo-fan     -0.22722848       1.57996563
## 322      Turbo-fan      1.26278567       1.46611657
## 323      Turbo-jet     -1.08685203       1.52973811
## 324      Turbo-fan     -1.25877674       1.51969260
## 328      Turbo-fan     -1.08685203       1.32882801
## 330      Turbo-jet      1.66394332       1.28864599
## 332      Turbo-jet     -0.28453672       1.57661713
## 333      Turbo-fan      0.68970330       1.63354166
## 336      Turbo-jet      1.09086096       1.65698117
## 339   Reciprocating    -0.22722848       1.37905553
## 340      Turbo-fan      0.74701154       1.63689016
## 341      Turbo-jet      0.34585388       1.61345065
## 342      Turbo-fan     -1.37339321      -3.10793665
## 343      Turbo-fan      1.20547743       1.66367817
## 344      Turbo-fan      1.49201861       1.68042068
## 346      Turbo-jet      0.05931270       1.39579804
## 347      Turbo-fan     -1.54531792       1.30203999
## 348      Turbo-jet     -0.68569437      -3.06775463
## 349      Turbo-fan      1.72125156       1.69381469
## 350      Turbo-fan      0.57508683      -2.99408760
## 351      Turbo-fan     -0.97223556       1.33552501
## 352      Turbo-fan     -0.62838614      -3.06440613
## 353      Turbo-fan      0.63239507       1.42928306
```

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## 354      Turbo-shaft         0.68970330          -2.98739059
## 355       Turbo-fan          0.46047036           1.62014765
## 356       Turbo-fan         -0.80031085          -2.47172134
## 358       Turbo-fan          1.54932685           1.68376918
## 359       Turbo-fan         -1.37339321          -3.10793665
## 365       Turbo-fan          0.91893625          -2.17035619
## 366       Turbo-fan          0.46047036          -2.19714421
## 367       Turbo-jet          1.20547743          -1.75179349
## 368       Turbo-fan         -0.05530377          -1.42364033
## 369       Turbo-fan         -1.60262616          -1.31313978
## 370       Turbo-fan          1.66394332          -1.32318528
## 371       Turbo-fan         -1.08685203          -1.28300326
## 372       Turbo-fan          1.60663509          -1.52744388
## 373       Turbo-fan         -1.60262616          -1.31313978
## 374       Turbo-fan         -1.25877674          -1.29304877
## 375       Turbo-fan         -1.37339321          -1.50065587
## 376       Turbo-fan          0.34585388          -1.60111092
## 377       Turbo-fan         -0.74300261          -1.26291225
## 378       Turbo-jet          0.91893625          -1.36671580
## 379       Turbo-fan         -0.51376966          -1.45042834
## 380       Turbo-fan          0.86162801          -1.37006431
## 381       Turbo-fan         -0.22722848          -1.63459593
## 382       Turbo-fan         -1.65993439          -0.91466808
## 383       Turbo-fan          0.28854565          -1.20263922
## 384       Turbo-jet          0.97624448          -1.16245720
## 385       Turbo-fan          0.23123741          -1.40689782
## 386       Turbo-fan          0.17392917          -1.20933623
## 387       Turbo-fan         -0.80031085          -1.66808095
## 388       Turbo-fan          0.34585388          -1.60111092
## 389       Turbo-fan         -0.11261201          -1.42698883
## 390       Turbo-jet          0.63239507          -1.18254821
## 391       Turbo-fan         -1.08685203          -1.48391336
## 392       Turbo-jet          1.49201861          -1.13232069
## 393       Turbo-fan         -0.62838614          -1.05530515
## 394       Turbo-fan         -0.80031085          -1.46717085
## 395       Turbo-fan         -0.68569437          -1.25956375
## 396       Turbo-fan          0.63239507          -1.18254821
## 397       Turbo-fan          0.34585388          -1.19929072
## 398       Turbo-fan          0.68970330          -1.38010981
## 399       Turbo-jet         -0.74300261          -1.26291225
## 400       Turbo-jet          0.05931270          -1.01512313
## 401       Turbo-fan          0.97624448          -1.16245720
## 402       Turbo-fan          1.49201861          -1.13232069
## 403       Turbo-fan          0.74701154          -1.17585121
## 404       Turbo-fan         -1.14416027          -1.08544167
## 405       Turbo-fan         -1.14416027          -1.48726186
## 406       Turbo-fan         -0.22722848          -1.03186564
## 407       Turbo-fan         -0.91492732          -1.27295776
## 408       Turbo-fan          1.43471038          -0.73384900
## 410       Turbo-fan          1.20547743          -1.34997330
## 411       Turbo-fan          0.91893625          -0.96489561
## 412       Turbo-fan         -0.85761908          -1.06869916
## 413       Turbo-jet          0.68970330          -1.17919971
## 414       Turbo-fan          0.17392917          -1.41024632
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## 415      Turbo-fan       0.34585388      -0.99838062
## 416      Turbo-fan      -0.97223556      -1.07539616
## 418      Turbo-fan       0.05931270      -1.01512313
## 420      Turbo-fan       1.32009390      -1.14236619
## 421      Turbo-jet       1.54932685      -0.92806209
## 422      Turbo-fan       0.63239507      -0.98163812
## 423    Reciprocating     0.05931270      -1.21603323
## 424      Turbo-fan      -0.22722848      -0.83095554
## 425      Turbo-jet       0.11662094      -1.01177463
## 426      Turbo-fan      -0.80031085      -1.06535066
## 427      Turbo-jet      -0.57107790      -1.05195665
## 428      Turbo-fan      -1.25877674      -1.09213867
## 429      Turbo-fan      -0.62838614      -1.25621525
## 430      Turbo-fan       0.74701154      -0.97494111
## 432      Turbo-fan      -1.31608498      -0.89457707
## 433      Turbo-fan      -0.11261201      -0.82425854
## 434      Turbo-fan       1.72125156      -1.11892668
## 435      Turbo-fan      -0.74300261      -0.86109206
## 436      Turbo-jet      -1.08685203      -0.88118307
## 437      Turbo-fan      -0.80031085      -0.46262036
## 438      Turbo-fan       1.09086096      -1.15576020
## 439      Turbo-fan      -0.85761908      -1.06869916
## 440      Turbo-fan      -0.05530377      -0.82091004
## 442      Turbo-fan      -1.25877674      -1.09213867
## 443      Turbo-fan      -0.22722848      -1.23277574
## 444      Turbo-fan       0.00200446      -0.81756154
## 445      Turbo-jet      -1.48800968      -0.90462258
## 446      Turbo-fan      -1.08685203      -0.47936287
## 447      Turbo-fan      -0.80031085      -1.06535066
## 448      Turbo-fan      -0.22722848      -1.03186564
## 450      Turbo-fan      -1.54531792      -0.90797108
## 451      Turbo-fan      -1.37339321      -0.89792558
## 452      Turbo-fan      -1.25877674      -1.09213867
## 453      Turbo-fan      -1.65993439      -0.71375799
## 455      Turbo-fan       0.40316212      -0.99503212
## 457      Turbo-fan       0.34585388      -0.99838062
## 458      Turbo-fan       1.66394332      -0.92136509
## 459      Turbo-jet      -0.22722848      -0.83095554
## 460      Turbo-fan       1.72125156      -0.91801659
## 462      Turbo-fan      -1.37339321      -0.69701548
## 463      Turbo-fan      -1.37339321      -0.89792558
## 464      Turbo-fan      -0.51376966      -0.64678795
## 465      Turbo-jet      -0.68569437      -0.65683346
## 466      Turbo-jet       0.86162801      -0.76733401
## 467      Turbo-fan      -0.22722848      -1.03186564
## 468      Turbo-jet      -0.80031085      -0.66353046
## 469      Turbo-fan      -0.22722848      -0.83095554
## 470      Turbo-fan       0.05931270      -1.01512313
## 471      Turbo-fan       0.63239507      -0.57981792
## 472      Turbo-fan      -0.45646143      -0.24161926
## 473      Turbo-fan      -1.20146850      -0.88788007
## 474      Turbo-fan       0.51777859      -0.58651492
## 475      Turbo-jet      -0.51376966      -0.64678795
## 476      Turbo-fan       1.49201861      -0.73050049
```

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## 477      Turbo-fan          -0.51376966              -0.84769805
## 479      Turbo-fan          -0.57107790              -0.65013645
## 480      Turbo-fan           0.74701154              -0.97494111
## 481   Reciprocating          0.05931270              -0.81421303
## 482      Turbo-fan          -1.08685203              -0.88118307
## 483      Turbo-fan          -0.39915319              -0.84100105
## 484      Turbo-fan          -0.80031085              -0.86444056
## 485      Turbo-fan          -1.08685203              -0.47936287
## 486      Turbo-fan           0.63239507              -0.78072802
## 487      Turbo-fan          -1.08685203              -0.68027297
## 488      Turbo-fan           1.32009390              -0.53963590
## 489      Turbo-fan           0.00200446              -0.41574134
## 490      Turbo-fan           0.68970330              -0.57646942
## 491      Turbo-fan           0.00200446              -0.81756154
## 492      Turbo-fan           1.32009390              -0.53963590
## 493      Turbo-fan          -0.80031085              -0.26171027
## 494      Turbo-fan           1.43471038              -0.73384900
## 495      Turbo-fan          -0.16992025              -0.42578685
## 496      Turbo-jet           0.80431978              -0.36886232
## 497      Turbo-fan           0.63239507              -0.37890782
## 498      Turbo-fan           1.20547743              -0.54633290
## 499      Turbo-fan          -1.08685203              -0.27845277
## 501      Turbo-fan          -1.65993439              -0.31193779
## 502      Turbo-fan          -0.80031085              -0.66353046
## 503      Turbo-fan          -0.22722848              -0.22822525
## 504      Turbo-fan           0.05931270              -0.21148274
## 506      Turbo-jet           1.49201861              -0.12777020
## 507      Turbo-fan          -0.22722848              -0.42913535
## 508      Turbo-fan          -0.80031085              -0.46262036
## 509      Turbo-fan          -0.51376966              -0.04405766
## 510      Turbo-fan           1.09086096              -0.15120971
## 511      Turbo-fan          -1.54531792              -0.10433069
## 512      Turbo-fan           0.00200446              -0.01392115
## 514      Turbo-fan          -0.57107790              -0.04740616
## 515      Turbo-jet          -1.37339321              -0.09428518
## 516      Turbo-fan          -1.08685203              -0.07754268
## 517      Turbo-fan          -0.05530377              -0.41908984
## 518      Turbo-jet           1.32009390              -0.13781571
## 519      Turbo-fan           0.51777859              -0.18469473
## 520      Turbo-fan           0.97624448              -0.15790672
## 523      Turbo-fan          -0.51376966              -0.44587786
## 524      Turbo-jet          -0.74300261               0.14345843
## 525      Turbo-fan          -0.05530377              -0.21817974
## 526      Turbo-fan          -1.65993439               0.49170260
## 527      Turbo-fan           1.20547743              -0.34542281
## 528      Turbo-fan          -1.20146850              -0.08423968
## 529      Turbo-jet          -1.54531792              -0.10433069
## 530      Turbo-fan           1.49201861               0.07313990
## 531      Turbo-fan          -1.02954379              -0.27510427
## 532      Turbo-fan          -0.11261201              -0.02061815
## 533      Turbo-fan           0.34585388               0.00616986
## 534      Turbo-fan          -1.60262616               0.09323091
## 535      Turbo-fan           1.43471038               0.06979140
## 536      Turbo-fan          -1.37339321              -0.09428518
```

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## 537        Turbo-fan       1.32009390      -0.13781571
## 538        Turbo-fan      -1.37339321       0.10662491
## 539        Turbo-jet       0.40316212       0.21042846
## 540        Turbo-fan      -0.80031085       0.14010993
## 541        Turbo-fan      -1.02954379       0.12671592
## 542        Turbo-fan       0.23123741      -0.20143724
## 543        Turbo-fan       0.74701154       0.02960938
## 544        Turbo-fan       0.11662094       0.19368596
## 545        Turbo-fan      -1.37339321       0.30753501
## 546        Turbo-fan      -1.37339321       0.30753501
## 547        Turbo-fan       0.97624448       0.24391348
## 548        Turbo-fan       0.91893625       0.03965488
## 549        Turbo-fan      -0.80031085       0.34102003
## 551        Turbo-fan       1.20547743       0.25730749
## 553        Turbo-fan      -0.22722848      -0.02731515
## 554        Turbo-jet       1.20547743       0.05639739
## 555        Turbo-fan       1.49201861       0.27404999
## 556        Turbo-jet       0.86162801       0.43812657
## 558        Turbo-fan       1.32009390       0.46491459
## 559        Turbo-fan      -0.91492732       0.13341293
## 560        Turbo-fan      -0.68569437       0.34771703
## 561        Turbo-fan       0.05931270       0.39124755
## 562        Turbo-fan      -0.45646143       0.36111104
## 563        Turbo-fan       0.91893625       0.24056498
## 564        Turbo-fan      -0.11261201       0.38120205
## 565        Turbo-fan       0.74701154       0.23051947
## 566        Turbo-fan       0.91893625       0.24056498
## 567        Turbo-jet       0.74701154       0.43142957
## 569        Turbo-fan       1.60663509       0.28074700
## 570        Turbo-fan       1.49201861       0.27404999
## 571        Turbo-fan       1.49201861       0.67587019
## 572        Turbo-fan      -0.34184495       0.56871814
## 573        Turbo-fan       1.49201861       0.67587019
## 574        Turbo-fan      -1.08685203       0.72609771
## 576        Turbo-fan       1.49201861       0.27404999
## 577        Turbo-fan       1.54932685       0.27739850
## 578        Turbo-fan       0.57508683       1.02411436
## 579        Turbo-fan       1.20547743       0.65912768
## 580        Turbo-fan       1.20547743       0.65912768
## 581        Turbo-fan      -0.80031085       0.54193013
## 582        Turbo-fan      -0.57107790       0.55532413
## 584        Turbo-fan       0.57508683       0.42138407
## 585        Turbo-fan       0.05931270       0.59215765
## 586        Turbo-fan       1.60663509       0.68256719
## 587        Turbo-fan       0.57508683       0.82320426
## 588        Turbo-jet      -1.31608498       0.71270371
## 589        Turbo-fan      -0.51376966       0.55867263
## 590        Turbo-fan       1.60663509       0.48165710
## 591        Turbo-jet      -1.08685203       0.32427752
## 593        Turbo-jet      -0.97223556       0.73279472
## 594        Turbo-fan       0.68970330       0.62899117
## 596        Turbo-fan      -0.57107790       0.55532413
## 597        Turbo-fan       0.63239507       0.62564267
## 598        Turbo-jet      -0.39915319       0.76627973
```

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## 599      Turbo-fan      -0.22722848              0.57541514
## 600      Turbo-fan      -0.57107790              0.75623423
## 601      Turbo-fan       1.32009390              0.86673478
## 602      Turbo-jet       1.37740214              0.66917319
## 603      Turbo-jet      -1.08685203              0.52518762
## 604      Turbo-fan      -0.51376966              0.96049283
## 605      Turbo-jet      -0.34184495              0.76962824
## 607      Turbo-fan       1.49201861              0.87678029
## 608      Turbo-fan       0.91893625              0.64238517
## 609      Turbo-fan       1.49201861              0.47496009
## 610      Turbo-fan       0.28854565              1.00737185
## 611      Turbo-fan      -0.51376966              0.75958273
## 612      Turbo-fan       1.20547743              0.65912768
## 613      Turbo-fan       1.20547743              0.65912768
## 614      Turbo-jet       0.63239507              0.62564267
## 615      Turbo-fan      -0.80031085              0.74284022
## 616   Reciprocating     -1.08685203              0.92700781
## 617      Turbo-fan      -0.80031085              0.94375032
## 618      Turbo-fan      -0.80031085              0.74284022
## 619      Turbo-fan       0.63239507              1.02746286
## 621      Turbo-fan       1.37740214              0.87008328
## 622      Turbo-jet       1.09086096              1.05425087
## 624      Turbo-jet      -1.48800968              1.10447840
## 625      Turbo-jet      -0.97223556              1.13461491
## 626      Turbo-fan      -0.51376966              0.96049283
## 628      Turbo-jet      -0.80031085              1.14466042
## 630      Turbo-fan      -0.68569437              0.74953723
## 631      Turbo-fan      -0.22722848              0.77632524
## 635      Turbo-fan       1.26278567              0.86338628
## 636      Turbo-fan      -0.11261201              0.98393234
## 637      Turbo-jet       1.37740214              0.87008328
## 638      Turbo-fan       0.91893625              0.84329527
## 639      Turbo-fan       1.49201861              0.87678029
## 641      Turbo-fan       0.05931270              1.19488794
## 643      Turbo-fan      -0.80031085              0.94375032
## 644      Turbo-fan       1.49201861              1.07769039
## 645      Turbo-fan       0.86162801              1.24176697
## 646      Turbo-fan       1.26278567              1.26520648
## 648      Turbo-fan      -0.85761908              0.94040182
## 649      Turbo-fan       1.60663509              1.28529749
## 650      Turbo-fan      -1.37339321              1.31208550
## 651      Turbo-fan       0.63239507              0.82655276
## 652      Turbo-jet      -0.16992025              1.38240403
## 654      Turbo-fan       1.26278567              1.26520648
## 655      Turbo-fan       1.20547743              1.06094788
## 656      Turbo-fan       0.63239507              1.42928306
## 657      Turbo-fan       1.49201861              1.68042068
## 658      Turbo-fan       0.74701154              1.23506996
## 659      Turbo-fan       0.34585388              1.01072035
## 660      Turbo-fan       1.49201861              1.27860048
## 661      Turbo-jet      -1.48800968              1.10447840
## 662      Turbo-fan      -1.08685203              0.92700781
## 663      Turbo-fan      -0.80031085              1.34557052
## 664      Turbo-fan       0.97624448              1.04755387
```

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## 665        Turbo-fan     -0.22722848         1.37905553
## 666        Turbo-fan      1.32009390         1.46946508
## 667        Turbo-fan      0.28854565         1.40919205
## 668        Turbo-fan      0.46047036         1.41923755
## 669        Turbo-fan     -1.25877674         1.11787241
## 670        Turbo-fan      1.60663509         1.48620758
## 671        Turbo-jet     -0.57107790         1.55987462
## 672        Turbo-fan      1.49201861         1.07769039
## 673        Turbo-fan     -0.80031085         1.14466042
## 674        Turbo-fan      0.74701154         1.43598006
## 675        Turbo-fan      0.00200446         1.39244954
## 676        Turbo-fan     -1.31608498         1.51634410
## 677        Turbo-fan      0.80431978         1.43932856
## 678        Turbo-fan     -0.22722848         1.17814543
## 680        Turbo-fan     -0.11261201         0.98393234
## 682        Turbo-fan      1.37740214         1.47281358
## 683        Turbo-fan      0.11662094         1.39914654
## 684        Turbo-jet      0.68970330         1.43263156
## 686        Turbo-fan     -0.74300261         1.34891902
## 687        Turbo-fan      0.80431978         1.43932856
## 689        Turbo-jet     -0.05530377         1.18819094
## 690        Turbo-fan     -0.22722848         1.17814543
## 691        Turbo-fan     -1.31608498         1.51634410
## 693        Turbo-fan     -1.65993439         1.09443289
## 694        Turbo-fan      0.05931270         1.19488794
## 695        Turbo-jet      1.66394332         1.28864599
## 696        Turbo-fan      0.05931270         1.19488794
## 697     Reciprocating    -1.08685203         1.32882801
## 698        Turbo-fan      1.26278567         1.26520648
## 699        Turbo-fan     -0.45646143         1.56657162
## 700        Turbo-jet      1.09086096         1.65698117
## 702        Turbo-fan      1.72125156         1.69381469
## 703        Turbo-fan     -0.22722848         1.37905553
## 704        Turbo-fan      1.72125156         1.69381469
## 706        Turbo-fan      1.72125156         1.69381469
## 707        Turbo-fan      1.20547743         1.46276807
## 709        Turbo-fan      0.80431978         1.64023866
## 710        Turbo-fan      0.05931270         1.39579804
## 711        Turbo-fan      1.14816919         1.66032967
## 712        Turbo-fan      0.11662094        -3.02087561
## 713        Turbo-fan      1.20547743         1.46276807
## 714        Turbo-fan      0.63239507         1.63019315
## 715        Turbo-jet      1.32009390         1.67037517
## 716        Turbo-fan      1.72125156         1.69381469
## 717        Turbo-fan     -1.43070145         1.30873700
## 719        Turbo-fan      1.60663509         1.68711768
## 720        Turbo-fan      1.20547743         1.46276807
## 721        Turbo-fan      1.26278567         1.66702667
## 722        Turbo-fan     -0.97223556         1.33552501
## 723        Turbo-fan     -0.62838614        -3.06440613
## 725        Turbo-fan      1.20547743        -2.95725408
## 726        Turbo-fan     -0.28453672        -2.64249492
## 727        Turbo-fan      0.23123741        -3.01417860
## 729        Turbo-fan     -0.45646143        -2.85345053
```

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## 730       Turbo-fan      0.63239507        1.63019315
## 737       Turbo-fan      0.91893625       -2.17035619
## 738       Turbo-fan      1.72125156       -0.11437619
## 739       Turbo-fan      0.86162801        0.23721648
## 743       Turbo-fan     -0.51376966       -1.45042834
## 744       Turbo-fan     -0.80031085       -1.66808095
## 745       Turbo-fan     -0.74300261       -1.66473245
## 746    Reciprocating     1.66394332       -1.32318528
## 747       Turbo-fan      0.46047036       -1.39350382
## 748       Turbo-fan     -1.37339321       -1.50065587
## 749       Turbo-fan      1.26278567       -1.34662479
## 750       Turbo-fan      1.54932685       -1.32988229
## 751       Turbo-fan     -1.54531792       -1.51070137
## 752       Turbo-fan     -0.80031085       -1.46717085
## 753       Turbo-fan      0.91893625       -1.56762590
## 754       Turbo-fan      0.05931270       -1.61785343
## 755       Turbo-fan     -1.37339321       -1.70156597
## 756       Turbo-fan     -1.08685203       -1.28300326
## 757       Turbo-fan     -0.45646143       -1.24616974
## 758       Turbo-fan      0.74701154       -1.37676131
## 759       Turbo-fan      1.20547743       -1.34997330
## 760       Turbo-fan      1.20547743       -1.55088339
## 761       Turbo-jet     -0.68569437       -1.46047385
## 762       Turbo-jet     -0.74300261       -1.26291225
## 763       Turbo-fan      0.63239507       -0.78072802
## 764       Turbo-jet     -0.22722848       -1.23277574
## 765       Turbo-fan      1.72125156       -1.31983678
## 766       Turbo-fan      0.23123741       -1.40689782
## 767       Turbo-fan      0.91893625       -1.36671580
## 768       Turbo-fan     -0.91492732       -1.47386786
## 769       Turbo-fan      0.05931270       -1.41694333
## 770       Turbo-fan     -1.48800968       -1.50735287
## 771       Turbo-jet     -0.85761908       -1.06869916
## 772       Turbo-fan      1.32009390       -1.14236619
## 773       Turbo-fan      1.03355272       -1.36001880
## 774       Turbo-fan      0.17392917       -1.20933623
## 775       Turbo-jet     -0.62838614       -1.25621525
## 776       Turbo-fan      0.74701154       -1.17585121
## 777       Turbo-fan      1.72125156       -1.11892668
## 778       Turbo-fan      0.74701154       -1.17585121
## 779       Turbo-fan      1.72125156       -1.31983678
## 780       Turbo-jet      0.28854565       -1.00172913
## 781       Turbo-jet     -0.62838614       -1.05530515
## 782       Turbo-fan      0.34585388       -0.99838062
## 784       Turbo-fan     -0.11261201       -1.02516864
## 785       Turbo-fan     -0.05530377       -1.22273023
## 786       Turbo-fan      0.63239507       -0.98163812
## 787       Turbo-fan      0.05931270       -1.01512313
## 788       Turbo-fan     -1.43070145       -1.10218417
## 789       Turbo-fan     -1.65993439       -0.91466808
## 790    Reciprocating     1.20547743       -1.34997330
## 791       Turbo-fan     -1.37339321       -0.89792558
## 792       Turbo-jet      0.68970330       -0.97828961
## 793       Turbo-fan     -0.22722848       -0.83095554
```

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## 794         Turbo-fan          0.40316212          -0.99503212
## 795         Turbo-fan          0.63239507          -1.18254821
## 796         Turbo-fan          0.05931270          -1.01512313
## 797         Turbo-fan         -0.39915319          -0.84100105
## 798         Turbo-fan          1.49201861          -1.13232069
## 799         Turbo-fan          1.43471038          -0.93475909
## 800         Turbo-fan         -0.57107790          -1.25286675
## 801         Turbo-fan         -0.11261201          -0.82425854
## 802         Turbo-jet         -0.62838614          -0.85439505
## 803         Turbo-fan         -0.74300261          -1.06200216
## 804         Turbo-fan         -0.28453672          -1.03521414
## 805         Turbo-fan         -0.97223556          -1.07539616
## 806         Turbo-fan         -0.28453672          -1.03521414
## 807         Turbo-fan          1.66394332          -1.12227518
## 808         Turbo-fan          0.00200446          -0.81756154
## 809         Turbo-fan         -0.80031085          -0.66353046
## 810         Turbo-fan          1.72125156          -1.11892668
## 811         Turbo-fan          0.80431978          -0.77068251
## 812         Turbo-fan          0.97624448          -0.96154711
## 813         Turbo-fan          1.37740214          -1.13901769
## 815         Turbo-fan         -0.51376966          -0.64678795
## 816         Turbo-fan         -0.11261201          -0.62334844
## 817         Turbo-fan         -1.37339321          -0.69701548
## 818         Turbo-fan         -1.08685203          -0.88118307
## 819         Turbo-fan         -0.22722848          -0.63004545
## 821         Turbo-fan         -0.51376966          -0.64678795
## 822         Turbo-fan         -1.65993439          -0.71375799
## 823         Turbo-fan          0.97624448          -0.76063701
## 824         Turbo-jet         -0.74300261          -0.86109206
## 825         Turbo-jet         -1.14416027          -0.28180128
## 826         Turbo-fan         -0.74300261          -0.66018196
## 828         Turbo-fan          0.05931270          -1.01512313
## 829         Turbo-jet          1.37740214          -0.93810759
## 831         Turbo-fan         -1.31608498          -0.69366698
## 832         Turbo-fan          0.51777859          -0.58651492
## 833         Turbo-fan         -0.45646143          -0.24161926
## 834         Turbo-fan         -0.34184495          -0.83765255
## 835         Turbo-fan         -1.54531792          -0.90797108
## 837         Turbo-fan         -0.57107790          -0.65013645
## 839         Turbo-fan         -0.51376966          -0.84769805
## 840         Turbo-fan         -1.08685203          -0.47936287
## 841         Turbo-fan         -1.08685203          -0.68027297
## 843         Turbo-fan          0.00200446          -0.81756154
## 844         Turbo-fan          0.00200446          -0.41574134
## 845         Turbo-fan         -0.22722848          -0.42913535
## 846         Turbo-fan         -0.45646143          -0.44252935
## 848         Turbo-fan          0.63239507          -0.78072802
## 849         Turbo-fan         -0.85761908          -0.66687896
## 850         Turbo-fan          0.17392917          -0.40569584
## 852         Turbo-fan          0.74701154          -0.37221082
## 853         Turbo-fan         -1.08685203          -0.68027297
## 855         Turbo-fan          1.32009390          -0.53963590
## 856         Turbo-fan          0.11662094          -0.60995444
## 857         Turbo-fan          0.63239507          -0.57981792
```

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## 858      Turbo-fan      1.49201861      -0.32868030
## 859      Turbo-fan     -0.80031085      -0.26171027
## 860      Turbo-fan     -1.31608498      -0.69366698
## 861      Turbo-fan      1.32009390      -0.53963590
## 862      Turbo-fan      1.66394332      -0.31863479
## 863      Turbo-fan     -0.11261201      -0.62334844
## 864      Turbo-fan     -0.85761908      -0.26505877
## 865      Turbo-fan      0.63239507      -0.37890782
## 866      Turbo-fan     -0.80031085      -0.66353046
## 867      Turbo-fan      0.11662094      -0.20813424
## 868      Turbo-fan     -1.08685203      -0.47936287
## 869      Turbo-fan     -1.37339321      -0.29519528
## 870      Turbo-fan      0.40316212      -0.39230183
## 871      Turbo-fan      0.91893625      -0.36216531
## 872      Turbo-jet     -0.51376966       0.15685244
## 873      Turbo-fan      1.20547743      -0.14451271
## 874      Turbo-fan      0.05931270      -0.21148274
## 875      Turbo-jet     -0.39915319      -0.23827075
## 876      Turbo-fan      1.37740214      -0.33537730
## 877      Turbo-fan      0.46047036      -0.18804323
## 878      Turbo-fan      0.05931270      -0.41239284
## 879      Turbo-fan      1.37740214      -0.13446720
## 880      Turbo-fan     -0.16992025      -0.62669694
## 881      Turbo-fan      1.43471038      -0.13111870
## 882      Turbo-fan      0.91893625      -0.36216531
## 883      Turbo-fan     -1.08685203      -0.27845277
## 884      Turbo-fan      0.91893625      -0.16125522
## 885      Turbo-fan     -0.11261201      -0.42243834
## 886      Turbo-fan      0.11662094      -0.20813424
## 887      Turbo-fan     -1.54531792      -0.10433069
## 888      Turbo-fan      0.34585388      -0.39565033
## 891      Turbo-fan     -0.51376966      -0.04405766
## 892      Turbo-fan     -0.05530377      -0.41908984
## 893      Turbo-fan      1.54932685       0.07648840
## 894      Turbo-fan      0.63239507      -0.37890782
## 895      Turbo-fan      1.09086096      -0.35211981
## 896      Turbo-fan     -0.11261201      -0.22152825
## 897      Turbo-jet     -1.31608498       0.10997341
## 898      Turbo-fan      0.63239507       0.02291237
## 899      Turbo-fan     -1.37339321      -0.29519528
## 900      Turbo-fan      1.20547743      -0.34542281
## 901      Turbo-jet      1.20547743       0.05639739
## 902      Turbo-jet     -1.25877674       0.11332192
## 903      Turbo-fan     -1.43070145      -0.29854378
## 904      Turbo-fan     -0.62838614      -0.25166476
## 905      Turbo-fan      1.49201861       0.07313990
## 906      Turbo-jet      0.46047036      -0.18804323
## 907      Turbo-fan     -1.43070145      -0.29854378
## 910      Turbo-fan      0.57508683       0.01956387
## 911      Turbo-fan     -1.08685203       0.12336742
## 913      Turbo-fan     -1.20146850      -0.08423968
## 914      Turbo-fan      1.49201861       0.27404999
## 915      Turbo-fan      0.68970330       0.22717097
## 916      Turbo-fan     -1.37339321       0.30753501
```

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## 917        Turbo-fan        0.11662094        0.19368596
## 918        Turbo-fan       -0.80031085        0.34102003
## 919        Turbo-fan       -0.68569437       -0.05410316
## 920        Turbo-fan       -1.37339321        0.30753501
## 921        Turbo-fan        1.20547743        0.25730749
## 923        Turbo-jet        0.40316212        0.21042846
## 924        Turbo-fan       -1.14416027        0.32092902
## 926        Turbo-jet       -1.48800968        0.30083801
## 927        Turbo-fan        0.51777859        0.21712547
## 928        Turbo-jet        1.32009390        0.06309439
## 929        Turbo-fan        1.20547743        0.05639739
## 930        Turbo-jet       -0.80031085        0.34102003
## 931        Turbo-fan        1.54932685        0.07648840
## 932        Turbo-fan        0.34585388        0.00616986
## 934        Turbo-fan        0.34585388        0.40799006
## 935        Turbo-fan       -1.60262616        0.29414100
## 936        Turbo-fan        0.74701154        0.23051947
## 937        Turbo-jet        1.03355272        0.24726198
## 939        Turbo-fan        0.97624448        0.44482358
## 940        Turbo-jet       -1.37339321        0.30753501
## 941        Turbo-fan       -1.31608498        0.10997341
## 942        Turbo-fan        0.63239507        0.22382247
## 943        Turbo-fan        1.43471038        0.06979140
## 944        Turbo-fan        0.80431978        0.03295788
## 945        Turbo-fan       -0.51376966        0.15685244
## 946        Turbo-fan       -0.80031085        0.54193013
## 947        Turbo-fan        0.91893625        0.24056498
## 948        Turbo-fan        0.46047036        0.61559716
## 949        Turbo-fan       -1.31608498        0.51179361
## 950        Turbo-fan        1.60663509        0.48165710
## 951        Turbo-fan       -0.97223556        0.13006442
## 952        Turbo-fan       -0.05530377        0.18364045
## 953        Turbo-fan        1.54932685        0.27739850
## 954        Turbo-fan       -0.68569437        0.14680693
## 955        Turbo-fan        0.74701154        0.43142957
## 956        Turbo-fan        0.46047036        0.21377697
## 957        Turbo-jet        0.28854565        0.40464156
## 958        Turbo-fan       -1.54531792        0.49839960
## 959        Turbo-fan        1.49201861        0.47496009
## 960        Turbo-fan       -1.08685203        0.32427752
## 961        Turbo-fan       -1.65993439        0.29079250
## 962        Turbo-fan       -1.37339321        0.50844511
## 963        Turbo-fan        1.20547743        0.25730749
## 964        Turbo-jet       -1.60262616        0.49505110
## 965        Turbo-fan        0.86162801        0.23721648
## 966        Turbo-jet       -0.57107790        0.55532413
## 967        Turbo-fan       -0.11261201        0.38120205
## 968        Turbo-fan        1.49201861        0.67587019
## 969        Turbo-fan        1.20547743        0.25730749
## 971        Turbo-jet       -1.37339321        0.50844511
## 972        Turbo-fan        0.63239507        0.22382247
## 973        Turbo-fan       -0.74300261        0.34436853
## 974        Turbo-fan       -1.08685203        0.72609771
## 975        Turbo-fan        0.57508683        0.42138407
```

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## 976    Turbo-fan     0.57508683      1.02411436
## 977    Turbo-fan    -0.16992025      0.57876364
## 978    Turbo-fan    -1.25877674      0.31423201
## 979    Turbo-fan     0.63239507      0.62564267
## 980    Turbo-fan     1.14816919      0.65577918
## 981    Turbo-jet     0.05931270      0.59215765
## 984    Turbo-fan    -1.31608498      0.51179361
## 985    Turbo-fan     1.32009390      0.86673478
## 987    Turbo-fan     0.51777859      0.61894566
## 988    Turbo-fan    -1.31608498      0.91361381
## 989    Turbo-fan    -0.80031085      0.54193013
## 990    Turbo-fan    -0.91492732      0.53523312
## 991    Turbo-fan     1.37740214      0.66917319
## 992    Turbo-fan    -1.31608498      0.71270371
## 993    Turbo-fan     1.49201861      0.87678029
## 994    Turbo-fan     1.20547743      0.45821758
## 995    Turbo-fan     0.00200446      0.99062934
## 996    Turbo-fan     0.40316212      0.81315876
## 997    Turbo-fan     1.54932685      0.67921869
## 998    Turbo-fan     0.34585388      0.80981026
## 1000   Turbo-fan     1.20547743      0.65912768
## 1001   Turbo-fan     0.40316212      1.01406885
## 1002   Turbo-jet     0.57508683      0.62229416
## 1003   Turbo-fan     1.49201861      0.87678029
## 1004   Turbo-fan     0.80431978      0.83659827
## 1005   Turbo-fan    -1.08685203      0.92700781
## 1006   Turbo-jet    -0.80031085      0.74284022
## 1007   Turbo-fan     0.05931270      0.59215765
## 1008   Turbo-fan    -0.51376966      0.55867263
## 1009   Turbo-fan    -0.39915319      0.56536964
## 1010   Turbo-fan     0.05931270      0.79306775
## 1013   Turbo-fan     0.63239507      1.02746286
## 1014   Turbo-fan     0.05931270      0.99397785
## 1016   Turbo-fan    -1.37339321      0.70935521
## 1017   Turbo-jet    -0.34184495      0.97053833
## 1018   Turbo-fan    -0.34184495      0.97053833
## 1020   Turbo-fan    -1.08685203      1.12791791
## 1021   Turbo-fan    -0.80031085      0.74284022
## 1022   Turbo-fan     0.23123741      0.80311325
## 1024   Turbo-fan    -1.14416027      1.12456941
## 1026   Turbo-fan    -1.08685203      1.12791791
## 1028   Turbo-jet     1.20547743      0.86003778
## 1029   Turbo-fan    -0.51376966      0.75958273
## 1030   Turbo-fan     1.32009390      0.86673478
## 1031   Turbo-jet    -1.43070145      1.10782690
## 1032   Turbo-fan     0.17392917      1.00067485
## 1033   Turbo-fan     1.20547743      1.26185798
## 1034   Turbo-fan     0.86162801      1.04085687
## 1035   Turbo-jet     0.17392917      1.00067485
## 1036   Turbo-fan     1.60663509      1.28529749
## 1037   Turbo-fan     1.09086096      1.25516097
## 1038   Turbo-fan    -1.37339321      1.31208550
## 1040   Turbo-fan     0.46047036      1.01741736
## 1042   Turbo-fan     1.20547743      1.06094788
```

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## 1044      Turbo-fan      -0.28453672        1.37570703
## 1046      Turbo-jet      -1.08685203        1.32882801
## 1047      Turbo-fan      -1.48800968        1.10447840
## 1048      Turbo-fan       0.34585388        1.01072035
## 1049      Turbo-fan       0.51777859        1.42258605
## 1050      Turbo-fan      -0.16992025        0.98058384
## 1051      Turbo-fan       1.49201861        1.07769039
## 1053      Turbo-jet       0.05931270        1.39579804
## 1054      Turbo-jet       0.97624448        1.44937407
## 1055      Turbo-jet       0.63239507        1.02746286
## 1056      Turbo-jet      -0.80031085        1.54648061
## 1057      Turbo-jet       1.66394332        1.48955609
## 1058      Turbo-fan       0.80431978        1.43932856
## 1059      Turbo-fan       0.00200446        1.19153944
## 1061      Turbo-fan       0.91893625        1.04420537
## 1063      Turbo-fan      -1.31608498        1.11452390
## 1065      Turbo-fan      -1.25877674       -3.10123965
## 1068      Turbo-fan      -1.02954379        1.53308661
## 1069      Turbo-jet       0.57508683        1.22502446
## 1071      Turbo-fan      -1.02954379        1.53308661
## 1076      Turbo-fan       0.05931270        1.19488794
## 1077      Turbo-fan      -0.22722848        1.57996563
## 1078      Turbo-fan       0.91893625        1.44602556
## 1079      Turbo-fan       0.63239507        1.22837296
## 1080      Turbo-jet       0.51777859        1.62349615
## 1085      Turbo-fan      -1.54531792        1.30203999
## 1086      Turbo-fan       0.57508683        1.62684465
## 1091      Turbo-fan      -1.37339321        1.31208550
## 1092      Turbo-fan      -0.68569437        1.35226752
## 1093      Turbo-fan       1.20547743        1.46276807
## 1096      Turbo-fan       1.60663509        1.68711768
## 1097      Turbo-fan      -0.62838614       -3.06440613
## 1098      Turbo-fan       0.23123741        1.40584355
## 1099      Turbo-fan      -0.68569437        1.35226752
## 1100      Turbo-fan       1.20547743       -2.95725408
## 1101      Turbo-fan       0.57508683       -2.99408760
## 1103      Turbo-fan      -0.80031085        1.54648061
## 1104      Turbo-fan      -1.31608498        1.51634410
## 1106      Turbo-fan       1.54932685        1.68376918
## 1107      Turbo-fan      -1.37339321       -3.10793665
## 1108      Turbo-fan      -0.80031085       -3.07445163
## 1109      Turbo-fan       1.60663509       -1.52744388
## 1110      Turbo-fan       1.20547743       -0.74724300
## 1111 Reciprocating       0.91893625       -0.56307541
## 1112      Turbo-fan       0.05931270       -1.41694333
## 1113      Turbo-fan      -1.14416027       -0.68362147
## 1114      Turbo-fan       1.26278567       -1.34662479
## 1115      Turbo-fan      -0.80031085       -1.66808095
## 1116      Turbo-fan      -0.22722848       -1.63459593
## 1117      Turbo-fan       0.97624448       -1.36336730
## 1118      Turbo-jet      -0.22722848       -1.23277574
## 1119      Turbo-fan      -1.37339321       -1.50065587
## 1120      Turbo-fan      -0.80031085       -1.46717085
## 1121      Turbo-fan       0.05931270       -1.61785343
```

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## 1122        Turbo-fan          -0.28453672              -1.63794444
## 1123        Turbo-jet           1.49201861              -1.53414088
## 1124        Turbo-fan          -1.08685203              -1.28300326
## 1125        Turbo-fan          -0.45646143              -1.24616974
## 1126        Turbo-fan           0.91893625              -1.56762590
## 1127        Turbo-fan          -0.68569437              -1.46047385
## 1128        Turbo-jet          -0.74300261              -1.26291225
## 1129        Turbo-fan          -0.74300261              -1.66473245
## 1130        Turbo-fan           1.20547743              -1.55088339
## 1131        Turbo-fan          -1.65993439              -0.91466808
## 1132        Turbo-fan          -0.68569437              -1.46047385
## 1133        Turbo-fan           1.49201861              -1.33323079
## 1134        Turbo-jet           0.23123741              -1.40689782
## 1135        Turbo-fan          -0.57107790              -1.45377685
## 1136        Turbo-jet          -0.85761908              -1.06869916
## 1137        Turbo-fan           0.05931270              -1.41694333
## 1138        Turbo-fan           0.91893625              -1.36671580
## 1139        Turbo-fan          -0.57107790              -1.05195665
## 1140        Turbo-jet           1.60663509              -1.12562369
## 1141        Turbo-fan          -1.08685203              -1.48391336
## 1142        Turbo-fan          -1.65993439              -1.31648828
## 1143        Turbo-fan           1.72125156              -1.31983678
## 1144        Turbo-fan          -1.08685203              -1.48391336
## 1145        Turbo-fan           1.60663509              -1.52744388
## 1146        Turbo-jet           0.05931270              -1.01512313
## 1147        Turbo-fan          -0.85761908              -1.06869916
## 1148        Turbo-fan          -0.45646143              -1.24616974
## 1149        Turbo-fan           0.51777859              -1.18924522
## 1150        Turbo-fan           0.74701154              -1.17585121
## 1151        Turbo-fan          -0.57107790              -1.05195665
## 1152        Turbo-fan          -0.22722848              -1.03186564
## 1153        Turbo-fan          -0.22722848              -1.03186564
## 1154        Turbo-fan           0.63239507              -1.18254821
## 1155        Turbo-fan           0.74701154              -1.17585121
## 1156        Turbo-fan           0.40316212              -1.39685232
## 1157        Turbo-fan          -0.80031085              -1.06535066
## 1158        Turbo-jet           0.28854565              -1.00172913
## 1159        Turbo-fan           0.63239507              -0.98163812
## 1160        Turbo-fan           0.91893625              -0.96489561
## 1161        Turbo-fan           0.34585388              -0.99838062
## 1162        Turbo-jet          -0.05530377              -1.22273023
## 1163        Turbo-fan           0.28854565              -1.00172913
## 1164        Turbo-fan           0.63239507              -1.38345831
## 1165        Turbo-fan           0.91893625              -0.96489561
## 1166        Turbo-fan          -0.85761908              -1.06869916
## 1167        Turbo-fan          -0.80031085              -0.86444056
## 1168        Turbo-fan          -1.37339321              -0.89792558
## 1170        Turbo-fan           0.57508683              -0.98498662
## 1171        Turbo-fan           1.43471038              -0.93475909
## 1172        Turbo-fan          -0.97223556              -1.07539616
## 1173        Turbo-fan           0.28854565              -0.59990893
## 1174        Turbo-fan          -0.22722848              -1.23277574
## 1175        Turbo-fan          -1.08685203              -0.88118307
## 1176        Turbo-fan           0.05931270              -1.01512313
```

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## 1177       Turbo-jet        -0.28453672        -0.83430404
## 1178       Turbo-jet        -0.80031085        -0.86444056
## 1179       Turbo-fan        -1.02954379        -1.07874466
## 1180       Turbo-fan        -0.28453672        -0.83430404
## 1181       Turbo-fan        -1.14416027        -1.28635176
## 1182       Turbo-fan         1.49201861        -1.13232069
## 1183       Turbo-fan        -1.31608498        -0.89457707
## 1184       Turbo-jet        -0.62838614        -0.85439505
## 1185       Turbo-fan        -0.74300261        -0.86109206
## 1186       Turbo-fan        -1.08685203        -1.08209316
## 1187       Turbo-fan         0.05931270        -1.01512313
## 1188       Turbo-fan        -0.22722848        -1.03186564
## 1189       Turbo-fan        -0.80031085        -0.46262036
## 1190       Turbo-fan        -0.57107790        -1.05195665
## 1191       Turbo-fan         1.66394332        -0.92136509
## 1192       Turbo-fan         0.11662094        -1.01177463
## 1193       Turbo-jet         0.63239507        -0.78072802
## 1194       Turbo-fan         0.91893625        -1.16580571
## 1195       Turbo-fan         0.28854565        -1.00172913
## 1196       Turbo-fan        -0.28453672        -1.03521414
## 1197       Turbo-fan         0.57508683        -1.18589672
## 1198       Turbo-fan         0.34585388        -0.39565033
## 1199       Turbo-fan         0.91893625        -0.76398551
## 1200       Turbo-fan         0.05931270        -1.01512313
## 1201       Turbo-fan         0.74701154        -0.97494111
## 1202       Turbo-jet         1.37740214        -0.73719750
## 1203       Turbo-fan        -0.91492732        -0.87113756
## 1204       Turbo-fan         1.72125156        -1.11892668
## 1205       Turbo-fan        -1.48800968        -1.10553268
## 1206       Turbo-fan        -0.80031085        -1.06535066
## 1207       Turbo-fan        -1.37339321        -0.69701548
## 1208       Turbo-fan         0.80431978        -0.77068251
## 1209       Turbo-fan        -0.97223556        -1.07539616
## 1210       Turbo-fan         1.09086096        -0.95485010
## 1211       Turbo-fan        -0.62838614        -0.85439505
## 1212       Turbo-fan         1.20547743        -0.74724300
## 1213       Turbo-jet         0.91893625        -0.76398551
## 1214       Turbo-fan        -1.65993439        -0.71375799
## 1215       Turbo-fan        -0.51376966        -0.64678795
## 1216       Turbo-fan        -0.11261201        -0.62334844
## 1217       Turbo-fan        -0.74300261        -0.86109206
## 1218       Turbo-fan         0.05931270        -0.01057264
## 1219       Turbo-fan        -0.16992025        -0.62669694
## 1220       Turbo-fan         1.32009390        -0.74054600
## 1221       Turbo-fan        -0.91492732        -0.87113756
## 1222       Turbo-fan         0.57508683        -0.98498662
## 1223       Turbo-jet        -1.14416027        -0.28180128
## 1224       Turbo-fan         0.23123741        -0.60325743
## 1225       Turbo-fan        -0.11261201        -1.02516864
## 1226       Turbo-fan         0.51777859        -0.58651492
## 1227       Turbo-fan        -1.48800968        -0.90462258
## 1228       Turbo-fan         0.05931270        -1.01512313
## 1229       Turbo-fan         1.20547743        -0.54633290
## 1230       Turbo-fan        -0.45646143        -0.24161926
```

