Challenge-4

Insert your name here

2023-09-06

Questions

Load the "comm_data.csv" dataset using the `read_csv()` command and assign it to a variable named "comm_data."

```
# Enter code here
comm_data <- read.csv("comm_data.csv")
```

Question-1: Communication Chronicles

Using the select command, create a new dataframe containing only the "date," "channel," and "message" columns from the "comm_data" dataset.

Solution:

```
# Enter code here
library(dplyr)
```

```
##
## 载入程辑包：'dplyr'
```

```
## The following objects are masked from 'package:stats':
##
##     filter, lag
```

```
## The following objects are masked from 'package:base':
##
##     intersect, setdiff, setequal, union
```

```
selected_data1 <- comm_data %>%
  select(date, channel, message)
```

Question-2: Channel Selection

Use the filter command to create a new dataframe that includes messages sent through the "Twitter" channel on August 2nd.

Solution:

```
# Enter code here
selected_data2 <- comm_data %>%
filter(channel == "Twitter", date == as.Date("2023-08-02"))
```

Question-3: Chronological Order

Utilizing the arrange command, arrange the "comm_data" dataframe in ascending order based on the "date" column.

Solution:

```
# Enter code here
sorted_data <- arrange(comm_data, date)
```

Question-4: Distinct Discovery

Apply the distinct command to find the unique senders in the "comm_data" dataframe.

Solution:

```
# Enter code here
unique_senders <- distinct(comm_data, sender)
```

Question-5: Sender Stats

Employ the count and group_by commands to generate a summary table that shows the count of messages sent by each sender in the "comm_data" dataframe.

Solution:

```
# Enter code here
summary_table1 <- comm_data %>%
  group_by(sender) %>%
  summarise(message_count = n())
summary_table1
```

```
## # A tibble: 6 × 2
##   sender        message_count
##   <chr>                 <int>
## 1 @bob_tweets             179
## 2 @erin_tweets            171
## 3 @frank_chat             174
## 4 alice@example           180
## 5 carol_slack             141
## 6 dave@example            155
```

Question-6: Channel Chatter Insights

Using the group_by and count commands, create a summary table that displays the count of messages sent through each communication channel in the "comm_data" dataframe.

Solution:

```
# Enter code here
summary_table2 <- comm_data %>%
  group_by(channel) %>%
  count()
summary_table2
```

```
## # A tibble: 3 × 2
## # Groups:   channel [3]
##   channel      n
##   <chr>    <int>
## 1 Email      331
## 2 Slack      320
## 3 Twitter    349
```

Question-7: Positive Pioneers

Utilize the filter, select, and arrange commands to identify the top three senders with the highest average positive sentiment scores. Display their usernames and corresponding sentiment averages.

Solution:

```
# Enter code here
filtered_data <- comm_data %>%
  filter(sentiment > 0)
summary_table <- filtered_data %>%
  group_by(sender) %>%
  summarise(avg_sentiment = mean(sentiment))
sorted_summary_table <- summary_table %>%
  arrange(desc(avg_sentiment))
top_three_senders <- sorted_summary_table %>%
  head(3)
select(top_three_senders, sender, avg_sentiment)
```

```
## # A tibble: 3 × 2
##   sender        avg_sentiment
##   <chr>                 <dbl>
## 1 dave@example          0.541
## 2 @frank_chat           0.528
## 3 alice@example         0.493
```

Question-8: Message Mood Over Time

With the group_by, summarise, and arrange commands, calculate the average sentiment score for each day in the "comm_data" dataframe.

Solution:

```
summary_table <- comm_data %>%
  group_by(date) %>%
  summarise(avg_sentiment = mean(sentiment))
sorted_summary_table <- summary_table %>%
  arrange(date)
```

Question-9: Selective Sentiments

Use the filter and select commands to extract messages with a negative sentiment score (less than 0) and create a new dataframe.

Solution:

```
# Enter code here
negative_sentiment_data <- comm_data %>%
  filter(sentiment < 0)
negative_sentiment_data <- negative_sentiment_data %>%
  select(date, sender, message)
```

Question-10: Enhancing Engagement

Apply the mutate command to add a new column to the "comm_data" dataframe, representing a sentiment label: "Positive," "Neutral," or "Negative," based on the sentiment score.