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## 1231    Turbo-fan          0.34585388          -0.59656043
## 1232    Turbo-fan         -1.54531792          -0.90797108
## 1233    Turbo-fan         -1.37339321          -0.89792558
## 1235    Turbo-fan         -0.51376966          -0.84769805
## 1236    Turbo-fan         -1.65993439          -0.91466808
## 1237    Turbo-fan          0.05931270          -0.81421303
## 1238    Turbo-fan          1.20547743          -0.74724300
## 1239    Turbo-fan          0.51777859          -0.78742502
## 1240    Turbo-fan         -0.85761908          -0.86778906
## 1241    Turbo-fan          0.00200446          -0.81756154
## 1242    Turbo-fan         -1.08685203          -0.47936287
## 1243    Turbo-fan         -0.22722848          -0.42913535
## 1244    Turbo-fan          0.00200446          -0.41574134
## 1245    Turbo-fan          1.66394332          -0.51954489
## 1246    Turbo-fan          0.05931270          -0.61330294
## 1247    Turbo-fan          0.63239507          -0.78072802
## 1248    Turbo-jet         -1.08685203          -0.68027297
## 1249    Turbo-fan          0.74701154          -0.37221082
## 1250    Turbo-fan         -1.08685203          -0.88118307
## 1251    Turbo-fan          0.11662094          -0.60995444
## 1252    Turbo-fan         -0.80031085          -0.66353046
## 1253    Turbo-fan         -0.80031085          -0.26171027
## 1254    Turbo-fan          0.11662094          -0.81086453
## 1255    Turbo-fan          1.49201861          -0.32868030
## 1257    Turbo-fan          0.63239507          -0.57981792
## 1258    Turbo-fan          0.17392917          -0.40569584
## 1259    Turbo-fan         -1.48800968          -0.70371248
## 1260    Turbo-fan         -1.31608498          -0.69366698
## 1261    Turbo-fan          1.32009390          -0.53963590
## 1263    Turbo-fan          1.66394332          -0.31863479
## 1264    Turbo-fan         -0.11261201          -0.62334844
## 1265    Turbo-fan         -0.28453672          -0.23157375
## 1266    Turbo-jet         -0.22722848          -0.22822525
## 1268    Turbo-fan          0.51777859          -0.38560483
## 1269    Turbo-fan          1.20547743          -0.54633290
## 1270    Turbo-fan         -1.08685203          -0.47936287
## 1272    Turbo-jet          0.91893625          -0.16125522
## 1273    Turbo-jet         -0.51376966           0.15685244
## 1274    Turbo-fan          0.05931270          -0.21148274
## 1275    Turbo-fan          0.91893625          -0.36216531
## 1276    Turbo-fan          1.20547743          -0.14451271
## 1277    Turbo-jet         -0.39915319          -0.23827075
## 1278    Turbo-fan         -0.68569437           0.14680693
## 1279    Turbo-fan          1.20547743          -0.14451271
## 1280    Turbo-fan          1.43471038          -0.13111870
## 1281    Turbo-fan         -1.08685203          -0.27845277
## 1282    Turbo-fan         -0.80031085          -0.46262036
## 1284    Turbo-fan          0.00200446          -0.01392115
## 1285    Turbo-fan         -1.08685203          -0.07754268
## 1286    Turbo-fan         -0.51376966          -0.04405766
## 1287    Turbo-fan         -1.54531792          -0.10433069
## 1288    Turbo-fan          0.91893625           0.03965488
## 1290    Turbo-fan         -0.80031085          -0.26171027
## 1291    Turbo-fan          1.54932685           0.07648840
```

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## 1292       Turbo-fan      0.80431978           -0.36886232
## 1293       Turbo-jet     -1.31608498            0.10997341
## 1294       Turbo-fan      0.63239507           -0.37890782
## 1295       Turbo-fan     -0.22722848           -0.42913535
## 1296       Turbo-fan      0.00200446           -0.01392115
## 1297       Turbo-fan      1.14816919            0.05304889
## 1298       Turbo-fan      0.63239507           -0.17799773
## 1299       Turbo-fan     -1.43070145           -0.29854378
## 1300       Turbo-jet     -1.14416027            0.12001892
## 1303       Turbo-fan      0.17392917           -0.00387564
## 1304       Turbo-fan     -1.43070145           -0.29854378
## 1305       Turbo-fan     -0.51376966           -0.04405766
## 1306       Turbo-fan     -1.02954379            0.12671592
## 1308       Turbo-fan      0.23123741            0.20038296
## 1309 Reciprocating      -1.37339321           -0.09428518
## 1310       Turbo-jet     -1.37339321            0.10662491
## 1311       Turbo-fan      1.49201861            0.27404999
## 1312       Turbo-fan     -1.08685203            0.32427752
## 1313       Turbo-fan     -1.37339321            0.10662491
## 1314       Turbo-fan     -1.37339321            0.30753501
## 1315       Turbo-fan     -0.16992025            0.17694345
## 1317       Turbo-fan     -1.37339321            0.30753501
## 1318       Turbo-fan     -1.20146850            0.11667042
## 1319       Turbo-fan      1.49201861            0.07313990
## 1320       Turbo-fan      0.63239507            0.22382247
## 1322       Turbo-fan     -1.14416027            0.32092902
## 1323       Turbo-fan      0.05931270            0.19033745
## 1325       Turbo-fan      0.74701154            0.23051947
## 1327       Turbo-fan      0.74701154            0.43142957
## 1328       Turbo-fan     -1.54531792            0.49839960
## 1329       Turbo-jet      1.03355272            0.24726198
## 1330       Turbo-fan     -0.28453672            0.17024644
## 1331       Turbo-fan      1.66394332            0.28409550
## 1332       Turbo-fan      0.63239507            0.22382247
## 1333       Turbo-fan      1.60663509            0.48165710
## 1334       Turbo-fan     -1.02954379            0.52853612
## 1335       Turbo-fan      0.91893625            0.24056498
## 1336       Turbo-fan     -0.51376966            0.15685244
## 1338       Turbo-fan      0.74701154            0.43142957
## 1340       Turbo-fan      0.46047036            0.21377697
## 1341       Turbo-fan      0.46047036            0.61559716
## 1342       Turbo-fan      1.54932685            0.27739850
## 1343       Turbo-fan     -0.91492732            0.13341293
## 1344       Turbo-fan     -0.51376966            0.55867263
## 1346       Turbo-fan     -1.43070145            0.30418651
## 1347       Turbo-fan      0.46047036            0.21377697
## 1348       Turbo-fan      0.40316212            0.21042846
## 1349       Turbo-fan      1.49201861            0.27404999
## 1350       Turbo-jet      0.74701154            0.63233967
## 1351       Turbo-fan      1.43471038            0.27070149
## 1352       Turbo-jet     -1.37339321            0.50844511
## 1353       Turbo-jet     -0.57107790            0.55532413
## 1354       Turbo-fan      1.20547743            0.25730749
## 1356       Turbo-fan     -0.34184495            0.56871814
```

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## 1357     Turbo-fan       0.46047036      0.61559716
## 1358     Turbo-fan      -0.80031085      0.54193013
## 1359     Turbo-jet      -1.65993439      0.69261270
## 1360     Turbo-jet      -1.25877674      0.71605221
## 1361     Turbo-jet       0.11662094      0.39459605
## 1362     Turbo-fan      -0.68569437      0.54862713
## 1364     Turbo-jet      -0.97223556      0.73279472
## 1366     Turbo-fan      -0.80031085      0.34102003
## 1367     Turbo-jet       0.63239507      0.62564267
## 1368     Turbo-fan       1.54932685      0.47830859
## 1369     Turbo-fan       1.26278567      0.66247618
## 1370     Turbo-fan       0.11662094      0.59550615
## 1371     Turbo-fan      -0.91492732      0.53523312
## 1372     Turbo-fan      -0.34184495      0.36780804
## 1374     Turbo-fan       1.49201861      0.67587019
## 1375     Turbo-fan       1.72125156      0.89017429
## 1376     Turbo-fan      -0.80031085      0.74284022
## 1377     Turbo-fan       1.32009390      0.86673478
## 1378     Turbo-fan      -0.22722848      0.77632524
## 1379     Turbo-fan      -1.65993439      0.69261270
## 1380     Turbo-fan       1.37740214      0.66917319
## 1381     Turbo-fan      -1.37339321      0.91026530
## 1382     Turbo-fan      -0.51376966      0.55867263
## 1383     Turbo-fan      -1.43070145      0.90691680
## 1385     Turbo-fan       1.49201861      0.47496009
## 1387     Turbo-jet      -1.43070145      1.30873700
## 1388     Turbo-fan       1.49201861      0.87678029
## 1389     Turbo-fan       0.40316212      1.01406885
## 1390     Turbo-fan       1.14816919      1.05759938
## 1391     Turbo-fan      -1.37339321      0.91026530
## 1392     Turbo-fan       0.34585388      0.80981026
## 1393     Turbo-fan      -1.60262616      0.89687130
## 1394     Turbo-jet      -0.28453672      0.97388684
## 1395     Turbo-fan      -0.57107790      0.95714433
## 1396     Turbo-fan       0.05931270      0.99397785
## 1397     Turbo-jet      -1.37339321      0.70935521
## 1398     Turbo-fan      -0.80031085      0.74284022
## 1399     Turbo-fan       1.72125156      0.89017429
## 1400     Turbo-jet      -0.68569437      0.95044732
## 1402     Turbo-fan      -0.22722848      0.97723534
## 1403     Turbo-fan       1.14816919      1.05759938
## 1404     Turbo-fan       1.49201861      1.07769039
## 1405     Turbo-fan       0.63239507      1.02746286
## 1406     Turbo-fan       0.46047036      1.01741736
## 1407     Turbo-jet      -0.68569437      1.15135742
## 1408     Turbo-fan       0.51777859      1.02076586
## 1409     Turbo-jet       0.97624448      1.04755387
## 1410     Turbo-jet      -1.37339321      1.11117540
## 1411     Turbo-fan      -1.60262616      0.89687130
## 1412     Turbo-fan       0.74701154      1.03415986
## 1413     Turbo-jet       1.14816919      0.85668928
## 1414     Turbo-fan       1.32009390      0.86673478
## 1415     Turbo-fan       0.91893625      1.04420537
## 1416     Turbo-fan       0.05931270      1.19488794
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## 1419    Turbo-fan     -1.37339321          0.91026530
## 1420    Turbo-jet     -1.43070145          1.10782690
## 1421    Turbo-fan      0.17392917          1.00067485
## 1422    Turbo-fan      1.26278567          0.86338628
## 1423    Turbo-jet      0.51777859          1.22167596
## 1425    Turbo-jet     -0.97223556          1.33552501
## 1426    Turbo-jet     -0.62838614          1.15470592
## 1427    Turbo-fan     -0.45646143          1.36566153
## 1428    Turbo-fan      0.17392917          0.79976475
## 1429    Turbo-fan      1.60663509          1.28529749
## 1430    Turbo-jet     -1.48800968          1.10447840
## 1431    Turbo-fan     -1.65993439          1.09443289
## 1432    Turbo-fan      0.97624448          1.24846397
## 1433    Turbo-fan      0.51777859          1.42258605
## 1434    Turbo-fan     -1.43070145          1.30873700
## 1435    Turbo-fan      0.34585388          1.41254055
## 1436    Turbo-fan      0.34585388          1.01072035
## 1438    Turbo-fan     -0.91492732          1.13796342
## 1439    Turbo-fan      0.46047036          1.21832745
## 1440    Turbo-jet     -0.80031085          1.54648061
## 1441    Turbo-fan      0.00200446          1.19153944
## 1442    Turbo-fan     -1.65993439          1.09443289
## 1443    Turbo-fan     -1.25877674         -3.10123965
## 1444    Turbo-fan      1.03355272          1.45272257
## 1445    Turbo-fan      0.34585388          1.41254055
## 1446    Turbo-jet      1.66394332          1.48955609
## 1447    Turbo-fan      1.26278567          1.26520648
## 1448    Turbo-fan      0.91893625          1.04420537
## 1449    Turbo-jet      0.97624448          1.44937407
## 1450    Turbo-fan     -0.80031085          1.14466042
## 1451    Turbo-fan      0.00200446          1.19153944
## 1452    Turbo-fan     -0.85761908          1.34222201
## 1455    Turbo-fan     -0.22722848          1.17814543
## 1457    Turbo-fan      0.00200446          1.59335964
## 1460    Turbo-fan      0.68970330          1.43263156
## 1461    Turbo-fan     -0.51376966          1.16140293
## 1462    Turbo-fan      0.86162801          1.24176697
## 1463    Turbo-fan      0.80431978          1.23841846
## 1464    Turbo-fan      0.46047036          1.21832745
## 1466    Turbo-fan     -0.22722848          1.57996563
## 1467    Turbo-jet      0.57508683          1.22502446
## 1468    Turbo-fan      1.66394332          1.48955609
## 1469    Turbo-jet      0.51777859          1.62349615
## 1472    Turbo-fan     -0.22722848          1.37905553
## 1473    Turbo-fan     -0.74300261          1.34891902
## 1474    Turbo-fan      1.20547743          1.66367817
## 1475    Turbo-fan      1.72125156          1.69381469
## 1476    Turbo-fan     -0.85761908          1.54313211
## 1477    Turbo-fan      1.20547743          1.46276807
## 1478    Turbo-fan      0.34585388          1.41254055
## 1480    Turbo-fan     -0.62838614         -3.06440613
## 1481    Turbo-fan      0.28854565          1.40919205
## 1482    Turbo-fan      1.20547743          1.46276807
## 1483    Turbo-fan      0.63239507          1.42928306
```

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## 1484     Turbo-fan         -0.57107790          -3.06105763
## 1486     Turbo-fan         -0.28453672          -2.64249492
## 1487     Turbo-fan          0.46047036          -3.00078460
## 1488     Turbo-fan          0.46047036           1.62014765
## 1489     Turbo-fan         -1.65993439          -2.92376906
## 1490     Turbo-fan         -0.80031085           1.54648061
## 1493     Turbo-fan          1.72125156           1.69381469
## 1494     Turbo-fan         -0.80031085          -3.07445163
## 1495     Turbo-fan          1.72125156           1.69381469
## 1497     Turbo-fan          1.20547743           0.05639739
## 1498     Turbo-fan          1.20547743          -1.75179349
## 1499     Turbo-fan          1.20547743          -1.34997330
## 1500     Turbo-fan          1.26278567          -1.34662479
## 1501     Turbo-fan         -1.25877674          -1.29304877
## 1502     Turbo-fan          1.20547743          -1.34997330
## 1503     Turbo-fan          1.54932685          -1.32988229
## 1504     Turbo-fan          1.66394332          -1.32318528
## 1505     Turbo-fan         -0.39915319          -1.04191115
## 1506     Turbo-fan         -0.45646143          -1.24616974
## 1507     Turbo-fan         -1.08685203          -1.28300326
## 1508     Turbo-fan         -0.80031085          -1.66808095
## 1509     Turbo-fan          1.26278567          -1.34662479
## 1510     Turbo-fan          0.74701154          -1.37676131
## 1511     Turbo-fan         -0.28453672          -1.63794444
## 1512     Turbo-fan         -1.65993439          -0.91466808
## 1513     Turbo-fan          1.72125156          -1.11892668
## 1514     Turbo-fan         -0.39915319          -1.24282124
## 1515     Turbo-jet          0.05931270          -1.01512313
## 1516     Turbo-fan          0.91893625          -0.96489561
## 1517     Turbo-fan          1.32009390          -1.14236619
## 1518     Turbo-fan         -1.08685203          -1.08209316
## 1519     Turbo-fan          1.20547743          -1.34997330
## 1520     Turbo-fan          1.60663509          -1.12562369
## 1521     Turbo-fan          0.11662094          -1.01177463
## 1522     Turbo-fan         -0.22722848          -1.23277574
## 1523     Turbo-jet         -0.39915319          -0.64009095
## 1524     Turbo-fan          0.74701154          -1.37676131
## 1525     Turbo-fan         -1.48800968          -1.10553268
## 1526     Turbo-fan         -1.43070145          -1.10218417
## 1527     Turbo-fan         -0.97223556          -1.07539616
## 1528     Turbo-fan         -1.14416027          -0.88453157
## 1529     Turbo-fan          0.40316212          -0.99503212
## 1530     Turbo-fan          0.57508683          -0.98498662
## 1531     Turbo-fan         -0.22722848          -0.83095554
## 1533     Turbo-fan         -0.74300261          -1.26291225
## 1534     Turbo-jet         -0.28453672          -0.83430404
## 1535     Turbo-fan         -1.20146850          -1.08879017
## 1536     Turbo-fan          1.43471038          -0.93475909
## 1537     Turbo-fan          1.72125156          -1.11892668
## 1538     Turbo-fan         -0.85761908          -1.26960926
## 1539     Turbo-fan         -0.11261201          -1.02516864
## 1540     Turbo-fan         -0.51376966          -1.24951825
## 1541     Turbo-fan         -0.74300261          -0.86109206
## 1542     Turbo-jet          1.49201861          -1.13232069
```

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## 1543       Turbo-fan        0.05931270        -1.21603323
## 1544       Turbo-fan       -0.80031085        -0.46262036
## 1545       Turbo-fan        0.11662094        -0.81086453
## 1546       Turbo-fan       -1.14416027        -1.28635176
## 1547       Turbo-fan       -0.45646143        -1.04525965
## 1548       Turbo-fan        0.91893625        -1.16580571
## 1549       Turbo-fan       -0.28453672        -1.03521414
## 1550       Turbo-fan        0.63239507        -0.78072802
## 1551       Turbo-fan        0.34585388        -0.39565033
## 1552       Turbo-jet       -1.02954379        -0.87783457
## 1553       Turbo-fan       -0.22722848        -1.03186564
## 1554       Turbo-fan       -1.37339321        -0.89792558
## 1555       Turbo-jet        0.05931270        -1.01512313
## 1556       Turbo-fan        1.66394332        -1.12227518
## 1557       Turbo-fan       -1.54531792        -0.90797108
## 1558       Turbo-fan        0.86162801        -0.96824411
## 1559       Turbo-jet        1.43471038        -0.73384900
## 1560       Turbo-fan       -1.08685203        -0.68027297
## 1561       Turbo-fan       -0.91492732        -1.07204766
## 1562       Turbo-fan        0.91893625        -0.76398551
## 1564       Turbo-fan        1.32009390        -0.74054600
## 1565       Turbo-fan       -1.65993439        -0.91466808
## 1566       Turbo-fan        0.46047036        -0.79077352
## 1567       Turbo-fan       -0.85761908        -0.86778906
## 1568       Turbo-fan       -0.11261201        -0.62334844
## 1569       Turbo-fan       -0.22722848        -0.63004545
## 1570       Turbo-fan        0.05931270        -0.01057264
## 1571       Turbo-fan        0.00200446        -0.61665144
## 1572       Turbo-fan        0.34585388        -0.79747053
## 1573       Turbo-fan       -1.37339321        -0.89792558
## 1574       Turbo-jet       -1.02954379        -0.27510427
## 1575       Turbo-fan        1.09086096        -0.15120971
## 1576       Turbo-fan        0.05931270        -1.01512313
## 1577       Turbo-fan       -0.22722848        -0.63004545
## 1578       Turbo-fan       -0.80031085        -0.86444056
## 1579       Turbo-fan        1.20547743        -0.54633290
## 1580       Turbo-fan        0.63239507        -0.57981792
## 1581       Turbo-jet        0.23123741        -0.60325743
## 1582       Turbo-fan        0.05931270        -0.81421303
## 1583       Turbo-fan       -1.54531792        -0.90797108
## 1584 Reciprocating         0.34585388        -0.59656043
## 1586       Turbo-jet        0.57508683        -0.58316642
## 1587       Turbo-fan       -0.22722848        -0.42913535
## 1588       Turbo-jet       -0.97223556        -0.47266587
## 1589       Turbo-jet        1.26278567        -0.54298440
## 1590       Turbo-fan       -0.45646143        -0.84434955
## 1591       Turbo-fan       -0.85761908        -0.66687896
## 1593       Turbo-fan        1.26278567        -0.54298440
## 1594       Turbo-fan        0.74701154        -0.37221082
## 1595       Turbo-fan        1.32009390        -0.53963590
## 1596       Turbo-fan        0.11662094        -0.81086453
## 1597       Turbo-fan        1.72125156        -0.91801659
## 1598       Turbo-fan        0.05931270        -0.41239284
## 1599       Turbo-fan        0.63239507        -0.37890782
```

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## 1600         Turbo-fan        0.17392917              -0.40569584
## 1601         Turbo-fan       -0.16992025              -0.42578685
## 1602         Turbo-fan        1.66394332              -0.31863479
## 1603         Turbo-jet       -0.22722848              -0.22822525
## 1604         Turbo-fan       -1.37339321              -0.49610538
## 1606         Turbo-jet       -0.91492732              -0.26840727
## 1607         Turbo-fan        0.63239507              -0.57981792
## 1608         Turbo-fan        0.91893625              -0.16125522
## 1609         Turbo-fan       -0.51376966              -0.44587786
## 1610         Turbo-fan        0.91893625              -0.36216531
## 1611         Turbo-fan        1.54932685              -0.52624189
## 1612         Turbo-fan       -0.22722848              -0.22822525
## 1613         Turbo-fan       -0.68569437              -0.45592336
## 1614         Turbo-fan       -1.31608498              -0.49275688
## 1615         Turbo-fan        1.09086096              -0.15120971
## 1616         Turbo-fan       -1.65993439              -0.51284789
## 1617         Turbo-fan       -0.80031085              -0.46262036
## 1618         Turbo-fan        1.20547743              -0.34542281
## 1619         Turbo-fan        1.60663509              -0.12107320
## 1620         Turbo-fan       -0.57107790              -0.24831626
## 1622         Turbo-jet       -1.20146850               0.11667042
## 1623         Turbo-fan        1.49201861               0.07313990
## 1624         Turbo-jet        0.46047036               0.01286687
## 1626         Turbo-jet        0.46047036              -0.18804323
## 1627         Turbo-fan        1.20547743              -0.14451271
## 1628         Turbo-jet       -0.34184495               0.16689794
## 1629         Turbo-fan       -1.37339321              -0.09428518
## 1630         Turbo-fan       -0.22722848               0.17359495
## 1631         Turbo-jet       -1.37339321              -0.09428518
## 1632         Turbo-fan       -0.45646143              -0.24161926
## 1633         Turbo-fan        0.91893625               0.24056498
## 1634         Turbo-fan        0.00200446               0.18698895
## 1635         Turbo-jet        0.34585388               0.80981026
## 1636         Turbo-jet       -1.48800968               0.09992791
## 1638         Turbo-fan       -1.08685203              -0.07754268
## 1640         Turbo-jet        1.54932685               0.27739850
## 1641         Turbo-fan        0.51777859               0.21712547
## 1642         Turbo-fan        1.03355272               0.24726198
## 1643         Turbo-fan       -0.51376966               0.35776254
## 1646         Turbo-fan        0.11662094               0.19368596
## 1647         Turbo-jet        0.57508683               0.22047397
## 1648         Turbo-fan       -0.11261201               0.38120205
## 1649         Turbo-fan        1.03355272               0.24726198
## 1650         Turbo-fan       -1.60262616               0.09323091
## 1651         Turbo-fan        0.74701154               0.23051947
## 1652         Turbo-fan       -0.16992025               0.17694345
## 1653         Turbo-fan        0.05931270               0.19033745
## 1654         Turbo-fan       -1.43070145               0.10327641
## 1655         Turbo-fan       -0.80031085               0.54193013
## 1656         Turbo-fan        0.05931270               0.39124755
## 1657         Turbo-fan        0.63239507               0.42473257
## 1658 Reciprocating          1.49201861               0.27404999
## 1659         Turbo-fan       -1.25877674               0.51514211
## 1660         Turbo-fan       -1.60262616               0.49505110
```

```
## 1661        Turbo-jet          1.54932685              0.27739850
## 1662        Turbo-fan          0.34585388              0.20707996
## 1663        Turbo-jet         -1.08685203              0.52518762
## 1664        Turbo-jet         -1.08685203              0.52518762
## 1665        Turbo-fan          0.46047036              0.41468706
## 1666        Turbo-fan          0.46047036              0.41468706
## 1667        Turbo-fan          0.91893625              0.44147508
## 1668        Turbo-fan          1.09086096              0.25061048
## 1669        Turbo-fan         -1.65993439              0.29079250
## 1670        Turbo-fan         -1.08685203              0.72609771
## 1671        Turbo-fan          0.00200446              0.58880915
## 1672        Turbo-fan          1.60663509              0.68256719
## 1673        Turbo-fan          1.49201861              0.27404999
## 1674        Turbo-fan         -1.37339321              0.30753501
## 1675        Turbo-fan         -0.85761908              0.33767153
## 1676        Turbo-fan         -0.22722848              0.37450504
## 1677        Turbo-jet          1.20547743              0.65912768
## 1678        Turbo-jet         -0.97223556              0.73279472
## 1679        Turbo-fan         -0.22722848              0.77632524
## 1680        Turbo-prop         1.20547743              1.06094788
## 1681        Turbo-fan         -1.48800968              0.70265820
## 1682        Turbo-fan         -0.91492732              0.73614322
## 1683        Turbo-jet         -0.68569437              0.74953723
## 1684        Turbo-jet          0.05931270              0.79306775
## 1685        Turbo-fan         -1.65993439              0.49170260
## 1686        Turbo-fan         -0.91492732              0.53523312
## 1687        Turbo-fan         -1.43070145              0.50509661
## 1688        Turbo-fan         -0.91492732              0.73614322
## 1689        Turbo-fan          0.51777859              0.61894566
## 1690        Turbo-fan         -1.65993439              0.49170260
## 1691        Turbo-jet         -0.22722848              0.77632524
## 1692        Turbo-fan         -1.37339321              0.91026530
## 1693        Turbo-fan         -1.65993439              0.89352280
## 1694        Turbo-fan         -1.60262616              0.89687130
## 1695        Turbo-fan          0.63239507              0.62564267
## 1696        Turbo-fan          1.14816919              1.05759938
## 1697        Turbo-fan          0.05931270              0.59215765
## 1698        Turbo-jet         -0.80031085              0.74284022
## 1699        Turbo-fan         -0.80031085              0.94375032
## 1701        Turbo-fan          0.63239507              0.62564267
## 1702        Turbo-fan         -1.60262616              1.29869149
## 1703        Turbo-fan         -0.57107790              0.95714433
## 1704        Turbo-fan          0.23123741              1.00402335
## 1705        Turbo-fan          1.49201861              0.67587019
## 1706        Turbo-fan          1.72125156              0.89017429
## 1707        Turbo-fan          0.63239507              1.02746286
## 1708        Turbo-fan         -0.80031085              0.54193013
## 1709        Turbo-jet         -0.45646143              0.96384133
## 1710        Turbo-fan         -0.11261201              0.98393234
## 1711        Turbo-jet          1.49201861              1.07769039
## 1712        Turbo-fan         -0.22722848              0.97723534
## 1713        Turbo-fan          0.63239507              1.02746286
## 1714        Turbo-jet         -0.34184495              0.97053833
## 1715        Turbo-fan          1.32009390              0.66582469
```

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## 1716    Turbo-jet      -0.85761908              0.94040182
## 1717    Turbo-fan      -0.85761908              0.94040182
## 1718    Turbo-fan      -1.08685203              1.12791791
## 1719    Turbo-fan       0.74701154              1.03415986
## 1720    Turbo-fan       0.91893625              0.84329527
## 1721    Turbo-fan      -0.57107790              1.15805442
## 1722    Turbo-fan       0.05931270              1.19488794
## 1723    Turbo-fan       1.20547743              0.86003778
## 1724    Turbo-fan       0.05931270              0.79306775
## 1726    Turbo-fan       1.20547743              1.26185798
## 1728    Turbo-fan       0.51777859              0.81985576
## 1729    Turbo-fan      -0.80031085              0.94375032
## 1730    Turbo-fan       0.05931270              0.79306775
## 1731    Turbo-fan      -1.31608498              0.91361381
## 1733    Turbo-fan      -1.14416027              0.92365931
## 1734    Turbo-fan       0.05931270              1.19488794
## 1735    Turbo-fan      -1.37339321              1.31208550
## 1736    Turbo-fan       1.32009390              1.26855498
## 1737    Turbo-fan       0.17392917              1.20158495
## 1738    Turbo-fan      -1.08685203              0.92700781
## 1739    Turbo-fan       1.03355272              1.05090237
## 1740    Turbo-fan      -1.48800968              1.10447840
## 1741    Turbo-shaft     1.37740214              1.27190348
## 1742    Turbo-jet      -0.51376966              1.36231302
## 1743    Turbo-fan       1.49201861              1.27860048
## 1744    Turbo-fan      -1.43070145              1.10782690
## 1745    Turbo-fan      -0.22722848              1.37905553
## 1746    Turbo-fan      -1.08685203              1.12791791
## 1747    Turbo-jet       0.97624448              1.44937407
## 1748    Turbo-fan      -1.20146850             -3.09789115
## 1749    Turbo-fan      -1.65993439              1.09443289
## 1751    Turbo-fan      -1.60262616              1.49960159
## 1753    Turbo-fan       0.68970330              1.43263156
## 1755    Turbo-fan      -0.22722848              1.17814543
## 1756    Turbo-fan       0.63239507              1.42928306
## 1757    Turbo-fan       0.80431978              1.03750837
## 1758    Turbo-fan      -1.43070145              1.10782690
## 1759    Turbo-fan       0.80431978              1.23841846
## 1760    Turbo-fan       1.60663509              1.48620758
## 1761    Turbo-fan      -1.08685203              1.52973811
## 1762    Turbo-fan       0.05931270              1.19488794
## 1763    Turbo-fan      -0.45646143              1.56657162
## 1764    Turbo-fan       0.57508683              1.22502446
## 1765    Turbo-fan       1.66394332              1.48955609
## 1766    Turbo-fan      -0.05530377              1.59001113
## 1767    Turbo-fan       1.72125156              1.69381469
## 1768    Turbo-fan      -0.16992025             -2.83670802
## 1769    Turbo-fan       0.80431978              1.64023866
## 1771    Turbo-fan      -0.28453672             -2.64249492
## 1772    Turbo-fan       0.57508683             -2.99408760
## 1774    Turbo-fan       0.46047036             -3.00078460
## 1776    Turbo-fan      -0.80031085             -3.07445163
## 1779    Turbo-fan       0.74701154             -2.18040170
## 1780    Turbo-fan      -0.62838614             -0.05075466
```

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## 1781        Turbo-jet       -0.57107790              -1.45377685
## 1782        Turbo-fan        1.20547743              -1.34997330
## 1783        Turbo-jet        0.05931270              -1.21603323
## 1784        Turbo-fan        1.26278567              -1.34662479
## 1785        Turbo-fan       -1.08685203              -1.28300326
## 1786        Turbo-fan        1.20547743              -1.34997330
## 1787        Turbo-fan        1.54932685              -1.32988229
## 1788        Turbo-fan        1.66394332              -1.32318528
## 1789        Turbo-fan       -0.80031085              -1.26626075
## 1790        Turbo-jet        1.09086096              -1.35667030
## 1791        Turbo-fan       -1.65993439              -0.91466808
## 1792        Turbo-fan        0.23123741              -1.40689782
## 1793        Turbo-jet        0.57508683              -1.18589672
## 1794        Turbo-fan       -1.08685203              -1.48391336
## 1795        Turbo-fan       -0.85761908              -1.06869916
## 1796        Turbo-fan        0.63239507              -1.18254821
## 1797        Turbo-fan        1.09086096              -1.35667030
## 1798        Turbo-fan        0.34585388              -1.19929072
## 1799        Turbo-fan       -1.08685203              -1.48391336
## 1800        Turbo-fan        1.72125156              -1.11892668
## 1801        Turbo-fan       -0.45646143              -1.24616974
## 1802        Turbo-fan        1.32009390              -1.14236619
## 1803        Turbo-fan        0.91893625              -0.96489561
## 1804        Turbo-fan        0.46047036              -1.19259372
## 1806        Turbo-fan        0.91893625              -0.96489561
## 1807        Turbo-fan       -0.45646143              -1.04525965
## 1808        Turbo-jet       -1.48800968              -1.10553268
## 1809        Turbo-fan        0.34585388              -0.99838062
## 1810        Turbo-fan       -0.97223556              -1.07539616
## 1811        Turbo-fan        1.20547743              -1.34997330
## 1812        Turbo-fan        0.05931270              -1.01512313
## 1813        Turbo-fan       -0.80031085              -0.86444056
## 1814        Turbo-fan        0.63239507              -0.98163812
## 1815 Reciprocating          0.05931270              -1.21603323
## 1816        Turbo-jet        0.28854565              -0.59990893
## 1818        Turbo-fan       -1.08685203              -0.88118307
## 1819        Turbo-fan       -1.31608498              -1.09548717
## 1820        Turbo-fan        1.54932685              -1.12897219
## 1821        Turbo-jet        1.72125156              -1.11892668
## 1822        Turbo-fan        0.63239507              -0.98163812
## 1823        Turbo-fan        0.57508683              -0.98498662
## 1824        Turbo-fan        1.49201861              -1.13232069
## 1825        Turbo-fan        0.63239507              -0.78072802
## 1826        Turbo-fan       -1.65993439              -1.11557818
## 1827        Turbo-fan       -0.74300261              -1.06200216
## 1828        Turbo-fan       -0.57107790              -1.25286675
## 1829        Turbo-fan        0.57508683              -1.18589672
## 1830        Turbo-fan        0.11662094              -0.81086453
## 1831        Turbo-fan        0.91893625              -1.16580571
## 1832        Turbo-fan       -0.85761908              -1.26960926
## 1833        Turbo-jet        0.34585388              -0.39565033
## 1834        Turbo-fan       -0.28453672              -1.03521414
## 1835        Turbo-fan       -1.37339321              -0.89792558
## 1836        Turbo-fan       -1.37339321              -0.89792558
```