Solution:

```
# Enter code here
comm_data <- comm_data %>%
  mutate(sentiment_label = ifelse(sentiment > 0, "Positive",
           ifelse(sentiment == 0, "Neutral", "Negative")))
comm_data
```

```
##           date channel        sender       message    sentiment
## 1   2023-08-11 Twitter  dave@example   Fun weekend!  0.824099663
## 2   2023-08-11   Email  @bob_tweets Hello everyone!  0.662486946
## 3   2023-08-11   Slack  @frank_chat Hello everyone! -0.143450806
## 4   2023-08-18   Email  @frank_chat   Fun weekend!  0.380196611
## 5   2023-08-14   Slack  @frank_chat Need assistance  0.187954018
## 6   2023-08-04   Email @erin_tweets Need assistance -0.108376242
## 7   2023-08-10 Twitter  @frank_chat Hello everyone! -0.740855453
## 8   2023-08-04   Slack alice@example Hello everyone! -0.187917918
## 9   2023-08-20   Email  dave@example   Team meeting  0.617879979
## 10  2023-08-09   Slack @erin_tweets Hello everyone! -0.932525445
## 11  2023-08-06   Email  @frank_chat   Team meeting  0.819675826
## 12  2023-08-16 Twitter @erin_tweets    Great work!  0.150156671
## 13  2023-08-01 Twitter alice@example Need assistance  0.676776995
## 14  2023-08-16   Slack alice@example  Exciting news!  0.320830711
## 15  2023-08-16 Twitter alice@example  Exciting news!  0.927110374
## 16  2023-08-07   Email  @bob_tweets    Great work!  0.642848774
## 17  2023-08-01 Twitter  @bob_tweets Need assistance  0.148395223
## 18  2023-08-20   Email  carol_slack   Team meeting  0.909817838
## 19  2023-08-08   Slack @erin_tweets Need assistance -0.879413284
## 20  2023-08-06   Slack  dave@example Hello everyone!  0.968081689
## 21  2023-08-11 Twitter  @bob_tweets    Great work! -0.751736611
## 22  2023-08-12 Twitter  dave@example   Team meeting -0.786887704
## 23  2023-08-12   Slack  @frank_chat   Fun weekend!  0.519153008
## 24  2023-08-11   Email  @frank_chat   Fun weekend!  0.874191639
## 25  2023-08-04   Email  @bob_tweets   Fun weekend! -0.539049788
## 26  2023-08-13   Email alice@example Hello everyone!  0.433930994
## 27  2023-08-16 Twitter  @bob_tweets  Exciting news! -0.141741692
## 28  2023-08-09 Twitter alice@example Need assistance  0.083300223
## 29  2023-08-14 Twitter  dave@example    Great work!  0.866824818
## 30  2023-08-17 Twitter alice@example   Team meeting -0.189370414
## 31  2023-08-17 Twitter  @bob_tweets Need assistance -0.493062959
## 32  2023-08-15   Email  @bob_tweets    Great work!  0.468266435
## 33  2023-08-01 Twitter  @frank_chat Need assistance  0.599045397
## 34  2023-08-16 Twitter alice@example    Great work! -0.179680133
## 35  2023-08-10 Twitter @erin_tweets    Great work!  0.199771451
## 36  2023-08-07   Email  dave@example   Team meeting  0.327507946
## 37  2023-08-02   Email  dave@example    Great work!  0.973676749
```

```
## 38   2023-08-13    Email    @bob_tweets     Team meeting -0.092784007
## 39   2023-08-11    Slack    @bob_tweets     Team meeting -0.955364774
## 40   2023-08-05    Email    carol_slack  Exciting news!  0.468174768
## 41   2023-08-19 Twitter    @frank_chat  Need assistance  0.481529109
## 42   2023-08-10    Slack   @erin_tweets  Need assistance -0.766245456
## 43   2023-08-11    Email    carol_slack  Need assistance -0.547700667
## 44   2023-08-06 Twitter   @erin_tweets  Exciting news! -0.415566467
## 45   2023-08-06    Email    carol_slack     Great work! -0.579760317
## 46   2023-08-18    Email alice@example     Fun weekend!  0.233402089
## 47   2023-08-07    Email    @frank_chat     Fun weekend!  0.387379609
## 48   2023-08-20    Email alice@example     Great work!  0.062977130
## 49   2023-08-16    Slack   @erin_tweets  Exciting news! -0.290788232
## 50   2023-08-02 Twitter alice@example     Team meeting  0.210089974
## 51   2023-08-12    Email   dave@example  Need assistance  0.091942075
## 52   2023-08-10 Twitter   @erin_tweets  Need assistance -0.340010146
## 53   2023-08-13    Slack    carol_slack Hello everyone!  0.675182751
## 54   2023-08-13    Slack    @bob_tweets     Great work! -0.443448592
## 55   2023-08-16    Slack    @bob_tweets     Team meeting -0.774452816
## 56   2023-08-13    Slack alice@example     Great work!  0.480868685
## 57   2023-08-07    Slack    @frank_chat Need assistance  0.914976185
## 58   2023-08-13 Twitter   dave@example     Fun weekend!  0.986894567
## 59   2023-08-06 Twitter alice@example Hello everyone! -0.882707532
## 60   2023-08-15    Slack   @erin_tweets Hello everyone! -0.689319659
## 61   2023-08-17    Email    @frank_chat     Team meeting  0.932789830
## 62   2023-08-12    Slack    @frank_chat Hello everyone! -0.219064676
## 63   2023-08-18 Twitter    @frank_chat     Team meeting -0.004460444
## 64   2023-08-20 Twitter alice@example Hello everyone!  0.482187657
## 65   2023-08-14 Twitter    @frank_chat     Team meeting -0.935610580
## 66   2023-08-03    Email   @erin_tweets     Fun weekend!  0.924321534
## 67   2023-08-06    Slack    @bob_tweets Hello everyone! -0.452905738
## 68   2023-08-14 Twitter alice@example  Exciting news!  0.415267176
## 69   2023-08-16    Email    @frank_chat Hello everyone!  0.997601895
## 70   2023-08-13 Twitter alice@example  Need assistance  0.119616441
## 71   2023-08-13    Email   dave@example  Need assistance -0.834047724
## 72   2023-08-05    Slack   @erin_tweets Need assistance -0.195926677
## 73   2023-08-12    Slack   dave@example     Fun weekend! -0.285561244
## 74   2023-08-16    Slack    carol_slack Hello everyone!  0.529127310
## 75   2023-08-10    Email    @bob_tweets     Team meeting -0.060755176
```

```
## 76   2023-08-12 Twitter   carol_slack     Great work!  0.407506729
## 77   2023-08-18    Email   @frank_chat    Fun weekend! -0.569811309
## 78   2023-08-17    Email   @bob_tweets    Fun weekend!  0.825692308
## 79   2023-08-09    Email   @erin_tweets  Exciting news! -0.018193701
## 80   2023-08-10    Email   @bob_tweets     Great work!  0.924440826
## 81   2023-08-04 Twitter   @bob_tweets    Fun weekend!  0.185009266
## 82   2023-08-19    Email  dave@example  Exciting news!  0.821827833
## 83   2023-08-04    Slack alice@example Need assistance  0.534302738
## 84   2023-08-17    Slack alice@example  Exciting news! -0.301641050
## 85   2023-08-15 Twitter   @erin_tweets     Great work! -0.244326655
## 86   2023-08-15 Twitter   carol_slack Hello everyone! -0.761104998
## 87   2023-08-03 Twitter   @bob_tweets  Exciting news! -0.408464086
## 88   2023-08-16    Email   @frank_chat    Fun weekend! -0.584208118
## 89   2023-08-04    Slack   @bob_tweets    Fun weekend!  0.866016825
## 90   2023-08-15 Twitter alice@example    Team meeting -0.178657859
## 91   2023-08-07    Email alice@example     Great work! -0.329095908
## 92   2023-08-15 Twitter alice@example    Fun weekend! -0.707901944
## 93   2023-08-20    Email alice@example Hello everyone! -0.166448134
## 94   2023-08-19    Email  dave@example  Exciting news! -0.533024813
## 95   2023-08-07    Slack   @bob_tweets Need assistance -0.356371285
## 96   2023-08-17    Email   @bob_tweets    Team meeting -0.467768930
## 97   2023-08-09 Twitter   carol_slack    Fun weekend! -0.056202481
## 98   2023-08-19    Email   @erin_tweets    Team meeting -0.757670477
## 99   2023-08-16 Twitter   @erin_tweets  Exciting news! -0.265161676
## 100  2023-08-01 Twitter   @frank_chat  Exciting news! -0.822780307
## 101  2023-08-10    Email   @frank_chat Hello everyone!  0.535708998
## 102  2023-08-17 Twitter   @bob_tweets  Exciting news!  0.953910344
## 103  2023-08-14    Email  @erin_tweets     Great work!  0.891589128
## 104  2023-08-08    Email   @bob_tweets Need assistance  0.115187556
## 105  2023-08-03 Twitter   @erin_tweets Need assistance -0.680233249
## 106  2023-08-14 Twitter   @erin_tweets Hello everyone! -0.647561021
## 107  2023-08-20    Email   @bob_tweets  Exciting news!  0.931368547
## 108  2023-08-13 Twitter   @bob_tweets     Great work! -0.705626460
## 109  2023-08-06    Slack   @frank_chat Hello everyone! -0.050532605
## 110  2023-08-20    Slack alice@example     Great work! -0.459148118
## 111  2023-08-20    Slack  dave@example  Exciting news!  0.617734990
## 112  2023-08-11    Email alice@example    Fun weekend! -0.034278538
## 113  2023-08-09 Twitter alice@example     Great work! -0.013945965
```

```
## 114 2023-08-10   Slack   dave@example    Team meeting -0.934943126
## 115 2023-08-16   Slack  alice@example Need assistance  0.669039086
## 116 2023-08-02   Slack   @erin_tweets    Fun weekend! -0.474169046
## 117 2023-08-14   Email   @bob_tweets    Team meeting -0.815906889
## 118 2023-08-07   Slack   @frank_chat  Exciting news!  0.993148146
## 119 2023-08-04   Email  alice@example  Exciting news! -0.200843529
## 120 2023-08-13 Twitter  alice@example    Fun weekend! -0.958858334
## 121 2023-08-08   Email   carol_slack    Team meeting  0.213498762
## 122 2023-08-18   Slack   @bob_tweets    Fun weekend! -0.558302570
## 123 2023-08-12 Twitter   carol_slack Need assistance -0.435741366
## 124 2023-08-18   Email  dave@example Need assistance -0.770186925
## 125 2023-08-11   Slack   @frank_chat  Exciting news! -0.871460078
## 126 2023-08-18 Twitter   @bob_tweets Need assistance  0.083397951
## 127 2023-08-11   Slack  dave@example Hello everyone! -0.843954970
## 128 2023-08-15   Email   @erin_tweets    Fun weekend! -0.576360519
## 129 2023-08-09 Twitter  alice@example     Great work!  0.432502551
## 130 2023-08-11 Twitter   @erin_tweets Need assistance -0.462980804
## 131 2023-08-15   Email   carol_slack  Exciting news! -0.745493084
## 132 2023-08-15 Twitter  dave@example    Fun weekend!  0.469535301
## 133 2023-08-02 Twitter   @erin_tweets  Exciting news!  0.750492542
## 134 2023-08-16   Email  alice@example    Team meeting  0.858062949
## 135 2023-08-07   Email  alice@example  Exciting news!  0.773558143
## 136 2023-08-19   Email  alice@example  Exciting news!  0.401543677
## 137 2023-08-17 Twitter   @frank_chat Hello everyone!  0.951721462
## 138 2023-08-20 Twitter  alice@example  Exciting news!  0.310656996
## 139 2023-08-20 Twitter   carol_slack     Great work!  0.544291852
## 140 2023-08-10   Slack   @bob_tweets Hello everyone! -0.075317414
## 141 2023-08-04   Email   @erin_tweets Need assistance  0.689327837
## 142 2023-08-15 Twitter   @bob_tweets    Team meeting  0.853966497
## 143 2023-08-10   Email  alice@example Need assistance -0.815106571
## 144 2023-08-03 Twitter  alice@example Hello everyone!  0.530733542
## 145 2023-08-19   Slack  dave@example     Great work! -0.526421044
## 146 2023-08-12 Twitter  dave@example Hello everyone!  0.278570379
## 147 2023-08-01   Slack   @frank_chat    Team meeting -0.202094683
## 148 2023-08-11   Email  dave@example     Great work!  0.509797142
## 149 2023-08-17 Twitter   carol_slack    Fun weekend!  0.172285239
## 150 2023-08-01   Slack   @bob_tweets  Exciting news!  0.146396939
## 151 2023-08-07 Twitter   @bob_tweets    Fun weekend! -0.390309056
```

```
## 152  2023-08-20   Slack   @bob_tweets    Great work!   0.203791809
## 153  2023-08-12   Slack   carol_slack    Great work!  -0.733910211
## 154  2023-08-17   Email   @erin_tweets   Great work!   0.709753431
## 155  2023-08-10 Twitter   @erin_tweets    Fun weekend! -0.496555788
## 156  2023-08-14 Twitter alice@example Hello everyone! -0.892831107
## 157  2023-08-11   Slack   @frank_chat Hello everyone! -0.108963726
## 158  2023-08-11   Slack alice@example    Fun weekend! -0.799520459
## 159  2023-08-03 Twitter   carol_slack   Exciting news!  0.044649603
## 160  2023-08-18   Email   @bob_tweets    Fun weekend! -0.558283084
## 161  2023-08-12 Twitter   @bob_tweets  Exciting news! -0.608554570
## 162  2023-08-17   Email   dave@example    Fun weekend!  0.420022254
## 163  2023-08-16   Slack alice@example Need assistance  0.445466304
## 164  2023-08-01   Slack   @erin_tweets   Great work!   0.244422906
## 165  2023-08-01 Twitter   @frank_chat   Team meeting -0.526283488
## 166  2023-08-04 Twitter   dave@example Need assistance -0.635092593
## 167  2023-08-07   Email   @erin_tweets   Great work!  -0.446627778
## 168  2023-08-06 Twitter   @bob_tweets    Fun weekend! -0.149422837
## 169  2023-08-15   Slack alice@example    Fun weekend!  0.271711212
## 170  2023-08-13 Twitter alice@example Hello everyone!  0.752351641
## 171  2023-08-05 Twitter alice@example   Great work!  -0.630844017
## 172  2023-08-10   Slack   @frank_chat Hello everyone!  0.142070077
## 173  2023-08-16 Twitter   @bob_tweets    Fun weekend! -0.533522750
## 174  2023-08-06   Email   @bob_tweets    Fun weekend!  0.201027735
## 175  2023-08-13   Slack   @frank_chat  Exciting news!  0.443950114
## 176  2023-08-01 Twitter   @frank_chat  Exciting news! -0.398672424
## 177  2023-08-07   Slack alice@example  Exciting news! -0.686074989
## 178  2023-08-13   Slack   @erin_tweets Need assistance -0.514785561
## 179  2023-08-18 Twitter   @frank_chat  Exciting news! -0.445320373
## 180  2023-08-14 Twitter alice@example   Great work!   0.346799491
## 181  2023-08-06 Twitter   dave@example Exciting news! -0.433124611
## 182  2023-08-13 Twitter   @frank_chat Hello everyone! -0.369747002
## 183  2023-08-07   Email alice@example Hello everyone!  0.917979236
## 184  2023-08-14 Twitter   @frank_chat    Great work!  -0.912142744
## 185  2023-08-09   Email   @erin_tweets Exciting news!   0.020394353
## 186  2023-08-15   Slack   carol_slack    Fun weekend! -0.760701751
## 187  2023-08-09   Slack   @bob_tweets   Team meeting   0.500293179
## 188  2023-08-03 Twitter   @bob_tweets Hello everyone! -0.243440011
## 189  2023-08-16   Slack   @bob_tweets   Team meeting   0.120248223
```

```
## 190 2023-08-06    Email    @bob_tweets     Fun weekend! -0.159573650
## 191 2023-08-07    Email    carol_slack   Exciting news!  0.785684678
## 192 2023-08-12    Email   @erin_tweets   Exciting news! -0.260005387
## 193 2023-08-13    Slack    carol_slack   Exciting news!  0.474910577
## 194 2023-08-01    Slack    @frank_chat Need assistance  0.601800072
## 195 2023-08-07    Slack alice@example Need assistance  0.877496709
## 196 2023-08-10    Slack alice@example Need assistance -0.356432681
## 197 2023-08-18 Twitter  dave@example Need assistance -0.577738499
## 198 2023-08-07    Email    @bob_tweets     Team meeting -0.767587414
## 199 2023-08-12    Slack alice@example     Fun weekend!  0.226010282
## 200 2023-08-14    Slack   @erin_tweets Hello everyone!  0.987832270
## 201 2023-08-06    Slack    @frank_chat Need assistance  0.746888391
## 202 2023-08-14 Twitter alice@example     Team meeting  0.024089097
## 203 2023-08-07 Twitter  dave@example     Team meeting -0.014527882
## 204 2023-08-02    Slack   @erin_tweets   Exciting news!  0.900116188
## 205 2023-08-09 Twitter alice@example     Fun weekend! -0.391704335
## 206 2023-08-07    Slack   @erin_tweets Hello everyone!  0.079340591
## 207 2023-08-16    Email    carol_slack      Great work!  0.306993762
## 208 2023-08-10    Email    @frank_chat Need assistance -0.857863282
## 209 2023-08-09    Slack   @erin_tweets     Fun weekend!  0.542777083
## 210 2023-08-03    Email  dave@example Hello everyone!  0.575844854
## 211 2023-08-03 Twitter  dave@example     Team meeting -0.024207670
## 212 2023-08-05 Twitter   @bob_tweets Need assistance  0.089429019
## 213 2023-08-19    Slack    @bob_tweets Hello everyone!  0.679174718
## 214 2023-08-03    Email   @erin_tweets     Team meeting  0.100578078
## 215 2023-08-04    Slack    @frank_chat Need assistance  0.691338675
## 216 2023-08-07    Slack    @bob_tweets Need assistance -0.611560303
## 217 2023-08-11    Slack    @bob_tweets Need assistance -0.542398809
## 218 2023-08-05    Slack    @bob_tweets Hello everyone! -0.940684421
## 219 2023-08-20    Slack alice@example   Exciting news!  0.685212519
## 220 2023-08-14    Email   @erin_tweets Need assistance  0.867801995
## 221 2023-08-20 Twitter   @erin_tweets      Great work! -0.404516522
## 222 2023-08-20    Slack  dave@example   Exciting news! -0.476039052
## 223 2023-08-16 Twitter  dave@example      Great work!  0.827052074
## 224 2023-08-16    Email    carol_slack      Great work! -0.045373839
## 225 2023-08-11    Slack    carol_slack   Exciting news!  0.062969209
## 226 2023-08-12    Email    @bob_tweets Need assistance -0.042491458
## 227 2023-08-18    Email alice@example Hello everyone! -0.024430894
```

```
## 228   2023-08-03  Twitter    @bob_tweets Need assistance  0.115823371
## 229   2023-08-20    Email     @bob_tweets Need assistance -0.299717092
## 230   2023-08-19    Slack     @bob_tweets Hello everyone! -0.558468956
## 231   2023-08-19  Twitter     @bob_tweets    Great work!  0.521462946
## 232   2023-08-05    Slack     @bob_tweets   Team meeting -0.386754569
## 233   2023-08-08  Twitter     @frank_chat Hello everyone! -0.081353148
## 234   2023-08-16  Twitter    dave@example Need assistance -0.194268964
## 235   2023-08-07    Slack     carol_slack Hello everyone!  0.973429719
## 236   2023-08-03  Twitter     carol_slack    Great work!  0.646422371
## 237   2023-08-11    Email    dave@example   Team meeting  0.146319367
## 238   2023-08-01    Slack     carol_slack Hello everyone!  0.802523659
## 239   2023-08-08    Email     carol_slack   Fun weekend!  0.670605208
## 240   2023-08-16    Email     @frank_chat  Exciting news!  0.305391626
## 241   2023-08-06    Slack     @bob_tweets   Fun weekend! -0.927836751
## 242   2023-08-14    Slack    @erin_tweets    Great work! -0.518683678
## 243   2023-08-05    Email    @erin_tweets  Exciting news!  0.549038415
## 244   2023-08-13    Email     carol_slack  Exciting news!  0.991050147
## 245   2023-08-18    Email    @erin_tweets Need assistance -0.240649289
## 246   2023-08-20  Twitter    @erin_tweets    Great work! -0.743658878
## 247   2023-08-11  Twitter     @frank_chat   Team meeting  0.629940747
## 248   2023-08-18    Email     carol_slack   Team meeting  0.343653605
## 249   2023-08-01    Slack    dave@example   Team meeting -0.176315426
## 250   2023-08-05    Slack     carol_slack   Team meeting -0.320228465
## 251   2023-08-08    Email    dave@example Need assistance  0.084778340
## 252   2023-08-19    Email    dave@example  Exciting news!  0.324592507
## 253   2023-08-15    Slack     @frank_chat  Exciting news! -0.582243779
## 254   2023-08-18    Email     @bob_tweets  Exciting news!  0.497974098
## 255   2023-08-14    Slack     @frank_chat Need assistance -0.384110797
## 256   2023-08-10    Slack    alice@example    Great work!  0.804542714
## 257   2023-08-10    Slack    @erin_tweets   Team meeting  0.862134462
## 258   2023-08-11  Twitter    dave@example  Exciting news!  0.018387399
## 259   2023-08-15    Email     carol_slack Need assistance  0.414960733
## 260   2023-08-20  Twitter     @frank_chat   Team meeting  0.659773430
## 261   2023-08-12  Twitter    alice@example Hello everyone!  0.532433989
## 262   2023-08-20    Slack    alice@example  Exciting news! -0.415822029
## 263   2023-08-18  Twitter     @frank_chat  Exciting news!  0.784590872
## 264   2023-08-14  Twitter     @bob_tweets    Great work! -0.970631612
## 265   2023-08-02  Twitter    dave@example  Exciting news!  0.817105632
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## 266   2023-08-19    Email   @erin_tweets     Team meeting -0.823923888