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## 1837      Turbo-fan      -1.48800968          -1.10553268
## 1838      Turbo-jet       1.43471038          -0.73384900
## 1839      Turbo-fan       1.20547743          -1.14906320
## 1840      Turbo-fan       1.26278567          -0.74389450
## 1841      Turbo-fan      -1.25877674          -0.69031847
## 1842      Turbo-fan      -0.74300261          -0.86109206
## 1843      Turbo-fan      -0.51376966          -0.64678795
## 1844      Turbo-fan      -0.51376966          -0.64678795
## 1845      Turbo-fan      -0.11261201          -1.02516864
## 1846      Turbo-jet      -1.14416027          -0.28180128
## 1847      Turbo-jet       1.09086096          -0.95485010
## 1848      Turbo-fan      -1.20146850          -0.88788007
## 1849 Reciprocating        0.91893625          -0.56307541
## 1850      Turbo-fan       1.72125156          -0.91801659
## 1851      Turbo-fan       0.63239507          -0.57981792
## 1852      Turbo-fan       0.05931270          -1.01512313
## 1853      Turbo-fan       0.51777859          -0.58651492
## 1854      Turbo-fan       0.34585388          -0.59656043
## 1855      Turbo-fan       1.20547743          -0.74724300
## 1856      Turbo-fan      -0.57107790          -0.65013645
## 1857      Turbo-fan       0.63239507          -0.98163812
## 1859      Turbo-fan       1.20547743          -0.54633290
## 1860      Turbo-fan      -0.22722848          -0.63004545
## 1862      Turbo-fan      -1.54531792          -0.90797108
## 1864      Turbo-fan      -0.51376966          -0.64678795
## 1865      Turbo-fan      -0.45646143          -0.44252935
## 1866      Turbo-fan       0.00200446          -0.41574134
## 1867      Turbo-fan      -1.08685203          -0.88118307
## 1868      Turbo-fan      -0.57107790          -0.65013645
## 1869      Turbo-fan      -1.08685203          -0.68027297
## 1870      Turbo-fan       0.05931270          -0.61330294
## 1871      Turbo-fan       0.74701154          -0.37221082
## 1872      Turbo-fan      -0.05530377          -0.82091004
## 1873      Turbo-fan       0.11662094          -0.60995444
## 1874      Turbo-fan       0.11662094          -0.40904434
## 1875      Turbo-fan       1.32009390          -0.53963590
## 1876      Turbo-fan       0.63239507          -0.37890782
## 1878      Turbo-fan       1.20547743          -0.34542281
## 1880      Turbo-fan       1.66394332          -0.31863479
## 1881      Turbo-fan       0.86162801          -0.36551382
## 1882      Turbo-fan       0.34585388          -0.59656043
## 1883      Turbo-jet      -0.22722848          -0.22822525
## 1885      Turbo-fan      -0.22722848          -0.22822525
## 1887      Turbo-fan      -0.80031085          -0.46262036
## 1888      Turbo-jet      -1.08685203          -0.47936287
## 1889      Turbo-fan       1.60663509          -0.52289339
## 1890      Turbo-fan      -1.37339321          -0.49610538
## 1891      Turbo-fan       0.05931270          -0.41239284
## 1892      Turbo-fan       0.91893625          -0.36216531
## 1893      Turbo-fan       1.20547743          -0.14451271
## 1894      Turbo-fan      -0.80031085          -0.46262036
## 1895      Turbo-jet      -0.39915319          -0.23827075
## 1896      Turbo-fan      -0.45646143          -0.44252935
## 1897      Turbo-fan       0.57508683          -0.18134623
```

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## 1898     Turbo-fan     -0.28453672     -0.23157375
## 1899     Turbo-fan      1.43471038     -0.13111870
## 1900     Turbo-fan      0.00200446     -0.01392115
## 1901     Turbo-fan      0.05931270     -0.41239284
## 1902     Turbo-fan     -0.62838614     -0.45257486
## 1903     Turbo-fan     -1.54531792     -0.10433069
## 1904     Turbo-fan     -0.51376966     -0.04405766
## 1905     Turbo-jet      0.51777859     -0.18469473
## 1906     Turbo-fan      0.91893625      0.03965488
## 1907     Turbo-fan      1.54932685     -0.32533180
## 1908     Turbo-fan     -1.31608498     -0.49275688
## 1909     Turbo-fan      0.11662094     -0.00722414
## 1910     Turbo-fan      1.20547743     -0.34542281
## 1911     Turbo-fan      1.49201861      0.07313990
## 1912     Turbo-fan     -0.22722848     -0.42913535
## 1913     Turbo-fan     -0.80031085     -0.26171027
## 1914     Turbo-fan      0.91893625     -0.16125522
## 1915     Turbo-jet     -0.68569437     -0.05410316
## 1916     Turbo-fan      0.63239507      0.02291237
## 1917     Turbo-fan      1.14816919     -0.14786121
## 1918     Turbo-fan      1.20547743      0.05639739
## 1919     Turbo-fan     -0.51376966     -0.04405766
## 1920     Turbo-fan     -1.31608498     -0.29184678
## 1921     Turbo-fan      1.43471038      0.06979140
## 1922     Turbo-fan      0.63239507     -0.17799773
## 1923     Turbo-fan      1.20547743     -0.14451271
## 1924     Turbo-fan     -1.08685203      0.12336742
## 1925     Turbo-fan     -0.11261201     -0.22152825
## 1926     Turbo-fan     -0.51376966     -0.04405766
## 1927     Turbo-fan      0.40316212     -0.19139173
## 1928     Turbo-fan      0.68970330      0.22717097
## 1929     Turbo-jet     -1.37339321      0.10662491
## 1930     Turbo-fan     -0.16992025      0.17694345
## 1931     Turbo-fan     -1.37339321      0.30753501
## 1932     Turbo-fan      0.28854565     -0.19808873
## 1933     Turbo-fan     -1.08685203      0.52518762
## 1934     Turbo-fan     -0.80031085      0.34102003
## 1935     Turbo-fan      1.20547743      0.25730749
## 1936     Turbo-fan     -1.20146850      0.31758052
## 1937     Turbo-jet      1.60663509      0.28074700
## 1938     Turbo-fan     -1.65993439      0.08988241
## 1940     Turbo-fan      1.72125156      0.28744400
## 1941     Turbo-fan      1.20547743      0.25730749
## 1942     Turbo-jet     -0.91492732      0.33432302
## 1943     Turbo-fan      0.34585388      0.40799006
## 1944     Turbo-jet     -1.02954379      0.12671592
## 1945     Turbo-fan      0.05931270      0.19033745
## 1946     Turbo-fan     -1.31608498      0.10997341
## 1947     Turbo-fan      1.54932685      0.27739850
## 1948     Turbo-fan      0.63239507      0.22382247
## 1949     Turbo-fan      1.49201861      0.47496009
## 1951     Turbo-fan      0.34585388      0.00616986
## 1952     Turbo-fan      1.32009390      0.46491459
## 1953     Turbo-fan      1.43471038      0.27070149
```

```
## 1954      Turbo-fan         1.49201861              0.27404999
## 1955      Turbo-jet         1.09086096              0.04970039
## 1957      Turbo-jet         1.54932685              0.27739850
## 1959      Turbo-fan        -1.60262616              0.49505110
## 1960      Turbo-fan        -1.37339321              0.50844511
## 1961      Turbo-fan         0.63239507              0.42473257
## 1962      Turbo-fan        -0.05530377              0.18364045
## 1963      Turbo-fan         0.63239507              0.22382247
## 1964      Turbo-fan         0.46047036              0.41468706
## 1965      Turbo-fan         0.74701154              0.63233967
## 1966      Turbo-fan        -0.22722848              0.37450504
## 1968      Turbo-fan         1.43471038              0.27070149
## 1969      Turbo-fan         1.49201861              0.27404999
## 1970      Turbo-fan         1.20547743              0.65912768
## 1971      Turbo-fan         0.11662094              0.39459605
## 1972      Turbo-fan        -0.74300261              0.34436853
## 1973      Turbo-jet        -1.25877674              0.51514211
## 1975      Turbo-fan        -0.80031085              0.54193013
## 1976      Turbo-fan        -1.14416027              0.72274921
## 1977      Turbo-fan        -1.08685203              0.72609771
## 1978      Turbo-fan        -1.48800968              0.30083801
## 1979      Turbo-fan         0.63239507              0.62564267
## 1980      Turbo-jet         1.20547743              0.45821758
## 1981      Turbo-jet        -0.97223556              0.73279472
## 1982      Turbo-jet         1.20547743              0.65912768
## 1983      Turbo-fan         0.23123741              0.80311325
## 1984      Turbo-fan        -1.65993439              0.49170260
## 1985      Turbo-fan        -1.02954379              0.52853612
## 1986      Turbo-fan        -1.08685203              0.72609771
## 1988      Turbo-fan        -0.80031085              0.54193013
## 1989      Turbo-fan         1.20547743              0.45821758
## 1990      Turbo-fan         1.72125156              0.89017429
## 1991      Turbo-fan        -0.51376966              0.96049283
## 1992      Turbo-fan        -0.85761908              0.53858162
## 1993      Turbo-fan         0.91893625              0.64238517
## 1995      Turbo-fan         1.20547743              0.65912768
## 1997      Turbo-fan        -0.57107790              0.75623423
## 1998      Turbo-fan         0.46047036              0.61559716
## 1999      Turbo-jet        -0.28453672              0.57206664
## 2000      Turbo-fan         0.00200446              0.99062934
## 2001      Turbo-fan        -0.51376966              0.55867263
## 2002      Turbo-fan         0.05931270              0.99397785
## 2003      Turbo-fan        -1.08685203              0.92700781
## 2004      Turbo-fan        -0.80031085              0.54193013
## 2005      Turbo-fan        -1.20146850              0.51849061
## 2006      Turbo-jet         0.63239507              1.02746286
## 2007      Turbo-fan        -0.80031085              0.74284022
## 2008      Turbo-fan        -1.37339321              0.70935521
## 2012      Turbo-fan        -1.37339321              0.70935521
## 2013      Turbo-fan         1.37740214              0.87008328
## 2014      Turbo-fan        -1.08685203              0.72609771
## 2015      Turbo-fan        -0.22722848              0.77632524
## 2016      Turbo-fan         1.49201861              1.07769039
## 2019      Turbo-fan         0.86162801              0.63903667
```

```
## 2020     Turbo-jet       -0.68569437                 1.15135742
## 2022     Turbo-fan       -1.08685203                 1.12791791
## 2023     Turbo-fan        0.80431978                 1.03750837
## 2024     Turbo-fan        0.63239507                 1.02746286
## 2025     Turbo-fan        1.49201861                 0.87678029
## 2027     Turbo-fan        0.91893625                 1.04420537
## 2028     Turbo-fan        0.05931270                 1.19488794
## 2030     Turbo-fan        0.46047036                 1.01741736
## 2031     Turbo-jet        1.32009390                 0.86673478
## 2032     Turbo-fan        1.26278567                 1.26520648
## 2033     Turbo-fan        0.86162801                 1.04085687
## 2034     Turbo-fan       -1.37339321                 1.31208550
## 2035     Turbo-fan       -0.39915319                 1.16809993
## 2036     Turbo-jet        0.17392917                 1.00067485
## 2037     Turbo-fan       -1.08685203                 0.92700781
## 2038     Turbo-jet        0.63239507                 1.22837296
## 2039     Turbo-fan        0.11662094                 0.99732635
## 2040     Turbo-fan       -1.65993439                 1.09443289
## 2041     Turbo-fan        1.20547743                 1.06094788
## 2042     Turbo-jet       -1.48800968                 1.10447840
## 2043     Turbo-fan        1.49201861                 0.87678029
## 2044     Turbo-fan        1.49201861                 1.68042068
## 2045     Turbo-fan        1.26278567                 1.06429638
## 2046     Turbo-fan        0.51777859                 1.42258605
## 2047     Turbo-fan       -1.60262616                 1.49960159
## 2048     Turbo-fan        1.49201861                 1.07769039
## 2049     Turbo-fan        0.51777859                 1.02076586
## 2050     Turbo-fan        0.46047036                 1.21832745
## 2051     Turbo-fan        0.74701154                 1.23506996
## 2052     Turbo-fan        1.03355272                 1.45272257
## 2053     Turbo-fan        1.03355272                 1.45272257
## 2055     Turbo-fan       -1.43070145                 1.30873700
## 2056     Turbo-fan        0.63239507                 1.42928306
## 2057     Turbo-fan       -1.65993439                 1.09443289
## 2058     Turbo-fan        0.00200446                 1.39244954
## 2059     Turbo-fan        1.20547743                 1.06094788
## 2060     Turbo-fan        0.00200446                 1.59335964
## 2062     Turbo-fan       -1.31608498                 1.11452390
## 2063     Turbo-fan       -0.80031085                 1.34557052
## 2064     Turbo-fan        0.05931270                 1.39579804
## 2065     Turbo-fan       -0.28453672                 1.37570703
## 2066     Turbo-fan        1.03355272                 1.25181247
## 2067     Turbo-fan        0.68970330                 1.43263156
## 2068     Turbo-fan        0.80431978                 1.23841846
## 2069     Turbo-fan       -1.20146850                 1.32213100
## 2070     Turbo-fan       -0.97223556                 1.13461491
## 2071     Turbo-fan       -0.62838614                 1.55652612
## 2072     Turbo-fan        0.46047036                 1.21832745
## 2074     Turbo-fan       -1.08685203                 1.32882801
## 2076     Turbo-jet        0.00200446                 1.59335964
## 2077     Turbo-fan       -1.02954379                 1.53308661
## 2078     Turbo-fan        0.68970330                 1.63354166
## 2079     Turbo-fan       -1.31608498                 1.31543400
## 2080 Reciprocating       -0.22722848                 1.37905553
```

```
## 2081        Turbo-fan              -0.74300261                    1.34891902
## 2083        Turbo-fan               0.11662094                   -3.02087561
## 2085        Turbo-fan               1.20547743                    1.46276807
## 2086        Turbo-fan              -0.28453672                    1.37570703
## 2087        Turbo-fan              -0.68569437                    1.55317762
## 2088        Turbo-fan               0.34585388                    1.41254055
## 2089        Turbo-fan              -0.62838614                   -3.06440613
## 2090        Turbo-fan              -0.28453672                   -2.64249492
## 2091        Turbo-fan               1.20547743                   -2.95725408
## 2092        Turbo-fan              -1.31608498                    1.51634410
## 2093        Turbo-fan              -0.28453672                    1.37570703
## 2094        Turbo-jet              -0.74300261                    1.54982912
## 2095        Turbo-fan              -1.65993439                   -2.92376906
## 2096        Turbo-fan              -0.80031085                    1.54648061
## 2099        Turbo-fan               1.72125156                    1.69381469
## 2100        Turbo-fan              -0.80031085                   -3.07445163
## 2102        Turbo-fan               1.72125156                    1.69381469
## 2105        Turbo-fan               1.20547743                   -1.34997330
## 2106        Turbo-fan              -0.68569437                   -1.05865365
## 2107        Turbo-fan               0.00200446                   -1.42029183
## 2108        Turbo-fan              -1.60262616                   -1.51404988
## 2109        Turbo-fan               1.72125156                   -1.31983678
## 2110        Turbo-fan              -1.08685203                   -1.28300326
## 2111        Turbo-fan               0.46047036                   -1.39350382
## 2112        Turbo-fan               1.72125156                   -1.52074688
## 2113        Turbo-fan              -0.22722848                   -1.43368584
## 2114        Turbo-fan               1.72125156                   -1.72165698
## 2115        Turbo-jet              -0.22722848                   -1.63459593
## 2116        Turbo-fan              -0.68569437                   -1.46047385
## 2117        Turbo-fan              -0.80031085                   -1.26626075
## 2118        Turbo-fan              -1.65993439                   -1.71830847
## 2119        Turbo-fan               1.20547743                   -1.55088339
## 2120        Turbo-fan              -0.51376966                   -1.45042834
## 2121        Turbo-fan              -0.57107790                   -1.45377685
## 2122        Turbo-fan              -0.74300261                   -1.26291225
## 2123        Turbo-jet               0.80431978                   -1.37341281
## 2124        Turbo-jet               0.28854565                   -1.20263922
## 2125        Turbo-fan               1.03355272                   -1.36001880
## 2126        Turbo-fan              -1.37339321                   -1.29974577
## 2127        Turbo-fan               0.63239507                   -0.78072802
## 2128        Turbo-fan              -0.11261201                   -1.22607874
## 2129        Turbo-jet              -1.54531792                   -1.10888118
## 2130        Turbo-fan              -1.08685203                   -1.48391336
## 2131        Turbo-fan              -0.57107790                   -1.05195665
## 2132        Turbo-jet               1.60663509                   -1.12562369
## 2133        Turbo-fan               1.60663509                   -1.52744388
## 2134        Turbo-fan              -0.22722848                   -1.03186564
## 2135        Turbo-fan              -0.11261201                   -1.22607874
## 2136        Turbo-fan              -1.25877674                   -1.49395887
## 2137        Turbo-fan              -0.85761908                   -1.06869916
## 2138        Turbo-fan               0.63239507                   -1.18254821
## 2139        Turbo-fan               0.28854565                   -1.00172913
## 2140        Turbo-fan              -0.91492732                   -1.47386786
## 2141        Turbo-fan               0.17392917                   -1.20933623
```

```
## 2142    Turbo-fan      0.91893625       -0.96489561
## 2143    Turbo-fan     -1.54531792       -1.10888118
## 2144    Turbo-fan      0.40316212       -1.39685232
## 2145    Turbo-fan     -0.45646143       -1.04525965
## 2146    Turbo-fan      1.20547743       -1.34997330
## 2147    Turbo-fan      0.57508683       -1.38680681
## 2148    Turbo-jet      0.63239507       -0.98163812
## 2149    Turbo-jet      0.28854565       -1.00172913
## 2151    Turbo-fan      0.34585388       -0.99838062
## 2152    Turbo-jet     -0.05530377       -1.22273023
## 2153    Turbo-fan      1.72125156       -1.11892668
## 2154    Turbo-fan     -1.65993439       -0.91466808
## 2155    Turbo-fan      0.05931270       -1.01512313
## 2156    Turbo-fan     -1.37339321       -0.89792558
## 2157    Turbo-fan      0.91893625       -0.96489561
## 2158    Turbo-fan      0.05931270       -1.21603323
## 2159    Turbo-fan     -0.22722848       -0.83095554
## 2160    Turbo-fan     -0.11261201       -1.22607874
## 2161    Turbo-fan     -1.14416027       -1.28635176
## 2162    Turbo-fan      0.91893625       -0.96489561
## 2163    Turbo-fan     -0.28453672       -0.83430404
## 2164    Turbo-fan      1.43471038       -0.93475909
## 2165    Turbo-fan     -0.22722848       -1.03186564
## 2166    Turbo-fan     -0.80031085       -0.46262036
## 2167    Turbo-fan      0.00200446       -1.01847163
## 2168    Turbo-fan     -1.08685203       -1.08209316
## 2169    Turbo-fan      0.74701154       -0.97494111
## 2170    Turbo-fan     -0.80031085       -1.06535066
## 2171    Turbo-fan     -0.11261201       -0.82425854
## 2172    Turbo-fan      0.63239507       -0.78072802
## 2173    Turbo-fan      1.66394332       -0.92136509
## 2174    Turbo-fan      0.57508683       -1.18589672
## 2175    Turbo-fan      1.49201861       -1.13232069
## 2176    Turbo-fan     -0.57107790       -1.05195665
## 2177    Turbo-fan      0.11662094       -1.01177463
## 2178    Turbo-fan      0.91893625       -1.16580571
## 2179    Turbo-fan     -1.25877674       -1.09213867
## 2180    Turbo-fan      0.46047036       -0.79077352
## 2182    Turbo-fan      1.49201861       -1.13232069
## 2183    Turbo-fan     -0.34184495       -1.03856264
## 2184    Turbo-fan      1.03355272       -0.95819860
## 2185    Turbo-fan     -1.31608498       -0.89457707
## 2186    Turbo-fan      0.63239507       -0.37890782
## 2187    Turbo-fan     -0.62838614       -1.25621525
## 2188    Turbo-fan      0.46047036       -0.79077352
## 2189    Turbo-fan      1.20547743       -1.14906320
## 2190    Turbo-fan     -0.80031085       -0.66353046
## 2191    Turbo-fan      0.97624448       -0.76063701
## 2192    Turbo-fan     -1.31608498       -1.09548717
## 2193    Turbo-fan     -0.80031085       -1.06535066
## 2194    Turbo-fan      1.20547743       -0.34542281
## 2195    Turbo-fan      1.03355272       -0.75728851
## 2196    Turbo-fan     -0.39915319       -1.04191115
## 2197    Turbo-fan     -1.43070145       -0.70036398
```

```
## 2198      Turbo-fan         -1.08685203                -0.88118307
## 2199      Turbo-fan         -0.68569437                -0.65683346
## 2200      Turbo-fan          0.34585388                -0.79747053
## 2201      Turbo-fan         -0.51376966                -0.64678795
## 2202      Turbo-fan          1.72125156                -0.71710649
## 2203      Turbo-fan         -0.91492732                -0.87113756
## 2204      Turbo-fan         -0.11261201                -0.62334844
## 2205      Turbo-fan         -1.43070145                -0.90127408
## 2206      Turbo-fan         -0.16992025                -0.62669694
## 2207      Turbo-fan          0.00200446                -1.01847163
## 2208      Turbo-fan         -0.51376966                -0.64678795
## 2209      Turbo-fan         -0.22722848                -0.83095554
## 2210      Turbo-jet          0.97624448                -0.76063701
## 2211      Turbo-fan          0.97624448                -0.55972691
## 2212      Turbo-fan         -0.62838614                -0.85439505
## 2215      Turbo-fan         -0.34184495                -1.03856264
## 2216      Turbo-fan         -1.60262616                -0.91131958
## 2217      Turbo-jet          0.23123741                -0.60325743
## 2218      Turbo-fan          1.26278567                -0.94480460
## 2219      Turbo-fan         -0.22722848                -0.63004545
## 2220      Turbo-fan          0.51777859                -0.58651492
## 2221      Turbo-fan         -0.22722848                -0.63004545
## 2222      Turbo-fan          1.20547743                -0.54633290
## 2223      Turbo-fan          0.34585388                -0.79747053
## 2224      Turbo-fan          0.86162801                -0.96824411
## 2225      Turbo-fan         -1.43070145                -0.90127408
## 2226      Turbo-fan         -1.08685203                -0.68027297
## 2227      Turbo-fan          0.05931270                -0.81421303
## 2228      Turbo-fan         -1.20146850                -0.88788007
## 2229      Turbo-fan          0.23123741                -0.40234733
## 2230      Turbo-fan         -0.45646143                -0.84434955
## 2231      Turbo-fan          0.68970330                -0.37555932
## 2232      Turbo-fan         -1.14416027                -0.68362147
## 2233      Turbo-fan          1.09086096                -0.55302991
## 2235      Turbo-fan         -0.22722848                -0.83095554
## 2236      Turbo-fan          0.63239507                -0.78072802
## 2237      Turbo-fan          1.43471038                -0.53293890
## 2238      Turbo-fan         -0.45646143                -0.44252935
## 2239      Turbo-fan          0.74701154                -0.37221082
## 2240      Turbo-fan         -0.74300261                -0.66018196
## 2241      Turbo-fan          0.28854565                -0.39899883
## 2242      Turbo-fan          0.11662094                -0.60995444
## 2243      Turbo-fan         -0.80031085                -0.26171027
## 2244      Turbo-fan         -1.08685203                -0.68027297
## 2245      Turbo-fan          0.05931270                -0.41239284
## 2246      Turbo-fan          1.32009390                -0.53963590
## 2247      Turbo-fan         -1.31608498                -0.69366698
## 2248      Turbo-fan         -1.37339321                -0.29519528
## 2249      Turbo-fan         -1.37339321                -0.29519528
## 2250      Turbo-fan         -0.22722848                -0.22822525
## 2251      Turbo-fan         -0.85761908                -0.66687896
## 2252      Turbo-fan          0.91893625                -0.56307541
## 2253      Turbo-fan         -0.80031085                -0.66353046
## 2254      Turbo-fan          1.20547743                -0.54633290
```

```
## 2255       Turbo-jet       -1.25877674            -0.69031847
## 2256       Turbo-fan       -0.45646143            -0.64343945
## 2257       Turbo-fan        0.51777859            -0.38560483
## 2259 Reciprocating          0.05931270            -0.41239284
## 2260       Turbo-fan       -0.57107790            -0.24831626
## 2261       Turbo-fan        0.57508683            -0.18134623
## 2262       Turbo-fan        0.91893625            -0.36216531
## 2263       Turbo-jet       -0.39915319            -0.23827075
## 2264     Turbo-shaft        0.51777859            -0.18469473
## 2265       Turbo-jet       -0.51376966             0.15685244
## 2266       Turbo-fan        0.91893625            -0.16125522
## 2267       Turbo-fan       -0.45646143            -0.44252935
## 2268       Turbo-fan        1.43471038            -0.13111870
## 2269       Turbo-fan       -1.20146850            -0.28514978
## 2270       Turbo-fan       -1.43070145            -0.49945388
## 2271       Turbo-fan       -1.37339321            -0.49610538
## 2272       Turbo-fan       -1.08685203            -0.07754268
## 2273       Turbo-fan        0.05931270            -0.21148274
## 2274       Turbo-fan       -1.65993439            -0.31193779
## 2275       Turbo-fan       -0.34184495            -0.43583235
## 2276       Turbo-fan        1.20547743            -0.34542281
## 2277       Turbo-fan        1.49201861             0.07313990
## 2278       Turbo-fan       -0.80031085            -0.26171027
## 2279       Turbo-fan       -1.37339321            -0.29519528
## 2280       Turbo-fan        0.34585388             0.00616986
## 2281       Turbo-fan        1.20547743            -0.34542281
## 2282       Turbo-fan       -0.85761908            -0.06414867
## 2283       Turbo-fan        1.20547743             0.05639739
## 2285       Turbo-fan       -1.54531792             0.09657941
## 2286       Turbo-fan       -1.31608498            -0.09093668
## 2287       Turbo-fan       -1.25877674            -0.28849828
## 2288       Turbo-jet        1.54932685            -0.12442170
## 2289       Turbo-fan       -0.51376966            -0.24496776
## 2290       Turbo-fan        0.46047036             0.01286687
## 2291       Turbo-fan       -1.08685203             0.12336742
## 2292       Turbo-fan        1.54932685             0.07648840
## 2293       Turbo-fan       -1.31608498             0.10997341
## 2294       Turbo-fan       -1.54531792            -0.30524079
## 2295       Turbo-fan        0.74701154             0.02960938
## 2296       Turbo-fan       -0.51376966            -0.04405766
## 2297       Turbo-jet       -1.37339321             0.10662491
## 2298       Turbo-fan       -1.20146850            -0.08423968
## 2300       Turbo-fan        0.11662094            -0.20813424
## 2301       Turbo-fan        1.49201861             0.27404999
## 2302       Turbo-jet        0.34585388             0.80981026
## 2303       Turbo-fan       -0.62838614            -0.05075466
## 2304       Turbo-fan        1.54932685             0.07648840
## 2305       Turbo-fan       -1.14416027            -0.08089118
## 2306       Turbo-fan       -0.68569437            -0.05410316
## 2307       Turbo-fan       -0.05530377             0.18364045
## 2308       Turbo-fan        1.20547743             0.05639739
## 2309       Turbo-jet        1.43471038             0.47161159
## 2310       Turbo-fan        0.80431978             0.03295788
## 2312       Turbo-fan        0.05931270             0.19033745
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## 2313       Turbo-fan          0.91893625                0.44147508
## 2314       Turbo-jet          1.14816919                0.05304889
## 2315       Turbo-fan          1.03355272                0.24726198
## 2316       Turbo-fan          1.49201861                0.47496009
## 2317       Turbo-fan          0.74701154                0.43142957
## 2318       Turbo-fan         -0.28453672                0.17024644
## 2319       Turbo-fan          0.46047036                0.21377697
## 2320       Turbo-fan         -0.22722848                0.57541514
## 2321       Turbo-fan         -0.22722848                0.57541514
## 2322       Turbo-fan          0.74701154                0.43142957
## 2323       Turbo-fan          1.60663509                0.48165710
## 2324       Turbo-fan          1.37740214                0.26735299
## 2325       Turbo-jet          1.32009390                0.46491459
## 2326       Turbo-jet         -1.37339321                0.30753501
## 2327       Turbo-fan          1.60663509                0.48165710
## 2328       Turbo-fan         -0.80031085                0.14010993
## 2329       Turbo-fan          0.46047036                0.21377697
## 2330       Turbo-fan         -0.51376966                0.55867263
## 2331       Turbo-jet         -0.57107790                0.55532413
## 2332       Turbo-fan          0.91893625                0.44147508
## 2334       Turbo-fan         -0.34184495                0.56871814
## 2335       Turbo-fan          1.20547743                0.25730749
## 2336       Turbo-fan         -1.02954379                0.32762602
## 2337       Turbo-fan         -0.11261201                0.38120205
## 2338       Turbo-fan          1.49201861                0.27404999
## 2339       Turbo-fan         -0.22722848                0.37450504
## 2340       Turbo-fan          0.86162801                0.23721648
## 2341       Turbo-fan         -0.74300261                0.54527863
## 2343       Turbo-jet          0.28854565                0.40464156
## 2344       Turbo-fan         -1.08685203                0.72609771
## 2345       Turbo-fan         -1.65993439                0.29079250
## 2346       Turbo-fan          0.86162801                0.43812657
## 2347       Turbo-fan         -0.74300261                0.34436853
## 2348       Turbo-fan          0.46047036                0.61559716
## 2349       Turbo-fan         -1.08685203                0.72609771
## 2350       Turbo-jet         -0.22722848                0.77632524
## 2351       Turbo-jet          0.05931270                0.59215765
## 2352       Turbo-fan         -0.51376966                0.55867263
## 2353       Turbo-fan         -0.97223556                0.33097452
## 2354       Turbo-fan          0.28854565                0.60555166
## 2355       Turbo-fan         -0.68569437                0.34771703
## 2356       Turbo-fan         -1.48800968                0.70265820
## 2357       Turbo-fan         -0.80031085                0.74284022
## 2358       Turbo-fan          1.20547743                0.65912768
## 2359       Turbo-jet          0.40316212                0.41133856
## 2360       Turbo-fan          1.14816919                0.45486908
## 2363       Turbo-fan         -1.48800968                0.30083801
## 2364       Turbo-fan          1.43471038                0.47161159
## 2365       Turbo-fan          0.23123741                0.80311325
## 2366       Turbo-fan          1.20547743                0.45821758
## 2367       Turbo-fan         -0.16992025                0.37785355
## 2368       Turbo-fan          1.49201861                0.67587019
## 2369       Turbo-fan         -0.80031085                0.54193013
## 2370       Turbo-fan          1.43471038                0.87343179
```

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## 2371      Turbo-fan        0.17392917              0.39794456
## 2372      Turbo-fan       -1.48800968              0.90356830
## 2373      Turbo-fan        1.20547743              0.45821758
## 2375      Turbo-fan       -1.60262616              0.89687130
## 2376      Turbo-fan        1.49201861              0.87678029
## 2378      Turbo-fan       -1.31608498              0.71270371
## 2379      Turbo-fan        0.40316212              0.81315876
## 2380      Turbo-fan        0.00200446              0.99062934
## 2381      Turbo-fan       -0.68569437              0.54862713
## 2383      Turbo-fan        0.80431978              0.83659827
## 2384      Turbo-fan       -1.08685203              0.92700781
## 2385      Turbo-fan        0.40316212              1.01406885
## 2386      Turbo-fan       -1.37339321              0.70935521
## 2387      Turbo-fan       -0.51376966              0.55867263
## 2388      Turbo-fan        0.28854565              0.60555166
## 2389      Turbo-fan       -0.80031085              0.94375032
## 2390      Turbo-fan       -0.39915319              0.56536964
## 2391      Turbo-fan       -0.51376966              0.55867263
## 2392      Turbo-fan       -0.57107790              0.95714433
## 2395      Turbo-jet       -0.80031085              0.94375032
## 2396      Turbo-fan        0.05931270              0.59215765
## 2397      Turbo-fan       -0.97223556              0.73279472
## 2398      Turbo-fan       -0.80031085              0.74284022
## 2399      Turbo-jet        0.97624448              1.04755387
## 2401      Turbo-jet        1.20547743              1.06094788
## 2402      Turbo-jet       -0.34184495              0.97053833
## 2403      Turbo-fan        1.43471038              0.67252169
## 2404      Turbo-fan        1.49201861              0.67587019
## 2405      Turbo-fan       -0.22722848              0.77632524
## 2406      Turbo-fan       -1.54531792              0.69930970
## 2407      Turbo-jet       -0.51376966              0.96049283
## 2408      Turbo-fan        0.74701154              1.03415986
## 2409      Turbo-fan        0.51777859              1.02076586
## 2410      Turbo-fan       -0.51376966              1.16140293
## 2411      Turbo-fan       -1.08685203              0.72609771
## 2412      Turbo-fan       -0.91492732              0.73614322
## 2413      Turbo-fan       -0.91492732              0.73614322
## 2414      Turbo-fan       -0.85761908              1.14131192
## 2415      Turbo-fan        1.49201861              0.87678029
## 2416      Turbo-fan        1.66394332              1.08773589
## 2417      Turbo-fan        0.05931270              1.19488794
## 2418      Turbo-fan        0.74701154              1.23506996
## 2419      Turbo-fan        0.17392917              1.00067485
## 2420      Turbo-fan        0.34585388              0.80981026
## 2421      Turbo-fan       -0.05530377              1.18819094
## 2422      Turbo-jet       -1.31608498              1.11452390
## 2423      Turbo-fan       -1.20146850              0.71940071
## 2425      Turbo-fan        1.66394332              0.88682579
## 2426      Turbo-fan        0.40316212              0.81315876
## 2427      Turbo-jet        1.14816919              0.85668928
## 2428      Turbo-fan       -1.37339321              0.91026530
## 2429      Turbo-fan        0.34585388              0.80981026
## 2430      Turbo-fan        0.86162801              1.04085687
## 2431      Turbo-jet        0.51777859              1.22167596
```

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## 2432       Turbo-jet      -1.54531792           1.30203999
## 2434       Turbo-fan       1.14816919           1.05759938
## 2435       Turbo-fan      -0.05530377           1.18819094
## 2436       Turbo-jet      -0.97223556           1.33552501
## 2437       Turbo-fan       1.20547743           0.86003778
## 2438       Turbo-fan       0.05931270           0.99397785
## 2439       Turbo-fan      -0.45646143           1.36566153
## 2440       Turbo-fan       0.46047036           1.21832745
## 2441       Turbo-fan       1.20547743           1.06094788
## 2442       Turbo-fan       0.28854565           1.20828195
## 2443       Turbo-fan       0.74701154           1.23506996
## 2444       Turbo-fan       1.60663509           1.08438739
## 2445       Turbo-fan      -0.91492732           1.13796342
## 2446       Turbo-fan       0.63239507           1.02746286
## 2447       Turbo-fan       1.49201861           1.07769039
## 2448       Turbo-fan      -0.80031085           1.34557052
## 2449       Turbo-fan       0.11662094           1.39914654
## 2450       Turbo-fan      -0.97223556           1.33552501
## 2451       Turbo-fan      -1.02954379           1.13126641
## 2452       Turbo-fan      -0.22722848           1.37905553
## 2453       Turbo-fan       1.20547743           1.06094788
## 2454       Turbo-fan       0.97624448           1.24846397
## 2455       Turbo-fan      -0.45646143           1.16475143
## 2456       Turbo-jet      -0.80031085           1.54648061
## 2457       Turbo-jet       1.66394332           1.48955609
## 2458       Turbo-fan      -0.51376966           1.36231302
## 2459       Turbo-fan       0.63239507           1.42928306
## 2460       Turbo-fan      -1.65993439           1.09443289
## 2461       Turbo-fan      -1.31608498           1.11452390
## 2462       Turbo-jet       0.23123741           1.40584355
## 2463       Turbo-fan       1.37740214           1.07099338
## 2464       Turbo-fan       0.05931270           1.39579804
## 2465       Turbo-fan       0.80431978           1.23841846
## 2466       Turbo-fan       1.03355272           1.25181247
## 2467       Turbo-jet      -1.02954379           1.53308661
## 2469       Turbo-fan       0.05931270           1.19488794
## 2470       Turbo-jet       0.46047036           1.62014765
## 2471 Reciprocating        -1.08685203           1.32882801
## 2472       Turbo-fan      -1.43070145           1.30873700
## 2475       Turbo-fan      -1.08685203           1.52973811
## 2476       Turbo-fan       0.11662094           1.39914654
## 2477       Turbo-fan       0.74701154           1.63689016
## 2480       Turbo-fan      -0.51376966           1.36231302
## 2481       Turbo-fan      -0.22722848           1.37905553
## 2482       Turbo-fan      -0.97223556           1.33552501
## 2483       Turbo-fan       0.17392917           1.60340514
## 2486       Turbo-fan      -0.28453672           1.37570703
## 2487       Turbo-fan      -0.62838614          -2.66258593
## 2489       Turbo-fan      -0.39915319          -3.05101212
## 2492       Turbo-fan       1.72125156           1.69381469
## 2495       Turbo-fan       1.43471038           1.67707218
## 2496       Turbo-fan       0.46047036          -2.19714421
## 2497       Turbo-fan      -0.80031085          -0.26171027
## 2498       Turbo-fan       1.66394332          -1.12227518
```

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## 2499       Turbo-fan       -1.08685203       -1.28300326
## 2500       Turbo-fan       -0.80031085       -1.46717085
## 2501       Turbo-fan        1.72125156       -1.52074688
## 2502       Turbo-fan       -0.22722848       -1.43368584
## 2503       Turbo-fan       -0.80031085       -1.66808095
## 2504       Turbo-fan        1.72125156       -1.31983678
## 2505       Turbo-fan       -1.37339321       -1.50065587
## 2506       Turbo-fan       -0.74300261       -1.66473245
## 2507       Turbo-fan       -0.22722848       -1.63459593
## 2508       Turbo-fan       -0.80031085       -1.26626075
## 2509       Turbo-fan        0.34585388       -1.60111092
## 2510       Turbo-jet       -0.22722848       -1.23277574
## 2511       Turbo-fan        0.74701154       -1.37676131
## 2512       Turbo-fan        0.11662094       -1.41359483
## 2513       Turbo-fan       -0.74300261       -1.26291225
## 2514       Turbo-jet        0.80431978       -1.37341281
## 2515       Turbo-fan        0.74701154       -1.37676131
## 2516       Turbo-fan       -1.65993439       -1.51739838
## 2517       Turbo-fan        0.68970330       -1.58101991
## 2518       Turbo-fan        1.14816919       -1.35332180
## 2519       Turbo-jet        0.34585388       -1.19929072
## 2520       Turbo-fan        0.97624448       -1.36336730
## 2521       Turbo-jet       -1.54531792       -1.10888118
## 2522       Turbo-fan        1.60663509       -1.52744388
## 2523       Turbo-jet        1.43471038       -1.13566919
## 2524       Turbo-fan       -0.80031085       -1.06535066
## 2525       Turbo-fan        0.51777859       -1.18924522
## 2526       Turbo-fan       -0.68569437       -1.25956375
## 2527       Turbo-fan        0.63239507       -1.18254821
## 2528       Turbo-fan        0.91893625       -0.96489561
## 2529       Turbo-fan       -0.57107790       -1.05195665
## 2530       Turbo-fan        0.28854565       -1.00172913
## 2531       Turbo-fan       -0.51376966       -1.24951825
## 2532       Turbo-fan       -1.60262616       -1.11222968
## 2533       Turbo-fan        0.80431978       -1.17250271
## 2534       Turbo-fan       -1.25877674       -1.49395887
## 2535       Turbo-fan       -0.11261201       -1.02516864
## 2536       Turbo-fan       -0.45646143       -1.04525965
## 2537       Turbo-jet        0.28854565       -1.00172913
## 2538       Turbo-jet        0.57508683       -1.38680681
## 2539       Turbo-fan        0.17392917       -1.41024632
## 2540       Turbo-fan        0.34585388       -0.99838062
## 2541       Turbo-fan        0.91893625       -0.96489561
## 2542       Turbo-fan       -0.05530377       -1.22273023
## 2543       Turbo-fan        0.91893625       -1.36671580
## 2544       Turbo-fan       -0.34184495       -1.03856264
## 2545       Turbo-fan        0.05931270       -1.01512313
## 2546       Turbo-fan       -1.65993439       -0.91466808
## 2547       Turbo-fan       -1.43070145       -1.10218417
## 2548       Turbo-fan       -0.11261201       -1.22607874
## 2549       Turbo-fan        0.86162801       -0.96824411
## 2550       Turbo-fan       -1.54531792       -0.90797108
## 2551       Turbo-fan       -0.97223556       -1.07539616
## 2552       Turbo-fan       -0.80031085       -1.26626075
```

```
## 2553         Turbo-fan            -1.02954379              -1.07874466
## 2554         Turbo-fan             0.05931270              -1.21603323
## 2555         Turbo-jet            -0.22722848              -0.83095554
## 2556         Turbo-fan             1.43471038              -0.93475909
## 2557         Turbo-fan             0.00200446              -1.01847163
## 2558         Turbo-fan             0.86162801              -0.96824411
## 2559         Turbo-fan            -0.22722848              -1.03186564
## 2560         Turbo-fan            -0.74300261              -0.86109206
## 2561         Turbo-fan             1.20547743              -1.14906320
## 2562         Turbo-fan            -0.68569437              -0.85774356
## 2563         Turbo-fan             0.11662094              -0.81086453
## 2564         Turbo-fan            -0.28453672              -0.83430404
## 2565         Turbo-fan             1.66394332              -0.92136509
## 2566         Turbo-fan            -0.80031085              -1.06535066
## 2567         Turbo-fan             1.49201861              -1.13232069
## 2568         Turbo-fan             1.66394332              -1.12227518
## 2569         Turbo-fan            -1.25877674              -0.48940838
## 2570         Turbo-fan            -0.74300261              -1.26291225
## 2571         Turbo-fan            -1.08685203              -1.08209316
## 2572         Turbo-fan            -0.80031085              -1.06535066
## 2573         Turbo-fan             0.80431978              -0.97159261
## 2574         Turbo-fan            -0.97223556              -1.07539616
## 2575         Turbo-fan             1.49201861              -1.13232069
## 2576         Turbo-fan             0.57508683              -0.98498662
## 2577         Turbo-fan             1.20547743              -0.74724300
## 2578         Turbo-fan             0.46047036              -0.79077352
## 2579         Turbo-jet             0.63239507              -0.37890782
## 2580         Turbo-fan             0.05931270              -1.01512313
## 2581         Turbo-jet             1.43471038              -0.73384900
## 2582         Turbo-fan             1.60663509              -0.92471359
## 2583         Turbo-fan            -0.80031085              -0.66353046
## 2584         Turbo-fan            -0.80031085              -1.06535066
## 2585         Turbo-fan             1.20547743              -0.34542281
## 2586         Turbo-fan            -1.54531792              -0.90797108
## 2587         Turbo-fan            -0.91492732              -0.87113756
## 2588         Turbo-fan             0.34585388              -0.99838062
## 2589         Turbo-fan            -1.14416027              -0.68362147
## 2590         Turbo-fan             0.80431978              -0.77068251
## 2591         Turbo-fan            -0.51376966              -0.64678795
## 2592         Turbo-fan            -0.68569437              -0.65683346
## 2593         Turbo-fan             1.72125156              -0.71710649
## 2594         Turbo-fan            -1.54531792              -0.70706098
## 2595         Turbo-fan             0.91893625              -0.76398551
## 2596         Turbo-fan            -0.51376966              -1.04860815
## 2597         Turbo-fan            -0.80031085              -0.86444056
## 2598         Turbo-fan            -0.51376966              -0.84769805
## 2599         Turbo-jet             0.97624448              -0.76063701
## 2600         Turbo-jet            -1.14416027              -0.28180128
## 2601         Turbo-fan            -1.60262616              -0.91131958
## 2602         Turbo-fan             0.91893625              -0.56307541
## 2603         Turbo-fan             0.63239507              -0.57981792
## 2604         Turbo-fan            -1.48800968              -0.90462258
## 2605         Turbo-fan            -0.68569437              -0.65683346
## 2606         Turbo-fan             1.26278567              -0.94480460
```

```
## 2607      Turbo-fan        0.00200446         -1.01847163
## 2608      Turbo-fan        0.34585388         -0.59656043
## 2609      Turbo-fan        0.51777859         -0.58651492
## 2610      Turbo-jet        0.63239507         -0.57981792
## 2611 Reciprocating         0.05931270         -0.81421303
## 2612      Turbo-fan        0.05931270         -0.81421303
## 2613      Turbo-fan        0.00200446         -0.81756154
## 2614      Turbo-fan        1.43471038         -0.53293890
## 2615      Turbo-fan        0.57508683         -0.58316642
## 2616      Turbo-fan       -0.45646143         -0.84434955
## 2617      Turbo-fan       -0.05530377         -0.61999994
## 2618      Turbo-fan        1.09086096         -0.55302991
## 2619      Turbo-fan        0.05931270         -0.61330294
##      sched_dep_time_minute sched_dep_time_num_minute sched_air_time
## 1               0.7108879               -1.69987898      0.38275093
## 2               1.6414202               -1.63572507     -0.13597580
## 3              -1.3569616               -1.62859686      0.28419285
## 4              -1.3569616               -1.62859686      0.41906180
## 5              -1.3569616               -1.62859686      0.52280714
## 6               1.6931165               -1.63216097     -0.25528294
## 7              -1.3569616               -1.62859686      0.34125279
## 8              -1.3569616               -1.62859686      0.14932390
## 9              -0.8399993               -1.59295581      0.07151489
## 10             -0.8399993               -1.59295581      0.38793819
## 11             -0.5815181               -1.57513528      0.87554131
## 12             -0.8399993               -1.59295581      0.35681459
## 13              0.1939255               -1.52167369      1.00522299
## 14              0.1939255               -1.52167369      0.41906180
## 15              0.1939255               -1.52167369     -0.08410312
## 16              0.1939255               -1.52167369     -0.23972114
## 17              0.1939255               -1.52167369      0.03520402
## 18             -0.9433917               -1.60008402     -0.18784847
## 19              0.7108879               -1.48603264     -0.24490841
## 20              1.0210654               -1.46464800      0.29975465
## 21              0.9693691               -1.46821211      0.03520402
## 22              1.0727616               -1.46108390     -0.17228667
## 23              0.9693691               -1.46821211      0.18044750
## 24              1.4863315               -1.43257105      0.26344378
## 25              1.4863315               -1.43257105      0.15451117
## 26             -1.3569616               -1.41475052      0.37756366
## 27              1.4863315               -1.43257105      0.51243261
## 28             -1.3569616               -1.41475052      0.56430528
## 29             -1.3569616               -1.41475052     -0.03223045
## 30              1.6931165               -1.41831463      0.33087825
## 31             -1.0984805               -1.39692999      0.20119657
## 32             -1.3569616               -1.41475052      0.40868726
## 33             -1.3569616               -1.41475052      0.37237639
## 34             -1.3569616               -1.41475052     -0.12560126
## 35             -0.5815181               -1.36128894      0.90666491
## 36             -0.5815181               -1.36128894      0.43462360
## 37             -0.3230369               -1.34346841     -0.18784847
## 38             -0.0645557               -1.32564788      0.28938012
## 39             -0.0645557               -1.32564788      0.35681459
## 40              0.1939255               -1.30782735      0.38275093
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## 41                 0.1939255          -1.30782735      0.13376210
## 42                 0.2973180          -1.30069914      0.36200186
## 43                 0.1939255          -1.30782735      0.56430528
## 44                 0.5557992          -1.28287861      0.51761987
## 45                 0.6591917          -1.27575040      0.32569099
## 46                 0.1939255          -1.30782735      0.48649627
## 47                 0.9693691          -1.25436577      0.53836894
## 49                 1.6931165          -1.20446829      0.01964222
## 50                 1.4863315          -1.21872471      0.40868726
## 51                 1.6931165          -1.20446829      0.23750744
## 52                -1.3569616          -1.20090418      0.29975465
## 53                -0.8399993          -1.16526313     -0.21378481
## 54                -1.3569616          -1.20090418      0.55911801
## 55                -0.5815181          -1.14744260     -0.00629412
## 56                -0.8399993          -1.16526313      0.15969843
## 57                -0.5815181          -1.14744260      0.10782576
## 58                -0.5815181          -1.14744260      0.02482949
## 59                -0.6332143          -1.15100670      0.03520402
## 60                -0.3230369          -1.12962207      1.00003572
## 61                -0.0645557          -1.11180154     -0.18784847
## 62                -0.0645557          -1.11180154      0.01445495
## 63                 0.1939255          -1.09398101     -0.00629412
## 64                 0.0388368          -1.10467333      0.21675837
## 66                 0.1939255          -1.09398101     -0.07372859
## 67                 0.1939255          -1.09398101      0.48649627
## 68                 0.4524067          -1.07616049      0.04039129
## 69                 0.7108879          -1.05833996     -0.03223045
## 70                 0.4524067          -1.07616049      0.15969843
## 71                 0.4524067          -1.07616049      0.40868726
## 72                 1.2278503          -1.02269890     -0.05816679
## 73                 0.9693691          -1.04051943      0.97928666
## 75                 1.2795466          -1.01913480      0.25306924
## 76                 1.2795466          -1.01913480     -0.05816679
## 77                 1.6931165          -0.99062195      0.05076582
## 78                 0.7108879          -1.05833996      0.46574720
## 79                 0.9693691          -1.04051943      0.33087825
## 80                 1.4863315          -1.00487837      0.37237639
## 81                -1.0984805          -0.96923732      0.09745123
## 82                -1.3569616          -0.98705784      0.19082204
## 83                -1.2018729          -0.97636553     -0.07372859
## 84                 0.8659766          -1.04764764      0.23750744
## 86                -0.4264293          -0.92290394      0.94297579
## 87                -0.3230369          -0.91577573      0.43462360
## 88                -0.3230369          -0.91577573      0.46055993
## 89                -0.3230369          -0.91577573     -0.04260499
## 90                -1.0984805          -0.96923732     -0.18784847
## 91                -1.3569616          -0.98705784      0.47093447
## 92                 0.0905331          -0.88726289      0.28938012
## 93                -1.0984805          -0.96923732      0.35162732
## 94                 0.1939255          -0.88013467      0.37237639
## 95                 0.1939255          -0.88013467     -0.09447766
## 96                 0.1939255          -0.88013467      0.30494192
## 97                 0.5557992          -0.85518594     -0.16191213
## 98                 0.9693691          -0.82667309      0.39831273
```

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## 99             1.6931165          -0.77677561      0.03520402
## 100           -1.3569616          -0.77321151      0.23232018
## 101           -1.2535692          -0.76608329      0.41906180
## 102           -1.3569616          -0.77321151      0.05076582
## 103           -0.5815181          -0.71974992      0.28938012
## 104            0.1422293          -0.66985244     -0.18266120
## 106           -0.0128594          -0.68054476      0.39831273
## 107            0.1939255          -0.66628834      0.35162732
## 108            0.4524067          -0.64846781      0.09745123
## 109           -0.4781256          -0.71262171     -0.19303574
## 110            0.1939255          -0.66628834     -0.08410312
## 111            0.7108879          -0.63064728      0.25825651
## 112            0.9693691          -0.61282675      0.36200186
## 113            1.2278503          -0.59500622      0.01964222
## 114            1.6931165          -0.56292927      0.22713291
## 115            1.6931165          -0.56292927     -0.23972114
## 116           -1.3569616          -0.55936517     -0.21378481
## 117            1.3829390          -0.58431391      0.32050372
## 118            0.8659766          -0.61995496      0.27381831
## 119           -0.5815181          -0.50590358     -0.00629412
## 120           -0.5815181          -0.50590358      0.38275093
## 121           -0.5815181          -0.50590358      0.01964222
## 122           -0.0645557          -0.47026252      0.01964222
## 123           -0.0645557          -0.47026252      0.43462360
## 124            0.1939255          -0.45244200      0.42424906
## 125            0.1422293          -0.45600610      0.31012918
## 126            0.1422293          -0.45600610      0.37237639
## 127           -0.0645557          -0.47026252     -0.08410312
## 128            0.2456218          -0.44887789      0.07670216
## 129            0.4524067          -0.43462147     -0.00629412
## 130            0.7108879          -0.41680094      0.35681459
## 131            0.7108879          -0.41680094      0.38793819
## 132            0.9693691          -0.39898041      0.15451117
## 133            1.4863315          -0.36333936     -0.12560126
## 134            1.6931165          -0.34908293     -0.07372859
## 136           -1.3569616          -0.34551883     -0.26047021
## 137            1.6414202          -0.35264704     -0.20341027
## 138           -1.3569616          -0.34551883     -0.29159381
## 139           -1.3569616          -0.34551883     -0.13078853
## 140            1.6931165          -0.34908293      0.92222672
## 141           -1.3569616          -0.34551883      0.35681459
## 142            1.6414202          -0.35264704      0.35162732
## 143           -0.5815181          -0.29205724      0.00926769
## 144           -0.4264293          -0.28136492      0.38793819
## 145           -0.3230369          -0.27423671     -0.00629412
## 146           -0.0645557          -0.25641619      0.20119657
## 147            1.6931165          -0.34908293      0.17526024
## 148            0.4524067          -0.22077513      0.03520402
## 149            0.1422293          -0.24215976      0.33087825
## 150            0.9693691          -0.18513407     -0.26565748
## 151            0.7108879          -0.20295460     -0.16191213
## 152            0.1422293          -0.24215976      0.01445495
## 153            0.9693691          -0.18513407      0.40868726
## 154            0.9693691          -0.18513407      0.35681459
```