## 267   2023-08-02 Twitter   @erin_tweets    Exciting news!  0.581556937
## 268   2023-08-05 Twitter    carol_slack      Fun weekend!  0.706561523
## 269   2023-08-12    Slack   @frank_chat Need assistance -0.611636332
## 270   2023-08-08    Slack    carol_slack   Exciting news! -0.388513986
## 271   2023-08-19    Slack   @erin_tweets      Great work!  0.037533612
## 272   2023-08-01    Email    carol_slack     Fun weekend!  0.757286296
## 273   2023-08-04    Slack    carol_slack     Fun weekend! -0.049394990
## 274   2023-08-03 Twitter    carol_slack      Great work!  0.049291416
## 275   2023-08-16    Slack   @frank_chat     Team meeting -0.143542713
## 276   2023-08-06 Twitter    carol_slack     Team meeting -0.385177557
## 277   2023-08-06    Email  dave@example Need assistance -0.438415068
## 278   2023-08-06 Twitter   @bob_tweets     Team meeting -0.549432104
## 279   2023-08-14    Email    carol_slack     Fun weekend!  0.446355308
## 280   2023-08-04    Email alice@example      Great work! -0.769964864
## 281   2023-08-05    Slack  @erin_tweets Need assistance  0.519475343
## 282   2023-08-06    Slack alice@example     Fun weekend! -0.103599444
## 283   2023-08-04    Email   @frank_chat Need assistance  0.063336529
## 284   2023-08-15    Slack   @bob_tweets   Exciting news!  0.423514269
## 285   2023-08-16    Slack    carol_slack Hello everyone! -0.321912185
## 286   2023-08-03    Slack alice@example      Great work! -0.150377708
## 287   2023-08-18    Slack  @erin_tweets     Team meeting  0.353438236
## 288   2023-08-03 Twitter  dave@example Hello everyone!  0.902683333
## 289   2023-08-20 Twitter alice@example     Fun weekend!  0.280627117
## 290   2023-08-15 Twitter   @frank_chat Need assistance -0.639425840
## 291   2023-08-05 Twitter alice@example     Team meeting  0.824948560
## 292   2023-08-09    Slack  @erin_tweets     Team meeting  0.268132484
## 293   2023-08-04    Email   @bob_tweets Need assistance  0.017915569
## 294   2023-08-18 Twitter    carol_slack   Exciting news!  0.222249684
## 295   2023-08-20    Email   @bob_tweets     Team meeting -0.801527123
## 296   2023-08-12 Twitter  dave@example      Great work!  0.195303030
## 297   2023-08-14 Twitter  dave@example     Fun weekend!  0.474564350
## 298   2023-08-20    Slack  @erin_tweets     Team meeting -0.134665603
## 299   2023-08-20    Email    carol_slack     Team meeting  0.078007510
## 300   2023-08-02 Twitter  @erin_tweets   Exciting news! -0.525143623
## 301   2023-08-09    Slack alice@example Need assistance  0.665302936
## 302   2023-08-17 Twitter  @erin_tweets     Fun weekend! -0.417790642
## 303   2023-08-08    Slack  @erin_tweets      Great work! -0.410223121
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## 304   2023-08-05    Slack   @erin_tweets   Exciting news! -0.302134784
## 305   2023-08-19    Email   dave@example    Team meeting  0.087382621
## 306   2023-08-19    Slack  alice@example    Team meeting -0.249497572
## 307   2023-08-03    Slack   dave@example     Great work! -0.488912587
## 308   2023-08-15    Slack    @bob_tweets    Team meeting -0.271451744
## 309   2023-08-10  Twitter   @erin_tweets    Team meeting  0.384202328
## 310   2023-08-06    Email    carol_slack     Great work!  0.766328182
## 311   2023-08-08    Email  alice@example   Exciting news! -0.007040349
## 312   2023-08-07    Slack    @bob_tweets   Exciting news!  0.370947586
## 313   2023-08-03  Twitter  alice@example  Hello everyone! -0.893453151
## 314   2023-08-01    Email    @frank_chat    Team meeting -0.670432338
## 315   2023-08-18    Email  alice@example   Exciting news!  0.422912350
## 316   2023-08-03    Email    @frank_chat  Need assistance -0.345415825
## 317   2023-08-04    Slack   dave@example     Fun weekend! -0.848228461
## 318   2023-08-15    Email    @frank_chat  Need assistance  0.385732211
## 319   2023-08-06    Slack  alice@example     Fun weekend! -0.143456620
## 320   2023-08-11    Slack   dave@example  Hello everyone!  0.879992486
## 321   2023-08-05  Twitter    carol_slack    Team meeting  0.364639959
## 322   2023-08-20    Slack   dave@example     Great work!  0.814900840
## 323   2023-08-20    Email   @erin_tweets   Exciting news! -0.195798854
## 324   2023-08-09    Slack   dave@example     Fun weekend! -0.358376735
## 325   2023-08-13    Email    carol_slack   Exciting news! -0.930242309
## 326   2023-08-20    Slack   @erin_tweets     Fun weekend!  0.604609676
## 327   2023-08-15    Email   @erin_tweets  Hello everyone! -0.598425182
## 328   2023-08-16    Slack   dave@example   Exciting news!  0.461496073
## 329   2023-08-02  Twitter  alice@example    Team meeting  0.964958043
## 330   2023-08-16  Twitter    carol_slack   Exciting news! -0.875286373
## 331   2023-08-19    Email    @frank_chat  Hello everyone!  0.179850068
## 332   2023-08-14    Slack   @erin_tweets   Exciting news!  0.336964048
## 333   2023-08-07    Slack   @erin_tweets     Great work! -0.643276188
## 334   2023-08-01  Twitter    @bob_tweets   Exciting news! -0.452694423
## 335   2023-08-11  Twitter    @bob_tweets   Exciting news!  0.260118117
## 336   2023-08-18    Slack    @bob_tweets  Need assistance -0.754348847
## 337   2023-08-14    Email   dave@example  Need assistance -0.829999507
## 338   2023-08-14    Email  alice@example  Need assistance  0.043240849
## 339   2023-08-01    Slack    carol_slack     Fun weekend! -0.877705400
## 340   2023-08-12  Twitter    @bob_tweets    Team meeting  0.265132846
## 341   2023-08-04    Slack  alice@example    Team meeting -0.111247493
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## 342   2023-08-05    Email    carol_slack     Fun weekend!   0.451752027
## 343   2023-08-04    Email    @frank_chat     Great work!  -0.317266905
## 344   2023-08-08 Twitter  alice@example Hello everyone!   0.223401716
## 345   2023-08-07 Twitter   dave@example   Exciting news!   0.466239469
## 346   2023-08-14    Slack   dave@example Hello everyone!   0.491653796
## 347   2023-08-04 Twitter    @bob_tweets     Fun weekend!   0.163814227
## 348   2023-08-04    Email   @erin_tweets     Fun weekend!  -0.415885320
## 349   2023-08-18    Slack   @erin_tweets   Exciting news!  -0.537696546
## 350   2023-08-01    Email    carol_slack Need assistance  -0.130674560
## 351   2023-08-10    Slack    @bob_tweets Need assistance   0.279333149
## 352   2023-08-16 Twitter    carol_slack Need assistance  -0.375053814
## 353   2023-08-18    Email    carol_slack   Exciting news!  -0.978982675
## 354   2023-08-14    Email   @erin_tweets Need assistance  -0.220039924
## 355   2023-08-14    Email  alice@example Need assistance   0.041204039
## 356   2023-08-20 Twitter    @bob_tweets     Fun weekend!   0.236553716
## 357   2023-08-08    Email  alice@example     Great work!   0.222402995
## 358   2023-08-19    Email  alice@example     Great work!   0.301563812
## 359   2023-08-17    Email   dave@example Hello everyone!   0.976894801
## 360   2023-08-07    Slack    carol_slack    Team meeting   0.190247875
## 361   2023-08-07 Twitter    carol_slack Need assistance   0.895823483
## 362   2023-08-01    Slack   dave@example    Team meeting   0.093826082
## 363   2023-08-17    Slack  alice@example     Great work!   0.652192219
## 364   2023-08-04    Slack    carol_slack Need assistance   0.088740259
## 365   2023-08-08    Slack    @bob_tweets Hello everyone!   0.740663246
## 366   2023-08-17 Twitter   dave@example     Fun weekend!   0.775130778
## 367   2023-08-11 Twitter   dave@example     Fun weekend!   0.124404418
## 368   2023-08-19    Slack    @bob_tweets Hello everyone!   0.487545231
## 369   2023-08-18 Twitter   dave@example Need assistance  -0.613432584
## 370   2023-08-17    Email    @frank_chat     Great work!  -0.951084716
## 371   2023-08-10    Email   @erin_tweets   Exciting news!   0.679597112
## 372   2023-08-12    Email  alice@example    Team meeting   0.774573303
## 373   2023-08-02    Email   dave@example   Exciting news!   0.717076284
## 374   2023-08-18    Email    @frank_chat     Fun weekend!   0.061621126
## 375   2023-08-14    Slack    @frank_chat Need assistance  -0.920249034
## 376   2023-08-08 Twitter    @frank_chat     Fun weekend!   0.484796492
## 377   2023-08-18 Twitter   dave@example   Exciting news!  -0.209318373
## 378   2023-08-17 Twitter    carol_slack Need assistance  -0.806338225
## 379   2023-08-12    Email    @bob_tweets   Exciting news!  -0.597888714
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## 380   2023-08-04    Email alice@example   Exciting news!   0.308247630
## 381   2023-08-04 Twitter    @bob_tweets   Exciting news!  -0.122806889
## 382   2023-08-17 Twitter    @erin_tweets Hello everyone!   0.299843722
## 383   2023-08-10 Twitter    @erin_tweets   Exciting news!   0.275836162
## 384   2023-08-10 Twitter    @frank_chat    Team meeting -0.976236885
## 385   2023-08-16    Email alice@example   Exciting news!  -0.858994203
## 386   2023-08-12    Slack   carol_slack    Fun weekend!   0.608656868
## 387   2023-08-11 Twitter    @frank_chat    Fun weekend!  -0.926554946
## 388   2023-08-12    Email  dave@example    Fun weekend!   0.043927317
## 389   2023-08-15 Twitter   dave@example      Great work!   0.435108419
## 390   2023-08-18    Slack  dave@example    Team meeting -0.718652172
## 391   2023-08-08    Slack   @frank_chat Need assistance   0.963640937
## 392   2023-08-07 Twitter   carol_slack      Great work!   0.805481421
## 393   2023-08-16    Email  @erin_tweets    Fun weekend!  -0.928850479
## 394   2023-08-14    Slack  dave@example   Exciting news!  -0.298691060
## 395   2023-08-02    Slack alice@example    Fun weekend!   0.823352248
## 396   2023-08-03    Email  @erin_tweets     Great work!  -0.900102365
## 397   2023-08-19 Twitter    @frank_chat    Fun weekend!  -0.371842024
## 398   2023-08-18 Twitter   dave@example    Team meeting -0.012694929
## 399   2023-08-12 Twitter   @erin_tweets    Team meeting   0.650313874
## 400   2023-08-02    Email  dave@example    Fun weekend!  -0.357268680
## 401   2023-08-14    Slack  @erin_tweets Need assistance   0.141076977
## 402   2023-08-15 Twitter    @bob_tweets Need assistance   0.373691486
## 403   2023-08-11    Slack  dave@example Need assistance   0.930096855
## 404   2023-08-18    Slack  dave@example    Fun weekend!  -0.566594298
## 405   2023-08-19 Twitter   dave@example    Team meeting -0.284638313
## 406   2023-08-19    Email   carol_slack    Fun weekend!   0.892766985
## 407   2023-08-07    Email   @bob_tweets    Team meeting -0.150205611
## 408   2023-08-05    Email   @bob_tweets Hello everyone!   0.616259416
## 409   2023-08-10    Email   @frank_chat     Great work!   0.533465849
## 410   2023-08-02 Twitter   dave@example     Great work!   0.516138048
## 411   2023-08-18 Twitter   @erin_tweets Need assistance   0.116931847
## 412   2023-08-15    Slack   carol_slack Need assistance   0.674294885
## 413   2023-08-06    Email   @frank_chat  Exciting news!   0.696377364
## 414   2023-08-20    Email  dave@example    Team meeting   0.985037738
## 415   2023-08-10    Slack  @erin_tweets Need assistance -0.904224418
## 416   2023-08-11    Email alice@example   Exciting news!  -0.901918261
## 417   2023-08-14    Slack  @erin_tweets    Fun weekend!  -0.259928443
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## 418   2023-08-20    Slack   carol_slack   Exciting news!   0.221250645