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## 155            -1.3569616        -0.13167249    0.21157111
## 156            -1.3569616        -0.13167249   -0.24490841
## 157            -1.3569616        -0.13167249   -0.03223045
## 158             0.7108879        -0.20295460    0.33087825
## 160            -1.3569616        -0.13167249    0.33606552
## 162             1.6931165        -0.13523659   -0.19303574
## 163            -0.5815181        -0.07821090    0.04557856
## 164             0.7108879        -0.20295460    0.40868726
## 165            -1.3569616        -0.13167249    0.38275093
## 166            -0.0645557        -0.04256985   -0.08410312
## 167            -0.5815181        -0.07821090    0.27900558
## 168            -0.3230369        -0.06039037    0.41387453
## 169            -1.3569616        -0.13167249    0.37237639
## 170            -0.2713406        -0.05682627    0.09745123
## 172             0.9693691         0.02871227    0.43462360
## 173             0.1939255        -0.02474932    0.38275093
## 174             0.1939255        -0.02474932    0.53836894
## 175             1.5380277         0.06791743    0.04039129
## 176             1.6931165         0.07860975   -0.21378481
## 177             1.2278503         0.04653280   -0.16191213
## 178             1.4346353         0.06078922   -0.12560126
## 179             1.2278503         0.04653280    0.27900558
## 181            -0.7883030         0.12137901    0.17007297
## 183            -0.3747331         0.14989186    0.39831273
## 184            -0.2196444         0.16058418   -0.22415934
## 185             0.1939255         0.18909702    0.44499813
## 186            -0.0645557         0.17127649    0.50724534
## 187             0.1939255         0.18909702   -0.18784847
## 190             0.1939255         0.18909702    0.40349999
## 191             0.4524067         0.20691755    0.56430528
## 192             0.9176729         0.23899450   -0.19822300
## 193             1.4863315         0.27819966   -0.03223045
## 194             1.4863315         0.27819966    0.48649627
## 195             1.4863315         0.27819966   -0.06335406
## 196             1.2278503         0.26037913   -0.00629412
## 197            -1.3569616         0.29602019   -0.18784847
## 198            -1.3569616         0.29602019    0.38275093
## 199             1.4863315         0.27819966    0.42424906
## 200            -1.3569616         0.29602019   -0.00110685
## 201            -1.3569616         0.29602019   -0.00629412
## 202            -1.3569616         0.29602019    0.36200186
## 203            -0.8399993         0.33166125   -0.05816679
## 204            -1.0984805         0.31384072    0.40868726
## 205            -0.7366068         0.33878946    0.17007297
## 206            -0.5815181         0.34948178   -0.07891586
## 207            -0.8399993         0.33166125    0.20119657
## 208             1.2278503         0.26037913    0.31531645
## 209            -1.3569616         0.29602019    0.23750744
## 210            -1.0984805         0.31384072    0.00926769
## 211            -0.5815181         0.34948178   -0.05816679
## 212            -0.0645557         0.38512283   -0.13597580
## 213            -0.3230369         0.36730230    0.31012918
## 214             0.1939255         0.40294336   -0.00629412
## 215            -0.5298218         0.35304588    0.39312546
```

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## 217          0.1939255          0.40294336   -0.18784847
## 218          1.6931165          0.29245609   -0.04260499
## 219          0.1939255          0.40294336   -0.00629412
## 220         -0.3230369          0.36730230    0.17526024
## 221          0.1939255          0.40294336    0.04557856
## 222         -0.3230369          0.36730230   -0.13597580
## 223          0.7108879          0.43858442    0.38793819
## 224          0.9693691          0.45640495    0.46055993
## 226          0.9693691          0.45640495    0.47612174
## 227          0.7108879          0.43858442    0.06114036
## 228          1.1244578          0.46709726    0.38793819
## 229          1.2278503          0.47422547    0.23232018
## 230         -1.3569616          0.50986653    0.12338756
## 231         -1.3569616          0.50986653    0.40868726
## 232         -1.3569616          0.50986653    0.53318167
## 233         -1.3569616          0.50986653   -0.07372859
## 234         -1.3569616          0.50986653    0.34644005
## 235         -0.8399993          0.54550759   -0.19303574
## 236          1.0727616          0.46353316   -0.18266120
## 237          1.2278503          0.47422547   -0.03741772
## 238         -1.3569616          0.50986653    0.17526024
## 239          1.4863315          0.49204600   -0.18784847
## 240         -1.3569616          0.50986653    0.46055993
## 241         -0.5815181          0.56332812    0.50205807
## 242         -0.5815181          0.56332812    0.09745123
## 245          0.1939255          0.61678970    0.29456738
## 247          0.5041030          0.63817433    0.36718912
## 248         -0.4781256          0.57045633   -0.23972114
## 249          0.4524067          0.63461023    0.46055993
## 251          0.7108879          0.65243076    0.07151489
## 252          0.6591917          0.64886665   -0.09966493
## 253          0.6591917          0.64886665    0.18563477
## 254          1.2278503          0.68807181    0.40349999
## 255          0.7108879          0.65243076    0.40868726
## 256          0.9176729          0.66668718   -0.24490841
## 257         -1.3569616          0.72371287    0.30494192
## 258         -0.8399993          0.75935393    0.35681459
## 259         -1.3569616          0.72371287    0.47612174
## 260         -0.8399993          0.75935393    0.04557856
## 261         -1.3569616          0.72371287    0.33087825
## 263         -0.3747331          0.79143088    0.22194564
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## 265         -0.3230369          0.79499498   -0.03223045
## 266         -0.8399993          0.75935393    0.90666491
## 267         -0.3230369          0.79499498   -0.05816679
## 268         -0.3230369          0.79499498    0.33606552
## 269          0.1939255          0.83063604    0.43462360
## 270          0.1422293          0.82707193    0.49168354
## 271         -0.0645557          0.81281551    0.40868726
## 273         -0.4264293          0.78786677    0.52280714
## 275          0.9693691          0.88409762    0.06114036
## 276          1.0210654          0.88766173    0.36200186
## 277          0.9693691          0.88409762    0.40349999
## 278          0.9693691          0.88409762   -0.13597580
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## 279          0.9693691          0.88409762          0.28938012
## 281          1.1761541          0.89835405         -0.01148138
## 282         -1.3569616          0.93755921         -0.02704319
## 283          1.5897240          0.92686689          0.44499813
## 284         -0.8399993          0.97320027         -0.11003946
## 285          1.6931165          0.93399510          0.42943633
## 286         -1.0984805          0.95537974         -0.03223045
## 287         -1.3569616          0.93755921          0.27900558
## 288          0.1939255          1.04448238          0.14932390
## 289          0.1422293          1.04091827          0.14413663
## 290         -0.8399993          0.97320027          0.43462360
## 291          0.1939255          1.04448238          0.52280714
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## 294          0.9693691          1.09794396          0.54355621
## 297         -1.3569616          1.15140555         -0.20859754
## 298          1.2278503          1.11576449          0.28419285
## 299         -1.3569616          1.15140555         -0.19822300
## 300          1.6931165          1.14784144          0.31012918
## 301          1.4863315          1.13358502          0.26344378
## 302         -0.5815181          1.20486713          0.48130900
## 303         -0.7366068          1.19417482          0.46055993
## 304         -0.8399993          1.18704660         -0.05816679
## 305         -0.9433917          1.17991839          0.58505435
## 306         -0.3230369          1.22268766          0.52280714
## 307         -1.1501767          1.16566197          0.54874348
## 308         -0.3230369          1.22268766          0.63692702
## 310          0.1939255          1.25832872         -0.18784847
## 311         -1.3569616          1.15140555          0.52799441
## 312         -0.8399993          1.18704660          0.35681459
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## 316          0.1939255          1.25832872          0.08707669
## 317          0.7108879          1.29396977          0.33087825
## 318          0.7108879          1.29396977          0.33606552
## 319          0.7108879          1.29396977          0.28419285
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## 321         -1.3569616          1.36525189          0.46055993
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## 323         -1.3569616          1.36525189          0.38275093
## 324         -1.3569616          1.36525189          0.36718912
## 328         -0.5815181          1.41871347         -0.00629412
## 330         -0.5298218          1.42227758         -0.07372859
## 332         -0.3230369          1.43653400          0.35162732
## 333         -0.0645557          1.45435453          0.41387453
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## 339          0.9693691          1.52563664         -0.08410312
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## 341          0.1939255          1.47217506          0.35681459
## 342          0.1939255          1.47217506         -6.95723219
## 343          0.1422293          1.46861095          0.43981086
## 344         -1.3569616          1.57909823          0.30494192
## 346         -1.3569616          1.57909823         -0.13597580
## 347          1.2278503          1.54345717         -0.22934661
## 348         -0.8399993          1.61473928         -7.10247568
## 349          0.7108879          1.50781611          0.42943633
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## 350            1.5897240             1.56840591   -6.92092132
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## 354            1.4863315             1.77512404   -7.21140829
## 355            1.4863315             1.77512404   -0.07372859
## 356            0.1422293             1.89630363   -6.58893622
## 358            0.9693691             1.95332932   -0.23453387
## 359            0.9693691             1.95332932   -7.65751327
## 365            1.6931165             2.21707314   -6.58893622
## 366            1.6931165             2.21707314   -6.63043436
## 367           -1.3569616            -1.84244320   -0.03223045
## 368            0.1422293            -1.73908414    0.32569099
## 369           -1.3569616            -1.62859686    0.33606552
## 370           -1.3569616            -1.62859686    0.32050372
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## 372           -1.3569616            -1.62859686    0.00408042
## 373           -1.3052654            -1.62503276    0.33087825
## 374           -1.3569616            -1.62859686    0.36718912
## 375           -1.0984805            -1.61077633    0.01964222
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## 377            1.6931165            -1.63216097    0.41906180
## 378           -0.8399993            -1.59295581    0.20119657
## 379           -0.8399993            -1.59295581    0.07151489
## 380           -0.5815181            -1.57513528    0.17007297
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## 383            0.1422293            -1.52523780    0.35681459
## 384            0.1939255            -1.52167369    0.41387453
## 385            0.1939255            -1.52167369    0.03520402
## 386            0.1939255            -1.52167369    0.34125279
## 387           -0.5815181            -1.57513528   -0.29159381
## 388           -0.5815181            -1.57513528   -0.18784847
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## 390            0.1939255            -1.52167369    0.38275093
## 391            0.1939255            -1.52167369   -0.08410312
## 392            0.5557992            -1.49672495    0.42424906
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## 394            0.2456218            -1.51810959   -0.06335406
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## 401            1.2795466            -1.44682747    0.30494192
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## 411           -0.5815181        -1.36128894        0.48649627
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## 413           -1.3569616        -1.41475052        0.23232018
## 414           -1.3569616        -1.41475052       -0.12560126
## 415           -0.5815181        -1.36128894        0.43462360
## 416           -0.2713406        -1.33990430        0.28419285
## 418           -0.0645557        -1.32564788        0.35681459
## 420            0.1939255        -1.30782735        0.13376210
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## 423            0.9693691        -1.25436577       -0.05816679
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## 425            0.4524067        -1.29000683        0.31012918
## 426            0.7108879        -1.27218630        0.20119657
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## 430            0.9693691        -1.25436577        0.31531645
## 432           -1.3569616        -1.20090418        0.36200186
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## 435           -0.8399993        -1.16526313        0.36200186
## 436           -1.0984805        -1.18308366        0.35681459
## 437           -0.8399993        -1.16526313        0.97928666
## 438           -0.8399993        -1.16526313       -0.09447766
## 439           -1.3569616        -1.20090418        0.09226396
## 440           -0.5815181        -1.14744260        0.39831273
## 442           -0.3230369        -1.12962207       -0.04779225
## 443           -0.8399993        -1.16526313       -0.21378481
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## 447            0.1939255        -1.09398101       -0.05816679
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## 462            0.9693691        -1.04051943        0.43462360
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## 464           -1.3569616        -0.98705784        0.43462360
## 465            1.5897240        -0.99775016        0.43462360
## 466            1.6931165        -0.99062195        0.25306924
## 467           -1.0984805        -0.96923732       -0.18784847
## 468           -0.9433917        -0.95854500        0.36718912
## 469           -0.3230369        -0.91577573        0.04557856
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## 472            0.1422293        -0.88369878        0.91185218
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## 473    -0.3230369    -0.91577573    -0.04260499
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## 477     0.7108879    -0.84449362    -0.08410312
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## 480     0.1422293    -0.88369878    -0.22415934
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## 482     1.3829390    -0.79816024    -0.20341027
## 483     1.4863315    -0.79103203    -0.15153760
## 484     0.9693691    -0.82667309    -0.13597580
## 485    -1.3569616    -0.77321151     0.38275093
## 486    -0.8399993    -0.73757045    -0.13597580
## 487    -0.5815181    -0.71974992    -0.00629412
## 488    -0.1679481    -0.69123708     0.17007297
## 489     1.6931165    -0.77677561     0.48649627
## 490    -1.3569616    -0.77321151     0.23232018
## 491    -0.0645557    -0.68410886    -0.27084474
## 492     0.1939255    -0.66628834     0.13376210
## 493     0.1939255    -0.66628834     0.56430528
## 494     0.3490142    -0.65559602    -0.18266120
## 495     0.7108879    -0.63064728     0.25825651
## 496     0.6591917    -0.63421138     0.35162732
## 497     0.1939255    -0.66628834     0.38275093
## 498     1.2278503    -0.59500622     0.01964222
## 499     1.2278503    -0.59500622     0.43462360
## 501    -1.3569616    -0.55936517     0.33087825
## 502    -1.3569616    -0.55936517    -0.21378481
## 503    -0.5815181    -0.50590358     0.38275093
## 504     0.1939255    -0.45244200     0.33087825
## 506     0.4524067    -0.43462147     0.43462360
## 507    -0.0645557    -0.47026252     0.01964222
## 508    -1.3569616    -0.34551883    -0.21378481
## 509    -1.0984805    -0.32769830     0.40868726
## 510    -1.3569616    -0.34551883     0.26863105
## 511     1.6414202    -0.35264704     0.35162732
## 512    -1.3569616    -0.34551883     0.48130900
## 514    -1.3569616    -0.34551883     0.42943633
## 515    -1.3569616    -0.34551883     0.35681459
## 516    -1.3569616    -0.34551883     0.38275093
## 517    -0.8916955    -0.31344188    -0.19303574
## 518     1.5380277    -0.35977525     0.31012918
## 519     0.4524067    -0.22077513     0.03520402
## 520     0.6074954    -0.21008281     0.06114036
## 523    -0.3230369    -0.27423671    -0.29159381
## 524     0.9693691    -0.18513407     0.49168354
## 525     0.1422293    -0.24215976     0.01445495
## 526     1.1761541    -0.17087765     1.01041026
## 527     0.9693691    -0.18513407    -0.26565748
## 528    -1.3569616    -0.13167249     0.06114036
## 529     1.6931165    -0.13523659     0.03520402
## 530     1.3312428    -0.16018533     0.34644005
## 531    -1.2018729    -0.12098017    -0.25009568
## 532    -1.3569616    -0.13167249     0.15969843
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## 533          1.4863315           -0.14949302      0.22713291
## 534         -1.3569616           -0.13167249      0.33606552
## 535         -1.3569616           -0.13167249      0.29975465
## 536         -0.5815181           -0.07821090     -0.03223045
## 537         -0.5815181           -0.07821090     -0.09966493
## 538         -0.5815181           -0.07821090      0.27900558
## 539         -0.3230369           -0.06039037      0.41387453
## 540         -1.0984805           -0.11385196      0.38275093
## 541         -0.5815181           -0.07821090      0.31012918
## 542          0.0388368           -0.03544163     -0.26047021
## 543         -0.0645557           -0.04256985      0.10782576
## 544          0.4524067           -0.00692879      0.31012918
## 545          0.9693691            0.02871227      0.43462360
## 546          0.9693691            0.02871227      0.43462360
## 547          0.9693691            0.02871227      0.33606552
## 548          1.2278503            0.04653280     -0.00629412
## 549          1.2278503            0.04653280      0.46055993
## 551          1.5380277            0.06791743      0.29975465
## 553          1.5897240            0.07148153     -0.14635033
## 554         -0.7883030            0.12137901     -0.08929039
## 555          1.6931165            0.07860975      0.31012918
## 556          0.1939255            0.18909702      0.40349999
## 558          0.1939255            0.18909702      0.44499813
## 559          0.9693691            0.24255861     -0.14635033
## 560          1.4863315            0.27819966      0.13376210
## 561          1.5897240            0.28532787      0.19082204
## 562          1.2278503            0.26037913      0.18044750
## 563          1.6931165            0.29245609     -0.05297952
## 564          0.1939255            0.18909702      0.31531645
## 565         -1.3569616            0.29602019     -0.07372859
## 566          1.4863315            0.27819966     -0.03223045
## 567         -1.3569616            0.29602019      0.23750744
## 569          1.6414202            0.28889198      0.01445495
## 570         -0.0645557            0.38512283     -0.13597580
## 571          0.1939255            0.40294336      0.46055993
## 572         -0.4264293            0.36017409      0.35681459
## 573          0.1939255            0.40294336      0.46055993
## 574          0.1939255            0.40294336      0.53836894
## 576         -0.8399993            0.33166125     -0.05816679
## 577         -0.5815181            0.34948178     -0.07891586
## 578          0.9693691            0.45640495      0.92222672
## 579          0.9693691            0.45640495      0.35681459
## 580          0.4524067            0.42076389      0.40868726
## 581          0.9693691            0.45640495      0.17526024
## 582          0.9693691            0.45640495      0.19600931
## 584          1.2278503            0.47422547     -0.03741772
## 585          1.1244578            0.46709726      0.23750744
## 586         -1.3569616            0.50986653      0.31531645
## 587         -1.3569616            0.50986653      0.53318167
## 588          1.6931165            0.50630242      0.36718912
## 589         -1.3569616            0.50986653      0.12338756
## 590         -1.3569616            0.50986653      0.00408042
## 591          1.3829390            0.48491779     -0.20341027
## 593         -1.0984805            0.52768706      0.36718912
```

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## 594       1.6931165          0.50630242     0.23750744
## 596      -0.5815181          0.56332812     0.04039129
## 597      -0.8399993          0.54550759     0.17526024
## 598      -0.3230369          0.58114864     0.34125279
## 599      -0.5815181          0.56332812     0.07151489
## 600      -0.8399993          0.54550759     0.37756366
## 601       0.1939255          0.61678970     0.44499813
## 602       0.1939255          0.61678970     0.13894937
## 603       0.1939255          0.61678970    -0.08410312
## 604       0.1939255          0.61678970     0.59024161
## 605       0.1939255          0.61678970     0.29456738
## 607       0.7108879          0.65243076     0.40868726
## 608       0.4524067          0.63461023     0.07151489
## 609       0.6591917          0.64886665    -0.20859754
## 610      -1.3569616          0.72371287     0.50724534
## 611      -1.3569616          0.72371287     0.12338756
## 612      -1.3569616          0.72371287    -0.03223045
## 613       0.7108879          0.65243076     0.07151489
## 614      -1.3569616          0.72371287    -0.08410312
## 615      -0.8399993          0.75935393     0.04557856
## 616      -1.0984805          0.74153340     0.35681459
## 617      -0.8399993          0.75935393     0.35681459
## 618      -0.3230369          0.79499498    -0.00629412
## 619      -0.3230369          0.79499498     0.43462360
## 621       0.1939255          0.83063604     0.13894937
## 622       0.1422293          0.82707193     0.42943633
## 624       0.6074954          0.85914888     0.46055993
## 625       0.7108879          0.86627710     0.49687080
## 626       0.9693691          0.88409762     0.20119657
## 628       1.2278503          0.90191815     0.46055993
## 630      -1.3569616          0.93755921    -0.20341027
## 631       1.4863315          0.91973868    -0.13597580
## 635      -1.3569616          0.93755921    -0.02704319
## 636      -0.8399993          0.97320027     0.10782576
## 637       1.6931165          0.93399510    -0.01148138
## 638      -0.8399993          0.97320027    -0.11003946
## 639      -1.0984805          0.95537974    -0.03223045
## 641      -0.8399993          0.97320027     0.43462360
## 643       0.1939255          1.04448238    -0.05816679
## 644       0.1939255          1.04448238     0.14932390
## 645       0.0905331          1.03735417     0.41387453
## 646      -0.5815181          0.99102079     0.51761987
## 648       0.3490142          1.05517470    -0.07891586
## 649       0.4524067          1.06230291     0.44499813
## 650       0.1939255          1.04448238     0.51243261
## 651      -0.0645557          1.02666185    -0.21378481
## 652       0.9693691          1.09794396     0.54355621
## 654       0.7108879          1.08012343     0.38793819
## 655       1.2278503          1.11576449     0.01964222
## 656       1.2278503          1.11576449     0.59024161
## 657       1.4863315          1.13358502     0.95335032
## 658       1.4863315          1.13358502     0.26344378
## 659      -1.3569616          1.15140555    -0.11003946
## 660       1.6931165          1.14784144     0.31012918
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## 661          1.4863315          1.13358502      0.06114036
## 662          0.5041030          1.06586701     -0.11522673
## 663         -0.8399993          1.18704660      0.35681459
## 664         -0.8916955          1.18348250     -0.09966493
## 665         -1.0984805          1.16922608      0.43462360
## 666         -0.8399993          1.18704660      0.54874348
## 667          1.6931165          1.14784144      0.51243261
## 668         -0.7366068          1.19417482      0.46055993
## 669         -0.8399993          1.18704660      0.00408042
## 670         -0.9433917          1.17991839      0.58505435
## 671         -0.3230369          1.22268766      0.63692702
## 672         -0.8399993          1.18704660     -0.05816679
## 673         -0.8916955          1.18348250      0.05076582
## 674          0.1422293          1.25476461      0.39831273
## 675          0.1939255          1.25832872      0.32569099
## 676          0.1939255          1.25832872      0.51761987
## 677          0.1939255          1.25832872      0.39831273
## 678          0.7108879          1.29396977     -0.05816679
## 680         -0.7883030          1.19061071     -0.20859754
## 682          0.2973180          1.26545693      0.43981086
## 683          0.7108879          1.29396977      0.28419285
## 684          0.7108879          1.29396977      0.33606552
## 686         -1.3569616          1.36525189      0.10263850
## 687         -1.3569616          1.36525189      0.24269471
## 689         -1.3569616          1.36525189     -0.14635033
## 690         -0.5815181          1.41871347     -0.23972114
## 691          1.4863315          1.34743136      0.38793819
## 693          1.2278503          1.32961083     -0.23972114
## 694          1.4863315          1.34743136     -0.11003946
## 695         -0.5298218          1.42227758     -0.07372859
## 696         -0.5815181          1.41871347     -0.21378481
## 697         -0.5815181          1.41871347     -0.00629412
## 698         -1.3569616          1.36525189     -0.02704319
## 699         -0.5815181          1.41871347      0.36200186
## 700          0.1939255          1.47217506      0.42424906
## 702         -0.1162519          1.45079042      0.51243261
## 703          0.9693691          1.52563664     -0.08410312
## 704          0.9693691          1.52563664      0.40349999
## 706          0.7108879          1.50781611      0.42943633
## 707          1.4863315          1.56127770     -0.00629412
## 709         -1.3569616          1.57909823      0.24269471
## 710         -1.3569616          1.57909823     -0.13597580
## 711          1.4346353          1.55771359      0.30494192
## 712         -1.3569616          1.57909823     -6.97798126
## 713         -1.3569616          1.57909823     -0.03223045
## 714          0.4524067          1.48999559      0.35681459
## 715          0.9693691          1.52563664      0.36718912
## 716         -1.3569616          1.57909823      0.32569099
## 717          1.2278503          1.54345717     -0.21897207
## 719         -0.5815181          1.63255981      0.23750744
## 720         -0.0645557          1.66820087     -0.16191213
## 721         -0.3230369          1.65038034      0.18044750
## 722         -0.8399993          1.61473928     -0.28121928
## 723          0.1939255          1.68602140     -7.20103375
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## 725           0.4524067              1.70384192   -7.06097754
## 726           0.4524067              1.70384192   -6.57337442
## 727           0.1422293              1.68245729   -7.11803748
## 729          -0.3230369              1.86422668   -7.13359928
## 730          -0.0645557              1.88204721   -0.21378481
## 737           1.6931165              2.21707314   -6.58893622
## 738           1.4863315              0.06435332   -0.27084474
## 739          -0.3230369              0.15345596    0.14413663
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## 744          -1.3569616             -1.62859686   -0.21378481
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## 747          -1.3569616             -1.62859686    0.21157111
## 748          -1.0984805             -1.61077633    0.01964222
## 749          -1.3569616             -1.62859686    0.28419285
## 750          -1.3569616             -1.62859686    0.31012918
## 751          -1.3569616             -1.62859686    0.03001675
## 752          -1.3569616             -1.62859686    0.09745123
## 753          -1.3569616             -1.62859686   -0.05816679
## 754          -1.3569616             -1.62859686   -0.13597580
## 755          -1.0984805             -1.61077633   -0.29159381
## 756          -0.8399993             -1.59295581    0.33087825
## 757          -0.8399993             -1.59295581    0.38793819
## 758          -0.5815181             -1.57513528    0.15969843
## 759          -0.5815181             -1.57513528    0.20119657
## 760          -0.5815181             -1.57513528   -0.11003946
## 761          -0.8399993             -1.59295581    0.05595309
## 762           1.6931165             -1.63216097    0.41906180
## 763           0.1939255             -1.52167369    1.00522299
## 764          -0.2196444             -1.55018654    0.34644005
## 765           0.1939255             -1.52167369    0.17007297
## 766           0.1939255             -1.52167369    0.03520402
## 767           0.1939255             -1.52167369    0.09745123
## 768           0.3490142             -1.51098138   -0.08410312
## 769           0.1939255             -1.52167369    0.01964222
## 770           0.3490142             -1.51098138   -0.13597580
## 771           0.1939255             -1.52167369    0.55911801
## 772           0.4007105             -1.50741727    0.42424906
## 773           0.1939255             -1.52167369    0.10782576
## 774          -0.0645557             -1.53949422    0.36718912
## 775           0.9693691             -1.46821211    0.19082204
## 776           1.6931165             -1.41831463    0.24269471
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## 778           1.4863315             -1.43257105    0.26344378
## 779           1.6931165             -1.41831463    0.01964222
## 780          -1.0984805             -1.39692999    0.48130900
## 781          -1.0984805             -1.39692999    0.39831273
## 782          -0.5815181             -1.36128894    0.43462360
## 784          -0.5815181             -1.36128894    0.39312546
## 785          -0.3230369             -1.34346841    0.06114036
## 786          -0.5815181             -1.36128894    0.46055993
## 787          -0.0645557             -1.32564788    0.35681459
## 788           0.1939255             -1.30782735    0.19600931
## 789           0.1939255             -1.30782735    0.48649627
```

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## 790           0.5041030        -1.28644272    -0.21897207
## 791           0.7108879        -1.27218630     0.46055993
## 792           0.1939255        -1.30782735     0.38793819
## 793           0.9693691        -1.25436577     0.53836894
## 794           0.9693691        -1.25436577     0.28419285
## 795           1.2278503        -1.23654524    -0.03223045
## 796           1.4863315        -1.21872471     0.20119657
## 797          -1.3569616        -1.20090418     0.44499813
## 798          -0.8399993        -1.16526313    -0.05816679
## 799           1.1761541        -1.24010935     0.35681459
## 800          -1.0984805        -1.18308366    -0.21897207
## 801          -0.4781256        -1.14031439     0.38275093
## 802          -0.5815181        -1.14744260     0.34644005
## 803          -0.5815181        -1.14744260     0.02482949
## 804          -0.0645557        -1.11180154     0.01445495
## 805           0.1422293        -1.09754512    -0.06854132
## 806           0.4007105        -1.07972459    -0.03223045
## 807           0.5557992        -1.06903227    -0.18266120
## 808          -0.3230369        -1.12962207     0.37756366
## 809           0.4524067        -1.07616049     0.53836894
## 810           0.7108879        -1.05833996    -0.19303574
## 811           0.7108879        -1.05833996     0.34644005
## 812           0.1422293        -1.09754512     0.10782576
## 813           0.0388368        -1.10467333    -0.15672487
## 815          -1.3569616        -0.98705784     0.43462360
## 816          -1.3569616        -0.98705784     0.47093447
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## 826          -1.3569616        -0.98705784     0.41387453
## 828          -0.3747331        -0.91933984    -0.23453387
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## 849          -0.5815181        -0.71974992     0.01445495
## 850          -0.5815181        -0.71974992     0.41906180
## 852          -0.2713406        -0.69836529     0.43981086
```

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## 853         -0.5815181       -0.71974992     -0.00629412
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## 856         -0.0645557       -0.68410886      0.05076582
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## 859          0.1939255       -0.66628834      0.56430528
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## 864          1.3312428       -0.58787801      0.44499813
## 865          1.2278503       -0.59500622      0.27900558
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## 867         -1.3569616       -0.55936517      0.49168354
## 868         -0.5815181       -0.50590358     -0.00629412
## 869          1.4863315       -0.57718569      0.38275093
## 870         -0.3230369       -0.48808305      0.10263850
## 871         -0.6332143       -0.50946769      0.18044750
## 872         -0.0645557       -0.47026252      0.92741398
## 873          0.1939255       -0.45244200      0.43462360
## 874          0.1939255       -0.45244200      0.33087825
## 875          0.1939255       -0.45244200      0.28938012
## 876          0.0388368       -0.46313431      0.15451117
## 877          0.1422293       -0.45600610      0.37237639
## 878          0.4524067       -0.43462147     -0.00629412
## 879          0.9693691       -0.39898041      0.37237639
## 880         -0.5815181       -0.50590358     -0.23453387
## 881          0.9693691       -0.39898041      0.37756366
## 882          1.2278503       -0.38115988     -0.00629412
## 883          0.9693691       -0.39898041      0.14932390
## 884          0.9176729       -0.40254452      0.33606552
## 885          1.4863315       -0.36333936     -0.12560126
## 886          1.6931165       -0.34908293      0.18563477
## 887          1.6414202       -0.35264704      0.35162732
## 888          0.9693691       -0.39898041     -0.03223045
## 891         -1.0984805       -0.32769830      0.40868726
## 892         -0.5815181       -0.29205724     -0.22415934
## 893         -0.4781256       -0.28492903      0.53318167
## 894         -0.3230369       -0.27423671     -0.18784847
## 895         -0.0645557       -0.25641619     -0.17228667
## 896          0.1939255       -0.23859566      0.00408042
## 897          0.4524067       -0.22077513      0.49168354
## 898          0.7108879       -0.20295460      0.33087825
## 899          0.7108879       -0.20295460     -0.16191213
## 900          0.9693691       -0.18513407     -0.26565748
## 901          1.2278503       -0.16731354      0.33087825
## 902          1.5897240       -0.14236480      0.38275093
## 903          1.6931165       -0.13523659     -0.26565748
## 904          1.6931165       -0.13523659     -0.19303574
## 905          1.3829390       -0.15662123      0.34125279
## 906         -1.3569616       -0.13167249     -0.09966493
## 907         -1.3052654       -0.12810838     -0.27603201
## 910         -1.3569616       -0.13167249      0.22194564
## 911          1.6414202       -0.13880070      0.39312546
```

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## 913      -0.3230369      -0.06039037   -0.04260499
## 914       0.1939255      -0.02474932    0.46055993
## 915       0.1939255      -0.02474932    0.38793819
## 916       0.9693691       0.02871227    0.43462360
## 917       0.4524067      -0.00692879    0.31012918
## 918       1.2278503       0.04653280    0.46055993
## 919       1.6931165       0.07860975   -0.19822300
## 920       0.9693691       0.02871227    0.43462360
## 921       1.5380277       0.06791743    0.29975465
## 923      -1.3569616       0.08217385    0.20638384
## 924       1.4863315       0.06435332    0.40349999
## 926       0.9693691       0.02871227    0.42424906
## 927      -0.5815181       0.13563544    0.13894937
## 928      -0.4264293       0.14632775   -0.11522673
## 929      -0.3230369       0.15345596   -0.13597580
## 930      -0.4264293       0.14632775    0.31531645
## 931       1.5897240       0.07148153    0.01445495
## 932      -0.2196444       0.16058418   -0.22415934
## 934       0.1939255       0.18909702    0.35681459
## 935       0.4524067       0.20691755    0.15451117
## 936       0.1422293       0.18553292    0.08707669
## 937       0.9693691       0.24255861    0.03001675
## 939       0.7108879       0.22473808    0.36200186
## 940       0.9693691       0.24255861    0.12338756
## 941       0.9693691       0.24255861   -0.18266120
## 942       1.2278503       0.26037913   -0.03223045
## 943       0.9693691       0.24255861   -0.24490841
## 944       0.5041030       0.21048166   -0.25528294
## 945      -1.3569616       0.29602019   -0.18784847
## 946       0.1939255       0.18909702    0.56430528
## 947       1.4863315       0.27819966   -0.03223045
## 948      -1.3569616       0.29602019    0.52280714
## 949       1.6931165       0.29245609    0.36718912
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## 952       1.4863315       0.27819966   -0.12041400
## 953      -1.3569616       0.29602019   -0.00110685
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## 955      -1.3569616       0.29602019    0.23750744
## 956       1.4863315       0.27819966   -0.07372859
## 957      -1.0984805       0.31384072    0.17007297
## 958       0.9176729       0.23899450    0.42424906
## 959       1.2278503       0.26037913    0.35681459
## 960      -0.8399993       0.33166125    0.01964222
## 961       0.0388368       0.39225104   -0.12041400
## 962       1.6931165       0.29245609    0.36200186
## 963      -0.3230369       0.36730230   -0.13597580
## 964      -0.8399993       0.33166125    0.28419285
## 965      -0.3230369       0.36730230   -0.16709940
## 966      -1.0467842       0.31740482    0.39831273
## 967      -0.2196444       0.37443052    0.04557856
## 968       0.1939255       0.40294336    0.46055993
## 969       0.1939255       0.40294336   -0.18784847
## 971      -0.5815181       0.34948178    0.27900558
```