## 419   2023-08-13  Twitter  alice@example    Team meeting   0.892404643
## 420   2023-08-06    Slack  alice@example     Great work!  -0.545365768
## 421   2023-08-12    Email    @frank_chat Need assistance  -0.104900640
## 422   2023-08-20  Twitter   dave@example    Fun weekend!  -0.818538250
## 423   2023-08-20  Twitter   @erin_tweets     Great work!  -0.349391197
## 424   2023-08-02    Email   dave@example   Exciting news!  -0.212464974
## 425   2023-08-19  Twitter   carol_slack     Team meeting   0.317846402
## 426   2023-08-09    Slack  alice@example    Fun weekend!   0.690391378
## 427   2023-08-11    Email    @bob_tweets Hello everyone!   0.576369455
## 428   2023-08-14  Twitter   @erin_tweets Need assistance  -0.543064435
## 429   2023-08-09    Slack   dave@example    Fun weekend!   0.229193896
## 430   2023-08-16  Twitter   dave@example    Fun weekend!  -0.286604216
## 431   2023-08-05  Twitter    @bob_tweets Hello everyone!  -0.038818533
## 432   2023-08-01  Twitter    @frank_chat     Great work!   0.473425272
## 433   2023-08-10  Twitter    @bob_tweets    Fun weekend!   0.346377916
## 434   2023-08-04    Slack    @frank_chat Need assistance   0.933738099
## 435   2023-08-20    Email    carol_slack     Great work!   0.680826971
## 436   2023-08-20    Slack    carol_slack     Great work!  -0.574539005
## 437   2023-08-10    Slack   dave@example   Exciting news!  -0.762122771
## 438   2023-08-12    Email   dave@example     Great work!   0.480317921
## 439   2023-08-09    Email   @erin_tweets    Team meeting  -0.956999032
## 440   2023-08-07    Slack  alice@example    Fun weekend!   0.397376804
## 441   2023-08-04    Email    @frank_chat     Great work!   0.263225980
## 442   2023-08-06    Email    @frank_chat    Fun weekend!   0.791513952
## 443   2023-08-08    Email    @frank_chat  Exciting news!  -0.050068120
## 444   2023-08-07  Twitter    carol_slack Hello everyone!  -0.355751095
## 445   2023-08-09  Twitter  alice@example Hello everyone!   0.184942272
## 446   2023-08-14  Twitter   @erin_tweets     Great work!   0.468599080
## 447   2023-08-14  Twitter  alice@example  Exciting news!   0.157755047
## 448   2023-08-10    Email  alice@example     Great work!   0.693037350
## 449   2023-08-16    Email  alice@example     Great work!   0.360768258
## 450   2023-08-10  Twitter    @frank_chat     Great work!   0.214199054
## 451   2023-08-08    Email   dave@example Need assistance  -0.998774239
## 452   2023-08-10    Email    carol_slack    Team meeting  -0.970338997
## 453   2023-08-08  Twitter    carol_slack    Fun weekend!   0.232626481
## 454   2023-08-11    Slack    @bob_tweets  Exciting news!  -0.033773244
## 455   2023-08-20  Twitter    @frank_chat    Team meeting  -0.476500273
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## 456   2023-08-17    Email   @erin_tweets    Team meeting  0.863822790
## 457   2023-08-18    Slack   @erin_tweets  Exciting news! -0.719712700
## 458   2023-08-13 Twitter    @bob_tweets Need assistance  0.408644735
## 459   2023-08-11 Twitter    carol_slack     Great work!   0.910158344
## 460   2023-08-06 Twitter  dave@example Need assistance -0.064178423
## 461   2023-08-03 Twitter alice@example Hello everyone! -0.567197050
## 462   2023-08-15    Slack  dave@example Hello everyone! -0.510870771
## 463   2023-08-13    Email   @erin_tweets Hello everyone! -0.939573104
## 464   2023-08-16    Email  dave@example Need assistance -0.014521594
## 465   2023-08-16    Email    @frank_chat    Team meeting -0.287118956
## 466   2023-08-05    Email    carol_slack Need assistance  0.558824511
## 467   2023-08-16    Email    @frank_chat Need assistance  0.343977793
## 468   2023-08-15    Email  dave@example Hello everyone!  0.282330315
## 469   2023-08-06 Twitter    @bob_tweets Hello everyone!  0.116596443
## 470   2023-08-13 Twitter    @frank_chat  Exciting news!  0.368110256
## 471   2023-08-10 Twitter alice@example     Great work!   0.266619468
## 472   2023-08-18 Twitter    @bob_tweets  Exciting news!  0.290797958
## 473   2023-08-20 Twitter   @erin_tweets    Team meeting  0.341763970
## 474   2023-08-13 Twitter    @bob_tweets Need assistance -0.883181106
## 475   2023-08-20    Slack alice@example Hello everyone! -0.863882122
## 476   2023-08-04 Twitter  dave@example    Fun weekend!   0.463157478
## 477   2023-08-05    Email    @frank_chat  Exciting news!  0.567230823
## 478   2023-08-17 Twitter alice@example     Great work!  -0.641657173
## 479   2023-08-08    Email   @erin_tweets  Exciting news! -0.847681918
## 480   2023-08-05    Email    @frank_chat    Team meeting -0.094959955
## 481   2023-08-08 Twitter    @bob_tweets    Team meeting -0.024243061
## 482   2023-08-18    Email   @erin_tweets Need assistance  0.171319252
## 483   2023-08-17    Slack    carol_slack Need assistance -0.750471560
## 484   2023-08-07    Email  dave@example Hello everyone! -0.526591262
## 485   2023-08-16 Twitter   @erin_tweets Hello everyone!  0.806540163
## 486   2023-08-05    Email    carol_slack Need assistance  0.300882405
## 487   2023-08-03 Twitter   @erin_tweets    Fun weekend!  -0.345988781
## 488   2023-08-02    Email alice@example     Great work!  -0.784876938
## 489   2023-08-13    Slack    carol_slack     Great work!  -0.947211589
## 490   2023-08-09    Email   @erin_tweets    Fun weekend!   0.513564137
## 491   2023-08-04    Email    @bob_tweets    Team meeting -0.235653992
## 492   2023-08-04    Email alice@example Hello everyone!  0.161035733
## 493   2023-08-16    Email    @frank_chat    Fun weekend!   0.402509230
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## 494   2023-08-13 Twitter    @frank_chat Hello everyone! -0.426096413
## 495   2023-08-04 Twitter    @bob_tweets Hello everyone! -0.774547359
## 496   2023-08-16 Twitter    @erin_tweets    Team meeting -0.674190784
## 497   2023-08-11    Slack    @frank_chat Need assistance  0.235724795
## 498   2023-08-15    Slack    @frank_chat Hello everyone!  0.058449768
## 499   2023-08-20    Email    @frank_chat    Team meeting -0.993759494
## 500   2023-08-06    Slack   dave@example    Team meeting -0.536957865
## 501   2023-08-05 Twitter   dave@example    Team meeting  0.779166287
## 502   2023-08-07    Slack  alice@example    Team meeting  0.569526526
## 503   2023-08-06    Email   @erin_tweets Need assistance  0.664381829
## 504   2023-08-07    Slack   dave@example Need assistance -0.718395420
## 505   2023-08-09 Twitter    @bob_tweets    Team meeting  0.526457346
## 506   2023-08-06    Email    @bob_tweets     Great work! -0.400677142
## 507   2023-08-17 Twitter    @frank_chat    Team meeting -0.232014328
## 508   2023-08-15 Twitter  alice@example  Exciting news!  0.153143482
## 509   2023-08-01 Twitter    @bob_tweets Hello everyone! -0.918783627
## 510   2023-08-09    Email    @bob_tweets    Fun weekend! -0.375794835
## 511   2023-08-05 Twitter   dave@example    Fun weekend! -0.021554315
## 512   2023-08-10    Slack   @erin_tweets Need assistance  0.086844633
## 513   2023-08-16    Slack   dave@example Need assistance  0.484403751
## 514   2023-08-07    Email    @bob_tweets    Team meeting -0.423585835
## 515   2023-08-07    Email   dave@example  Exciting news! -0.184577833
## 516   2023-08-18    Email   dave@example Hello everyone!  0.978220029
## 517   2023-08-17 Twitter    @frank_chat    Fun weekend! -0.624432764
## 518   2023-08-15 Twitter    carol_slack    Team meeting  0.498292263
## 519   2023-08-13 Twitter    carol_slack  Exciting news!  0.771407587
## 520   2023-08-12    Email   dave@example    Fun weekend!  0.650773503
## 521   2023-08-19 Twitter  alice@example Need assistance  0.143810244
## 522   2023-08-19 Twitter   @erin_tweets    Team meeting  0.945942261
## 523   2023-08-12    Slack   dave@example  Exciting news!  0.563268560
## 524   2023-08-17    Email   dave@example    Fun weekend! -0.173903828
## 525   2023-08-07    Email    @frank_chat    Team meeting  0.192018484
## 526   2023-08-16    Email    carol_slack Hello everyone! -0.029610693
## 527   2023-08-08    Email  alice@example  Exciting news!  0.723251828
## 528   2023-08-07    Email    @bob_tweets  Exciting news! -0.616928389
## 529   2023-08-01 Twitter   @erin_tweets Hello everyone!  0.524320859
## 530   2023-08-07    Email   dave@example     Great work! -0.359934055
## 531   2023-08-11    Slack    @frank_chat     Great work!  0.431652104
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## 532   2023-08-04 Twitter   carol_slack  Exciting news! -0.615862965
## 533   2023-08-11    Email  @erin_tweets      Great work! -0.049498704
## 534   2023-08-19 Twitter alice@example      Fun weekend! -0.111042333
## 535   2023-08-03    Email   carol_slack Need assistance  0.247236022
## 536   2023-08-09    Email  @erin_tweets      Fun weekend!  0.237909144
## 537   2023-08-19    Email   @frank_chat    Team meeting -0.943049938
## 538   2023-08-08    Email   @frank_chat      Great work!  0.362224979
## 539   2023-08-14    Slack  dave@example      Great work!  0.538406652
## 540   2023-08-19    Email  dave@example      Great work! -0.336303487
## 541   2023-08-12    Slack alice@example Need assistance  0.454688824
## 542   2023-08-11    Slack   @frank_chat    Team meeting -0.642315470
## 543   2023-08-14 Twitter   @bob_tweets  Exciting news!  0.754322437
## 544   2023-08-10    Slack alice@example Need assistance -0.236316590
## 545   2023-08-19    Email  @erin_tweets      Fun weekend!  0.149510738
## 546   2023-08-09 Twitter alice@example Hello everyone!  0.762754925
## 547   2023-08-14 Twitter   @bob_tweets Hello everyone!  0.250149151
## 548   2023-08-08    Email   @bob_tweets Need assistance -0.249764988
## 549   2023-08-04    Slack   @bob_tweets Hello everyone! -0.161284721
## 550   2023-08-05 Twitter alice@example    Team meeting  0.082249742
## 551   2023-08-13 Twitter  @erin_tweets      Great work! -0.956337988
## 552   2023-08-15    Email   @frank_chat      Great work!  0.120376800
## 553   2023-08-08 Twitter   @frank_chat      Fun weekend! -0.673607849
## 554   2023-08-15    Slack  @erin_tweets    Team meeting  0.457860831
## 555   2023-08-08    Email  @erin_tweets Need assistance -0.775436828
## 556   2023-08-10    Slack  dave@example  Exciting news!  0.532747218
## 557   2023-08-18    Slack   @frank_chat    Team meeting -0.134102609
## 558   2023-08-20 Twitter alice@example      Fun weekend! -0.436848105
## 559   2023-08-18    Email alice@example Need assistance  0.275121063
## 560   2023-08-12    Email  @erin_tweets Need assistance  0.866607873
## 561   2023-08-10    Slack   @bob_tweets  Exciting news!  0.027252671
## 562   2023-08-07    Slack  dave@example  Exciting news! -0.823877914
## 563   2023-08-19 Twitter alice@example    Team meeting -0.299451457
## 564   2023-08-20 Twitter  dave@example  Exciting news! -0.542942689
## 565   2023-08-04    Slack  dave@example      Fun weekend!  0.796501584
## 566   2023-08-20    Slack   @bob_tweets    Team meeting -0.118006961
## 567   2023-08-04    Email  @erin_tweets Need assistance -0.070094255
## 568   2023-08-18 Twitter   @bob_tweets      Fun weekend!  0.590919483
## 569   2023-08-01 Twitter  dave@example Hello everyone!  0.530999278
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## 570   2023-08-17 Twitter alice@example Hello everyone!  0.582868762
## 571   2023-08-12    Slack   carol_slack Need assistance -0.919222645
## 572   2023-08-18 Twitter   @frank_chat    Team meeting  0.818109252
## 573   2023-08-10    Email  @bob_tweets  Exciting news!  0.664575256
## 574   2023-08-18    Email  dave@example  Exciting news! -0.768564025
## 575   2023-08-20    Slack   carol_slack     Great work! -0.595158034
## 576   2023-08-06    Slack alice@example Need assistance  0.037042340
## 577   2023-08-14 Twitter  dave@example    Fun weekend! -0.064443091
## 578   2023-08-13    Email  @erin_tweets    Fun weekend!  0.496487776
## 579   2023-08-14 Twitter   @frank_chat    Team meeting  0.499737595
## 580   2023-08-17 Twitter alice@example Hello everyone! -0.605858998
## 581   2023-08-03    Email   @frank_chat Hello everyone!  0.488557915
## 582   2023-08-07 Twitter   @frank_chat     Great work! -0.823533585
## 583   2023-08-15 Twitter   @frank_chat Hello everyone!  0.384222084
## 584   2023-08-15    Email alice@example    Team meeting  0.176413531
## 585   2023-08-10    Email   @frank_chat Hello everyone!  0.051583528
## 586   2023-08-02    Slack alice@example    Fun weekend! -0.485003887
## 587   2023-08-01    Slack  @erin_tweets    Team meeting  0.031597136
## 588   2023-08-15    Email   @frank_chat Need assistance -0.438784983
## 589   2023-08-09    Email  @bob_tweets Hello everyone!  0.703965933
## 590   2023-08-16    Slack  dave@example    Fun weekend!  0.438361928
## 591   2023-08-14    Email  @bob_tweets Hello everyone!  0.498191035
## 592   2023-08-04 Twitter  dave@example    Fun weekend! -0.495438306
## 593   2023-08-20    Slack   @frank_chat     Great work!  0.606102686
## 594   2023-08-07    Email   @frank_chat Hello everyone! -0.143556185
## 595   2023-08-02 Twitter   carol_slack Hello everyone!  0.450987421
## 596   2023-08-05    Slack   carol_slack     Great work!  0.470731148
## 597   2023-08-07    Email  dave@example    Fun weekend! -0.735883705
## 598   2023-08-15    Slack   @frank_chat     Great work!  0.960373470
## 599   2023-08-19    Email  @bob_tweets    Team meeting  0.855612874
## 600   2023-08-02    Slack  @bob_tweets  Exciting news!  0.365244868
## 601   2023-08-01    Slack  @bob_tweets  Exciting news! -0.024743940
## 602   2023-08-01    Email   @frank_chat    Fun weekend! -0.797102704
## 603   2023-08-07 Twitter alice@example    Team meeting -0.365139902
## 604   2023-08-15    Email alice@example Need assistance -0.264464825
## 605   2023-08-08    Slack  @erin_tweets Need assistance -0.461871512
## 606   2023-08-18 Twitter   carol_slack Need assistance -0.107154121
## 607   2023-08-17    Email   @frank_chat    Team meeting -0.229243480
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## 608   2023-08-17 Twitter   dave@example Need assistance -0.035525655
## 609   2023-08-10    Email    @bob_tweets    Team meeting  0.253805156
## 610   2023-08-15 Twitter    @frank_chat Need assistance  0.344264537
## 611   2023-08-12 Twitter    @bob_tweets     Great work! -0.405934577
## 612   2023-08-13 Twitter   @erin_tweets     Great work!  0.515643027
## 613   2023-08-17 Twitter   @erin_tweets Hello everyone! -0.606922586
## 614   2023-08-02 Twitter    carol_slack Hello everyone!  0.173851238
## 615   2023-08-10    Slack    @frank_chat  Exciting news!  0.769946682
## 616   2023-08-06    Email   @erin_tweets Hello everyone! -0.172054263
## 617   2023-08-04    Email    carol_slack Need assistance  0.188933107
## 618   2023-08-06    Email   dave@example Hello everyone! -0.987261285
## 619   2023-08-03 Twitter  alice@example Need assistance  0.747163485
## 620   2023-08-14 Twitter    @frank_chat    Fun weekend! -0.672147054
## 621   2023-08-09 Twitter  alice@example  Exciting news! -0.792284821
## 622   2023-08-12    Email  alice@example  Exciting news!  0.063475272
## 623   2023-08-13 Twitter  alice@example     Great work! -0.026141260
## 624   2023-08-05    Email   @erin_tweets     Great work!  0.830162693
## 625   2023-08-15    Email    carol_slack    Fun weekend! -0.141636565
## 626   2023-08-12 Twitter   @erin_tweets    Fun weekend!  0.038330505
## 627   2023-08-04 Twitter  alice@example    Fun weekend! -0.693275109
## 628   2023-08-05    Slack    @bob_tweets Need assistance  0.291605130
## 629   2023-08-19 Twitter   dave@example Need assistance -0.115035673
## 630   2023-08-02 Twitter    carol_slack Need assistance  0.215954025
## 631   2023-08-08    Email  alice@example     Great work! -0.068923920
## 632   2023-08-10 Twitter    @frank_chat    Team meeting -0.289186294
## 633   2023-08-10 Twitter    carol_slack  Exciting news!  0.030849482
## 634   2023-08-15 Twitter   dave@example    Fun weekend!  0.345517721
## 635   2023-08-14    Email    @bob_tweets Need assistance  0.330107941
## 636   2023-08-13    Email  alice@example Hello everyone!  0.042741961
## 637   2023-08-06    Slack    carol_slack  Exciting news! -0.633368273
## 638   2023-08-19    Slack   @erin_tweets     Great work! -0.725357866
## 639   2023-08-03    Slack   @erin_tweets    Team meeting -0.812502595
## 640   2023-08-08 Twitter    @bob_tweets     Great work!  0.564973874
## 641   2023-08-13 Twitter   dave@example    Fun weekend! -0.042934414
## 642   2023-08-17    Slack    carol_slack    Fun weekend!  0.169502832
## 643   2023-08-12    Email  alice@example     Great work!  0.383860287
## 644   2023-08-06    Slack    @bob_tweets    Fun weekend! -0.895003283
## 645   2023-08-06 Twitter   dave@example    Fun weekend!  0.005671109
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## 646  2023-08-08    Email    @frank_chat Need assistance -0.992002849