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## 972             0.0905331          0.39581515    -0.22934661
## 973             0.7108879          0.43858442    -0.10485219
## 974             0.9693691          0.45640495     0.46055993
## 975             1.2278503          0.47422547    -0.03741772
## 976             0.9693691          0.45640495     0.92222672
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## 979            -1.3569616          0.50986653     0.22713291
## 980            -1.3569616          0.50986653     0.27381831
## 981             1.1244578          0.46709726     0.23750744
## 984             0.1422293          0.61322559    -0.09966493
## 985             0.1939255          0.61678970     0.44499813
## 987             0.1939255          0.61678970     0.06114036
## 988             0.1939255          0.61678970     0.51761987
## 989            -0.5815181          0.56332812     0.01964222
## 990            -0.5298218          0.56689222     0.00408042
## 991             0.9693691          0.67025128     0.06114036
## 992             0.9693691          0.67025128     0.12857483
## 993             0.7108879          0.65243076     0.40868726
## 994            -0.3230369          0.58114864    -0.13597580
## 995             1.4863315          0.70589234     0.50724534
## 996             1.2278503          0.68807181     0.25825651
## 997             0.4524067          0.63461023     0.12857483
## 998            -1.3569616          0.72371287     0.20119657
## 1000            0.7108879          0.65243076     0.07151489
## 1001           -1.3569616          0.72371287     0.51761987
## 1002           -1.3569616          0.72371287    -0.08929039
## 1003           -1.3569616          0.72371287     0.30494192
## 1004           -1.3569616          0.72371287     0.24269471
## 1005           -1.0984805          0.74153340     0.35681459
## 1006           -0.8399993          0.75935393     0.04557856
## 1007           -1.0984805          0.74153340    -0.16191213
## 1008           -0.8399993          0.75935393    -0.23972114
## 1009            1.6931165          0.72014876    -0.17228667
## 1010           -1.3569616          0.72371287     0.17526024
## 1013           -0.3230369          0.79499498     0.43462360
## 1014            1.4863315          0.70589234     0.51243261
## 1016           -0.3230369          0.79499498    -0.05816679
## 1017           -0.0645557          0.81281551     0.32050372
## 1018            0.1939255          0.83063604     0.29456738
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## 1021           -0.3230369          0.79499498    -0.00629412
## 1022           -0.0645557          0.81281551     0.06114036
## 1024            1.6931165          0.93399510     0.38275093
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## 1028           -0.8916955          0.96963616    -0.07891586
## 1029           -1.0984805          0.95537974    -0.21378481
## 1030           -0.5815181          0.99102079    -0.09966493
## 1031           -0.8399993          0.97320027     0.29975465
## 1032           -0.5815181          0.99102079     0.10782576
## 1033           -0.3230369          1.00884132     0.48649627
## 1034            0.1939255          1.04448238     0.09226396
## 1035            0.1422293          1.04091827     0.03520402
## 1036            0.4524067          1.06230291     0.44499813
```

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## 1037           0.1939255           1.04448238    0.42424906
## 1038           0.1939255           1.04448238    0.51243261
## 1040          -0.5815181           0.99102079    0.13376210
## 1042           1.2278503           1.11576449    0.01964222
## 1044           0.9693691           1.09794396    0.53318167
## 1046           1.4863315           1.13358502    0.40868726
## 1047           1.4863315           1.13358502    0.06114036
## 1048          -1.3569616           1.15140555   -0.11003946
## 1049          -1.3569616           1.15140555    0.52799441
## 1050          -1.1501767           1.16566197   -0.17747393
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## 1053          -0.5815181           1.20486713    0.40868726
## 1054          -0.3230369           1.22268766    0.46574720
## 1055          -1.3569616           1.15140555   -0.08410312
## 1056          -0.3230369           1.22268766    0.61617795
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## 1058           0.1939255           1.25832872    0.39831273
## 1059           0.0905331           1.25120051    0.02482949
## 1061          -0.0645557           1.24050819   -0.18784847
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## 1065          -0.5815181           1.20486713   -6.55781262
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## 1076          -0.5815181           1.41871347   -0.21378481
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## 1079           0.1422293           1.46861095   -0.23453387
## 1080           0.1939255           1.47217506    0.37237639
## 1085           1.2278503           1.54345717   -0.22934661
## 1086           0.9693691           1.52563664    0.29975465
## 1091           1.6414202           1.57197002   -0.25528294
## 1092          -1.0984805           1.59691875   -0.22934661
## 1093          -1.3569616           1.57909823   -0.03223045
## 1096          -0.5815181           1.63255981    0.23750744
## 1097           0.1939255           1.68602140   -7.20103375
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## 1099          -0.4264293           1.64325213   -0.29678108
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## 1103           1.6931165           1.78938046   -0.20859754
## 1104           1.6931165           1.78938046   -0.25528294
## 1106           0.9693691           1.95332932   -0.23453387
## 1107           0.9693691           1.95332932   -7.65751327
## 1108           1.4863315           1.98897038   -7.65751327
## 1109           0.9693691          -1.46821211   -0.22934661
## 1110           0.4524067          -1.07616049    0.40868726
## 1111          -0.3230369          -0.91577573    0.46055993
## 1112           0.1939255          -1.52167369    0.01964222
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## 1114          -1.3569616          -1.62859686    0.28419285
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## 1117          -1.3569616          -1.62859686    0.25825651
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## 1118        -1.3569616        -1.62859686    0.46055993
## 1119        -1.0984805        -1.61077633    0.01964222
## 1120        -1.3569616        -1.62859686    0.09745123
## 1121        -1.3569616        -1.62859686   -0.13597580
## 1122        -1.3569616        -1.62859686   -0.16709940
## 1123        -0.9433917        -1.60008402   -0.04779225
## 1124        -0.8399993        -1.59295581    0.33087825
## 1125        -0.8399993        -1.59295581    0.38793819
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## 1128         1.6931165        -1.63216097    0.41906180
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## 1130        -0.5815181        -1.57513528   -0.11003946
## 1131        -0.5815181        -1.57513528    0.87554131
## 1132        -0.5815181        -1.57513528    0.03001675
## 1133        -0.5815181        -1.57513528    0.22713291
## 1134         0.1939255        -1.52167369    0.03520402
## 1135        -0.9950880        -1.60364812    0.08188943
## 1136         0.1939255        -1.52167369    0.55911801
## 1137         0.1939255        -1.52167369    0.01964222
## 1138         0.1939255        -1.52167369    0.09745123
## 1139         0.4524067        -1.50385316    0.55911801
## 1140         0.6591917        -1.48959674    0.42424906
## 1141         0.1939255        -1.52167369   -0.08410312
## 1142         0.7108879        -1.48603264    0.12338756
## 1143         0.1939255        -1.52167369    0.17007297
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## 1146         1.4863315        -1.43257105    0.51243261
## 1147        -1.3569616        -1.41475052    0.40349999
## 1148         1.4863315        -1.43257105    0.15451117
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## 1151        -1.3569616        -1.41475052    0.42943633
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## 1153        -1.3569616        -1.41475052    0.46055993
## 1154        -1.0984805        -1.39692999    0.20119657
## 1155         1.6931165        -1.41831463    0.24269471
## 1156        -1.3569616        -1.41475052   -0.10485219
## 1157        -1.3569616        -1.41475052    0.40868726
## 1158        -1.0984805        -1.39692999    0.48130900
## 1159        -0.5815181        -1.36128894    0.46055993
## 1160        -0.5815181        -1.36128894    0.48649627
## 1161        -0.5815181        -1.36128894    0.43462360
## 1162        -0.3230369        -1.34346841    0.06114036
## 1163        -1.3569616        -1.41475052    0.50724534
## 1164        -0.3230369        -1.34346841   -0.18784847
## 1165        -1.3569616        -1.41475052    0.56430528
## 1166        -1.3569616        -1.41475052    0.40349999
## 1167         0.1939255        -1.30782735    0.56430528
## 1168         0.7108879        -1.27218630    0.46055993
## 1170         0.1422293        -1.31139146    0.38275093
## 1171         1.1761541        -1.24010935    0.35681459
## 1172         1.4863315        -1.21872471    0.10782576
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## 1173           0.9693691         -1.25436577    0.89629038
## 1174           1.6931165         -1.20446829   -0.15672487
## 1175           1.4863315         -1.21872471    0.40868726
## 1176           1.4863315         -1.21872471    0.20119657
## 1177          -1.3569616         -1.20090418    0.45537267
## 1178           1.6931165         -1.20446829    0.41387453
## 1179          -1.3569616         -1.20090418    0.07670216
## 1180           1.6931165         -1.20446829    0.46055993
## 1181           1.6931165         -1.20446829   -0.23972114
## 1182          -0.8399993         -1.16526313   -0.05816679
## 1183          -1.3569616         -1.20090418    0.36200186
## 1184          -0.5815181         -1.14744260    0.34644005
## 1185          -0.8399993         -1.16526313    0.36200186
## 1186          -0.5815181         -1.14744260   -0.00629412
## 1187          -0.8399993         -1.16526313    0.12338756
## 1188          -1.2018729         -1.19021187    0.13376210
## 1189          -0.8399993         -1.16526313    0.97928666
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## 1191          -0.4781256         -1.14031439    0.23232018
## 1192           0.0388368         -1.10467333    0.04039129
## 1193           0.0388368         -1.10467333    0.39831273
## 1194          -0.0645557         -1.11180154   -0.18784847
## 1195           0.1422293         -1.09754512    0.04557856
## 1196          -0.0645557         -1.11180154    0.01445495
## 1197          -0.3230369         -1.12962207   -0.19303574
## 1198           0.1939255         -1.09398101    0.97928666
## 1199           0.1422293         -1.09754512    0.41387453
## 1200           0.7108879         -1.05833996   -0.03223045
## 1201          -0.8399993         -1.16526313    0.18563477
## 1202           0.1422293         -1.09754512    0.45537267
## 1203           0.7625842         -1.05477585    0.18563477
## 1204           0.7108879         -1.05833996   -0.19303574
## 1205           0.7108879         -1.05833996   -0.17228667
## 1206           0.1939255         -1.09398101   -0.05816679
## 1207           0.9693691         -1.04051943    0.43462360
## 1208           0.7108879         -1.05833996    0.34644005
## 1209           0.1939255         -1.09398101   -0.07372859
## 1210          -1.3569616         -0.98705784   -0.04260499
## 1211           1.6414202         -0.99418606    0.12338756
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## 1214          -1.3569616         -0.98705784    0.33087825
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## 1218          -1.3569616         -0.98705784    1.42020437
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## 1223          -0.9433917         -0.95854500    0.95853759
## 1224          -0.3230369         -0.91577573    0.39831273
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## 1226           0.1939255         -0.88013467    0.37237639
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## 1227          0.1939255          -0.88013467  -0.12041400
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## 1229          0.7108879          -0.84449362   0.38275093
## 1230          0.1422293          -0.88369878   0.91185218
## 1231          0.7108879          -0.84449362   0.30494192
## 1232          0.5557992          -0.85518594  -0.16191213
## 1233          0.4524067          -0.86231415  -0.13597580
## 1235          0.7108879          -0.84449362  -0.08410312
## 1236          1.4863315          -0.79103203  -0.26565748
## 1237          0.9693691          -0.82667309  -0.05816679
## 1238         -0.0645557          -0.89795520   0.14932390
## 1239          1.6414202          -0.78033972  -0.08410312
## 1240          1.6931165          -0.77677561  -0.21378481
## 1241          1.6931165          -0.77677561  -0.13597580
## 1242         -1.3569616          -0.77321151   0.38275093
## 1243         -1.3569616          -0.77321151   0.46055993
## 1244          1.6931165          -0.77677561   0.48649627
## 1245          0.9693691          -0.82667309   0.39831273
## 1246         -0.5298218          -0.71618581   0.09226396
## 1247         -0.8399993          -0.73757045  -0.13597580
## 1248         -0.5815181          -0.71974992  -0.00629412
## 1249         -0.2713406          -0.69836529   0.43981086
## 1250          1.3829390          -0.79816024  -0.20341027
## 1251         -0.0645557          -0.68410886   0.05076582
## 1252          0.1939255          -0.66628834  -0.05816679
## 1253          0.1939255          -0.66628834   0.56430528
## 1254         -0.5815181          -0.71974992  -0.20859754
## 1255          0.1939255          -0.66628834   0.46055993
## 1257          0.2973180          -0.65916012   0.06114036
## 1258          0.8659766          -0.61995496   0.27381831
## 1259          0.7108879          -0.63064728  -0.17228667
## 1260          0.8142804          -0.62351907  -0.16709940
## 1261          0.9693691          -0.61282675   0.05595309
## 1263          1.2278503          -0.59500622   0.37237639
## 1264          1.2278503          -0.59500622  -0.09966493
## 1265         -1.3569616          -0.55936517   0.45537267
## 1266         -1.3569616          -0.55936517   0.46055993
## 1268         -1.3569616          -0.55936517   0.21675837
## 1269          1.2278503          -0.59500622   0.01964222
## 1270         -0.5815181          -0.50590358  -0.00629412
## 1272          0.1939255          -0.45244200   0.40868726
## 1273         -0.0645557          -0.47026252   0.92741398
## 1274          0.1939255          -0.45244200   0.33087825
## 1275          0.4007105          -0.43818557   0.07670216
## 1276          0.1939255          -0.45244200   0.43462360
## 1277          0.1939255          -0.45244200   0.28938012
## 1278         -0.0645557          -0.47026252   0.91185218
## 1279          0.7108879          -0.41680094   0.38275093
## 1280          0.9693691          -0.39898041   0.37756366
## 1281          0.9693691          -0.39898041   0.14932390
## 1282         -1.3569616          -0.34551883  -0.21378481
## 1284         -1.3569616          -0.34551883   0.48130900
## 1285         -1.3569616          -0.34551883   0.38275093
## 1286         -1.0984805          -0.32769830   0.40868726
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## 1287          1.6414202          -0.35264704      0.35162732
## 1288         -1.3569616          -0.34551883      0.56430528
## 1290         -0.3230369          -0.27423671     -0.00629412
## 1291         -0.4781256          -0.28492903      0.53318167
## 1292          0.1939255          -0.23859566     -0.22415934
## 1293          0.4524067          -0.22077513      0.49168354
## 1294         -0.3230369          -0.27423671     -0.18784847
## 1295         -0.0645557          -0.25641619     -0.29159381
## 1296         -1.3569616          -0.13167249      0.17007297
## 1297          1.4863315          -0.14949302      0.29975465
## 1298         -1.3569616          -0.13167249     -0.08410312
## 1299          1.6931165          -0.13523659     -0.26565748
## 1300          1.6931165          -0.13523659      0.38275093
## 1303         -1.0984805          -0.11385196      0.15969843
## 1304         -1.3052654          -0.12810838     -0.27603201
## 1305         -0.5815181          -0.07821090      0.04557856
## 1306         -0.5815181          -0.07821090      0.31012918
## 1308         -0.3230369          -0.06039037      0.39831273
## 1309         -0.0645557          -0.04256985     -0.08410312
## 1310          0.1939255          -0.02474932      0.20119657
## 1311          0.1939255          -0.02474932      0.46055993
## 1312          0.1939255          -0.02474932      0.53836894
## 1313         -0.5815181          -0.07821090      0.27900558
## 1314          0.9693691           0.02871227      0.43462360
## 1315          0.7108879           0.01089174      0.25825651
## 1317          0.9693691           0.02871227      0.43462360
## 1318          0.4524067          -0.00692879      0.19082204
## 1319         -0.8399993           0.11781491     -0.05816679
## 1320         -0.7883030           0.12137901      0.17007297
## 1322          1.4863315           0.06435332      0.40349999
## 1323         -0.0645557           0.17127649      0.04557856
## 1325          0.1422293           0.18553292      0.08707669
## 1327          0.4524067           0.20691755      0.36718912
## 1328          0.9176729           0.23899450      0.42424906
## 1329          0.9693691           0.24255861      0.03001675
## 1330          1.5380277           0.28176377     -0.14635033
## 1331          0.8142804           0.23186629      0.10263850
## 1332          1.2278503           0.26037913     -0.03223045
## 1333          1.0210654           0.24612271      0.38793819
## 1334          1.5897240           0.28532787      0.40349999
## 1335          1.6931165           0.29245609     -0.05297952
## 1336         -1.3569616           0.29602019     -0.18784847
## 1338         -1.3569616           0.29602019      0.23750744
## 1340         -1.0984805           0.31384072     -0.12560126
## 1341         -1.3569616           0.29602019      0.52280714
## 1342         -1.3569616           0.29602019     -0.00110685
## 1343         -1.3569616           0.29602019     -0.22415934
## 1344         -1.0984805           0.31384072      0.40868726
## 1346         -0.9950880           0.32096893      0.00408042
## 1347          1.4863315           0.27819966     -0.07372859
## 1348         -1.3569616           0.29602019     -0.10485219
## 1349         -0.8399993           0.33166125     -0.05816679
## 1350         -0.3230369           0.36730230      0.44499813
## 1351         -0.3230369           0.36730230     -0.11522673
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## 1352      -0.5815181          0.34948178      0.27900558
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## 1354       0.1939255          0.40294336     -0.18784847
## 1356      -0.4264293          0.36017409      0.35681459
## 1357       0.1422293          0.39937925      0.37237639
## 1358       0.9693691          0.45640495      0.17526024
## 1359       0.7108879          0.43858442      0.43462360
## 1360       1.4863315          0.49204600      0.39312546
## 1361       1.4863315          0.49204600     -0.10485219
## 1362       1.4863315          0.49204600      0.13376210
## 1364      -1.3569616          0.50986653      0.39312546
## 1366       1.4863315          0.49204600     -0.18784847
## 1367      -1.3569616          0.50986653      0.22713291
## 1368      -0.8399993          0.54550759     -0.05297952
## 1369      -1.3569616          0.50986653      0.28419285
## 1370      -0.5815181          0.56332812      0.10263850
## 1371      -0.5298218          0.56689222      0.00408042
## 1372      -0.3747331          0.57758454     -0.27084474
## 1374      -0.0645557          0.59896917      0.17526024
## 1375      -0.3230369          0.58114864      0.53318167
## 1376      -1.3569616          0.50986653      0.40868726
## 1377       0.1939255          0.61678970      0.44499813
## 1378       0.1939255          0.61678970      0.30494192
## 1379       0.9693691          0.67025128      0.09745123
## 1380       0.9693691          0.67025128      0.06114036
## 1381       0.9693691          0.67025128      0.43462360
## 1382       1.2278503          0.68807181     -0.13597580
## 1383       1.2278503          0.68807181      0.40349999
## 1385       0.6591917          0.64886665     -0.20859754
## 1387      -1.3569616          0.72371287      0.97409939
## 1388      -1.3569616          0.72371287      0.30494192
## 1389      -1.3569616          0.72371287      0.51761987
## 1390      -1.3569616          0.72371287      0.58505435
## 1391      -1.3569616          0.72371287      0.35681459
## 1392      -1.3569616          0.72371287      0.20119657
## 1393       0.7108879          0.65243076      0.43981086
## 1394      -0.9433917          0.75222571      0.41387453
## 1395      -0.5815181          0.77717445      0.35162732
## 1396       1.4863315          0.70589234      0.51243261
## 1397      -0.3230369          0.79499498     -0.05816679
## 1398      -0.3230369          0.79499498     -0.00629412
## 1399       0.1939255          0.83063604      0.17007297
## 1400      -0.0645557          0.81281551      0.28938012
## 1402      -0.3230369          0.79499498      0.35681459
## 1403       0.1422293          0.82707193      0.43462360
## 1404       0.9693691          0.88409762      0.38275093
## 1405      -0.3230369          0.79499498      0.43462360
## 1406       0.9693691          0.88409762      0.28938012
## 1407       0.9693691          0.88409762      0.49687080
## 1408       0.0388368          0.81994372      0.38793819
## 1409       0.1939255          0.83063604      0.41387453
## 1410       1.3829390          0.91261047      0.39312546
## 1411      -1.3569616          0.93755921      0.02482949
## 1412       0.9693691          0.88409762      0.31531645
```

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## 1413          -0.9433917             0.96607205   -0.07891586
## 1414          -0.5815181             0.99102079   -0.09966493
## 1415           1.2278503             0.90191815    0.30494192
## 1416          -0.8399993             0.97320027    0.43462360
## 1419          -0.3230369             1.00884132   -0.05816679
## 1420          -0.8399993             0.97320027    0.29975465
## 1421           0.1422293             1.04091827    0.03520402
## 1422          -1.3569616             0.93755921   -0.02704319
## 1423          -0.3747331             1.00527722    0.42943633
## 1425           0.4524067             1.06230291    0.52280714
## 1426          -0.3230369             1.00884132    0.32050372
## 1427           0.9693691             1.09794396    0.51761987
## 1428          -0.3747331             1.00527722   -0.22415934
## 1429           0.4524067             1.06230291    0.44499813
## 1430           1.4863315             1.13358502    0.06114036
## 1431           1.4863315             1.13358502    0.04557856
## 1432          -1.3569616             1.15140555    0.25825651
## 1433          -1.3569616             1.15140555    0.52799441
## 1434           1.5380277             1.13714913    0.37237639
## 1435          -1.0984805             1.16922608    0.48649627
## 1436          -1.3569616             1.15140555   -0.11003946
## 1438          -1.0984805             1.16922608    0.06114036
## 1439           0.9693691             1.09794396    0.28938012
## 1440          -0.3230369             1.22268766    0.61617795
## 1441          -1.3569616             1.15140555    0.17007297
## 1442          -0.3230369             1.22268766   -0.08410312
## 1443          -0.5815181             1.20486713   -6.55781262
## 1444          -0.0645557             1.24050819    0.44499813
## 1445          -0.0645557             1.24050819    0.38275093
## 1446          -0.3230369             1.22268766    0.52799441
## 1447           0.1939255             1.25832872    0.12857483
## 1448          -0.0645557             1.24050819   -0.18784847
## 1449          -0.3230369             1.22268766    0.46574720
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## 1451           0.0905331             1.25120051    0.02482949
## 1452           0.1422293             1.25476461    0.25306924
## 1455           0.7108879             1.29396977   -0.05816679
## 1457           0.9693691             1.31179030    0.55911801
## 1460           0.9693691             1.31179030    0.31012918
## 1461           1.4863315             1.34743136   -0.16191213
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## 1463          -1.3569616             1.36525189   -0.06854132
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## 1467          -1.3569616             1.36525189   -0.08929039
## 1468           0.1939255             1.47217506    0.16488570
## 1469           0.1939255             1.47217506    0.37237639
## 1472           0.9693691             1.52563664   -0.08410312
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## 1474           0.1422293             1.46861095    0.43981086
## 1475           0.7108879             1.50781611    0.42943633
## 1476           0.7108879             1.50781611    0.19600931
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## 1478          -1.3569616             1.57909823   -0.11003946
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## 1484        -0.0645557              1.66820087   -7.16991015
## 1486         0.4524067              1.70384192   -6.57337442
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## 1490         1.6931165              1.78938046   -0.20859754
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## 1494         1.4863315              1.98897038   -7.65751327
## 1495         1.4863315              1.98897038   -0.27084474
## 1497         0.9693691             -0.18513407    0.35681459
## 1498        -1.3569616             -1.84244320   -0.03223045
## 1499         0.7108879             -1.69987898    0.38275093
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## 1501        -1.3569616             -1.62859686    0.36718912
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## 1505         0.9693691             -1.68205845    0.83404317
## 1506        -0.8399993             -1.59295581    0.38793819
## 1507        -0.8399993             -1.59295581    0.33087825
## 1508        -0.8399993             -1.59295581   -0.26565748
## 1509        -0.5815181             -1.57513528    0.20638384
## 1510        -0.5815181             -1.57513528    0.15969843
## 1511        -0.5815181             -1.57513528   -0.24490841
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## 1518        -1.3569616             -1.41475052    0.38275093
## 1519        -0.8399993             -1.37910947   -0.08410312
## 1520        -0.7883030             -1.37554536    0.25825651
## 1521        -0.8399993             -1.37910947    0.43981086
## 1522        -0.3230369             -1.34346841    0.04557856
## 1523        -0.1679481             -1.33277609    0.94816305
## 1524        -0.3230369             -1.34346841   -0.17747393
## 1525        -0.8399993             -1.37910947    0.29456738
## 1526         0.1939255             -1.30782735    0.19600931
## 1527        -0.2713406             -1.33990430    0.28419285
## 1528         0.7108879             -1.27218630    0.48130900
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## 1531         0.9693691             -1.25436577    0.53836894
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## 1536        -1.3569616             -1.20090418    0.29975465
## 1537         1.6931165             -1.20446829    0.01964222
## 1538        -1.3569616             -1.20090418   -0.21897207
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## 1539          -1.0984805          -1.18308366      0.13376210
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## 1557           0.4524067          -1.07616049      0.15969843
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## 1575          -0.3230369          -0.91577573      1.09859380
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## 1596      -0.5815181      -0.71974992    -0.20859754
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## 1606       1.4863315      -0.57718569     0.42424906
## 1607      -0.0645557      -0.47026252    -0.21378481
## 1608       0.1939255      -0.45244200     0.40868726
## 1609       0.1939255      -0.45244200    -0.03223045
## 1610       0.4007105      -0.43818557     0.07670216
## 1611       1.0210654      -0.39541631    -0.23972114
## 1612       0.9693691      -0.39898041     0.22713291
## 1613       0.9693691      -0.39898041    -0.12560126
## 1614      -1.3569616      -0.34551883    -0.26047021
## 1615      -1.3569616      -0.34551883     0.26863105
## 1616      -1.3569616      -0.34551883    -0.29159381
## 1617      -1.3569616      -0.34551883    -0.21378481
## 1618      -0.3230369      -0.27423671    -0.13597580
## 1619       0.1939255      -0.23859566     0.15969843
## 1620       1.6931165      -0.13523659    -0.18784847
## 1622      -1.3569616      -0.13167249     0.37237639
## 1623       1.3312428      -0.16018533     0.34644005
## 1624      -1.3569616      -0.13167249     0.21157111
## 1626      -1.3569616      -0.13167249    -0.09966493
## 1627      -1.3569616      -0.13167249    -0.03223045
## 1628      -0.5815181      -0.07821090     0.37237639
## 1629      -0.0645557      -0.04256985    -0.08410312
## 1630      -0.3230369      -0.06039037     0.35681459
## 1631      -0.5815181      -0.07821090    -0.03223045
## 1632      -0.0645557      -0.04256985    -0.31234288
## 1633       0.1939255      -0.02474932     0.40868726
## 1634      -0.0128594      -0.03900574     0.34644005
## 1635       0.4524067      -0.00692879     1.26458635
## 1636       0.1939255      -0.02474932     0.19082204
## 1638      -1.3569616       0.08217385    -0.23972114
## 1640       1.6931165       0.07860975     0.31531645
## 1641      -0.5815181       0.13563544     0.13894937
## 1642      -0.7366068       0.12494312     0.20119657
## 1643      -0.8399993       0.11781491     0.38275093
## 1646       0.1939255       0.18909702     0.02482949
## 1647       0.1422293       0.18553292     0.07151489
## 1648       0.0388368       0.17840470     0.33087825
## 1649       0.9693691       0.24255861     0.03001675
## 1650       0.9693691       0.24255861    -0.20859754
## 1651       1.0727616       0.24968682    -0.00629412
## 1652       1.2278503       0.26037913    -0.10485219
## 1653       0.9693691       0.24255861    -0.05816679
## 1654       0.9693691       0.24255861    -0.19303574
## 1655       0.1939255       0.18909702     0.56430528
## 1656       1.5897240       0.28532787     0.19082204
```

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## 1657          -1.3569616              0.29602019    0.22713291
## 1658          -1.3569616              0.29602019   -0.00629412
## 1659          -1.3569616              0.29602019    0.36718912
## 1660           1.5897240              0.28532787    0.35162732
## 1661          -1.3569616              0.29602019   -0.00110685
## 1662          -1.0984805              0.31384072   -0.13597580
## 1663          -0.3230369              0.36730230    0.27900558
## 1664          -0.5815181              0.34948178    0.30494192
## 1665           0.1422293              0.39937925    0.06114036
## 1666           0.1939255              0.40294336    0.05595309
## 1667          -0.8399993              0.33166125    0.20119657
## 1668          -0.1162519              0.38155873   -0.16709940
## 1669          -0.5815181              0.34948178   -0.05816679
## 1670           0.1939255              0.40294336    0.53836894
## 1671           1.1244578              0.46709726    0.23232018
## 1672           0.9693691              0.45640495    0.39312546
## 1673           0.9693691              0.45640495   -0.23972114
## 1674           0.9693691              0.45640495   -0.18784847
## 1675           0.7108879              0.43858442   -0.11522673
## 1676           0.1939255              0.40294336   -0.00629412
## 1677          -1.3569616              0.50986653    0.27900558
## 1678          -1.3569616              0.50986653    0.39312546
## 1679          -1.3569616              0.50986653    0.46055993
## 1680           1.2278503              0.47422547    0.95335032
## 1681          -1.3569616              0.50986653    0.34644005
## 1682          -1.3569616              0.50986653    0.39831273
## 1683          -0.8399993              0.54550759    0.36718912
## 1684          -1.3569616              0.50986653    0.48649627
## 1685          -0.8399993              0.54550759   -0.03223045
## 1686          -0.5815181              0.56332812    0.00926769
## 1687          -1.3569616              0.50986653    0.04039129
## 1688          -0.5815181              0.56332812    0.32050372
## 1689           0.1939255              0.61678970    0.06114036
## 1690           0.1939255              0.61678970   -0.13597580
## 1691           0.2973180              0.62391791    0.29456738
## 1692           0.9693691              0.67025128    0.43462360
## 1693           0.4524067              0.63461023    0.46055993
## 1694           0.7108879              0.65243076    0.43981086
## 1695           1.2278503              0.68807181   -0.03223045
## 1696          -1.3569616              0.72371287    0.58505435
## 1697          -1.0984805              0.74153340   -0.16191213
## 1698          -0.8399993              0.75935393    0.04557856
## 1699          -0.8399993              0.75935393    0.35681459
## 1701          -0.4264293              0.78786677   -0.17747393
## 1702          -0.8399993              0.75935393    0.90666491
## 1703          -0.5815181              0.77717445    0.35162732
## 1704          -0.3230369              0.79499498    0.39831273
## 1705          -0.0645557              0.81281551   -0.13597580
## 1706           0.1939255              0.83063604    0.17007297
## 1707          -0.0645557              0.81281551    0.40868726
## 1708          -1.3569616              0.72371287   -0.21378481
## 1709           0.1422293              0.82707193    0.28938012
## 1710           0.1422293              0.82707193    0.32050372
## 1711          -0.0645557              0.81281551    0.48649627
```

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## 1712          -0.3230369              0.79499498    0.35681459
## 1713           0.1422293              0.82707193    0.38793819
## 1714          -0.0645557              0.81281551    0.32050372
## 1715           0.4007105              0.84489246   -0.19822300
## 1716          -1.3569616              0.93755921    0.09226396
## 1717           1.6414202              0.93043100    0.10263850
## 1718          -1.3569616              0.93755921    0.38275093
## 1719           0.9693691              0.88409762    0.31531645
## 1720          -0.8399993              0.97320027   -0.11003946
## 1721          -1.0984805              0.95537974    0.40349999
## 1722          -0.5815181              0.99102079    0.40868726
## 1723          -0.5815181              0.99102079   -0.11003946
## 1724          -1.3569616              0.93755921   -0.13597580
## 1726          -0.3230369              1.00884132    0.48649627
## 1728          -0.3230369              1.00884132   -0.19822300
## 1729           0.1939255              1.04448238   -0.05816679
## 1730           0.1422293              1.04091827   -0.28640655
## 1731           0.1422293              1.04091827   -0.09966493
## 1733           0.1422293              1.04091827   -0.08410312
## 1734          -0.8399993              0.97320027    0.43462360
## 1735           0.1939255              1.04448238    0.51243261
## 1736           0.1422293              1.04091827    0.45018540
## 1737          -0.8399993              0.97320027    0.44499813
## 1738           0.5041030              1.06586701   -0.11522673
## 1739           0.1939255              1.04448238    0.10782576
## 1740           1.4863315              1.13358502    0.06114036
## 1741           1.6931165              1.14784144    0.29975465
## 1742          -1.3569616              1.15140555    0.43462360
## 1743           1.6931165              1.14784144    0.31012918
## 1744           1.6931165              1.14784144    0.04557856
## 1745          -1.0984805              1.16922608    0.43462360
## 1746          -0.5815181              1.20486713   -0.00629412
## 1747          -0.3230369              1.22268766    0.46574720
## 1748          -0.5815181              1.20486713   -6.55262535
## 1749          -0.0645557              1.24050819   -0.11003946
## 1751           0.1422293              1.25476461    0.49687080
## 1753           0.9693691              1.31179030    0.31012918
## 1755           0.7108879              1.29396977   -0.05816679
## 1756           0.7108879              1.29396977    0.33087825
## 1757          -0.0645557              1.24050819   -0.19822300
## 1758          -1.3569616              1.36525189   -0.27084474
## 1759          -1.3569616              1.36525189   -0.06854132
## 1760          -1.0984805              1.38307242    0.28938012
## 1761           1.4863315              1.34743136    0.40868726
## 1762          -0.5815181              1.41871347   -0.21378481
## 1763          -0.5815181              1.41871347    0.36200186
## 1764           0.1422293              1.46861095   -0.23972114
## 1765           0.1939255              1.47217506    0.16488570
## 1766           0.1422293              1.46861095    0.32569099
## 1767           0.9693691              1.52563664    0.40349999
## 1768           0.4524067              1.48999559   -6.56299988
## 1769          -1.3569616              1.57909823    0.24269471
## 1771           0.4524067              1.70384192   -6.57337442
## 1772           0.9693691              1.73948298   -7.16991015
```

```
## 1774           0.7108879              1.72166245    -7.15434835
## 1776           1.4863315              1.98897038    -7.65751327
## 1779           1.6931165              2.21707314    -6.60449802
## 1780          -1.3569616              0.08217385    -0.19822300
## 1781          -0.0645557             -1.75334056     0.29975465
## 1782           0.7108879             -1.69987898     0.38275093
## 1783           1.6931165             -1.63216097     0.49168354
## 1784          -1.3569616             -1.62859686     0.28419285
## 1785          -1.3569616             -1.62859686     0.38275093
## 1786          -1.3569616             -1.62859686     0.27900558
## 1787          -1.3569616             -1.62859686     0.31012918
## 1788          -1.3569616             -1.62859686     0.32050372
## 1789          -0.8399993             -1.59295581     0.35681459
## 1790          -0.5815181             -1.57513528     0.19082204
## 1791          -0.5815181             -1.57513528     0.87554131
## 1792           0.1939255             -1.52167369     0.03520402
## 1793           0.1939255             -1.52167369     0.37756366
## 1794           0.1939255             -1.52167369    -0.08410312
## 1795           0.1939255             -1.52167369     0.55911801
## 1796           0.4524067             -1.50385316     0.35681459
## 1797           0.9693691             -1.46821211     0.03520402
## 1798           0.9693691             -1.46821211     0.27900558
## 1799           1.0727616             -1.46108390    -0.17228667
## 1800           1.6931165             -1.41831463     0.33087825
## 1801           1.4863315             -1.43257105     0.15451117
## 1802          -1.3569616             -1.41475052     0.28938012
## 1803          -1.3569616             -1.41475052     0.56430528
## 1804           1.3829390             -1.43969926     0.24788198
## 1806          -0.5815181             -1.36128894     0.48649627
## 1807          -0.8916955             -1.38267357     0.39312546
## 1808          -0.8399993             -1.37910947     0.29456738
## 1809          -0.5815181             -1.36128894     0.43462360
## 1810          -0.2713406             -1.33990430     0.28419285
## 1811          -0.8399993             -1.37910947    -0.08410312
## 1812          -0.0645557             -1.32564788     0.35681459
## 1813           0.1939255             -1.30782735     0.56430528
## 1814           0.7108879             -1.27218630     0.33087825
## 1815           0.9693691             -1.25436577    -0.05816679
## 1816           0.9693691             -1.25436577     0.89629038
## 1818           1.4863315             -1.21872471     0.40868726
## 1819           1.3829390             -1.22585292     0.08707669
## 1820           1.6931165             -1.20446829     0.00408042
## 1821           1.6931165             -1.20446829     0.01964222
## 1822          -1.3569616             -1.20090418     0.22713291
## 1823           0.1422293             -1.31139146     0.38275093
## 1824          -0.8399993             -1.16526313    -0.05816679
## 1825          -1.3569616             -1.20090418     0.53836894
## 1826          -0.8399993             -1.16526313    -0.03223045
## 1827          -0.5815181             -1.14744260     0.02482949
## 1828          -1.0984805             -1.18308366    -0.21897207
## 1829          -0.3230369             -1.12962207    -0.19303574
## 1830          -0.5815181             -1.14744260     0.41387453
## 1831          -0.0645557             -1.11180154    -0.18784847
## 1832           1.6931165             -1.20446829    -0.21378481
```

```
## 1833          0.1939255        -1.09398101     0.97928666
## 1834         -0.0645557        -1.11180154     0.01445495
## 1835          0.0388368        -1.10467333     0.21675837
## 1836          0.4524067        -1.07616049     0.17526024
## 1837          0.7108879        -1.05833996    -0.17228667
## 1838          0.1939255        -1.09398101     0.45537267
## 1839          0.1939255        -1.09398101    -0.18784847
## 1840          0.7108879        -1.05833996     0.38793819
## 1841         -1.3569616        -0.98705784     0.36718912
## 1842         -1.3569616        -0.98705784     0.10263850
## 1843         -1.3569616        -0.98705784     0.43462360
## 1844         -1.3569616        -0.98705784     0.43462360
## 1845         -0.8399993        -0.95141679    -0.20341027
## 1846         -0.9433917        -0.95854500     0.95853759
## 1847         -1.3569616        -0.98705784    -0.04260499
## 1848         -0.6332143        -0.93716037    -0.01148138
## 1849         -0.3230369        -0.91577573     0.46055993
## 1850         -0.8399993        -0.95141679    -0.03741772
## 1851         -0.3230369        -0.91577573     0.43462360
## 1852         -0.3747331        -0.91933984    -0.23453387
## 1853          0.1939255        -0.88013467     0.37237639
## 1854          0.7108879        -0.84449362     0.30494192
## 1855         -0.0645557        -0.89795520     0.14932390
## 1856         -0.2196444        -0.90864752     0.31531645
## 1857         -0.0645557        -0.89795520    -0.21378481
## 1859          0.7108879        -0.84449362     0.38275093
## 1860          0.1939255        -0.88013467     0.30494192
## 1862          0.5557992        -0.85518594    -0.16191213
## 1864          1.4863315        -0.79103203     0.14932390
## 1865         -1.3569616        -0.77321151     0.43981086
## 1866          1.6931165        -0.77677561     0.48649627
## 1867          1.3829390        -0.79816024    -0.20341027
## 1868         -1.0467842        -0.75182687     0.08707669
## 1869         -0.5815181        -0.71974992    -0.00629412
## 1870         -0.5298218        -0.71618581     0.09226396
## 1871         -0.2713406        -0.69836529     0.43981086
## 1872         -1.3569616        -0.77321151    -0.14635033
## 1873         -0.0645557        -0.68410886     0.05076582
## 1874         -0.4264293        -0.70905760     0.39831273
## 1875          0.1939255        -0.66628834     0.13376210
## 1876          0.1939255        -0.66628834     0.38275093
## 1878          0.7108879        -0.63064728     0.38275093
## 1880          1.2278503        -0.59500622     0.37237639
## 1881          1.0727616        -0.60569854     0.31531645
## 1882          1.4863315        -0.57718569    -0.08410312
## 1883         -1.3569616        -0.55936517     0.46055993
## 1885         -0.5815181        -0.50590358     0.38275093
## 1887         -0.6332143        -0.50946769     0.02482949
## 1888         -0.5815181        -0.50590358    -0.00629412
## 1889         -0.5815181        -0.50590358    -0.07372859
## 1890         -0.0645557        -0.47026252    -0.08410312
## 1891          0.4524067        -0.43462147    -0.00629412
## 1892         -0.0128594        -0.46669842     0.11820030
## 1893          0.1939255        -0.45244200     0.43462360
```

```
## 1894          0.1939255        -0.45244200   -0.05816679
## 1895          0.1939255        -0.45244200    0.28938012
## 1896          0.9693691        -0.39898041   -0.10485219
## 1897          0.2973180        -0.44531379    0.36718912
## 1898          1.3312428        -0.37403167    0.18563477
## 1899          0.9693691        -0.39898041    0.37756366
## 1900         -1.3569616        -0.34551883    0.48130900
## 1901         -1.3569616        -0.34551883   -0.13597580
## 1902         -1.0984805        -0.32769830   -0.22415934
## 1903          1.6414202        -0.35264704    0.35162732
## 1904         -1.0984805        -0.32769830    0.40868726
## 1905         -1.3569616        -0.34551883    0.21675837
## 1906         -1.3569616        -0.34551883    0.56430528
## 1907         -1.3569616        -0.34551883   -0.00110685
## 1908         -1.3569616        -0.34551883   -0.26047021
## 1909         -0.3230369        -0.27423671    0.38793819
## 1910         -0.3230369        -0.27423671   -0.13597580
## 1911         -0.5298218        -0.28849314    0.53318167
## 1912         -1.0984805        -0.32769830   -0.18784847
## 1913          0.4524067        -0.22077513   -0.08410312
## 1914          0.7108879        -0.20295460    0.04557856
## 1915         -0.3230369        -0.27423671    0.31531645
## 1916          0.7108879        -0.20295460    0.33087825
## 1917          1.2278503        -0.16731354    0.01445495
## 1918          1.2278503        -0.16731354    0.33087825
## 1919          1.2278503        -0.16731354    0.17526024
## 1920         -1.3569616        -0.13167249   -0.26047021
## 1921         -1.3569616        -0.13167249    0.29975465
## 1922         -1.3569616        -0.13167249   -0.08410312
## 1923         -1.3569616        -0.13167249   -0.03223045
## 1924         -1.3569616        -0.13167249    0.38275093
## 1925         -0.8399993        -0.09603143   -0.20341027
## 1926         -0.5815181        -0.07821090    0.04557856
## 1927         -0.3230369        -0.06039037   -0.20859754
## 1928          0.1939255        -0.02474932    0.38793819
## 1929          0.1939255        -0.02474932    0.20119657
## 1930          0.7108879         0.01089174    0.25825651
## 1931          0.1939255        -0.02474932    0.51243261
## 1932          0.4524067        -0.00692879   -0.29678108
## 1933         -0.1162519        -0.04613395    0.88072858
## 1934          1.2278503         0.04653280    0.46055993
## 1935          1.5380277         0.06791743    0.29975465
## 1936          1.4863315         0.06435332    0.39831273
## 1937          1.2278503         0.04653280    0.36718912
## 1938          1.6931165         0.07860975    0.02482949
## 1940          1.6931165         0.07860975    0.33087825
## 1941         -0.5298218         0.13919954    0.19600931
## 1942         -0.3230369         0.15345596    0.29456738
## 1943          0.1939255         0.18909702    0.35681459
## 1944          0.4524067         0.20691755   -0.10485219
## 1945         -0.0645557         0.17127649    0.04557856
## 1946          0.9693691         0.24255861   -0.18266120
## 1947          0.7108879         0.22473808    0.10263850
## 1948          0.9693691         0.24255861   -0.00629412
```

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## 1949          1.2278503               0.26037913      0.35681459
## 1951         -0.2196444               0.16058418     -0.22415934
## 1952          0.7108879               0.22473808      0.39312546
## 1953          1.4863315               0.27819966      0.01445495
## 1954          1.3312428               0.26750735      0.03520402
## 1955          0.7108879               0.22473808     -0.25009568
## 1957         -1.3569616               0.29602019     -0.00110685
## 1959          1.5897240               0.28532787      0.35162732
## 1960          1.6931165               0.29245609      0.36200186
## 1961         -0.7883030               0.33522535      0.17007297
## 1962          1.4863315               0.27819966     -0.12041400
## 1963         -1.1501767               0.31027661     -0.10485219
## 1964         -1.0984805               0.31384072      0.18563477
## 1965         -0.3230369               0.36730230      0.44499813
## 1966          0.1939255               0.40294336     -0.00629412
## 1968         -0.3230369               0.36730230     -0.11522673
## 1969         -0.0645557               0.38512283     -0.13597580
## 1970          0.4524067               0.42076389      0.40868726
## 1971          0.5041030               0.42432799     -0.00629412
## 1972          0.7108879               0.43858442     -0.10485219
## 1973         -0.5815181               0.34948178      0.28938012
## 1975          0.9693691               0.45640495      0.17526024
## 1976          0.7108879               0.43858442      0.48130900
## 1977          0.9693691               0.45640495      0.46055993
## 1978          0.9693691               0.45640495     -0.19822300
## 1979         -1.3569616               0.50986653      0.22713291
## 1980         -1.0984805               0.52768706     -0.05816679
## 1981         -1.3569616               0.50986653      0.39312546
## 1982         -1.3569616               0.50986653      0.27900558
## 1983         -1.3569616               0.50986653      0.50205807
## 1984         -0.8399993               0.54550759     -0.03223045
## 1985         -0.6332143               0.55976401      0.00408042
## 1986         -0.8916955               0.54194348      0.33606552
## 1988         -0.5815181               0.56332812      0.01964222
## 1989         -0.3230369               0.58114864     -0.13597580
## 1990         -0.3230369               0.58114864      0.53318167
## 1991          0.1939255               0.61678970      0.59024161
## 1992          0.3490142               0.62748202     -0.07891586
## 1993         -0.5815181               0.56332812      0.17526024
## 1995          0.7108879               0.65243076      0.07151489
## 1997          0.0388368               0.60609738      0.28938012
## 1998          0.4007105               0.63104612      0.03520402
## 1999          1.1244578               0.68094360     -0.10485219
## 2000          1.4863315               0.70589234      0.50724534
## 2001          1.2278503               0.68807181     -0.13597580
## 2002          1.4863315               0.70589234      0.51243261
## 2003         -1.0984805               0.74153340      0.35681459
## 2004         -0.9950880               0.74866161     -0.25009568
## 2005         -1.0467842               0.74509750     -0.28121928
## 2006         -0.5815181               0.77717445      0.46055993
## 2007         -0.8399993               0.75935393      0.04557856
## 2008         -0.3230369               0.79499498     -0.05816679
## 2012         -1.0984805               0.74153340      0.01964222
## 2013          0.1939255               0.83063604      0.13894937
```

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## 2014       -0.3230369                0.79499498    -0.03223045
## 2015        0.4524067                0.84845657    -0.03223045
## 2016        0.9693691                0.88409762     0.38275093
## 2019       -0.2196444                0.80212319    -0.17747393
## 2020        0.9693691                0.88409762     0.49687080
## 2022       -1.3569616                0.93755921     0.38275093
## 2023       -1.3569616                0.93755921     0.24269471
## 2024        0.9693691                0.88409762     0.30494192
## 2025       -1.0984805                0.95537974    -0.03223045
## 2027        1.2278503                0.90191815     0.30494192
## 2028       -0.5815181                0.99102079     0.40868726
## 2030       -0.5815181                0.99102079     0.13376210
## 2031       -0.7883030                0.97676437    -0.07891586
## 2032       -0.5815181                0.99102079     0.51761987
## 2033        0.1939255                1.04448238     0.09226396
## 2034        0.1939255                1.04448238     0.51243261
## 2035       -0.5815181                0.99102079     0.36718912
## 2036        0.1422293                1.04091827     0.03520402
## 2037        0.5041030                1.06586701    -0.11522673
## 2038       -0.3747331                1.00527722     0.43981086
## 2039        0.5041030                1.06586701    -0.00629412
## 2040        1.4863315                1.13358502     0.04557856
## 2041        1.2278503                1.11576449     0.01964222
## 2042        1.4863315                1.13358502     0.06114036
## 2043        0.2456218                1.04804648    -0.16709940
## 2044        1.4863315                1.13358502     0.95335032
## 2045       -1.3569616                1.15140555    -0.02704319
## 2046       -1.3569616                1.15140555     0.52799441
## 2047       -1.3569616                1.15140555     0.64730155
## 2048       -0.8399993                1.18704660    -0.05816679
## 2049       -0.5298218                1.20843124    -0.17747393
## 2050       -0.5815181                1.20486713     0.13376210
## 2051        1.4863315                1.13358502     0.26344378
## 2052       -0.0645557                1.24050819     0.44499813
## 2053        0.1939255                1.25832872     0.41906180
## 2055       -0.8399993                1.18704660     0.29975465
## 2056        0.7108879                1.29396977     0.33087825
## 2057        0.7108879                1.29396977    -0.18784847
## 2058        0.1939255                1.25832872     0.32569099
## 2059        0.1939255                1.25832872    -0.18784847
## 2060        0.9693691                1.31179030     0.55911801
## 2062        0.7108879                1.29396977    -0.15672487
## 2063        0.1939255                1.25832872     0.25306924
## 2064       -1.0984805                1.38307242     0.14932390
## 2065       -1.3569616                1.36525189     0.14413663
## 2066       -1.3569616                1.36525189    -0.04779225
## 2067        0.9693691                1.31179030     0.31012918
## 2068       -1.3569616                1.36525189    -0.06854132
## 2069       -1.3569616                1.36525189     0.06114036
## 2070        1.0727616                1.31891851    -0.16191213
## 2071       -1.3569616                1.36525189     0.42424906
## 2072       -1.3569616                1.36525189    -0.09966493
## 2074       -0.5815181                1.41871347    -0.00629412
## 2076       -0.0645557                1.45435453     0.35162732
```

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## 2077        -1.0984805         1.38307242     0.36200186
## 2078         0.1939255         1.47217506     0.38793819
## 2079         0.1939255         1.47217506    -0.10485219
## 2080         0.9693691         1.52563664    -0.08410312
## 2081         0.9693691         1.52563664    -0.13078853
## 2083        -1.3569616         1.57909823    -6.97798126
## 2085        -0.0645557         1.66820087    -0.16191213
## 2086         0.1422293         1.68245729    -0.31753015
## 2087        -1.2535692         1.58622644     0.09745123
## 2088        -1.3569616         1.57909823    -0.11003946
## 2089         0.1939255         1.68602140    -7.20103375
## 2090         0.4524067         1.70384192    -6.57337442
## 2091         0.4524067         1.70384192    -7.06097754
## 2092         1.6931165         1.78938046    -0.25528294
## 2093        -0.0645557         1.66820087    -0.29678108
## 2094         1.6931165         1.78938046    -0.20341027
## 2095         1.6931165         1.78938046    -7.13359928
## 2096         1.6931165         1.78938046    -0.20859754
## 2099         1.2278503         1.97114985    -0.24490841
## 2100         1.4863315         1.98897038    -7.65751327
## 2102         1.4863315         1.98897038    -0.27084474
## 2105         0.7108879        -1.69987898     0.38275093
## 2106         0.7108879        -1.69987898     0.83404317
## 2107         0.1939255        -1.73552003     0.32569099
## 2108        -1.3569616        -1.62859686     0.02482949
## 2109        -1.3569616        -1.62859686     0.32569099
## 2110        -1.3569616        -1.62859686     0.38275093
## 2111        -1.3569616        -1.62859686     0.21157111
## 2112        -1.3569616        -1.62859686     0.01445495
## 2113        -1.3569616        -1.62859686     0.14932390
## 2114        -1.3569616        -1.62859686    -0.29678108
## 2115        -0.9433917        -1.60008402    -0.20341027
## 2116        -0.8399993        -1.59295581     0.05595309
## 2117        -0.8399993        -1.59295581     0.35681459
## 2118        -1.3569616        -1.62859686    -0.29159381
## 2119        -0.5815181        -1.57513528    -0.11003946
## 2120        -0.5815181        -1.57513528     0.04557856
## 2121        -0.9950880        -1.60364812     0.08188943
## 2122        -0.0645557        -1.53949422     0.28419285
## 2123         0.1939255        -1.52167369     0.08707669
## 2124         0.1939255        -1.52167369     0.35162732
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## 2127         0.1939255        -1.52167369     1.00522299
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## 2129         0.4524067        -1.50385316     0.47093447
## 2130         0.1939255        -1.52167369    -0.08410312
## 2131         0.4524067        -1.50385316     0.55911801
## 2132         0.6591917        -1.48959674     0.42424906
## 2133         0.9693691        -1.46821211    -0.22934661
## 2134        -1.3569616        -1.41475052     0.46055993
## 2135         1.4863315        -1.43257105     0.18563477
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## 2137        -1.3569616        -1.41475052     0.40349999
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## 2138         -1.0984805        -1.39692999    0.20119657
## 2139         -1.3569616        -1.41475052    0.50724534
## 2140          0.3490142        -1.51098138   -0.08410312
## 2141         -1.1501767        -1.40049410    0.16488570
## 2142         -1.3569616        -1.41475052    0.56430528
## 2143         -1.0984805        -1.39692999    0.31531645
## 2144         -1.3569616        -1.41475052   -0.10485219
## 2145         -1.0984805        -1.39692999    0.41387453
## 2146         -0.8399993        -1.37910947   -0.08410312
## 2147         -1.3569616        -1.41475052   -0.08929039
## 2148         -0.5815181        -1.36128894    0.46055993
## 2149         -1.0984805        -1.39692999    0.48130900
## 2151         -0.5815181        -1.36128894    0.43462360
## 2152         -0.3230369        -1.34346841    0.06114036
## 2153          1.6931165        -1.41831463    0.33087825
## 2154          0.1939255        -1.30782735    0.48649627
## 2155         -0.0645557        -1.32564788    0.35681459
## 2156          0.7108879        -1.27218630    0.46055993
## 2157          0.1939255        -1.30782735    0.40868726
## 2158          0.9693691        -1.25436577   -0.05816679
## 2159          0.9693691        -1.25436577    0.53836894
## 2160          0.7108879        -1.27218630   -0.04779225
## 2161          1.6931165        -1.20446829   -0.23972114
## 2162          0.7108879        -1.27218630    0.35681459
## 2163         -1.3569616        -1.20090418    0.45537267
## 2164         -1.3569616        -1.20090418    0.29975465
## 2165         -1.2018729        -1.19021187    0.13376210
## 2166         -0.8399993        -1.16526313    0.97928666
## 2167         -1.0984805        -1.18308366    0.14413663
## 2168         -0.9950880        -1.17595544    0.03520402
## 2169         -0.8399993        -1.16526313    0.18563477
## 2170         -0.5815181        -1.14744260    0.01964222
## 2171         -0.4781256        -1.14031439    0.38275093
## 2172         -1.3569616        -1.20090418    0.53836894
## 2173         -0.4781256        -1.14031439    0.23232018
## 2174         -0.3230369        -1.12962207   -0.19303574
## 2175         -0.3230369        -1.12962207   -0.11003946
## 2176         -0.2196444        -1.12249386    0.00408042
## 2177          0.0388368        -1.10467333    0.04039129
## 2178         -0.0645557        -1.11180154   -0.18784847
## 2179         -0.8399993        -1.16526313    0.00408042
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## 2182          0.1422293        -1.09754512   -0.15672487
## 2183          0.1939255        -1.09398101   -0.01666865
## 2184          0.4524067        -1.07616049    0.08188943
## 2185          0.1939255        -1.09398101    0.20638384
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## 2187         -1.2018729        -1.19021187   -0.21378481
## 2188          0.4007105        -1.07972459    0.34644005
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## 2190          0.4524067        -1.07616049    0.53836894
## 2191          0.1939255        -1.09398101    0.41387453
## 2192          0.9693691        -1.04051943   -0.18266120
## 2193          0.9693691        -1.04051943   -0.13597580
```