## 647  2023-08-06    Email   @erin_tweets Hello everyone!  0.905330024
## 648  2023-08-16    Email    @frank_chat    Fun weekend! -0.552409418
## 649  2023-08-07    Slack   @erin_tweets   Team meeting -0.780283807
## 650  2023-08-14    Email   @erin_tweets   Fun weekend! -0.835450725
## 651  2023-08-08  Twitter alice@example    Great work! -0.236779108
## 652  2023-08-09  Twitter   dave@example    Great work! -0.495721815
## 653  2023-08-01  Twitter    carol_slack    Great work!  0.406890230
## 654  2023-08-08  Twitter alice@example   Team meeting  0.870818266
## 655  2023-08-14    Email   dave@example   Fun weekend!  0.304697359
## 656  2023-08-03    Slack    @frank_chat  Exciting news!  0.591279314
## 657  2023-08-15    Slack    @frank_chat   Fun weekend!  0.816346027
## 658  2023-08-14    Email   @erin_tweets Hello everyone! -0.446434771
## 659  2023-08-05    Email alice@example   Fun weekend!  0.347548683
## 660  2023-08-18    Slack    @bob_tweets   Fun weekend!  0.567603516
## 661  2023-08-19  Twitter    @frank_chat  Exciting news!  0.388266448
## 662  2023-08-15  Twitter    @bob_tweets   Team meeting -0.144443278
## 663  2023-08-01    Email    @bob_tweets Hello everyone!  0.902623749
## 664  2023-08-13  Twitter    @frank_chat   Team meeting -0.877922161
## 665  2023-08-06    Slack alice@example Hello everyone!  0.710270591
## 666  2023-08-09    Email    @bob_tweets Hello everyone! -0.725457437
## 667  2023-08-07    Email    @bob_tweets   Team meeting -0.232356975
## 668  2023-08-05  Twitter   dave@example    Great work!  0.245927144
## 669  2023-08-02  Twitter    @frank_chat Need assistance -0.115179492
## 670  2023-08-08    Slack alice@example Hello everyone! -0.812013249
## 671  2023-08-02    Slack    carol_slack Hello everyone!  0.805289558
## 672  2023-08-10    Email    @frank_chat   Team meeting -0.320194449
## 673  2023-08-14    Slack    @bob_tweets Hello everyone!  0.450289166
## 674  2023-08-18    Email    carol_slack  Exciting news! -0.546088908
## 675  2023-08-14  Twitter    @bob_tweets    Great work! -0.018533767
## 676  2023-08-03    Slack    carol_slack    Great work! -0.777630202
## 677  2023-08-04    Email    @bob_tweets   Fun weekend!  0.419715998
## 678  2023-08-11  Twitter   @erin_tweets   Team meeting -0.351081788
## 679  2023-08-04  Twitter   @erin_tweets Hello everyone! -0.217646003
## 680  2023-08-10    Slack alice@example   Team meeting  0.425960287
## 681  2023-08-11    Slack    @frank_chat   Team meeting -0.203160496
## 682  2023-08-13    Slack alice@example Need assistance -0.100954488
## 683  2023-08-13    Slack    carol_slack Need assistance  0.886342321
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## 684  2023-08-18    Email    carol_slack Need assistance  0.121493359
## 685  2023-08-09    Slack    carol_slack Hello everyone!  0.902016178
## 686  2023-08-02 Twitter alice@example Need assistance  0.157653404
## 687  2023-08-13    Slack alice@example    Team meeting -0.493501368
## 688  2023-08-09    Email  dave@example    Team meeting  0.746085706
## 689  2023-08-12 Twitter alice@example  Exciting news! -0.487793705
## 690  2023-08-06    Email    carol_slack Hello everyone!  0.076276061
## 691  2023-08-08 Twitter alice@example    Fun weekend! -0.329790550
## 692  2023-08-10 Twitter    @frank_chat  Exciting news! -0.149807401
## 693  2023-08-15 Twitter   @erin_tweets Need assistance  0.599532404
## 694  2023-08-03    Email    @frank_chat    Great work! -0.022698464
## 695  2023-08-05    Email   @erin_tweets  Exciting news! -0.283369262
## 696  2023-08-16    Slack    @frank_chat    Team meeting -0.933677876
## 697  2023-08-16    Slack    @frank_chat Hello everyone! -0.878399170
## 698  2023-08-11    Slack    @bob_tweets    Great work!  0.041871845
## 699  2023-08-07    Slack    @bob_tweets    Great work! -0.311243319
## 700  2023-08-12    Email    @frank_chat  Exciting news!  0.777389107
## 701  2023-08-01    Slack    @frank_chat Hello everyone! -0.572465386
## 702  2023-08-09    Email    @frank_chat    Fun weekend! -0.372473280
## 703  2023-08-12 Twitter  dave@example Need assistance -0.713639749
## 704  2023-08-12    Slack    carol_slack    Great work!  0.874556832
## 705  2023-08-17    Slack    @frank_chat    Great work! -0.700269639
## 706  2023-08-13    Email    @frank_chat Need assistance  0.935812009
## 707  2023-08-08    Slack    carol_slack  Exciting news!  0.055117640
## 708  2023-08-10    Slack    @bob_tweets    Fun weekend!  0.957983019
## 709  2023-08-09    Slack alice@example  Exciting news! -0.539138246
## 710  2023-08-05 Twitter alice@example  Exciting news!  0.722319741
## 711  2023-08-15 Twitter   @erin_tweets Hello everyone!  0.768580468
## 712  2023-08-14    Slack    @frank_chat  Exciting news! -0.054910814
## 713  2023-08-05 Twitter  dave@example    Great work!  0.544805384
## 714  2023-08-02 Twitter    carol_slack  Exciting news! -0.693217811
## 715  2023-08-18    Slack    @bob_tweets Hello everyone! -0.164491392
## 716  2023-08-08    Email   @erin_tweets    Fun weekend!  0.378708432
## 717  2023-08-12    Email    @frank_chat Need assistance  0.544408341
## 718  2023-08-09 Twitter    @bob_tweets  Exciting news!  0.605349668
## 719  2023-08-16 Twitter alice@example  Exciting news!  0.696509592
## 720  2023-08-13 Twitter    @frank_chat Hello everyone! -0.694118693
## 721  2023-08-08    Email   @erin_tweets    Fun weekend!  0.734125260
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## 722  2023-08-03    Email    @frank_chat     Great work! -0.222633559
## 723  2023-08-14    Email alice@example     Great work! -0.111933967
## 724  2023-08-06    Email    @bob_tweets     Great work! -0.417041691
## 725  2023-08-12    Email  dave@example     Great work! -0.841218561
## 726  2023-08-03    Slack  @erin_tweets Need assistance -0.173975688
## 727  2023-08-12    Email    @frank_chat     Fun weekend! -0.102208237
## 728  2023-08-15    Email  dave@example Need assistance  0.773382573
## 729  2023-08-14    Slack  @erin_tweets Hello everyone!  0.605556316
## 730  2023-08-20    Email alice@example     Fun weekend!  0.851679420
## 731  2023-08-07    Email    @bob_tweets  Exciting news!  0.244900235
## 732  2023-08-10  Twitter  dave@example     Great work! -0.505026447
## 733  2023-08-13    Slack  @erin_tweets Need assistance -0.544543609
## 734  2023-08-12    Slack    @bob_tweets     Fun weekend!  0.990166281
## 735  2023-08-20    Email    @frank_chat    Team meeting  0.560076173
## 736  2023-08-09    Slack    carol_slack Hello everyone! -0.289897254
## 737  2023-08-03    Email alice@example Hello everyone!  0.713812393
## 738  2023-08-08  Twitter  @erin_tweets     Fun weekend!  0.191519982
## 739  2023-08-13    Slack    carol_slack     Great work!  0.460303653
## 740  2023-08-10    Slack  @erin_tweets Need assistance  0.037588875
## 741  2023-08-05  Twitter    carol_slack Hello everyone!  0.130742100
## 742  2023-08-15    Email    @bob_tweets    Team meeting -0.801572199
## 743  2023-08-14    Slack  @erin_tweets  Exciting news! -0.736287751
## 744  2023-08-18    Slack    @bob_tweets    Team meeting  0.403409261
## 745  2023-08-07    Slack alice@example     Great work!  0.580541194
## 746  2023-08-13    Email  dave@example     Great work!  0.550955762
## 747  2023-08-11  Twitter    @frank_chat    Team meeting -0.303564250
## 748  2023-08-14    Email    carol_slack  Exciting news!  0.596924395
## 749  2023-08-02  Twitter    @bob_tweets Need assistance -0.281915764
## 750  2023-08-19  Twitter    carol_slack    Team meeting  0.578111817
## 751  2023-08-14  Twitter  dave@example Need assistance -0.273263505
## 752  2023-08-13    Email    @frank_chat     Great work! -0.693289580
## 753  2023-08-18    Slack  @erin_tweets Hello everyone! -0.395961934
## 754  2023-08-15  Twitter  @erin_tweets Need assistance  0.787741330
## 755  2023-08-01  Twitter    @frank_chat Need assistance -0.970480603
## 756  2023-08-03    Slack alice@example     Fun weekend!  0.542070733
## 757  2023-08-07    Slack    @bob_tweets Need assistance  0.251102221
## 758  2023-08-01    Slack    @frank_chat    Team meeting -0.113114946
## 759  2023-08-08    Email alice@example Hello everyone! -0.666331347
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## 760  2023-08-01    Email    @bob_tweets    Team meeting  0.783531986
## 761  2023-08-05    Slack   dave@example     Great work!  0.018169560
## 762  2023-08-02    Email    @frank_chat    Fun weekend!  0.129630754
## 763  2023-08-08    Slack   @erin_tweets    Team meeting  0.849549761
## 764  2023-08-11 Twitter    carol_slack     Great work!  0.782265475
## 765  2023-08-12    Email alice@example   Exciting news! -0.995861550
## 766  2023-08-11    Slack    @bob_tweets     Great work! -0.549234209
## 767  2023-08-03    Email    @frank_chat    Fun weekend!  0.992682932
## 768  2023-08-08 Twitter    carol_slack   Exciting news!  0.614791796
## 769  2023-08-01 Twitter   @erin_tweets Hello everyone! -0.325806037
## 770  2023-08-10    Slack    @bob_tweets Exciting news! -0.873230109
## 771  2023-08-12    Email alice@example    Team meeting  0.255163795
## 772  2023-08-16    Email    carol_slack Hello everyone! -0.851052538
## 773  2023-08-10 Twitter   @erin_tweets     Great work!  0.181200765
## 774  2023-08-09    Email    @frank_chat Hello everyone! -0.633588556
## 775  2023-08-01 Twitter    @frank_chat     Great work!  0.159243134
## 776  2023-08-15    Slack   dave@example     Great work! -0.481857921
## 777  2023-08-19 Twitter alice@example Hello everyone! -0.378329881
## 778  2023-08-04 Twitter    @frank_chat   Exciting news!  0.795437461
## 779  2023-08-16 Twitter    @bob_tweets     Great work! -0.674055766
## 780  2023-08-07    Slack   dave@example Hello everyone!  0.747580624
## 781  2023-08-14 Twitter    carol_slack Need assistance  0.739025190
## 782  2023-08-15    Slack    @frank_chat Hello everyone! -0.508614742
## 783  2023-08-14 Twitter    @bob_tweets   Exciting news!  0.671785708
## 784  2023-08-10    Slack alice@example Need assistance -0.917325706
## 785  2023-08-09 Twitter   @erin_tweets Need assistance -0.600080754
## 786  2023-08-11    Email    @bob_tweets     Great work! -0.539260621
## 787  2023-08-02    Slack    carol_slack     Great work!  0.066785066
## 788  2023-08-15 Twitter    carol_slack    Team meeting -0.074092148
## 789  2023-08-06 Twitter    @bob_tweets   Exciting news!  0.979591473
## 790  2023-08-07    Slack    @bob_tweets Need assistance -0.846264025
## 791  2023-08-15    Slack   @erin_tweets Hello everyone! -0.562214842
## 792  2023-08-15    Email    @frank_chat    Fun weekend!  0.535877908
## 793  2023-08-13    Slack   dave@example Hello everyone! -0.945477226
## 794  2023-08-12 Twitter   @erin_tweets Need assistance -0.329706852
## 795  2023-08-19 Twitter    @bob_tweets Hello everyone!  0.420571170
## 796  2023-08-19 Twitter    @frank_chat   Exciting news!  0.221380584
## 797  2023-08-06 Twitter    carol_slack    Fun weekend!  0.394200163
```