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## 2194          0.9693691          -1.04051943      0.97928666
## 2195          1.0727616          -1.03339122      0.33087825
## 2196         -1.3569616          -0.98705784     -0.17747393
## 2197          1.5897240          -0.99775016      0.36718912
## 2198         -1.3569616          -0.98705784      0.07151489
## 2199          1.4863315          -1.00487837      0.44499813
## 2200         -1.3569616          -0.98705784      0.20119657
## 2201         -1.3569616          -0.98705784      0.43462360
## 2202          1.6931165          -0.99062195      0.33087825
## 2203          1.2278503          -1.02269890      0.13894937
## 2204         -1.3569616          -0.98705784      0.47093447
## 2205          1.4863315          -1.00487837      0.06632762
## 2206         -1.0984805          -0.96923732      0.43981086
## 2207         -1.0984805          -0.96923732     -0.16709940
## 2208         -1.3569616          -0.98705784      0.43462360
## 2209         -0.3230369          -0.91577573      0.04557856
## 2210         -1.2018729          -0.97636553      0.24269471
## 2211          0.1939255          -0.88013467      0.41387453
## 2212         -0.1162519          -0.90151931     -0.01148138
## 2215         -1.0984805          -0.96923732     -0.19822300
## 2216          1.4863315          -1.00487837      0.05076582
## 2217         -0.3230369          -0.91577573      0.39831273
## 2218          0.0905331          -0.88726289     -0.17228667
## 2219         -0.5815181          -0.93359626      0.38275093
## 2220          0.4524067          -0.86231415      0.34644005
## 2221          0.1939255          -0.88013467      0.30494192
## 2222          0.7108879          -0.84449362      0.38275093
## 2223          0.9693691          -0.82667309     -0.03223045
## 2224          0.1422293          -0.88369878     -0.21378481
## 2225          1.2278503          -0.80885256     -0.21897207
## 2226          1.2278503          -0.80885256      0.12338756
## 2227          1.2278503          -0.80885256     -0.08410312
## 2228         -1.3569616          -0.77321151     -0.25009568
## 2229          1.6931165          -0.77677561      0.50724534
## 2230         -1.3569616          -0.77321151     -0.18266120
## 2231         -1.3569616          -0.77321151      0.54355621
## 2232         -1.3569616          -0.77321151      0.06632762
## 2233          1.6931165          -0.77677561      0.27381831
## 2235          1.5897240          -0.78390382     -0.14635033
## 2236         -0.8399993          -0.73757045     -0.13597580
## 2237         -1.3569616          -0.77321151      0.29975465
## 2238         -1.3569616          -0.77321151      0.43981086
## 2239         -0.2713406          -0.69836529      0.43981086
## 2240         -0.5815181          -0.71974992      0.02482949
## 2241         -0.5815181          -0.71974992      0.42943633
## 2242         -0.0645557          -0.68410886      0.05076582
## 2243          0.1939255          -0.66628834      0.56430528
## 2244          0.1939255          -0.66628834     -0.08410312
## 2245          0.6591917          -0.63421138      0.28419285
## 2246          0.9693691          -0.61282675      0.05595309
## 2247          0.8142804          -0.62351907     -0.16709940
## 2248          1.4863315          -0.57718569      0.38275093
## 2249          1.2278503          -0.59500622      0.40868726
## 2250         -1.3569616          -0.55936517      0.46055993
```

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## 2251          -1.3569616          -0.55936517     -0.21897207
## 2252          -1.0984805          -0.54154464     -0.08410312
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## 2254           1.2278503          -0.59500622      0.01964222
## 2255           1.5380277          -0.57362159     -0.23453387
## 2256          -0.8399993          -0.52372411     -0.23453387
## 2257          -1.3569616          -0.55936517      0.21675837
## 2259           0.4524067          -0.43462147     -0.00629412
## 2260           0.1422293          -0.45600610      0.27900558
## 2261          -0.0645557          -0.47026252      0.40349999
## 2262           0.4007105          -0.43818557      0.07670216
## 2263           0.1939255          -0.45244200      0.28938012
## 2264           0.1422293          -0.45600610      0.37756366
## 2265          -0.0645557          -0.47026252      0.92741398
## 2266           0.7108879          -0.41680094      0.35681459
## 2267           0.9693691          -0.39898041     -0.10485219
## 2268           0.9693691          -0.39898041      0.37756366
## 2269           0.9693691          -0.39898041      0.13894937
## 2270          -1.3569616          -0.34551883     -0.27084474
## 2271          -1.3569616          -0.34551883     -0.26565748
## 2272          -1.3569616          -0.34551883      0.38275093
## 2273          -1.3569616          -0.34551883      0.17526024
## 2274          -1.3569616          -0.34551883      0.01964222
## 2275          -0.8399993          -0.30987777     -0.22415934
## 2276          -0.3230369          -0.27423671     -0.13597580
## 2277          -0.2713406          -0.27067261      0.50724534
## 2278           0.4524067          -0.22077513     -0.08410312
## 2279           0.1939255          -0.23859566     -0.11003946
## 2280           0.4524067          -0.22077513      0.33087825
## 2281           0.9693691          -0.18513407     -0.26565748
## 2282           0.9693691          -0.18513407      0.17007297
## 2283           1.2278503          -0.16731354      0.33087825
## 2285           1.2795466          -0.16374944      0.38793819
## 2286          -1.3569616          -0.13167249      0.05076582
## 2287          -1.3569616          -0.13167249     -0.25528294
## 2288           1.6931165          -0.13523659      0.00408042
## 2289           1.6931165          -0.13523659     -0.18266120
## 2290          -1.3569616          -0.13167249      0.21157111
## 2291          -1.3569616          -0.13167249      0.38275093
## 2292           1.6931165          -0.13523659      0.31531645
## 2293          -1.3569616          -0.13167249      0.36200186
## 2294           1.6931165          -0.13523659     -0.27603201
## 2295          -0.9433917          -0.10315964      0.19600931
## 2296          -0.5815181          -0.07821090      0.04557856
## 2297           1.4863315          -0.14949302      0.38275093
## 2298          -0.3230369          -0.06039037     -0.04260499
## 2300           0.1422293          -0.02831342     -0.28121928
## 2301           0.1939255          -0.02474932      0.46055993
## 2302           0.7625842           0.01445584      1.23346275
## 2303           1.2278503           0.04653280     -0.14635033
## 2304           1.5897240           0.07148153      0.01445495
## 2305          -1.3569616           0.08217385     -0.24490841
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## 2307           1.2278503           0.04653280      0.21675837
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## 2308         -0.3230369              0.15345596   -0.13597580
## 2309          0.1422293              0.18553292    0.46055993
## 2310          0.5041030              0.21048166   -0.25528294
## 2312         -0.0645557              0.17127649    0.04557856
## 2313          0.9176729              0.23899450    0.33606552
## 2314          0.7108879              0.22473808   -0.24490841
## 2315          0.9693691              0.24255861    0.03001675
## 2316          1.2278503              0.26037913    0.35681459
## 2317          0.4524067              0.20691755    0.36718912
## 2318          1.5380277              0.28176377   -0.14635033
## 2319          1.4863315              0.27819966   -0.07372859
## 2320          1.4863315              0.27819966    0.48649627
## 2321         -1.3569616              0.29602019    0.46055993
## 2322         -1.3569616              0.29602019    0.23750744
## 2323          1.0210654              0.24612271    0.38793819
## 2324         -1.3569616              0.29602019   -0.01666865
## 2325          0.7108879              0.22473808    0.39312546
## 2326          0.9693691              0.24255861    0.12338756
## 2327          1.6931165              0.29245609    0.32050372
## 2328         -1.2535692              0.30314840   -0.22415934
## 2329         -1.0984805              0.31384072   -0.12560126
## 2330         -1.0984805              0.31384072    0.40868726
## 2331         -1.0467842              0.31740482    0.39831273
## 2332         -0.8399993              0.33166125    0.20119657
## 2334          1.5897240              0.28532787    0.46574720
## 2335         -0.8399993              0.33166125   -0.08410312
## 2336          0.1939255              0.40294336   -0.07891586
## 2337         -0.2196444              0.37443052    0.04557856
## 2338         -0.0645557              0.38512283   -0.13597580
## 2339          0.1939255              0.40294336   -0.00629412
## 2340         -0.3230369              0.36730230   -0.16709940
## 2341         -0.4781256              0.35660999    0.32569099
## 2343         -1.0984805              0.31384072    0.17007297
## 2344          0.1939255              0.40294336    0.53836894
## 2345          0.0388368              0.39225104   -0.12041400
## 2346          0.7108879              0.43858442    0.04039129
## 2347          0.7108879              0.43858442   -0.10485219
## 2348          0.1422293              0.39937925    0.37237639
## 2349          0.9693691              0.45640495    0.46055993
## 2350          1.2278503              0.47422547    0.51243261
## 2351          1.1244578              0.46709726    0.23750744
## 2352          1.2278503              0.47422547    0.17526024
## 2353         -1.3569616              0.50986653   -0.22934661
## 2354         -1.3569616              0.50986653    0.19600931
## 2355         -1.3569616              0.50986653   -0.20341027
## 2356         -1.3569616              0.50986653    0.34644005
## 2357         -1.3569616              0.50986653    0.40868726
## 2358          0.9693691              0.45640495    0.35681459
## 2359         -1.3569616              0.50986653   -0.10485219
## 2360          1.4863315              0.49204600   -0.01148138
## 2363          0.9693691              0.45640495   -0.19822300
## 2364         -1.0984805              0.52768706   -0.03741772
## 2365         -1.3569616              0.50986653    0.50205807
## 2366         -0.3230369              0.58114864   -0.13597580
```

```
## 2367           -0.3747331               0.57758454    -0.25528294
## 2368           -0.0645557               0.59896917     0.17526024
## 2369           -0.5815181               0.56332812     0.01964222
## 2370           -0.0645557               0.59896917     0.48130900
## 2371           -0.8399993               0.54550759    -0.17747393
## 2372           -0.3230369               0.58114864     0.55393074
## 2373            0.4524067               0.63461023    -0.21378481
## 2375            0.4524067               0.63461023     0.46574720
## 2376            0.7108879               0.65243076     0.40868726
## 2378            0.9693691               0.67025128     0.12857483
## 2379            1.2278503               0.68807181     0.25825651
## 2380            1.4863315               0.70589234     0.50724534
## 2381           -1.3569616               0.72371287    -0.20341027
## 2383           -1.3569616               0.72371287     0.24269471
## 2384            1.4863315               0.70589234     0.40868726
## 2385           -1.3569616               0.72371287     0.51761987
## 2386           -1.0984805               0.74153340     0.01964222
## 2387            1.2278503               0.68807181    -0.13597580
## 2388           -1.0467842               0.74509750    -0.14635033
## 2389            1.4863315               0.70589234     0.43462360
## 2390            1.6931165               0.72014876    -0.17228667
## 2391           -0.8399993               0.75935393    -0.23972114
## 2392           -0.5815181               0.77717445     0.35162732
## 2395           -1.0984805               0.74153340     0.38275093
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## 2397           -0.8399993               0.75935393     0.03001675
## 2398           -0.3230369               0.79499498    -0.00629412
## 2399            0.1422293               0.82707193     0.41906180
## 2401           -0.0645557               0.81281551     0.46055993
## 2402           -0.0645557               0.81281551     0.32050372
## 2403            0.4007105               0.84489246    -0.18784847
## 2404            0.1939255               0.83063604    -0.16191213
## 2405            0.4524067               0.84845657    -0.03223045
## 2406            0.1422293               0.82707193    -0.12041400
## 2407            0.9693691               0.88409762     0.20119657
## 2408            0.9693691               0.88409762     0.31531645
## 2409            0.0388368               0.81994372     0.38793819
## 2410            0.9693691               0.88409762     0.51243261
## 2411           -1.3569616               0.93755921    -0.23972114
## 2412           -1.3569616               0.93755921    -0.22415934
## 2413           -1.3569616               0.93755921    -0.22415934
## 2414           -1.3569616               0.93755921     0.40349999
## 2415           -1.0984805               0.95537974    -0.03223045
## 2416           -1.3569616               0.93755921     0.32050372
## 2417           -0.8399993               0.97320027     0.43462360
## 2418           -0.8399993               0.97320027     0.49687080
## 2419           -0.5815181               0.99102079     0.10782576
## 2420           -1.0984805               0.95537974    -0.13597580
## 2421           -0.9950880               0.96250795     0.43981086
## 2422           -0.8399993               0.97320027     0.31012918
## 2423            1.2278503               0.90191815    -0.19822300
## 2425           -0.5815181               0.99102079    -0.06854132
## 2426            1.6414202               0.93043100    -0.09447766
## 2427           -0.9433917               0.96607205    -0.07891586
```

```
## 2428          -0.3230369                    1.00884132    -0.05816679
## 2429          -0.0645557                    1.02666185    -0.23972114
## 2430           0.1939255                    1.04448238     0.09226396
## 2431          -0.3747331                    1.00527722     0.42943633
## 2432           0.1939255                    1.04448238     0.49687080
## 2434           0.7108879                    1.08012343     0.06632762
## 2435           0.4524067                    1.06230291     0.29456738
## 2436           0.4524067                    1.06230291     0.52280714
## 2437           0.4524067                    1.06230291    -0.21378481
## 2438           0.9693691                    1.09794396    -0.05816679
## 2439           0.9693691                    1.09794396     0.51761987
## 2440           0.9693691                    1.09794396     0.28938012
## 2441           1.2278503                    1.11576449     0.01964222
## 2442          -1.3569616                    1.15140555     0.19600931
## 2443           1.4863315                    1.13358502     0.26344378
## 2444          -1.3569616                    1.15140555     0.00408042
## 2445          -1.0984805                    1.16922608     0.06114036
## 2446          -1.0984805                    1.16922608    -0.11003946
## 2447          -0.8399993                    1.18704660    -0.05816679
## 2448          -0.8399993                    1.18704660     0.35681459
## 2449          -0.8399993                    1.18704660     0.43981086
## 2450          -0.5815181                    1.20486713     0.31531645
## 2451          -0.5815181                    1.20486713    -0.00110685
## 2452           1.6931165                    1.14784144     0.46574720
## 2453           0.9693691                    1.09794396     0.04557856
## 2454          -1.3569616                    1.15140555     0.25825651
## 2455          -0.3230369                    1.22268766     0.02482949
## 2456          -0.3230369                    1.22268766     0.61617795
## 2457          -0.3230369                    1.22268766     0.52799441
## 2458           0.4524067                    1.27614925     0.25306924
## 2459           0.7108879                    1.29396977     0.33087825
## 2460           0.7108879                    1.29396977    -0.18784847
## 2461           0.7108879                    1.29396977    -0.15672487
## 2462           0.4524067                    1.27614925     0.32050372
## 2463           0.8659766                    1.30466209    -0.23972114
## 2464          -1.0984805                    1.38307242     0.14932390
## 2465          -1.3569616                    1.36525189    -0.06854132
## 2466          -1.3569616                    1.36525189    -0.04779225
## 2467          -1.0984805                    1.38307242     0.36200186
## 2469          -0.5815181                    1.41871347    -0.21378481
## 2470           0.1422293                    1.46861095     0.37237639
## 2471          -0.5815181                    1.41871347    -0.00629412
## 2472          -1.0984805                    1.38307242     0.01445495
## 2475           0.9693691                    1.52563664     0.14932390
## 2476           0.8142804                    1.51494432    -0.03741772
## 2477           1.2278503                    1.54345717     0.28938012
## 2480          -1.3569616                    1.57909823    -0.18784847
## 2481          -1.3569616                    1.57909823    -0.16191213
## 2482          -1.3569616                    1.57909823    -0.22934661
## 2483          -1.3569616                    1.57909823     0.18563477
## 2486          -0.0645557                    1.66820087    -0.29678108
## 2487           0.1939255                    1.68602140    -6.57856169
## 2489           0.4524067                    1.70384192    -7.20622102
## 2492           1.2278503                    1.97114985    -0.24490841
```

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## 2495        1.2278503              1.97114985   -0.27084474
## 2496        1.6931165              2.21707314   -6.63043436
## 2497       -0.3230369             -0.27423671   -0.00629412
## 2498       -0.3230369             -1.12962207   -0.09447766
## 2499       -1.3569616             -1.62859686    0.38275093
## 2500       -1.3569616             -1.62859686    0.09745123
## 2501       -1.3569616             -1.62859686    0.01445495
## 2502       -1.3569616             -1.62859686    0.14932390
## 2503       -1.3569616             -1.62859686   -0.21378481
## 2504       -1.3569616             -1.62859686    0.32569099
## 2505       -1.0984805             -1.61077633    0.01964222
## 2506       -1.3569616             -1.62859686   -0.20859754
## 2507       -0.9433917             -1.60008402   -0.20341027
## 2508       -0.8399993             -1.59295581    0.35681459
## 2509       -0.8399993             -1.59295581   -0.16191213
## 2510       -1.3569616             -1.62859686    0.46055993
## 2511       -0.5815181             -1.57513528    0.15969843
## 2512        0.1939255             -1.52167369    0.02482949
## 2513       -0.0645557             -1.53949422    0.28419285
## 2514        0.1939255             -1.52167369    0.08707669
## 2515        0.1939255             -1.52167369    0.08188943
## 2516        0.1939255             -1.52167369   -0.13597580
## 2517        0.2456218             -1.51810959   -0.23972114
## 2518        0.4007105             -1.50741727    0.09745123
## 2519        0.4007105             -1.50741727    0.33606552
## 2520        0.9693691             -1.46821211    0.02482949
## 2521        0.4524067             -1.50385316    0.47093447
## 2522        0.9693691             -1.46821211   -0.22934661
## 2523        0.9693691             -1.46821211    0.37756366
## 2524       -1.3569616             -1.41475052    0.40868726
## 2525        1.6931165             -1.41831463    0.22194564
## 2526        1.6414202             -1.42187873    0.11820030
## 2527       -1.0984805             -1.39692999    0.20119657
## 2528       -1.3569616             -1.41475052    0.56430528
## 2529       -1.3569616             -1.41475052    0.42943633
## 2530       -1.3569616             -1.41475052    0.50724534
## 2531       -1.3569616             -1.41475052    0.12338756
## 2532       -1.0984805             -1.39692999    0.31012918
## 2533       -1.3569616             -1.41475052    0.24269471
## 2534       -1.3569616             -1.41475052   -0.25528294
## 2535       -1.3569616             -1.41475052    0.47093447
## 2536       -1.0984805             -1.39692999    0.41387453
## 2537       -1.0984805             -1.39692999    0.48130900
## 2538       -1.3569616             -1.41475052   -0.08929039
## 2539       -1.3569616             -1.41475052   -0.12560126
## 2540       -1.0984805             -1.39692999    0.48649627
## 2541       -0.5815181             -1.36128894    0.48649627
## 2542       -0.3230369             -1.34346841    0.06114036
## 2543       -0.3230369             -1.34346841   -0.16191213
## 2544       -0.3230369             -1.34346841    0.34644005
## 2545       -0.0645557             -1.32564788    0.35681459
## 2546        0.1939255             -1.30782735    0.48649627
## 2547        0.1939255             -1.30782735    0.19600931
## 2548        0.7108879             -1.27218630   -0.04779225
```

```
## 2549           0.7108879          -1.27218630    0.35162732
## 2550           1.3312428          -1.22941703    0.38275093
## 2551           1.4863315          -1.21872471    0.10782576
## 2552          -1.0984805          -1.18308366   -0.23972114
## 2553           1.6931165          -1.20446829    0.08188943
## 2554           1.4863315          -1.21872471   -0.11003946
## 2555          -1.3569616          -1.20090418    0.46055993
## 2556          -1.3569616          -1.20090418    0.29975465
## 2557          -1.0984805          -1.18308366    0.14413663
## 2558          -0.8399993          -1.16526313    0.19600931
## 2559           1.6931165          -1.20446829    0.15451117
## 2560          -0.8399993          -1.16526313    0.36200186
## 2561          -0.7366068          -1.15813492   -0.09447766
## 2562          -0.5815181          -1.14744260    0.34125279
## 2563          -0.5815181          -1.14744260    0.41387453
## 2564          -1.3569616          -1.20090418    0.45537267
## 2565          -0.4781256          -1.14031439    0.23232018
## 2566          -0.5815181          -1.14744260    0.01964222
## 2567          -0.3230369          -1.12962207   -0.11003946
## 2568          -0.3230369          -1.12962207   -0.09447766
## 2569          -0.3747331          -1.13318618    0.89110311
## 2570           1.6931165          -1.20446829   -0.20341027
## 2571           1.6931165          -1.20446829    0.07670216
## 2572           0.1939255          -1.09398101   -0.05816679
## 2573          -0.8399993          -1.16526313    0.19082204
## 2574           0.1422293          -1.09754512   -0.06854132
## 2575           0.1422293          -1.09754512   -0.15672487
## 2576           0.4007105          -1.07972459    0.04557856
## 2577           0.4524067          -1.07616049    0.40868726
## 2578           0.4007105          -1.07972459    0.34644005
## 2579           0.4524067          -1.07616049    0.97928666
## 2580           0.7108879          -1.05833996   -0.03223045
## 2581           0.1939255          -1.09398101    0.45537267
## 2582           0.9693691          -1.04051943    0.08188943
## 2583           0.4524067          -1.07616049    0.53836894
## 2584           0.9693691          -1.04051943   -0.13597580
## 2585           0.9693691          -1.04051943    0.97928666
## 2586           1.4863315          -1.00487837    0.05595309
## 2587           1.2278503          -1.02269890    0.13894937
## 2588           1.2278503          -1.02269890   -0.05816679
## 2589           1.5897240          -0.99775016    0.39312546
## 2590           0.7108879          -1.05833996    0.34644005
## 2591          -1.3569616          -0.98705784    0.43462360
## 2592           1.4863315          -1.00487837    0.44499813
## 2593          -1.3569616          -0.98705784    0.32569099
## 2594           1.5897240          -0.99775016    0.35681459
## 2595           1.6931165          -0.99062195    0.25825651
## 2596          -1.3569616          -0.98705784   -0.18784847
## 2597          -1.0984805          -0.96923732    0.07151489
## 2598          -0.9433917          -0.95854500    0.08188943
## 2599          -1.2018729          -0.97636553    0.24269471
## 2600          -0.9433917          -0.95854500    0.95853759
## 2601          -0.5815181          -0.93359626   -0.05297952
## 2602          -0.3230369          -0.91577573    0.46055993
```

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```
## 2603           -0.3230369         -0.91577573     0.43462360
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## 2605           -1.0467842         -0.96567321     0.38793819
## 2606            0.0905331         -0.88726289    -0.17228667
## 2607           -0.2713406         -0.91221163    -0.25009568
## 2608            0.4524067         -0.86231415     0.33087825
## 2609            0.4524067         -0.86231415     0.34644005
## 2610            1.1761541         -0.81241667     0.28419285
## 2611            0.9693691         -0.82667309    -0.05816679
## 2612            1.2278503         -0.80885256    -0.08410312
## 2613            1.6931165         -0.77677561    -0.13597580
## 2614           -1.3569616         -0.77321151     0.29975465
## 2615           -1.3569616         -0.77321151     0.22194564
## 2616           -1.3569616         -0.77321151    -0.18266120
## 2617            1.2795466         -0.80528846     0.21157111
## 2618            1.6931165         -0.77677561     0.27381831
## 2619           -0.5298218         -0.71618581     0.09226396
##      dep_delay_flag temp_flag wind_dir_flag wind_speed_flag precip_flag
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## 3                 0         0             0               0           0
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## 6                 0         0             0               0           0
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## 9                 0         0             0               0           0
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## 35                0         0             0               0           0
## 36                0         0             0               0           0
```

```
## 37                0        0             0             0             0
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## 90                0        0             0             0             0
## 91                0        0             0             0             0
## 92                0        0             0             0             0
## 93                0        0             0             0             0
## 94                0        0             0             0             0
```

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## 149                 0            1             1                 1             1
## 150                 0            1             1                 1             1
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## 762              0         0              0              0         0
## 763              0         0              0              0         0
## 764              0         0              0              0         0
## 765              0         0              0              0         0
## 766              0         0              0              0         0
## 767              0         0              0              0         0
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## 769              0         0              0              0         0
## 770              0         0              0              0         0
## 771              0         0              0              0         0
## 772              0         0              0              0         0
## 773              0         0              0              0         0
## 774              0         0              0              0         0
## 775              0         0              0              0         0
## 776              0         0              0              0         0
## 777              0         0              0              0         0
## 778              0         0              0              0         0
## 779              0         0              0              0         0
## 780              0         0              0              0         0
## 781              0         0              0              0         0
## 782              0         0              0              0         0
## 784              0         0              0              0         0
## 785              0         0              0              0         0
```

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## 786               0        0            0            0          0
## 787               0        0            0            0          0
## 788               0        0            0            0          0
## 789               0        0            0            0          0
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## 791               0        0            0            0          0
## 792               0        0            0            0          0
## 793               0        0            0            0          0
## 794               0        0            0            0          0
## 795               0        0            0            0          0
## 796               0        0            0            0          0
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## 798               0        0            0            0          0
## 799               0        0            0            0          0
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## 804               0        0            0            0          0
## 805               0        0            0            0          0
## 806               0        0            0            0          0
## 807               0        0            0            0          0
## 808               0        0            0            0          0
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## 812               0        0            0            0          0
## 813               0        0            0            0          0
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## 816               0        0            0            0          0
## 817               0        0            0            0          0
## 818               0        0            0            0          0
## 819               0        0            0            0          0
## 821               0        0            0            0          0
## 822               0        0            0            0          0
## 823               0        0            0            0          0
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## 825               0        0            0            0          0
## 826               0        0            0            0          0
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## 832               0        0            0            0          0
## 833               0        0            0            0          0
## 834               0        0            0            0          0
## 835               0        0            0            0          0
## 837               0        0            0            0          0
## 839               0        0            0            0          0
## 840               0        0            0            0          0
## 841               0        0            0            0          0
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## 844               0        0            0            0          0
## 845               0        0            0            0          0
## 846               0        0            0            0          0
```

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## 848          0          0          0          0          0
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## 855          0          0          0          0          0
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## 857          0          0          0          0          0
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## 862          0          0          0          0          0
## 863          0          0          0          0          0
## 864          0          0          0          0          0
## 865          0          0          0          0          0
## 866          0          0          0          0          0
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## 868          0          0          0          0          0
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## 872          0          0          0          0          0
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## 877          0          0          0          0          0
## 878          0          0          0          0          0
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## 880          0          0          0          0          0
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## 895          0          0          0          0          0
## 896          0          0          0          0          0
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## 898          0          0          0          0          0
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## 903          0          0          0          0          0
## 904          0          0          0          0          0
## 905          0          0          0          0          0
```

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## 965              0        0             0             0         0
## 966              0        0             0             0         0
```

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## 967        0        0        0        0        0
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## 973        0        0        0        0        0
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## 975        0        0        0        0        0
## 976        0        0        0        0        0
## 977        0        0        0        0        0
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## 981        0        0        0        0        0
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## 987        0        0        0        0        0
## 988        0        0        0        0        0
## 989        0        0        0        0        0
## 990        0        0        0        0        0
## 991        0        0        0        0        0
## 992        0        0        0        0        0
## 993        0        0        0        0        0
## 994        0        0        0        0        0
## 995        0        0        0        0        0
## 996        0        0        0        0        0
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## 1004       0        0        0        0        0
## 1005       0        0        0        0        0
## 1006       0        0        0        0        0
## 1007       0        0        0        0        0
## 1008       0        0        0        0        0
## 1009       0        0        0        0        0
## 1010       0        0        0        0        0
## 1013       0        0        0        0        0
## 1014       0        0        0        0        0
## 1016       0        0        0        0        0
## 1017       0        0        0        0        0
## 1018       0        0        0        0        0
## 1020       0        0        0        0        0
## 1021       0        0        0        0        0
## 1022       0        0        0        0        0
## 1024       0        0        0        0        0
## 1026       0        0        0        0        0
## 1028       0        0        0        0        0
## 1029       0        0        0        0        0
## 1030       0        0        0        0        0
## 1031       0        0        0        0        0
## 1032       0        0        0        0        0
```

```
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## 1046             0        0         0          0         0
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## 1077             0        0         0          0         0
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## 1093             0        0         0          0         0
## 1096             0        0         0          0         0
## 1097             0        0         0          0         0
## 1098             0        0         0          0         0
## 1099             0        0         0          0         0
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## 1101             0        0         0          0         0
## 1103             0        0         0          0         0
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## 1106             0        0         0          0         0
## 1107             0        0         0          0         0
## 1108             0        0         0          0         0
## 1109             1        0         0          0         0
## 1110             1        0         0          0         0
## 1111             1        0         0          0         0
## 1112             1        0         0          0         0
## 1113             1        0         0          0         0
```

```
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## 1118            0          0          0              0          0
## 1119            0          0          0              0          0
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## 1138            0          0          0              0          0
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## 1140            0          0          0              0          0
## 1141            0          0          0              0          0
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## 1143            0          0          0              0          0
## 1144            0          0          0              0          0
## 1145            0          0          0              0          0
## 1146            0          0          0              0          0
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## 1156            0          0          0              0          0
## 1157            0          0          0              0          0
## 1158            0          0          0              0          0
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## 1165            0          0          0              0          0
## 1166            0          0          0              0          0
## 1167            0          0          0              0          0
```

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## 1168             0        0           0           0          0
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## 1174             0        0           0           0          0
## 1175             0        0           0           0          0
## 1176             0        0           0           0          0
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## 1178             0        0           0           0          0
## 1179             0        0           0           0          0
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## 1185             0        0           0           0          0
## 1186             0        0           0           0          0
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## 1188             0        0           0           0          0
## 1189             0        0           0           0          0
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## 1191             0        0           0           0          0
## 1192             0        0           0           0          0
## 1193             0        0           0           0          0
## 1194             0        0           0           0          0
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## 1208             0        0           0           0          0
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## 1211             0        0           0           0          0
## 1212             0        0           0           0          0
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## 1216             0        0           0           0          0
## 1217             0        0           0           0          0
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## 1220             0        0           0           0          0
## 1221             0        0           0           0          0
## 1222             0        0           0           0          0
```

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## 1223             0        0            0            0          0
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## 1228             0        0            0            0          0
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## 1230             0        0            0            0          0
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## 1264             0        0            0            0          0
## 1265             0        0            0            0          0
## 1266             0        0            0            0          0
## 1268             0        0            0            0          0
## 1269             0        0            0            0          0
## 1270             0        0            0            0          0
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## 1274             0        0            0            0          0
## 1275             0        0            0            0          0
## 1276             0        0            0            0          0
## 1277             0        0            0            0          0
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## 1279             0        0            0            0          0
## 1280             0        0            0            0          0
## 1281             0        0            0            0          0
```

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## 1346              0            0            0            0            0
## 1347              0            0            0            0            0
```

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## 1385             0         0         0            0         0
## 1387             0         0         0            0         0
## 1388             0         0         0            0         0
## 1389             0         0         0            0         0
## 1390             0         0         0            0         0
## 1391             0         0         0            0         0
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## 1393             0         0         0            0         0
## 1394             0         0         0            0         0
## 1395             0         0         0            0         0
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## 1397             0         0         0            0         0
## 1398             0         0         0            0         0
## 1399             0         0         0            0         0
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## 1403             0         0         0            0         0
## 1404             0         0         0            0         0
## 1405             0         0         0            0         0
## 1406             0         0         0            0         0
## 1407             0         0         0            0         0
## 1408             0         0         0            0         0
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## 1409            0        0         0         0        0
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## 1414            0        0         0         0        0
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## 1421            0        0         0         0        0
## 1422            0        0         0         0        0
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## 1426            0        0         0         0        0
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## 1443            0        0         0         0        0
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## 1445            0        0         0         0        0
## 1446            0        0         0         0        0
## 1447            0        0         0         0        0
## 1448            0        0         0         0        0
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## 1451            0        0         0         0        0
## 1452            0        0         0         0        0
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## 1460            0        0         0         0        0
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## 1462            0        0         0         0        0
## 1463            0        0         0         0        0
## 1464            0        0         0         0        0
## 1466            0        0         0         0        0
## 1467            0        0         0         0        0
## 1468            0        0         0         0        0
## 1469            0        0         0         0        0
## 1472            0        0         0         0        0
## 1473            0        0         0         0        0
## 1474            0        0         0         0        0
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## 1475               0          0               0               0          0
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## 1482               0          0               0               0          0
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## 1487               0          0               0               0          0
## 1488               0          0               0               0          0
## 1489               0          0               0               0          0
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## 1493               0          0               0               0          0
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## 1534               0          0               0               0          0
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## 1588             0          0              0              0          0
## 1589             0          0              0              0          0
## 1590             0          0              0              0          0
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```
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## 1651                  0          0              0              0             0
## 1652                  0          0              0              0             0
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## 1663            0            0            0            0            0
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## 1682            0            0            0            0            0
## 1683            0            0            0            0            0
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## 1686            0            0            0            0            0
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## 1689            0            0            0            0            0
## 1690            0            0            0            0            0
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## 1693            0            0            0            0            0
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## 1697            0            0            0            0            0
## 1698            0            0            0            0            0
## 1699            0            0            0            0            0
## 1701            0            0            0            0            0
## 1702            0            0            0            0            0
## 1703            0            0            0            0            0
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## 1706            0            0            0            0            0
## 1707            0            0            0            0            0
```

```
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## 1720            0          0          0          0          0
## 1721            0          0          0          0          0
## 1722            0          0          0          0          0
## 1723            0          0          0          0          0
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## 1733            0          0          0          0          0
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## 1738            0          0          0          0          0
## 1739            0          0          0          0          0
## 1740            0          0          0          0          0
## 1741            0          0          0          0          0
## 1742            0          0          0          0          0
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## 1747            0          0          0          0          0
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## 1760            0          0          0          0          0
## 1761            0          0          0          0          0
## 1762            0          0          0          0          0
## 1763            0          0          0          0          0
## 1764            0          0          0          0          0
## 1765            0          0          0          0          0
## 1766            0          0          0          0          0
## 1767            0          0          0          0          0
```

```
## 1768        0        0        0        0        0
## 1769        0        0        0        0        0
## 1771        0        0        0        0        0
## 1772        0        0        0        0        0
## 1774        0        0        0        0        0
## 1776        0        0        0        0        0
## 1779        0        0        0        0        0
## 1780        1        0        0        0        0
## 1781        0        0        0        0        0
## 1782        0        0        0        0        0
## 1783        0        0        0        0        0
## 1784        0        0        0        0        0
## 1785        0        1        1        1        1
## 1786        0        0        0        0        0
## 1787        0        0        0        0        0
## 1788        0        1        1        1        1
## 1789        0        1        1        1        1
## 1790        0        0        0        0        0
## 1791        0        0        0        0        0
## 1792        0        0        0        0        0
## 1793        0        0        0        0        0
## 1794        0        1        1        1        1
## 1795        0        0        0        0        0
## 1796        0        1        1        1        1
## 1797        0        0        0        0        0
## 1798        0        1        1        1        1
## 1799        0        0        0        0        0
## 1800        0        0        0        0        0
## 1801        0        0        0        0        0
## 1802        0        0        0        0        0
## 1803        0        0        0        0        0
## 1804        0        0        0        0        0
## 1806        0        0        0        0        0
## 1807        0        0        0        0        0
## 1808        0        0        0        0        0
## 1809        0        0        0        0        0
## 1810        0        0        0        0        0
## 1811        0        0        0        0        0
## 1812        0        0        0        0        0
## 1813        0        0        0        0        0
## 1814        0        0        0        0        0
## 1815        0        0        0        0        0
## 1816        0        0        0        0        0
## 1818        0        0        0        0        0
## 1819        0        0        0        0        0
## 1820        0        0        0        0        0
## 1821        0        0        0        0        0
## 1822        0        0        0        0        0
## 1823        0        0        0        0        0
## 1824        0        0        0        0        0
## 1825        0        0        0        0        0
## 1826        0        0        0        0        0
## 1827        0        0        0        0        0
## 1828        0        0        0        0        0
```

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## 1829                0           0              0               0           0
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## 1832                0           0              0               0           0
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## 1834                0           0              0               0           0
## 1835                0           0              0               0           0
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## 1843                0           0              0               0           0
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## 1873                0           0              0               0           0
## 1874                0           0              0               0           0
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## 1878                0           0              0               0           0
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## 1888                0           0              0               0           0
## 1889                0           0              0               0           0
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```
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## 1943                0          0          0              0          0
## 1944                0          0          0              0          0
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## 2001                   0          0              0                   0              0
## 2002                   0          0              0                   0              0
## 2003                   0          0              0                   0              0
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## 2005                   0          0              0                   0              0
## 2006                   0          0              0                   0              0
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## 2301                0          0          0              0          0
## 2302                0          0          0              0          0
## 2303                0          0          0              0          0
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## 2359            0        0          0            0          0
## 2360            0        0          0            0          0
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## 2583              0            0              0              0            0
## 2584              0            0              0              0            0
## 2585              0            0              0              0            0
## 2586              0            0              0              0            0
## 2587              0            0              0              0            0
## 2588              0            0              0              0            0
## 2589              0            0              0              0            0
## 2590              0            0              0              0            0
## 2591              0            0              0              0            0
## 2592              0            0              0              0            0
## 2593              0            0              0              0            0
## 2594              0            0              0              0            0
## 2595              0            0              0              0            0
## 2596              0            0              0              0            0
## 2597              0            0              0              0            0
## 2598              0            0              0              0            0
```

```
## 2599                0            0              0                 0              0
## 2600                0            0              0                 0              0
## 2601                0            0              0                 0              0
## 2602                0            0              0                 0              0
## 2603                0            0              0                 0              0
## 2604                0            0              0                 0              0
## 2605                0            0              0                 0              0
## 2606                0            0              0                 0              0
## 2607                0            0              0                 0              0
## 2608                0            0              0                 0              0
## 2609                0            0              0                 0              0
## 2610                0            0              0                 0              0
## 2611                0            0              0                 0              0
## 2612                0            0              0                 0              0
## 2613                0            0              0                 0              0
## 2614                0            0              0                 0              0
## 2615                0            0              0                 0              0
## 2616                0            0              0                 0              0
## 2617                0            0              0                 0              0
## 2618                0            0              0                 0              0
## 2619                0            0              0                 0              0
##      pressure_flag name_flag year.y_flag type_flag dep_delay
## 1                0         0           0         0         2
## 2                0         0           0         0        -4
## 3                0         0           0         0        -2
## 4                0         0           0         0        -2
## 5                0         0           1         0        -2
## 6                0         0           0         0         0
## 7                0         0           0         0        -1
## 8                0         0           1         1         0
## 9                0         0           0         0        -8
## 10               0         0           0         0         3
## 11               0         1           0         0         0
## 12               0         0           1         1        13
## 13               0         1           1         1        -2
## 14               0         0           0         0        -2
## 15               0         0           1         1        -1
## 16               0         0           0         0        -1
## 17               0         0           1         1        -1
## 18               0         0           0         0        24
## 19               0         0           0         0        -1
## 20               0         0           0         0        -3
## 21               0         0           0         0        -2
## 22               0         0           0         0        -2
## 23               0         0           0         0         1
## 24               0         0           0         0        -4
## 25               0         0           0         0        -3
## 26               0         0           0         0        -7
## 27               0         0           0         0         0
## 28               0         0           0         0        -5
## 29               0         0           1         1        -4
## 30               0         0           1         1        -3
## 31               0         0           1         1        -9
## 32               0         0           1         1        -1
```

```
## 33            0          0          0          0         -1
## 34            0          0          0          0          9
## 35            0          1          0          0         -4
## 36            0          0          1          1         -3
## 37            0          0          0          0         -3
## 38            0          0          0          0         -2
## 39            0          0          0          0         -1
## 40            0          0          1          1         -5
## 41            0          0          0          0         -3
## 42            0          0          0          0         -4
## 43            0          0          0          0         -1
## 44            0          0          0          0         -3
## 45            0          0          0          0          0
## 46            0          0          0          0         13
## 47            0          0          0          0          0
## 49            0          0          0          0         -7
## 50            0          0          1          1         -2
## 51            0          0          0          0         -5
## 52            0          0          0          0         -2
## 53            0          0          1          1         -7
## 54            0          0          0          0          3
## 55            0          0          1          1        -10
## 56            0          0          0          0          0
## 57            0          0          0          0         -4
## 58            0          0          0          0         -4
## 59            0          0          0          0         -2
## 60            0          1          0          0          0
## 61            0          0          1          1         -4
## 62            0          0          0          0         -2
## 63            0          0          0          0         -6
## 64            0          0          0          0         -2
## 66            0          0          0          0         -2
## 67            0          0          0          0         -1
## 68            0          0          0          0         -4
## 69            0          0          1          1         -8
## 70            0          0          0          0         -2
## 71            0          0          1          1          0
## 72            0          0          0          0        -11
## 73            0          1          1          1         -5
## 75            0          0          0          0         -3
## 76            0          0          0          0          0
## 77            0          0          0          0         -8
## 78            0          0          0          0         11
## 79            0          0          0          0          8
## 80            0          0          1          0          1
## 81            0          0          0          0         -8
## 82            0          0          0          0         -3
## 83            0          0          0          0         -1
## 84            0          0          0          0         23
## 86            0          1          0          0         -5
## 87            0          0          1          0         -6
## 88            0          0          0          0         -3
## 89            0          0          0          0         -3
## 90            0          0          0          0         15
```

```
## 91              0         0         0         0        21
## 92              0         0         0         0        -2
## 93              0         0         0         0        25
## 94              0         0         0         0         1
## 95              0         0         0         0         1
## 96              0         0         0         0         2
## 97              0         0         0         0        -4
## 98              0         0         0         0        -4
## 99              0         0         0         0       -13
## 100             0         0         0         0        -4
## 101             0         0         0         0        -3
## 102             0         0         0         0        -1
## 103             0         0         0         0        -4
## 104             0         0         0         0        -5
## 106             0         0         0         0         2
## 107             0         0         0         0         1
## 108             0         0         0         0        -3
## 109             0         0         0         0        16
## 110             0         0         0         0         7
## 111             0         0         0         0         2
## 112             0         0         0         0        -1
## 113             0         0         1         1        -2
## 114             0         0         0         0        -5
## 115             0         0         0         0        -3
## 116             0         0         0         0        -1
## 117             0         0         0         0         6
## 118             0         0         0         0        18
## 119             0         0         1         1        -8
## 120             0         0         1         1        -6
## 121             0         0         0         0        -2
## 122             0         0         0         0        -5
## 123             0         0         0         0        -1
## 124             0         0         0         0        -3
## 125             0         0         0         0        -2
## 126             0         0         0         0        -1
## 127             0         0         1         1         5
## 128             0         0         0         0        -1
## 129             0         0         1         1        -3
## 130             0         0         1         1        -5
## 131             0         0         0         0        -3
## 132             0         0         0         0        -1
## 133             0         0         0         0        -8
## 134             0         0         0         0        -6
## 136             1         0         0         0        -6
## 137             0         0         0         0        -1
## 138             1         0         0         0        -2
## 139             1         0         0         0        -2
## 140             0         1         0         0         3
## 141             1         0         0         0         5
## 142             0         0         0         0        10
## 143             1         0         0         0        -4
## 144             1         0         0         0        -1
## 145             1         0         0         0        -1
## 146             1         0         0         0        -6
```

```
## 147          0          0          0          0          23
## 148          1          0          0          0          -5
## 149          1          0          0          0           2
## 150          1          0          1          1          -8
## 151          1          0          0          0          -2
## 152          1          0          0          0          11
## 153          1          0          1          1          -5
## 154          1          0          1          1           7
## 155          0          0          0          0          -5
## 156          0          0          0          0          -5
## 157          0          0          1          1          -3
## 158          1          0          0          0          21
## 160          1          0          0          0           2
## 162          1          0          0          0           5
## 163          0          0          1          1         -10
## 164          1          0          1          1          26
## 165          1          0          0          0           6
## 166          0          0          0          0          -8
## 167          0          0          0          0           5
## 168          1          0          0          0           0
## 169          1          0          0          0          23
## 170          1          0          1          0           9
## 172          1          0          0          0          -4
## 173          0          0          1          1          13
## 174          1          0          0          0          16
## 175          1          0          0          0          -2
## 176          1          0          0          0          -5
## 177          0          0          0          0           5
## 178          0          0          0          0           2
## 179          1          0          0          0           6
## 181          0          0          0          0          -3
## 183          0          0          0          0          -1
## 184          0          0          0          0          -1
## 185          0          0          0          0          -9
## 186          0          0          0          0          -3
## 187          0          0          0          0          -7
## 190          0          0          0          0           0
## 191          0          0          0          0           1
## 192          0          0          0          0          -1
## 193          0          0          1          1         -10
## 194          0          0          1          1          -9
## 195          0          0          0          0          -3
## 196          0          0          1          1           3
## 197          0          0          0          0          -7
## 198          0          0          0          0          -5
## 199          0          0          0          0           1
## 200          0          0          0          0          -3
## 201          0          0          1          1          -2
## 202          0          0          0          0           2
## 203          0          0          1          1          -5
## 204          0          0          1          1           1
## 205          0          0          0          0          -6
## 206          0          0          0          0          -8
## 207          0          0          1          1          -3
```

```
## 208                0          0          0          0         18
## 209                0          0          0          0         11
## 210                0          0          0          0          8
## 211                0          0          1          1         -2
## 212                0          0          1          1         -5
## 213                0          0          0          0          0
## 214                0          0          1          1         -8
## 215                0          0          0          0          7
## 217                0          0          0          0         -4
## 218                0          0          0          0         29
## 219                0          0          0          0         -2
## 220                0          0          0          0         11
## 221                0          0          0          0          4
## 222                0          0          0          0         16
## 223                0          0          0          0         -2
## 224                0          0          0          0         -6
## 226                0          0          0          0         -3
## 227                0          0          0          0          6
## 228                0          0          0          0          1
## 229                0          0          0          0          0
## 230                0          0          0          0         -8
## 231                0          0          1          1         -8
## 232                0          0          0          0         -3
## 233                0          0          0          0         -3
## 234                0          0          0          0         -2
## 235                0          0          0          0        -10
## 236                0          0          0          0         16
## 237                0          0          0          0         13
## 238                0          0          0          0          3
## 239                0          0          0          0         12
## 240                0          0          1          1          8
## 241                0          0          0          0         -5
## 242                0          0          0          0         -5
## 245                0          0          0          0         -2
## 247                0          0          0          0         -6
## 248                0          0          0          0         14
## 249                0          0          0          0         -4
## 251                0          0          1          1          0
## 252                0          0          0          0          6
## 253                0          0          0          0         10
## 254                0          0          0          0          1
## 255                0          0          0          0         12
## 256                0          0          0          0         10
## 257                0          0          1          1         -4
## 258                0          0          1          1         -9
## 259                0          0          1          1          2
## 260                0          0          0          0         -5
## 261                0          0          0          0          7
## 263                0          0          0          0         -7
## 264                0          0          0          0         12
## 265                0          0          1          1         -3
## 266                0          1          1          1          8
## 267                0          0          1          1         -1
## 268                0          0          0          0          5
```

```
## 269              0         0         0         0        -4
## 270              0         0         0         0        -3
## 271              0         0         1         0         2
## 273              0         0         0         0        11
## 275              0         0         0         0        -6
## 276              0         0         0         0        -4
## 277              0         0         0         0        -1
## 278              0         0         0         0        -1
## 279              0         0         0         0         8
## 281              0         0         0         0         9
## 282              0         0         0         0         0
## 283              0         0         0         0         8
## 284              0         0         0         0        -4
## 285              0         0         0         0        12
## 286              0         0         1         1        11
## 287              0         0         0         0        16
## 288              0         0         0         0        -7
## 289              0         0         0         0        -4
## 290              0         0         1         1        16
## 291              0         0         0         0        -4
## 292              0         0         0         0        23
## 294              0         0         0         0        -5
## 297              0         0         0         0       -10
## 298              0         0         0         0         0
## 299              0         0         0         0        -7
## 300              0         0         0         0        -3
## 301              0         0         0         0         1
## 302              0         0         0         0        -9
## 303              0         0         0         0        -3
## 304              0         0         0         0         1
## 305              0         0         0         0         4
## 306              0         0         0         0        -5
## 307              0         0         1         0        11
## 308              0         0         0         0         1
## 310              0         0         0         0        -5
## 311              0         0         0         0        25
## 312              0         0         1         1        16
## 313              0         1         0         0         9
## 316              0         0         0         0         5
## 317              0         0         1         1        -1
## 318              0         0         0         0         1
## 319              0         0         0         0         5
## 320              0         0         0         0        16
## 321              0         0         0         0        -8
## 322              0         0         0         0        22
## 323              0         0         0         0        -3
## 324              0         0         1         0        -1
## 328              0         0         1         1        -7
## 330              0         0         0         0        -4
## 332              0         0         0         0        -2
## 333              0         0         0         0        -4
## 336              0         0         0         0        -5
## 339              0         0         0         0       -15
## 340              0         0         0         0        -5
```

```
## 341              0         0         0         0         1
## 342              0         0         0         0         5
## 343              0         0         0         0        23
## 344              0         0         0         0        -5
## 346              0         0         0         0        -2
## 347              0         0         0         0        11
## 348              0         0         0         0        -7
## 349              0         0         0         0        27
## 350              0         0         0         0        11
## 351              0         0         0         0         6
## 352              0         0         0         0       -10
## 353              0         0         1         1         3
## 354              0         0         0         0         2
## 355              0         0         0         0        14
## 356              0         1         0         0       -12
## 358              0         0         0         0        -5
## 359              0         0         0         0        21
## 365              0         1         0         0        -6
## 366              0         1         0         0        -3
## 367              0         0         0         0        -2
## 368              0         0         0         0         7
## 369              0         0         0         0        -6
## 370              0         0         0         0        -6
## 371              0         0         1         1        -5
## 372              0         0         0         0        -5
## 373              0         0         0         0        -2
## 374              0         0         0         0        -1
## 375              0         0         1         1        -5
## 376              0         0         1         1         0
## 377              0         0         0         0         4
## 378              0         0         0         0        -4
## 379              0         0         0         0        -4
## 380              0         0         0         0        -5
## 381              0         0         0         0        11
## 382              0         1         0         0        -3
## 383              0         0         0         0        -4
## 384              0         0         0         0        -5
## 385              0         0         1         1        -4
## 386              0         0         0         0        -2
## 387              0         0         0         0        13
## 388              0         0         1         0        14
## 389              0         0         0         0         9
## 390              0         0         0         0         2
## 391              0         0         1         1         4
## 392              0         0         0         0        -1
## 393              0         0         0         0         7
## 394              0         0         0         0         6
## 395              0         0         0         0         6
## 396              0         0         1         1         6
## 397              0         0         0         0        -4
## 398              0         0         0         0        12
## 399              0         0         0         0         2
## 400              0         0         0         0        -6
## 401              0         0         0         0        -2
```

```
## 402        0        0        0        0        3
## 403        0        0        0        0        0
## 404        0        0        0        0       -5
## 405        0        0        1        0       -3
## 406        0        0        0        0       -1
## 407        0        0        0        0       -1
## 408        0        1        0        0        4
## 410        0        0        1        1       -5
## 411        0        0        1        1       -8
## 412        0        0        0        0        9
## 413        0        0        0        0       12
## 414        0        0        0        0       12
## 415        0        0        1        1       -1
## 416        0        0        0        0       -6
## 418        0        0        0        0       -3
## 420        0        0        0        0       -2
## 421        0        0        0        0       -1
## 422        0        0        0        0        0
## 423        0        0        1        0       -7
## 424        0        0        0        0       -6
## 425        0        0        0        0        4
## 426        0        0        0        0        0
## 427        0        0        0        0        1
## 428        0        0        0        0       14
## 429        0        0        0        0       -8
## 430        0        0        0        0        7
## 432        0        0        0        0       -5
## 433        0        0        0        0       -3
## 434        0        0        0        0       -2
## 435        0        0        0        0      -10
## 436        0        0        0        0       -1
## 437        0        1        1        1       -4
## 438        0        0        0        0       -1
## 439        0        0        0        0       10
## 440        0        0        0        0        0
## 442        0        0        0        0       -3
## 443        0        0        1        1        7
## 444        0        0        0        0       -2
## 445        0        0        0        0       19
## 446        0        1        1        1        0
## 447        0        0        0        0       -5
## 448        0        0        0        0       -4
## 450        0        0        0        0       -8
## 451        0        0        1        1       -8
## 452        0        0        0        0       -7
## 453        0        0        1        1       -1
## 455        0        0        0        0       -4
## 457        0        0        1        1       -9
## 458        0        0        0        0       -2
## 459        0        0        0        0        1
## 460        0        0        0        0        3
## 462        0        0        0        0        0
## 463        0        0        0        0       -3
## 464        0        0        1        1       -2
```

```
## 465              0         0         0         0         2
## 466              0         0         0         0         1
## 467              0         0         0         0         8
## 468              0         0         0         0         5
## 469              0         0         1         1        -6
## 470              0         0         0         0        -3
## 471              0         0         1         1        -1
## 472              0         1         0         0        -6
## 473              0         0         0         0         5
## 474              0         0         0         0        -5
## 475              0         0         0         0         1
## 476              0         0         0         0         7
## 477              0         0         0         0        -2
## 479              0         0         0         0        18
## 480              0         0         0         0        15
## 481              0         0         0         0         0
## 482              0         0         0         0        -1
## 483              0         0         0         0        -2
## 484              0         0         0         0         9
## 485              0         0         0         0         0
## 486              0         0         1         1         4
## 487              0         0         0         0        -1
## 488              0         0         0         0        -3
## 489              0         0         0         0        21
## 490              0         0         0         0        21
## 491              0         0         0         0        -1
## 492              0         0         0         0        -2
## 493              0         0         0         0        -2
## 494              0         0         0         0        -2
## 495              0         0         0         0        -4
## 496              0         0         0         0        -2
## 497              0         0         0         0         8
## 498              0         0         1         1        -8
## 499              0         0         0         0        -4
## 501              0         0         0         0        -4
## 502              0         0         0         0         1
## 503              0         0         1         1       -13
## 504              0         0         0         0        -8
## 506              0         0         0         0        -9
## 507              0         0         0         0         1
## 508              0         0         1         1        -7
## 509              0         0         1         1        -9
## 510              0         0         0         0        -4
## 511              0         0         0         0        -2
## 512              0         0         0         0        -4
## 514              0         0         0         0        -1
## 515              0         0         0         0         0
## 516              0         0         0         0         4
## 517              0         0         0         0        -3
## 518              0         0         0         0        10
## 519              0         0         1         0        -5
## 520              0         0         0         0        -2
## 523              0         0         0         0        19
## 524              0         0         0         0        -5
```

## 525	0	0	0	0	14
## 526	0	1	0	0	-4
## 527	0	0	1	1	5
## 528	0	0	0	0	-7
## 529	0	0	0	0	-4
## 530	0	0	0	0	4
## 531	0	0	0	0	-6
## 532	0	0	1	0	-3
## 533	0	0	0	0	3
## 534	0	0	0	0	-2
## 535	0	0	0	0	0
## 536	0	0	0	0	-8
## 537	0	0	0	0	-3
## 538	0	0	0	0	3
## 539	0	0	0	0	-2
## 540	0	0	0	0	14
## 541	0	0	0	0	8
## 542	0	0	0	0	5
## 543	0	0	0	0	14
## 544	0	0	0	0	4
## 545	0	0	0	0	-4
## 546	0	0	1	1	-3
## 547	0	0	0	0	-2
## 548	0	0	1	1	-4
## 549	0	0	0	0	-4
## 551	0	0	0	0	-3
## 553	0	0	0	0	25
## 554	0	0	0	0	11
## 555	0	0	0	0	29
## 556	0	0	0	0	1
## 558	0	0	0	0	12
## 559	0	0	0	0	-3
## 560	0	0	0	0	-4
## 561	0	0	0	0	-5
## 562	0	0	0	0	4
## 563	0	0	0	0	-2
## 564	0	0	0	0	27
## 565	0	0	0	0	-2
## 566	0	0	0	0	3
## 567	0	0	0	0	-1
## 569	0	0	0	0	17
## 570	0	0	1	1	0
## 571	0	0	1	1	-5
## 572	0	0	0	0	8
## 573	0	0	1	1	-1
## 574	0	0	0	0	0
## 576	0	0	1	1	22
## 577	0	0	0	0	19
## 578	0	1	0	0	-5
## 579	0	0	0	0	-4
## 580	0	0	1	1	7
## 581	0	0	0	0	-3
## 582	0	0	0	0	-2
## 584	0	0	0	0	0

```
## 585              0           0           0           0           3
## 586              0           0           0           0          -4
## 587              0           0           0           0          -4
## 588              0           0           0           0          -3
## 589              0           0           1           1          -2
## 590              0           0           0           0           0
## 591              0           0           0           0           7
## 593              0           0           0           0          -3
## 594              0           0           0           0           6
## 596              0           0           0           0          -3
## 597              0           0           0           0           6
## 598              0           0           0           0          -2
## 599              0           0           0           0           4
## 600              0           0           0           0          14
## 601              0           0           0           0          -3
## 602              0           0           0           0          -3
## 603              0           0           0           0          -3
## 604              0           0           0           0          -2
## 605              0           0           0           0          -1
## 607              0           0           1           1          -4
## 608              0           0           0           0          13
## 609              0           0           0           0          14
## 610              0           0           0           0          -3
## 611              0           0           0           0          -2
## 612              0           0           0           0          -2
## 613              0           0           1           1          22
## 614              0           0           0           0           3
## 615              0           0           0           0          -4
## 616              0           0           0           0           2
## 617              0           0           1           1           6
## 618              0           0           1           1          -1
## 619              0           0           0           0           7
## 621              0           0           0           0          -2
## 622              0           0           0           0          -1
## 624              0           0           0           0          -3
## 625              0           0           0           0          -2
## 626              0           0           1           1          -5
## 628              0           0           0           0          -4
## 630              0           0           0           0         -11
## 631              0           0           0           0          -5
## 635              0           0           0           0           0
## 636              0           0           0           0          -7
## 637              0           0           0           0           4
## 638              0           0           1           1          -5
## 639              0           0           1           1           0
## 641              0           0           1           1           0
## 643              0           0           1           1          -9
## 644              0           0           0           0          -2
## 645              0           0           0           0           0
## 646              0           0           1           0          16
## 648              0           0           0           0           0
## 649              0           0           0           0          -1
## 650              0           0           1           1           5
## 651              0           0           0           0          10
```

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```
## 652            0         0         0         0        -1
## 654            0         0         0         0         8
## 655            0         0         0         0        -1
## 656            0         0         0         0        -1
## 657            0         1         1         1        -3
## 658            0         0         0         0        -1
## 659            0         0         0         0        -4
## 660            0         0         0         0        -2
## 661            0         0         0         0         3
## 662            0         0         0         0        24
## 663            0         0         1         1        -7
## 664            0         0         0         0        -4
## 665            0         0         0         0         0
## 666            0         0         0         0        -2
## 667            0         0         0         0        12
## 668            0         0         0         0         2
## 669            0         0         0         0         7
## 670            0         0         0         0         9
## 671            0         0         0         0        -1
## 672            0         0         1         1        10
## 673            0         0         0         0        12
## 674            0         0         0         0        -5
## 675            0         0         0         0        -4
## 676            0         0         0         0        -3
## 677            0         0         0         0        -1
## 678            0         0         1         1        -7
## 680            0         0         0         0        26
## 682            0         0         0         0         8
## 683            0         0         0         0         6
## 684            0         0         0         0        10
## 686            0         0         0         0        -6
## 687            0         0         0         0        -4
## 689            0         0         0         0         2
## 690            0         0         0         0       -12
## 691            0         0         0         0         9
## 693            0         0         0         0        17
## 694            0         0         0         0        14
## 695            0         0         0         0         3
## 696            0         0         1         1         8
## 697            0         0         0         0        10
## 698            0         0         0         0        27
## 699            0         0         0         0        12
## 700            0         0         0         0        -2
## 702            0         0         0         0        13
## 703            0         0         0         0        -4
## 704            0         0         0         0        -4
## 706            0         0         0         0         7
## 707            0         0         1         1        -7
## 709            0         0         0         0        -6
## 710            0         0         0         0        -6
## 711            0         0         0         0         4
## 712            0         0         0         0         0
## 713            0         0         1         1         0
## 714            0         0         0         0        26
```

```
## 715            0           0           0           0           19
## 716            0           0           0           0            7
## 717            0           0           0           0           21
## 719            0           0           0           0            0
## 720            0           0           1           1          -10
## 721            0           0           0           0           -4
## 722            0           0           0           0           15
## 723            0           0           0           0            0
## 725            0           0           1           1           -1
## 726            0           1           0           0            2
## 727            0           0           0           0           16
## 729            0           0           0           0           -5
## 730            0           0           0           0           -7
## 737            0           1           0           0           -8
## 738            0           0           0           0           -2
## 739            0           0           0           0           -2
## 743            0           0           0           0           -5
## 744            0           0           0           0           -7
## 745            0           0           0           0           -4
## 746            0           0           0           0           -4
## 747            0           0           0           0           -4
## 748            0           0           1           1           -9
## 749            0           0           0           0           -3
## 750            0           0           0           0           -3
## 751            0           0           0           0           -1
## 752            0           0           0           0            0
## 753            0           0           1           1            0
## 754            0           0           0           0            1
## 755            0           0           0           0           -2
## 756            0           0           1           1           -4
## 757            0           0           0           0           -4
## 758            0           0           0           0           -3
## 759            0           0           0           0           -3
## 760            0           0           1           1           -1
## 761            0           0           0           0            5
## 762            0           0           0           0           17
## 763            0           1           1           1           -8
## 764            0           0           0           0            1
## 765            0           0           0           0           -5
## 766            0           0           0           0           -4
## 767            0           0           1           0           -2
## 768            0           0           0           0           -4
## 769            0           0           1           1           -1
## 770            0           0           0           0           -3
## 771            0           0           0           0            1
## 772            0           0           0           0           -1
## 773            0           0           0           0            5
## 774            0           0           0           0           11
## 775            0           0           0           0           -1
## 776            0           0           0           0           -5
## 777            0           0           1           1           -2
## 778            0           0           0           0            3
## 779            0           0           0           0            2
## 780            0           0           0           0           -4
```

```
## 781               0          0          0          0          -1
## 782               0          0          1          1          -3
## 784               0          0          0          0           0
## 785               0          0          0          0          -4
## 786               0          0          1          1           1
## 787               0          0          0          0          -1
## 788               0          0          0          0          -1
## 789               0          0          0          0           0
## 790               0          0          1          0          -3
## 791               0          0          0          0          -4
## 792               0          0          0          0           7
## 793               0          0          0          0          -3
## 794               0          0          0          0          -3
## 795               0          0          0          0          -5
## 796               0          0          0          0           2
## 797               0          0          0          0          -1
## 798               0          0          1          1          -9
## 799               0          0          1          0          15
## 800               0          0          0          0           0
## 801               0          0          0          0          -7
## 802               0          0          0          0          -4
## 803               0          0          0          0          -1
## 804               0          0          0          0          -4
## 805               0          0          0          0          -4
## 806               0          0          0          0          -2
## 807               0          0          1          0          -1
## 808               0          0          0          0          17
## 809               0          0          0          0           2
## 810               0          0          0          0          -1
## 811               0          0          0          0           6
## 812               0          0          0          0          21
## 813               0          0          0          0          24
## 815               0          0          0          0          -5
## 816               0          0          0          0          -5
## 817               0          0          0          0          -3
## 818               0          0          1          1          -3
## 819               0          0          0          0          -2
## 821               0          0          0          0          -1
## 822               0          0          0          0           0
## 823               0          0          1          1          -2
## 824               0          0          0          0           4
## 825               0          1          0          0           1
## 826               0          0          0          0          11
## 828               0          0          0          0          -7
## 829               0          0          0          0           9
## 831               0          0          0          0          -6
## 832               0          0          0          0          -7
## 833               0          1          0          0          -3
## 834               0          0          0          0          -2
## 835               0          0          0          0          -4
## 837               0          0          0          0          19
## 839               0          0          0          0           6
## 840               0          0          0          0         -13
## 841               0          0          0          0          -2
```

```
## 843          0          0          1          1          -5
## 844          0          0          0          0          -4
## 845          0          0          0          0          -3
## 846          0          0          0          0           2
## 848          0          0          1          1           0
## 849          0          0          0          0          -5
## 850          0          0          0          0          -3
## 852          0          0          0          0          -5
## 853          0          0          0          0           2
## 855          0          0          0          0          -3
## 856          0          0          0          0          -4
## 857          0          0          0          0          -7
## 858          0          0          0          0          -4
## 859          0          0          0          0          -4
## 860          0          0          0          0          -4
## 861          0          0          0          0          -4
## 862          0          0          0          0          -6
## 863          0          0          0          0          -4
## 864          0          0          0          0          -3
## 865          0          0          0          0           1
## 866          0          0          1          1          -2
## 867          0          0          0          0           4
## 868          0          0          1          1          -7
## 869          0          0          1          1          16
## 870          0          0          0          0          -3
## 871          0          0          0          0           7
## 872          0          1          0          0          -2
## 873          0          0          0          0          -6
## 874          0          0          0          0          -5
## 875          0          0          0          0          -4
## 876          0          0          0          0          -1
## 877          0          0          0          0          -1
## 878          0          0          1          1          -4
## 879          0          0          0          0          -2
## 880          0          0          0          0          29
## 881          0          0          0          0           0
## 882          0          0          1          1          -5
## 883          0          0          0          0           4
## 884          0          0          0          0           5
## 885          0          0          0          0          -4
## 886          0          0          1          0          -6
## 887          0          0          0          0          -2
## 888          0          0          0          0          15
## 891          0          0          1          1           0
## 892          0          0          0          0          -4
## 893          0          0          0          0           2
## 894          0          0          0          0           0
## 895          0          0          0          0           0
## 896          0          0          0          0          -3
## 897          0          0          0          0          -7
## 898          0          0          1          1          -1
## 899          0          0          0          0          -1
## 900          0          0          1          1          -5
## 901          0          0          0          0          -8
```

```
## 902              0        0        0        0        -4
## 903              0        0        0        0        -5
## 904              0        0        0        0        -2
## 905              0        0        0        0         5
## 906              0        0        0        0         3
## 907              0        0        0        0         6
## 910              0        0        0        0         9
## 911              0        0        0        0        15
## 913              0        0        0        0         1
## 914              0        0        0        0        -4
## 915              0        0        0        0         5
## 916              0        0        0        0        -5
## 917              0        0        0        0        11
## 918              0        0        0        0        -4
## 919              0        0        0        0        -6
## 920              0        0        1        1         9
## 921              0        0        0        0         2
## 923              0        0        0        0         4
## 924              0        0        0        0        13
## 926              0        0        0        0        28
## 927              0        0        0        0        -1
## 928              0        0        0        0        -3
## 929              0        0        1        1        -3
## 930              0        0        0        0        -1
## 931              0        0        0        0        21
## 932              0        0        0        0        -4
## 934              0        0        1        1         1
## 935              0        0        0        0        -3
## 936              0        0        0        0         7
## 937              0        0        0        0        -7
## 939              0        0        0        0         1
## 940              0        0        0        0         1
## 941              0        0        0        0         3
## 942              0        0        1        1        -2
## 943              0        0        0        0         4
## 944              0        0        0        0        14
## 945              0        0        0        0        -9
## 946              0        0        0        0        23
## 947              0        0        1        1        -1
## 948              0        0        0        0        -6
## 949              0        0        0        0        -4
## 950              0        0        0        0         9
## 951              0        0        0        0        -3
## 952              0        0        0        0         1
## 953              0        0        0        0        -4
## 954              0        0        0        0        -2
## 955              0        0        0        0        -2
## 956              0        0        0        0         5
## 957              0        0        0        0        -2
## 958              0        0        0        0        20
## 959              0        0        1        1        19
## 960              0        0        1        1         7
## 961              0        0        0        0        -8
## 962              0        0        1        0        20
```

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```
## 963          0          0          0          0        -1
## 964          0          0          0          0        11
## 965          0          0          0          0         2
## 966          0          0          0          0        19
## 967          0          0          0          0         5
## 968          0          0          1          1         0
## 969          0          0          0          0         0
## 971          0          0          0          0        24
## 972          0          0          0          0        12
## 973          0          0          0          0         5
## 974          0          0          0          0         1
## 975          0          0          0          0        -4
## 976          0          1          0          0         3
## 977          0          0          0          0         1
## 978          0          0          0          0         3
## 979          0          0          0          0        -1
## 980          0          0          0          0         2
## 981          0          0          0          0        16
## 984          0          0          0          0        -4
## 985          0          0          0          0        -4
## 987          0          0          0          0        -1
## 988          0          0          0          0         0
## 989          0          0          0          0        20
## 990          0          0          0          0        21
## 991          0          0          0          0        -8
## 992          0          0          0          0        -7
## 993          0          0          1          1         3
## 994          0          0          1          1        24
## 995          0          0          0          0        -4
## 996          0          0          0          0         1
## 997          0          0          0          0        21
## 998          0          0          1          0        -3
## 1000         0          0          1          1        18
## 1001         0          0          0          0        -1
## 1002         0          0          0          0        -1
## 1003         0          0          1          1         0
## 1004         0          0          0          0         0
## 1005         0          0          0          0        -3
## 1006         0          0          0          0        -6
## 1007         0          0          1          1         1
## 1008         0          0          0          0        -3
## 1009         0          0          0          0        10
## 1010         0          0          0          0         9
## 1013         0          0          0          0         0
## 1014         0          0          0          0        26
## 1016         0          0          1          1         8
## 1017         0          0          0          0         5
## 1018         0          0          0          0         1
## 1020         0          0          0          0         2
## 1021         0          0          1          1        15
## 1022         0          0          0          0        23
## 1024         0          0          0          0        -2
## 1026         0          0          0          0        -2
## 1028         0          0          0          0        -5
```

```
## 1029           0           0           0           0           1
## 1030           0           0           0           0          -7
## 1031           0           0           0           0          -2
## 1032           0           0           0           0           0
## 1033           0           0           1           1          -1
## 1034           0           0           0           0         -10
## 1035           0           0           0           0          -7
## 1036           0           0           0           0          -5
## 1037           0           0           0           0           0
## 1038           0           0           1           1           2
## 1040           0           0           0           0          23
## 1042           0           0           0           0         -11
## 1044           0           0           0           0          -2
## 1046           0           0           0           0          -5
## 1047           0           0           0           0           0
## 1048           0           0           0           0          -4
## 1049           0           0           0           0          -2
## 1050           0           0           0           0          -2
## 1051           0           0           1           1          -6
## 1053           0           0           0           0          -5
## 1054           0           0           0           0          -2
## 1055           0           0           0           0          18
## 1056           0           0           0           0          -1
## 1057           0           0           0           0           0
## 1058           0           0           0           0          -4
## 1059           0           0           0           0           0
## 1061           0           0           0           0           8
## 1063           0           0           0           0          -1
## 1065           0           1           0           0          27
## 1068           0           0           0           0          -8
## 1069           0           0           0           0          -3
## 1071           0           0           0           0           4
## 1076           0           0           1           1           0
## 1077           0           0           0           0          19
## 1078           0           0           1           1           8
## 1079           0           0           0           0           1
## 1080           0           0           0           0           3
## 1085           0           0           0           0          -4
## 1086           0           0           0           0           1
## 1091           0           0           0           0           2
## 1092           0           0           0           0          -2
## 1093           0           0           1           1           6
## 1096           0           0           1           1          14
## 1097           0           0           0           0          -1
## 1098           0           0           0           0           4
## 1099           0           0           0           0          13
## 1100           0           0           0           0           2
## 1101           0           0           0           0           0
## 1103           0           0           0           0          -4
## 1104           0           0           0           0          -2
## 1106           0           0           0           0          12
## 1107           0           0           0           0          23
## 1108           0           0           0           0          22
## 1109           0           0           0           0          -2
```

```
## 1110          0          0          1          1          -2
## 1111          0          0          0          0          -2
## 1112          0          0          1          1          -2
## 1113          0          0          1          1          -2
## 1114          0          0          0          0          -7
## 1115          0          0          0          0          -4
## 1116          0          0          0          0          -4
## 1117          0          0          0          0          -3
## 1118          0          0          0          0          -1
## 1119          0          0          1          1          -5
## 1120          0          0          0          0           1
## 1121          0          0          0          0           2
## 1122          0          0          0          0           3
## 1123          0          0          0          0          -5
## 1124          0          0          1          1          -6
## 1125          0          0          0          0          -6
## 1126          0          0          1          1           6
## 1127          0          0          0          0          -4
## 1128          0          0          0          0           7
## 1129          0          0          0          0           9
## 1130          0          0          1          1          -6
## 1131          0          1          0          0          -5
## 1132          0          0          0          0          -4
## 1133          0          0          0          0           0
## 1134          0          0          0          0         -14
## 1135          0          0          0          0          11
## 1136          0          0          0          0          -8
## 1137          0          0          1          1          -7
## 1138          0          0          0          0          -1
## 1139          0          0          0          0          -2
## 1140          0          0          0          0          -6
## 1141          0          0          1          1           7
## 1142          0          0          0          0          -1
## 1143          0          0          0          0          10
## 1144          0          0          0          0          -4
## 1145          0          0          0          0           3
## 1146          0          0          0          0          -5
## 1147          0          0          0          0          -9
## 1148          0          0          0          0          -2
## 1149          0          0          0          0          -5
## 1150          0          0          0          0           0
## 1151          0          0          0          0          -3
## 1152          0          0          0          0           0
## 1153          0          0          0          0           0
## 1154          0          0          1          1          -4
## 1155          0          0          0          0           3
## 1156          0          0          0          0           3
## 1157          0          0          1          1           5
## 1158          0          0          0          0           2
## 1159          0          0          1          1          -7
## 1160          0          0          1          1          -3
## 1161          0          0          1          1          -3
## 1162          0          0          0          0          -8
## 1163          0          0          0          0          15
```

```
## 1164           0           0           0           0          -4
## 1165           0           0           0           0          19
## 1166           0           0           0           0          21
## 1167           0           0           0           0          -3
## 1168           0           0           0           0          -3
## 1170           0           0           0           0          12
## 1171           0           0           0           0          -5
## 1172           0           0           0           0         -10
## 1173           0           1           0           0           3
## 1174           0           0           0           0          -6
## 1175           0           0           1           1          -2
## 1176           0           0           0           0          -1
## 1177           0           0           0           0          -4
## 1178           0           0           0           0          -3
## 1179           0           0           0           0          -2
## 1180           0           0           1           1           0
## 1181           0           0           0           0           1
## 1182           0           0           1           1          -5
## 1183           0           0           0           0           7
## 1184           0           0           0           0          -8
## 1185           0           0           0           0          -2
## 1186           0           0           1           1          -6
## 1187           0           0           0           0           0
## 1188           0           0           0           0           9
## 1189           0           1           1           1           3
## 1190           0           0           0           0          -4
## 1191           0           0           0           0           1
## 1192           0           0           0           0          -7
## 1193           0           0           0           0          -7
## 1194           0           0           1           1          -5
## 1195           0           0           0           0          -8
## 1196           0           0           0           0          -1
## 1197           0           0           0           0           5
## 1198           0           1           0           0          -4
## 1199           0           0           0           0          -1
## 1200           0           0           1           1         -10
## 1201           0           0           0           0          21
## 1202           0           0           0           0           5
## 1203           0           0           0           0          -6
## 1204           0           0           1           0          -4
## 1205           0           0           0           0          -3
## 1206           0           0           1           1           7
## 1207           0           0           0           0          -4
## 1208           0           0           0           0           3
## 1209           0           0           0           0          14
## 1210           0           0           0           0          -7
## 1211           0           0           0           0          -4
## 1212           0           0           1           1          19
## 1213           0           0           0           0          -3
## 1214           0           0           0           0          -3
## 1215           0           0           1           1          -2
## 1216           0           0           0           0          -2
## 1217           0           0           0           0          -2
## 1218           0           0           0           0           0
```

## 1219	0	0	0	0	-5
## 1220	0	0	0	0	-3
## 1221	0	0	0	0	11
## 1222	0	0	0	0	7
## 1223	0	1	0	0	6
## 1224	0	0	0	0	-3
## 1225	0	0	0	0	8
## 1226	0	0	0	0	-7
## 1227	0	0	0	0	-5
## 1228	0	0	0	0	9
## 1229	0	0	1	1	-6
## 1230	0	1	0	0	5
## 1231	0	0	0	0	-6
## 1232	0	0	0	0	-2
## 1233	0	0	0	0	2
## 1235	0	0	0	0	2
## 1236	0	0	0	0	-10
## 1237	0	0	1	1	1
## 1238	0	0	0	0	21
## 1239	0	0	0	0	-8
## 1240	0	0	0	0	-8
## 1241	0	0	1	1	-7
## 1242	0	0	0	0	-5
## 1243	0	0	0	0	-5
## 1244	0	0	0	0	-2
## 1245	0	0	1	0	16
## 1246	0	0	0	0	-7
## 1247	0	0	1	1	-1
## 1248	0	0	1	0	-1
## 1249	0	0	0	0	-5
## 1250	0	0	0	0	25
## 1251	0	0	0	0	-5
## 1252	0	0	1	1	-9
## 1253	0	0	0	0	-4
## 1254	0	0	0	0	14
## 1255	0	0	0	0	1
## 1257	0	0	0	0	2
## 1258	0	0	0	0	-6
## 1259	0	0	0	0	-1
## 1260	0	0	0	0	-3
## 1261	0	0	0	0	-5
## 1263	0	0	0	0	-5
## 1264	0	0	0	0	-3
## 1265	0	0	0	0	-7
## 1266	0	0	0	0	-7
## 1268	0	0	0	0	1
## 1269	0	0	1	1	15
## 1270	0	0	1	1	-5
## 1272	0	0	0	0	-12
## 1273	0	1	0	0	-3
## 1274	0	0	0	0	-6
## 1275	0	0	0	0	-5
## 1276	0	0	0	0	0
## 1277	0	0	0	0	1

```
## 1278            0           1           0           0           6
## 1279            0           0           0           0          -4
## 1280            0           0           0           0          -6
## 1281            0           0           0           0          -4
## 1282            0           0           1           1         -11
## 1284            0           0           0           0          -6
## 1285            0           0           1           1          -3
## 1286            0           0           0           0          -4
## 1287            0           0           0           0           4
## 1288            0           0           0           0           5
## 1290            0           0           0           0          -3
## 1291            0           0           0           0           3
## 1292            0           0           0           0          -6
## 1293            0           0           0           0          -4
## 1294            0           0           0           0          12
## 1295            0           0           0           0          12
## 1296            0           0           1           0          -8
## 1297            0           0           0           0          -2
## 1298            0           0           0           0          -5
## 1299            0           0           0           0          -2
## 1300            0           0           0           0          -2
## 1303            0           0           0           0           2
## 1304            0           0           0           0           7
## 1305            0           0           1           1          -5
## 1306            0           0           0           0           0
## 1308            0           0           0           0           1
## 1309            0           0           0           0          -1
## 1310            0           0           0           0          -5
## 1311            0           0           0           0          -2
## 1312            0           0           0           0          -2
## 1313            0           0           0           0          19
## 1314            0           0           0           0          -5
## 1315            0           0           0           0           1
## 1317            0           0           1           1           9
## 1318            0           0           0           0          22
## 1319            0           0           1           1          -6
## 1320            0           0           0           0          -6
## 1322            0           0           0           0          19
## 1323            0           0           0           0          -2
## 1325            0           0           0           0          -1
## 1327            0           0           0           0          -6
## 1328            0           0           0           0          -6
## 1329            0           0           0           0          -6
## 1330            0           0           0           0         -10
## 1331            0           0           0           0           8
## 1332            0           0           1           1           0
## 1333            0           0           0           0           4
## 1334            0           0           0           0          -6
## 1335            0           0           0           0          -8
## 1336            0           0           0           0          -6
## 1338            0           0           0           0          -4
## 1340            0           0           0           0          -8
## 1341            0           0           0           0          -3
## 1342            0           0           0           0          -2
```

```
## 1343          0          0          0          0          -1
## 1344          0          0          1          1          -6
## 1346          0          0          0          0          -3
## 1347          0          0          0          0           9
## 1348          0          0          0          0           7
## 1349          0          0          1          1          -1
## 1350          0          0          0          0          -4
## 1351          0          0          0          0           0
## 1352          0          0          0          0           7
## 1353          0          0          0          0          18
## 1354          0          0          0          0          -1
## 1356          0          0          0          0          22
## 1357          0          0          1          0          13
## 1358          0          0          0          0          -2
## 1359          0          0          0          0           7
## 1360          0          0          0          0          -4
## 1361          0          0          0          0          -2
## 1362          0          0          0          0          -1
## 1364          0          0          0          0          -5
## 1366          0          0          0          0           5
## 1367          0          0          0          0           0
## 1368          0          0          0          0          -7
## 1369          0          0          0          0           5
## 1370          0          0          0          0          -5
## 1371          0          0          0          0           0
## 1372          0          0          0          0          -1
## 1374          0          0          1          1          -4
## 1375          0          0          0          0           1
## 1376          0          0          1          1          28
## 1377          0          0          0          0          -2
## 1378          0          0          1          1           6
## 1379          0          0          0          0          -5
## 1380          0          0          0          0          -4
## 1381          0          0          0          0          -1
## 1382          0          0          1          1          -4
## 1383          0          0          0          0          -3
## 1385          0          0          0          0          12
## 1387          0          1          0          0          -6
## 1388          0          0          1          1          -5
## 1389          0          0          0          0          -5
## 1390          0          0          0          0          -3
## 1391          0          0          1          0          -2
## 1392          0          0          0          0          -1
## 1393          0          0          0          0          27
## 1394          0          0          0          0           0
## 1395          0          0          0          0          -3
## 1396          0          0          0          0          19
## 1397          0          0          0          0          -5
## 1398          0          0          1          1          -4
## 1399          0          0          0          0          -6
## 1400          0          0          0          0           0
## 1402          0          0          0          0          13
## 1403          0          0          0          0           5
## 1404          0          0          1          1          -6
```

```
## 1405            0            0            1            1           24
## 1406            0            0            0            0            0
## 1407            0            0            0            0            0
## 1408            0            0            0            0           27
## 1409            0            0            0            0           25
## 1410            0            0            0            0            3
## 1411            0            0            0            0            2
## 1412            0            0            0            0           18
## 1413            0            0            0            0           -5
## 1414            0            0            0            0           -8
## 1415            0            0            0            0           18
## 1416            0            0            1            1            1
## 1419            0            0            1            1            0
## 1420            0            0            0            0           10
## 1421            0            0            0            0           -6
## 1422            0            0            0            0           26
## 1423            0            0            0            0            8
## 1425            0            0            0            0           -3
## 1426            0            0            0            0           14
## 1427            0            0            0            0           -3
## 1428            0            0            0            0           27
## 1429            0            0            0            0           17
## 1430            0            0            0            0           -2
## 1431            0            0            1            1           -1
## 1432            0            0            0            0           -5
## 1433            0            0            0            0           -1
## 1434            0            0            0            0            4
## 1435            0            0            0            0           -4
## 1436            0            0            0            0            2
## 1438            0            0            0            0            2
## 1439            0            0            0            0           22
## 1440            0            0            0            0           -6
## 1441            0            0            0            0           15
## 1442            0            0            1            1           -4
## 1443            0            1            0            0            1
## 1444            0            0            0            0           -8
## 1445            0            0            0            0           -5
## 1446            0            0            0            0            0
## 1447            0            0            0            0           -8
## 1448            0            0            0            0           -3
## 1449            0            0            0            0            7
## 1450            0            0            0            0           -2
## 1451            0            0            0            0            1
## 1452            0            0            0            0            6
## 1455            0            0            1            1            1
## 1457            0            0            0            0           -3
## 1460            0            0            0            0            7
## 1461            0            0            0            0           -3
## 1462            0            0            1            1           -7
## 1463            0            0            0            0           -6
## 1464            0            0            0            0           12
## 1466            0            0            0            0           17
## 1467            0            0            0            0           29
## 1468            0            0            0            0            0
```

```
## 1469          0        0        0        0        0
## 1472          0        0        0        0      -10
## 1473          0        0        0        0       -9
## 1474          0        0        0        0       16
## 1475          0        0        0        0        6
## 1476          0        0        0        0        8
## 1477          0        0        1        1       -5
## 1478          0        0        1        1       -4
## 1480          0        0        0        0      -10
## 1481          0        0        0        0       -5
## 1482          0        0        1        1       28
## 1483          0        0        1        1       -2
## 1484          0        0        0        0        3
## 1486          0        1        0        0        3
## 1487          0        0        0        0        3
## 1488          0        0        0        0       -6
## 1489          0        0        0        0       -3
## 1490          0        0        0        0        1
## 1493          0        0        0        0        0
## 1494          0        0        0        0       -2
## 1495          0        0        0        0       12
## 1497          0        0        1        1       -2
## 1498          0        0        0        0       -2
## 1499          0        0        1        1       -3
## 1500          0        0        0        0       -3
## 1501          0        0        0        0       -3
## 1502          0        0        0        0       -2
## 1503          0        0        0        0       -2
## 1504          0        0        0        0       -1
## 1505          0        1        0        0       17
## 1506          0        0        0        0       -5
## 1507          0        0        1        1       -4
## 1508          0        0        0        0       -4
## 1509          0        0        0        0       -5
## 1510          0        0        0        0       -5
## 1511          0        0        0        0       -1
## 1512          0        1        0        0        4
## 1513          0        0        1        1       -9
## 1514          0        0        0        0        6
## 1515          0        0        0        0       -2
## 1516          0        0        0        0       -4
## 1517          0        0        0        0       -4
## 1518          0        0        0        0        4
## 1519          0        0        1        1       -2
## 1520          0        0        1        1       -1
## 1521          0        0        0        0        0
## 1522          0        0        0        0       -8
## 1523          0        1        0        0       -5
## 1524          0        0        0        0        0
## 1525          0        0        1        1       14
## 1526          0        0        0        0       -3
## 1527          0        0        0        0       11
## 1528          0        0        0        0       -6
## 1529          0        0        0        0       -9
```

```
## 1530           0          0          0          0         13
## 1531           0          0          0          0         -1
## 1533           0          0          0          0         -6
## 1534           0          0          0          0         -6
## 1535           0          0          0          0         -5
## 1536           0          0          0          0         -5
## 1537           0          0          0          0         -4
## 1538           0          0          0          0          0
## 1539           0          0          0          0         -4
## 1540           0          0          1          1         -4
## 1541           0          0          0          0         -7
## 1542           0          0          0          0         -6
## 1543           0          0          0          0         -4
## 1544           0          1          1          1         -5
## 1545           0          0          0          0         -6
## 1546           0          0          0          0         23
## 1547           0          0          0          0         -6
## 1548           0          0          1          1         -1
## 1549           0          0          0          0          0
## 1550           0          0          0          0         -1
## 1551           0          1          0          0         -4
## 1552           0          0          0          0         -1
## 1553           0          0          0          0         -2
## 1554           0          0          1          1         -1
## 1555           0          0          0          0         -6
## 1556           0          0          0          0         -5
## 1557           0          0          0          0          0
## 1558           0          0          0          0         -2
## 1559           0          0          0          0          6
## 1560           0          0          0          0          4
## 1561           0          0          0          0         -6
## 1562           0          0          0          0         -6
## 1564           0          0          0          0          5
## 1565           0          0          0          0         -7
## 1566           0          0          0          0         -4
## 1567           0          0          0          0         -2
## 1568           0          0          0          0         -3
## 1569           0          0          0          0         -3
## 1570           0          0          0          0         -2
## 1571           0          0          0          0         -6
## 1572           0          0          0          0         -1
## 1573           0          0          0          0          2
## 1574           0          1          0          0         -1
## 1575           0          1          0          0         -7
## 1576           0          0          0          0         -3
## 1577           0          0          0          0         -6
## 1578           0          0          0          0         -3
## 1579           0          0          1          1         -4
## 1580           0          0          1          1         18
## 1581           0          0          0          0         19
## 1582           0          0          0          0         -3
## 1583           0          0          0          0          7
## 1584           0          0          0          0          5
## 1586           0          0          0          0         -8
```

```
## 1587          0          0          0          0         -6
## 1588          0          0          0          0         -3
## 1589          0          0          0          0         -3
## 1590          0          0          0          0         -7
## 1591          0          0          0          0         -7
## 1593          0          0          0          0         -1
## 1594          0          0          0          0         -7
## 1595          0          0          0          0         -4
## 1596          0          0          0          0          7
## 1597          0          0          0          0         28
## 1598          0          0          1          1          3
## 1599          0          0          1          1          1
## 1600          0          0          0          0         -4
## 1601          0          0          0          0         -1
## 1602          0          0          0          0         13
## 1603          0          0          0          0         -3
## 1604          0          0          1          1         -9
## 1606          0          0          0          0         29
## 1607          0          0          0          0          0
## 1608          0          0          1          1         -2
## 1609          0          0          0          0          4
## 1610          0          0          0          0          2
## 1611          0          0          0          0         -5
## 1612          0          0          0          0         -2
## 1613          0          0          0          0         -1
## 1614          0          0          0          0         -5
## 1615          0          0          0          0         -5
## 1616          0          0          0          0         -5
## 1617          0          0          1          1         -4
## 1618          0          0          1          1          2
## 1619          0          0          0          0         -1
## 1620          0          0          0          0         -6
## 1622          0          0          0          0         -5
## 1623          0          0          0          0          5
## 1624          0          0          0          0         -3
## 1626          0          0          0          0          3
## 1627          0          0          1          1          5
## 1628          0          0          0          0         -4
## 1629          0          0          1          1         -7
## 1630          0          0          1          1          0
## 1631          0          0          0          0          6
## 1632          0          0          0          0         -2
## 1633          0          0          0          0         -5
## 1634          0          0          0          0          2
## 1635          0          0          0          0         -6
## 1636          0          0          0          0          1
## 1638          0          0          0          0         -4
## 1640          0          0          0          0          7
## 1641          0          0          0          0         -6
## 1642          0          0          1          1         -3
## 1643          0          0          0          0          0
## 1646          0          0          0          0         -3
## 1647          0          0          0          0         -2
## 1648          0          0          0          0          9
```

```
## 1649          0          0          0          0          -7
## 1650          0          0          0          0          -3
## 1651          0          0          0          0          -4
## 1652          0          0          0          0          -7
## 1653          0          0          0          0          -1
## 1654          0          0          0          0          -1
## 1655          0          0          0          0          14
## 1656          0          0          0          0          -5
## 1657          0          0          0          0          -8
## 1658          0          0          0          0          -7
## 1659          0          0          0          0          -3
## 1660          0          0          0          0           1
## 1661          0          0          1          0          -2
## 1662          0          0          0          0           2
## 1663          0          0          0          0          -4
## 1664          0          0          0          0           4
## 1665          0          0          0          0          -4
## 1666          0          0          0          0          -3
## 1667          0          0          1          1          18
## 1668          0          0          0          0           6
## 1669          0          0          1          1          21
## 1670          0          0          1          1           9
## 1671          0          0          0          0          -8
## 1672          0          0          0          0          -5
## 1673          0          0          0          0          -5
## 1674          0          0          0          0          -1
## 1675          0          0          0          0          10
## 1676          0          0          1          1          24
## 1677          0          0          0          0          -5
## 1678          0          0          0          0          -2
## 1679          0          0          1          1           0
## 1680          0          1          0          0          12
## 1681          0          0          0          0           3
## 1682          0          0          0          0           3
## 1683          0          0          0          0          -7
## 1684          0          0          0          0           3
## 1685          0          0          1          1          -5
## 1686          0          0          0          0          -8
## 1687          0          0          0          0          10
## 1688          0          0          0          0           0
## 1689          0          0          0          0          -4
## 1690          0          0          1          1          -4
## 1691          0          0          0          0           4
## 1692          0          0          0          0          -4
## 1693          0          0          0          0           7
## 1694          0          0          0          0           5
## 1695          0          0          0          0          -2
## 1696          0          0          0          0           0
## 1697          0          0          1          1          -2
## 1698          0          0          0          0          -7
## 1699          0          0          1          1          -6
## 1701          0          0          0          0          -8
## 1702          0          1          0          0           0
## 1703          0          0          0          0          -3
```

```
## 1704              0         0         0         0        -3
## 1705              0         0         1         1        -4
## 1706              0         0         0         0        -8
## 1707              0         0         0         0         1
## 1708              0         0         0         0        29
## 1709              0         0         0         0         0
## 1710              0         0         0         0         0
## 1711              0         0         0         0         6
## 1712              0         0         0         0        12
## 1713              0         0         0         0        12
## 1714              0         0         0         0        25
## 1715              0         0         0         0        17
## 1716              0         0         0         0        -5
## 1717              0         0         0         0        -2
## 1718              0         0         0         0        -3
## 1719              0         0         0         0        13
## 1720              0         0         1         1       -11
## 1721              0         0         0         0        -3
## 1722              0         0         0         0       -12
## 1723              0         0         0         0       -10
## 1724              0         0         0         0        11
## 1726              0         0         1         1        -5
## 1728              0         0         0         0        -3
## 1729              0         0         1         1       -10
## 1730              0         0         0         0        -7
## 1731              0         0         0         0        -6
## 1733              0         0         0         0        -5
## 1734              0         0         1         1        15
## 1735              0         0         1         1        -3
## 1736              0         0         0         0        -2
## 1737              0         0         0         0        19
## 1738              0         0         0         0        -5
## 1739              0         0         0         0         6
## 1740              0         0         0         0        -6
## 1741              0         0         0         0        -6
## 1742              0         0         0         0        -3
## 1743              0         0         0         0        -1
## 1744              0         0         0         0         1
## 1745              0         0         0         0        -2
## 1746              0         0         0         0         1
## 1747              0         0         0         0        -2
## 1748              0         1         0         0         5
## 1749              0         0         0         0        -2
## 1751              0         0         0         0        -1
## 1753              0         0         0         0        -8
## 1755              0         0         1         1        -1
## 1756              0         0         1         1         1
## 1757              0         0         0         0        17
## 1758              0         0         0         0        -1
## 1759              0         0         0         0        -1
## 1760              0         0         0         0        -3
## 1761              0         0         1         1         9
## 1762              0         0         1         1        -4
## 1763              0         0         0         0        -1
```

```
## 1764           0           0           0           0          -11
## 1765           0           0           0           0           -5
## 1766           0           0           0           0            0
## 1767           0           0           0           0            2
## 1768           0           1           0           0           19
## 1769           0           0           0           0            0
## 1771           0           1           0           0           -2
## 1772           0           0           0           0           -3
## 1774           0           0           0           0           27
## 1776           0           0           0           0           14
## 1779           0           1           0           0           -4
## 1780           0           0           0           0           -2
## 1781           1           0           0           0            1
## 1782           0           0           0           0           -6
## 1783           0           0           0           0           -4
## 1784           1           0           0           0           -3
## 1785           1           0           1           1           -2
## 1786           0           0           0           0           -2
## 1787           1           0           0           0           -1
## 1788           1           0           0           0            1
## 1789           1           0           1           1           -6
## 1790           1           0           0           0           -3
## 1791           1           1           0           0            0
## 1792           0           0           1           1           -8
## 1793           0           0           0           0           -7
## 1794           1           0           1           1           -5
## 1795           0           0           0           0           -2
## 1796           1           0           1           1            1
## 1797           0           0           0           0           -6
## 1798           1           0           0           0           -5
## 1799           1           0           0           0           -6
## 1800           1           0           1           1           -5
## 1801           1           0           0           0           -1
## 1802           1           0           0           0           -6
## 1803           1           0           0           0           -5
## 1804           0           0           0           0            5
## 1806           1           0           1           1           -7
## 1807           1           0           0           0           -1
## 1808           1           0           0           0           -1
## 1809           1           0           1           1           -4
## 1810           1           0           0           0            0
## 1811           1           0           1           1           11
## 1812           1           0           0           0           -3
## 1813           1           0           0           0            0
## 1814           1           0           0           0           -3
## 1815           1           0           1           0           -6
## 1816           1           1           0           0            1
## 1818           1           0           1           1           -7
## 1819           1           0           0           0            0
## 1820           1           0           0           0           -5
## 1821           1           0           0           0           -5
## 1822           0           0           0           0           -3
## 1823           1           0           0           0           29
## 1824           1           0           1           1           -7
```

```
## 1825            1           0           0           0           4
## 1826            1           0           0           0           1
## 1827            1           0           0           0          -2
## 1828            1           0           0           0           9
## 1829            1           0           0           0          -5
## 1830            1           0           0           0           0
## 1831            1           0           1           1          -6
## 1832            1           0           0           0          21
## 1833            1           1           0           0          -5
## 1834            1           0           0           0           0
## 1835            1           0           0           0           0
## 1836            0           0           1           1          -3
## 1837            1           0           0           0          -7
## 1838            1           0           0           0           8
## 1839            1           0           0           0           9
## 1840            1           0           1           0           1
## 1841            0           0           0           0          -5
## 1842            0           0           0           0           0
## 1843            1           0           1           1           4
## 1844            1           0           0           0           5
## 1845            1           0           0           0          -3
## 1846            1           1           0           0          -1
## 1847            1           0           0           0           8
## 1848            1           0           0           0          -1
## 1849            0           0           0           0          -5
## 1850            1           0           0           0           6
## 1851            1           0           1           1          -3
## 1852            1           0           0           0          -2
## 1853            0           0           0           0          -8
## 1854            0           0           0           0         -15
## 1855            1           0           0           0           0
## 1856            1           0           0           0           4
## 1857            1           0           0           0           3
## 1859            0           0           1           1          -8
## 1860            1           0           0           0           4
## 1862            1           0           0           0           0
## 1864            0           0           1           1          -1
## 1865            1           0           0           0          -1
## 1866            1           0           0           0           1
## 1867            1           0           0           0           8
## 1868            1           0           0           0           5
## 1869            1           0           0           0          -4
## 1870            1           0           0           0          -4
## 1871            1           0           0           0          -7
## 1872            1           0           0           0          19
## 1873            1           0           0           0          -6
## 1874            1           0           0           0           1
## 1875            1           0           0           0          -5
## 1876            1           0           0           0          -3
## 1878            1           0           0           0          -3
## 1880            1           0           0           0          -5
## 1881            1           0           0           0           0
## 1882            1           0           0           0          -2
## 1883            0           0           0           0          -7
```

```
## 1885              0        0        1        1        -8
## 1887              0        0        0        0        -5
## 1888              0        0        0        0        -3
## 1889              0        0        0        0         1
## 1890              0        0        1        1        -2
## 1891              0        0        1        1        -9
## 1892              0        0        0        0         3
## 1893              0        0        0        0         1
## 1894              0        0        0        0         1
## 1895              0        0        0        0         9
## 1896              0        0        0        0        -5
## 1897              0        0        0        0         9
## 1898              0        0        0        0        -7
## 1899              0        0        0        0         1
## 1900              0        0        0        0        -7
## 1901              0        0        1        1        -7
## 1902              0        0        0        0       -10
## 1903              0        0        0        0        -3
## 1904              0        0        1        1        -7
## 1905              0        0        0        0        -2
## 1906              0        0        0        0         2
## 1907              0        0        0        0         3
## 1908              0        0        0        0         4
## 1909              0        0        0        0        -5
## 1910              0        0        1        1        -4
## 1911              0        0        0        0         0
## 1912              0        0        0        0        12
## 1913              0        0        1        1       -10
## 1914              0        0        0        0        -6
## 1915              0        0        0        0        14
## 1916              0        0        0        0        -1
## 1917              0        0        0        0        -7
## 1918              0        0        0        0        -6
## 1919              0        0        0        0         1
## 1920              0        0        0        0        -5
## 1921              0        0        0        0        -5
## 1922              0        0        0        0         0
## 1923              0        0        1        1         0
## 1924              0        0        0        0         1
## 1925              0        0        0        0        -4
## 1926              0        0        1        1        -1
## 1927              0        0        0        0        -1
## 1928              0        0        0        0        -5
## 1929              0        0        0        0        -4
## 1930              0        0        0        0       -10
## 1931              0        0        0        0         1
## 1932              0        0        0        0         0
## 1933              0        1        0        0        16
## 1934              0        0        0        0        -5
## 1935              0        0        0        0        -5
## 1936              0        0        0        0        -4
## 1937              0        0        0        0         2
## 1938              0        0        0        0        -6
## 1940              0        0        0        0         2
```

```
## 1941               0           0           0           0          -2
## 1942               0           0           0           0           1
## 1943               0           0           0           0          -1
## 1944               0           0           0           0          -2
## 1945               0           0           0           0           9
## 1946               0           0           0           0          -5
## 1947               0           0           0           0           1
## 1948               0           0           0           0           0
## 1949               0           0           1           1          -5
## 1951               0           0           0           0          24
## 1952               0           0           0           0           8
## 1953               0           0           0           0          -4
## 1954               0           0           0           0           0
## 1955               0           0           0           0          12
## 1957               0           0           0           0          -4
## 1959               0           0           0           0           2
## 1960               0           0           0           0           4
## 1961               0           0           1           1          -6
## 1962               0           0           0           0          12
## 1963               0           0           0           0           4
## 1964               0           0           0           0          13
## 1965               0           0           0           0          -1
## 1966               0           0           1           1         -11
## 1968               0           0           0           0           4
## 1969               0           0           1           1          -1
## 1970               0           0           1           1          -7
## 1971               0           0           0           0          -6
## 1972               0           0           0           0          -6
## 1973               0           0           0           0          19
## 1975               0           0           0           0          -7
## 1976               0           0           0           0          -1
## 1977               0           0           0           0          -1
## 1978               0           0           0           0           7
## 1979               0           0           0           0          -7
## 1980               0           0           0           0         -11
## 1981               0           0           0           0          -5
## 1982               0           0           0           0          -4
## 1983               0           0           0           0           0
## 1984               0           0           0           0          -8
## 1985               0           0           0           0          -8
## 1986               0           0           0           0          -2
## 1988               0           0           0           0          -4
## 1989               0           0           1           1          -2
## 1990               0           0           0           0           2
## 1991               0           0           0           0           0
## 1992               0           0           0           0           1
## 1993               0           0           0           0          20
## 1995               0           0           1           1          -4
## 1997               0           0           0           0          14
## 1998               0           0           0           0          12
## 1999               0           0           0           0          -1
## 2000               0           0           0           0          -7
## 2001               0           0           1           1          -1
## 2002               0           0           0           0          -2
```

```
## 2003            0          0          1          1         -7
## 2004            0          0          1          0         -3
## 2005            0          0          0          0          0
## 2006            0          0          0          0         -5
## 2007            0          0          0          0          2
## 2008            0          0          1          1         -6
## 2012            0          0          0          0         16
## 2013            0          0          0          0         -8
## 2014            0          0          1          1         15
## 2015            0          0          0          0          3
## 2016            0          0          1          1          0
## 2019            0          0          0          0         28
## 2020            0          0          0          0          5
## 2022            0          0          0          0         -5
## 2023            0          0          0          0         -4
## 2024            0          0          0          0         13
## 2025            0          0          1          1         -7
## 2027            0          0          0          0         16
## 2028            0          0          0          0          2
## 2030            0          0          0          0          3
## 2031            0          0          0          0          7
## 2032            0          0          0          0          5
## 2033            0          0          0          0         -6
## 2034            0          0          1          1         -3
## 2035            0          0          0          0         15
## 2036            0          0          0          0          1
## 2037            0          0          0          0         -2
## 2038            0          0          0          0         16
## 2039            0          0          0          0          3
## 2040            0          0          1          1         -9
## 2041            0          0          1          1         -3
## 2042            0          0          0          0         -5
## 2043            0          0          0          0         20
## 2044            0          1          1          1         -2
## 2045            0          0          0          0         -4
## 2046            0          0          0          0         -2
## 2047            0          0          0          0          0
## 2048            0          0          1          1         -2
## 2049            0          0          0          0         -3
## 2050            0          0          0          0         -1
## 2051            0          0          0          0         20
## 2052            0          0          0          0         -1
## 2053            0          0          0          0         -3
## 2055            0          0          0          0         22
## 2056            0          0          1          1         -4
## 2057            0          0          0          0         -4
## 2058            0          0          0          0          7
## 2059            0          0          0          0         10
## 2060            0          0          0          0         -3
## 2062            0          0          0          0          5
## 2063            0          0          0          0         16
## 2064            0          0          0          0        -10
## 2065            0          0          0          0         -3
## 2066            0          0          0          0         -3
```

```
## 2067             0          0          0          0          14
## 2068             0          0          0          0           0
## 2069             0          0          0          0           2
## 2070             0          0          0          0          21
## 2071             0          0          0          0           8
## 2072             0          0          0          0          10
## 2074             0          0          1          1          -4
## 2076             0          0          0          0          -4
## 2077             0          0          0          0          19
## 2078             0          0          0          0          -2
## 2079             0          0          0          0          -1
## 2080             0          0          0          0         -10
## 2081             0          0          0          0          -1
## 2083             0          0          0          0          -7
## 2085             0          0          1          1          -6
## 2086             0          0          0          0          -4
## 2087             0          0          0          0          24
## 2088             0          0          1          1          27
## 2089             0          0          0          0          -2
## 2090             0          1          0          0          -1
## 2091             0          0          0          0           6
## 2092             0          0          0          0         -12
## 2093             0          0          0          0          23
## 2094             0          0          0          0          -9
## 2095             0          0          0          0          -5
## 2096             0          0          0          0           6
## 2099             0          0          0          0          -3
## 2100             0          0          0          0          -4
## 2102             0          0          0          0          18
## 2105             0          0          1          1          -9
## 2106             0          1          0          0          -4
## 2107             0          0          0          0          14
## 2108             0          0          0          0          -5
## 2109             0          0          0          0          -5
## 2110             0          0          1          1          -4
## 2111             0          0          0          0          -4
## 2112             0          0          0          0          -4
## 2113             0          0          1          1          -4
## 2114             0          0          0          0          -3
## 2115             0          0          0          0          -5
## 2116             0          0          0          0          -6
## 2117             0          0          1          1          -6
## 2118             0          0          0          0          10
## 2119             0          0          1          1          -2
## 2120             0          0          0          0           2
## 2121             0          0          0          0          12
## 2122             0          0          0          0          -5
## 2123             0          0          0          0          -7
## 2124             0          0          0          0          -6
## 2125             0          0          0          0          -3
## 2126             0          0          0          0          -3
## 2127             0          1          1          1          -2
## 2128             0          0          0          0           0
## 2129             0          0          0          0          -3
```

```
## 2130            0          0          1          1          4
## 2131            0          0          0          0          0
## 2132            0          0          0          0          0
## 2133            0          0          0          0         -1
## 2134            0          0          0          0         -8
## 2135            0          0          0          0         -2
## 2136            0          0          0          0         -7
## 2137            0          0          0          0         -5
## 2138            0          0          1          1         -9
## 2139            0          0          0          0         -2
## 2140            0          0          0          0         26
## 2141            0          0          0          0         -4
## 2142            0          0          0          0          0
## 2143            0          0          0          0         -3
## 2144            0          0          0          0          6
## 2145            0          0          0          0          2
## 2146            0          0          1          1         -3
## 2147            0          0          0          0          8
## 2148            0          0          0          0         -7
## 2149            0          0          0          0          7
## 2151            0          0          1          1          0
## 2152            0          0          0          0         -5
## 2153            0          0          0          0         19
## 2154            0          0          0          0         -6
## 2155            0          0          0          0          2
## 2156            0          0          0          0         -5
## 2157            0          0          0          0          8
## 2158            0          0          0          0         -5
## 2159            0          0          0          0         -4
## 2160            0          0          0          0          2
## 2161            0          0          0          0         -7
## 2162            0          0          0          0         12
## 2163            0          0          0          0         -3
## 2164            0          0          0          0         -1
## 2165            0          0          0          0         -2
## 2166            0          1          1          1         -9
## 2167            0          0          0          0         -3
## 2168            0          0          0          0         -4
## 2169            0          0          0          0         -7
## 2170            0          0          0          0         -7
## 2171            0          0          0          0         -7
## 2172            0          0          0          0         11
## 2173            0          0          0          0         -5
## 2174            0          0          0          0         -5
## 2175            0          0          1          1         -5
## 2176            0          0          0          0         -5
## 2177            0          0          0          0         -7
## 2178            0          0          1          1         -3
## 2179            0          0          0          0         13
## 2180            0          0          0          0         -2
## 2182            0          0          0          0         -2
## 2183            0          0          0          0         -3
## 2184            0          0          0          0         -8
## 2185            0          0          0          0          0
```

```
## 2186          0          1          0          0         -5
## 2187          0          0          0          0         28
## 2188          0          0          0          0         -3
## 2189          0          0          0          0          2
## 2190          0          0          0          0         -1
## 2191          0          0          0          0          4
## 2192          0          0          0          0         -4
## 2193          0          0          0          0         -4
## 2194          0          1          1          1         -2
## 2195          0          0          0          0         -2
## 2196          0          0          0          0        -10
## 2197          0          0          0          0         -5
## 2198          0          0          1          1         -6
## 2199          0          0          0          0          0
## 2200          0          0          0          0         -5
## 2201          0          0          1          1         -4
## 2202          0          0          0          0         -2
## 2203          0          0          0          0          8
## 2204          0          0          0          0         -2
## 2205          0          0          0          0          7
## 2206          0          0          0          0         -3
## 2207          0          0          0          0         -2
## 2208          0          0          0          0          4
## 2209          0          0          1          1         -9
## 2210          0          0          0          0         10
## 2211          0          0          0          0        -15
## 2212          0          0          0          0         -7
## 2215          0          0          0          0         13
## 2216          0          0          0          0         25
## 2217          0          0          0          0          1
## 2218          0          0          0          0         -5
## 2219          0          0          0          0         10
## 2220          0          0          0          0         -6
## 2221          0          0          0          0          5
## 2222          0          0          1          1          0
## 2223          0          0          0          0         -4
## 2224          0          0          0          0         14
## 2225          0          0          0          0         -7
## 2226          0          0          0          0         -6
## 2227          0          0          0          0         -2
## 2228          0          0          0          0         -9
## 2229          0          0          0          0         -5
## 2230          0          0          0          0         -5
## 2231          0          0          0          0         -3
## 2232          0          0          0          0         -2
## 2233          0          0          0          0          0
## 2235          0          0          0          0         10
## 2236          0          0          1          1         -1
## 2237          0          0          0          0         10
## 2238          0          0          0          0         13
## 2239          0          0          0          0         -7
## 2240          0          0          0          0          0
## 2241          0          0          0          0          2
## 2242          0          0          0          0         -2
```

```
## 2243        0        0        0        0       -2
## 2244        0        0        0        0        0
## 2245        0        0        0        0        0
## 2246        0        0        0        0       -3
## 2247        0        0        0        0        8
## 2248        0        0        1        1       -4
## 2249        0        0        0        0        2
## 2250        0        0        1        1        0
## 2251        0        0        0        0        1
## 2252        0        0        0        0       -3
## 2253        0        0        1        1        2
## 2254        0        0        1        1       14
## 2255        0        0        0        0        8
## 2256        0        0        0        0       -5
## 2257        0        0        0        0       13
## 2259        0        0        0        0      -13
## 2260        0        0        0        0       -6
## 2261        0        0        0        0       -2
## 2262        0        0        0        0       -9
## 2263        0        0        0        0       -5
## 2264        0        0        0        0       -2
## 2265        0        1        0        0        4
## 2266        0        0        1        1       -8
## 2267        0        0        0        0      -11
## 2268        0        0        0        0       -3
## 2269        0        0        0        0        0
## 2270        0        0        0        0      -10
## 2271        0        0        0        0       -9
## 2272        0        0        0        0       -7
## 2273        0        0        1        1       -3
## 2274        0        0        0        0        0
## 2275        0        0        0        0       -5
## 2276        0        0        1        1       -7
## 2277        0        0        0        0        5
## 2278        0        0        1        1       -8
## 2279        0        0        0        0        1
## 2280        0        0        0        0       -4
## 2281        0        0        1        1      -11
## 2282        0        0        0        0       -4
## 2283        0        0        0        0       -7
## 2285        0        0        0        0       -2
## 2286        0        0        0        0       -9
## 2287        0        0        0        0       -8
## 2288        0        0        0        0       -6
## 2289        0        0        0        0       -4
## 2290        0        0        0        0       -5
## 2291        0        0        0        0       -4
## 2292        0        0        0        0        0
## 2293        0        0        0        0        2
## 2294        0        0        0        0        4
## 2295        0        0        0        0       -3
## 2296        0        0        1        1       -5
## 2297        0        0        0        0       20
## 2298        0        0        0        0       -3
```

```
## 2300            0            0            0            0           -3
## 2301            0            0            0            0           -1
## 2302            0            0            0            0           -1
## 2303            0            0            0            0           -2
## 2304            0            0            0            0           -5
## 2305            0            0            0            0           -5
## 2306            0            0            0            0           -1
## 2307            0            0            0            0           27
## 2308            0            0            1            1           -1
## 2309            0            0            0            0            0
## 2310            0            0            0            0           -4
## 2312            0            0            0            0           13
## 2313            0            0            0            0           -5
## 2314            0            0            0            0            1
## 2315            0            0            0            0           -4
## 2316            0            0            1            1           -6
## 2317            0            0            0            0           10
## 2318            0            0            0            0           -6
## 2319            0            0            0            0           -3
## 2320            0            0            1            1           -2
## 2321            0            0            1            1           -7
## 2322            0            0            0            0           -6
## 2323            0            0            0            0            8
## 2324            0            0            0            0           -6
## 2325            0            0            0            0           15
## 2326            0            0            0            0           11
## 2327            0            0            0            0           -2
## 2328            0            0            0            0           -1
## 2329            0            0            0            0           -3
## 2330            0            0            1            1           -3
## 2331            0            0            0            0           -4
## 2332            0            0            1            1           -7
## 2334            0            0            0            0            7
## 2335            0            0            0            0            0
## 2336            0            0            0            0          -12
## 2337            0            0            0            0           -1
## 2338            0            0            1            1           -1
## 2339            0            0            1            1           -6
## 2340            0            0            0            0            6
## 2341            0            0            0            0            9
## 2343            0            0            0            0           26
## 2344            0            0            0            0            4
## 2345            0            0            0            0            8
## 2346            0            0            0            0            1
## 2347            0            0            0            0            1
## 2348            0            0            1            0           13
## 2349            0            0            0            0            0
## 2350            0            0            0            0           -3
## 2351            0            0            0            0            0
## 2352            0            0            0            0            1
## 2353            0            0            0            0           -9
## 2354            0            0            0            0           -8
## 2355            0            0            0            0           -7
## 2356            0            0            0            0           -4
```

```
## 2357          0          0          1          1          0
## 2358          0          0          0          0         15
## 2359          0          0          0          0          1
## 2360          0          0          0          0         11
## 2363          0          0          0          0         25
## 2364          0          0          0          0         11
## 2365          0          0          0          0         16
## 2366          0          0          1          1         -4
## 2367          0          0          0          0         -1
## 2368          0          0          1          1         -7
## 2369          0          0          0          0          5
## 2370          0          0          0          0         -2
## 2371          0          0          0          0         14
## 2372          0          0          0          0          4
## 2373          0          0          0          0         -3
## 2375          0          0          0          0          2
## 2376          0          0          0          0         -2
## 2378          0          0          0          0         -4
## 2379          0          0          0          0         -1
## 2380          0          0          0          0         -5
## 2381          0          0          0          0        -10
## 2383          0          0          0          0         -6
## 2384          0          0          0          0          1
## 2385          0          0          0          0         -3
## 2386          0          0          0          0         -7
## 2387          0          0          1          1          9
## 2388          0          0          0          0         -5
## 2389          0          0          0          0          8
## 2390          0          0          0          0          6
## 2391          0          0          0          0         -4
## 2392          0          0          0          0         -8
## 2395          0          0          0          0          7
## 2396          0          0          1          1          8
## 2397          0          0          0          0          3
## 2398          0          0          1          1          1
## 2399          0          0          0          0         -1
## 2401          0          0          0          0          3
## 2402          0          0          0          0          3
## 2403          0          0          0          0         -4
## 2404          0          0          0          0          2
## 2405          0          0          0          0         -1
## 2406          0          0          0          0          6
## 2407          0          0          0          0         -8
## 2408          0          0          0          0         -5
## 2409          0          0          0          0         14
## 2410          0          0          0          0          7
## 2411          0          0          0          0         -8
## 2412          0          0          0          0         -8
## 2413          0          0          0          0         -7
## 2414          0          0          0          0         -5
## 2415          0          0          1          1         -9
## 2416          0          0          0          0         -3
## 2417          0          0          1          1         -9
## 2418          0          0          1          1         -9
```

```
## 2419          0          0          1          0        -11
## 2420          0          0          0          0         -1
## 2421          0          0          0          0         -1
## 2422          0          0          0          0         -3
## 2423          0          0          0          0         18
## 2425          0          0          0          0         -5
## 2426          0          0          0          0         12
## 2427          0          0          0          0          3
## 2428          0          0          1          1         -5
## 2429          0          0          0          0         -8
## 2430          0          0          0          0         -9
## 2431          0          0          0          0          3
## 2432          0          0          0          0         -4
## 2434          0          0          0          0        -12
## 2435          0          0          0          0         -5
## 2436          0          0          0          0         -2
## 2437          0          0          1          1         -1
## 2438          0          0          1          1         -9
## 2439          0          0          0          0         -4
## 2440          0          0          0          0         -2
## 2441          0          0          0          0         -5
## 2442          0          0          1          0         -6
## 2443          0          0          0          0          3
## 2444          0          0          0          0          1
## 2445          0          0          0          0         -2
## 2446          0          0          0          0         -2
## 2447          0          0          1          1         -4
## 2448          0          0          1          1         -2
## 2449          0          0          0          0         -2
## 2450          0          0          0          0         -6
## 2451          0          0          0          0         -2
## 2452          0          0          0          0         14
## 2453          0          0          0          0         29
## 2454          0          0          0          0         14
## 2455          0          0          0          0         -2
## 2456          0          0          0          0         -1
## 2457          0          0          0          0          8
## 2458          0          0          0          0         -5
## 2459          0          0          1          1         -6
## 2460          0          0          0          0         -3
## 2461          0          0          0          0         -1
## 2462          0          0          0          0          4
## 2463          0          0          0          0         -1
## 2464          0          0          0          0        -11
## 2465          0          0          0          0         -4
## 2466          0          0          0          0         -2
## 2467          0          0          0          0         -3
## 2469          0          0          1          1         -1
## 2470          0          0          0          0         -7
## 2471          0          0          0          0          9
## 2472          0          0          0          0         25
## 2475          0          0          0          0         -3
## 2476          0          0          0          0          1
## 2477          0          0          0          0         -7
```

```
## 2480          0          0          1          1         -12
## 2481          0          0          0          0          -4
## 2482          0          0          0          0          -2
## 2483          0          0          0          0           0
## 2486          0          0          0          0           0
## 2487          0          1          0          0          -5
## 2489          0          0          0          0          23
## 2492          0          0          0          0          -6
## 2495          0          0          0          0          13
## 2496          0          1          0          0           0
## 2497          0          0          1          1          -2
## 2498          0          0          1          1          -2
## 2499          0          0          1          1         -10
## 2500          0          0          0          0          -7
## 2501          0          0          0          0          -5
## 2502          0          0          1          1          -3
## 2503          0          0          0          0          -2
## 2504          0          0          0          0          -1
## 2505          0          0          1          1          -4
## 2506          0          0          0          0           4
## 2507          0          0          0          0          -3
## 2508          0          0          1          1          -4
## 2509          0          0          0          0          -2
## 2510          0          0          0          0          13
## 2511          0          0          0          0           0
## 2512          0          0          0          0         -11
## 2513          0          0          0          0          -5
## 2514          0          0          0          0          -6
## 2515          0          0          0          0          -2
## 2516          0          0          0          0          -2
## 2517          0          0          0          0          -2
## 2518          0          0          0          0          -4
## 2519          0          0          0          0          -3
## 2520          0          0          0          0          -8
## 2521          0          0          0          0           6
## 2522          0          0          0          0           1
## 2523          0          0          0          0           5
## 2524          0          0          1          1          -8
## 2525          0          0          0          0          -4
## 2526          0          0          0          0          -3
## 2527          0          0          1          1          -9
## 2528          0          0          0          0          -2
## 2529          0          0          0          0          -2
## 2530          0          0          0          0          -1
## 2531          0          0          0          0           0
## 2532          0          0          0          0          -5
## 2533          0          0          0          0           0
## 2534          0          0          0          0           0
## 2535          0          0          0          0           3
## 2536          0          0          0          0          -1
## 2537          0          0          0          0           0
## 2538          0          0          0          0           8
## 2539          0          0          0          0           9
## 2540          0          0          0          0           6
```

```
## 2541             0          0          0          0          -2
## 2542             0          0          0          0          -5
## 2543             0          0          0          0          -4
## 2544             0          0          0          0          -2
## 2545             0          0          0          0          -6
## 2546             0          0          0          0          -1
## 2547             0          0          0          0          -1
## 2548             0          0          0          0          -6
## 2549             0          0          0          0           1
## 2550             0          0          0          0          -1
## 2551             0          0          0          0          -3
## 2552             0          0          0          0         -12
## 2553             0          0          0          0          -5
## 2554             0          0          0          0           2
## 2555             0          0          0          0          -1
## 2556             0          0          0          0           0
## 2557             0          0          0          0          -1
## 2558             0          0          0          0          -5
## 2559             0          0          1          1           6
## 2560             0          0          0          0          -4
## 2561             0          0          0          0          -4
## 2562             0          0          0          0          -6
## 2563             0          0          0          0          -5
## 2564             0          0          0          0          10
## 2565             0          0          0          0          -6
## 2566             0          0          0          0          -4
## 2567             0          0          1          1          -8
## 2568             0          0          0          0          -7
## 2569             0          1          0          0          -4
## 2570             0          0          0          0          19
## 2571             0          0          0          0          20
## 2572             0          0          0          0          -7
## 2573             0          0          0          0          13
## 2574             0          0          0          0          -5
## 2575             0          0          0          0          -3
## 2576             0          0          0          0          -5
## 2577             0          0          1          1          -6
## 2578             0          0          0          0          -5
## 2579             0          1          0          0          -3
## 2580             0          0          1          1          -5
## 2581             0          0          0          0           7
## 2582             0          0          0          0          -7
## 2583             0          0          0          0           5
## 2584             0          0          0          0          -4
## 2585             0          1          1          1           1
## 2586             0          0          0          0          -8
## 2587             0          0          0          0          -3
## 2588             0          0          1          1          -2
## 2589             0          0          0          0          -8
## 2590             0          0          0          0          11
## 2591             0          0          0          0          -7
## 2592             0          0          0          0          -2
## 2593             0          0          0          0          -6
## 2594             0          0          0          0          -3
```

```
## 2595              0          0          0          0         -4
## 2596              0          0          0          0         -4
## 2597              0          0          1          1         -7
## 2598              0          0          0          0         -2
## 2599              0          0          0          0          5
## 2600              0          1          0          0          1
## 2601              0          0          0          0         -4
## 2602              0          0          0          0         -7
## 2603              0          0          0          0         -2
## 2604              0          0          0          0         -9
## 2605              0          0          0          0         15
## 2606              0          0          0          0         -1
## 2607              0          0          0          0          7
## 2608              0          0          0          0         -2
## 2609              0          0          0          0          1
## 2610              0          0          0          0         -8
## 2611              0          0          0          0         -3
## 2612              0          0          0          0          0
## 2613              0          0          1          1         -7
## 2614              0          0          0          0         -5
## 2615              0          0          0          0         -4
## 2616              0          0          0          0          2
## 2617              0          0          0          0         15
## 2618              0          0          0          0          7
## 2619              0          0          0          0         -6
##  [ reached 'max' / getOption("max.print") -- omitted 114393 rows ]
```

```r
num_trees <- 2^13
set.seed(42)

destfile <- "models_ultimate/final_train_on_train_and_validation_gbm_v1.rds"
if (!file.exists(destfile)) {
    train_final_gbm(destfile)
}

final_model <- readRDS(destfile)
final_preds = predict(final_model, newdata=final_test_df, n.trees=num_trees)
final_rmse = sqrt(mean((final_test_df$dep_delay - final_preds)^2))
summary(final_model)
```
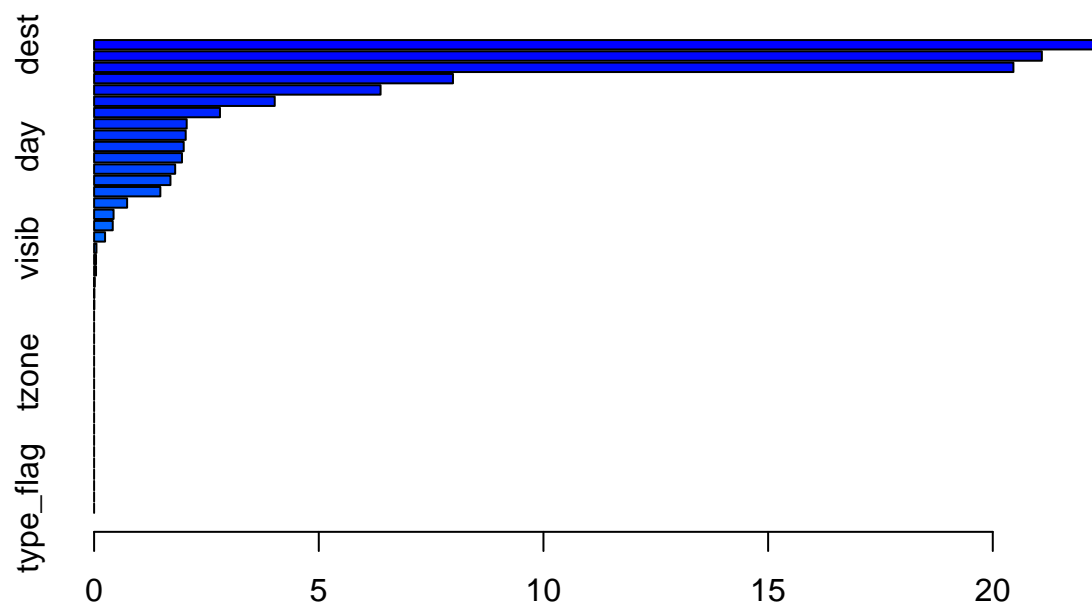
Relative influence

```
##                                                 var      rel.inf
## dest                                           dest  22.25381765
## sched_dep_time_num_minute  sched_dep_time_num_minute  21.09228564
## model                                         model  20.45894347
## month                                         month   7.98661863
## carrier                                     carrier   6.37527061
## dewp                                           dewp   4.01976517
## origin                                       origin   2.80117601
## precip                                       precip   2.06055864
## pressure                                   pressure   2.03864363
## day                                             day   1.99401600
## sched_arr_time_num_minute  sched_arr_time_num_minute   1.95561859
## dep_delay_flag                       dep_delay_flag   1.80418829
## humid                                         humid   1.69910915
## temp                                           temp   1.47431690
## wind_speed                               wind_speed   0.73476017
## sched_dep_time_minute         sched_dep_time_minute   0.43305222
## name                                           name   0.41477025
## pressure_flag                         pressure_flag   0.24412420
## visib                                         visib   0.05216855
## sched_arr_time_minute         sched_arr_time_minute   0.04287644
## wind_dir                                   wind_dir   0.04284273
## manufacturer                           manufacturer   0.01357422
## sched_air_time                       sched_air_time   0.00389522
## distance                                   distance   0.00360764
## lat                                             lat   0.00000000
## lon                                             lon   0.00000000
## alt                                             alt   0.00000000
## tz                                               tz   0.00000000
## dst                                             dst   0.00000000
## tzone                                         tzone   0.00000000
## year.y                                       year.y   0.00000000
```

```
## type                                         type  0.00000000
## engines                                    engines  0.00000000
## seats                                        seats  0.00000000
## engine                                      engine  0.00000000
## temp_flag                                temp_flag  0.00000000
## wind_dir_flag                        wind_dir_flag  0.00000000
## wind_speed_flag                    wind_speed_flag  0.00000000
## precip_flag                            precip_flag  0.00000000
## name_flag                                name_flag  0.00000000
## year.y_flag                            year.y_flag  0.00000000
## type_flag                                type_flag  0.00000000
```

```
print(final_rmse)
```

```
## [1] 7.88805
```

```
print("done")
```

```
## [1] "done"
```

References

"Gradient Boosting Machines · UC Business Analytics R Programming Guide." 2019. http://uc-r.github.io/gbm_regression#h2o.