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## 798  2023-08-11    Slack    carol_slack     Team meeting   0.921573296
## 799  2023-08-12    Slack    carol_slack     Team meeting   0.504667453
## 800  2023-08-13    Slack  alice@example     Team meeting  -0.927027794
## 801  2023-08-14    Email    @bob_tweets     Team meeting  -0.996662613
## 802  2023-08-09    Slack  @erin_tweets     Fun weekend!   0.525517232
## 803  2023-08-17    Slack  alice@example     Great work!  -0.853163924
## 804  2023-08-09    Slack    carol_slack Hello everyone!   0.346090994
## 805  2023-08-06    Slack  @erin_tweets  Exciting news!   0.063273371
## 806  2023-08-19    Slack    @frank_chat     Team meeting  -0.887928675
## 807  2023-08-17  Twitter    @frank_chat     Team meeting  -0.608078998
## 808  2023-08-10    Email  @erin_tweets Hello everyone!   0.063933458
## 809  2023-08-12  Twitter    @bob_tweets     Fun weekend!   0.226440192
## 810  2023-08-18    Slack  alice@example     Great work!  -0.114574431
## 811  2023-08-17  Twitter    carol_slack Need assistance  -0.065970336
## 812  2023-08-10    Slack    @frank_chat Hello everyone!   0.672468295
## 813  2023-08-12    Email  alice@example  Exciting news!  -0.616592484
## 814  2023-08-04    Slack    @frank_chat Need assistance   0.165087673
## 815  2023-08-13    Email    @bob_tweets  Exciting news!   0.553149406
## 816  2023-08-04    Email    @bob_tweets     Fun weekend!  -0.953222217
## 817  2023-08-09    Email  alice@example     Fun weekend!   0.893210486
## 818  2023-08-11  Twitter  alice@example Hello everyone!  -0.120084892
## 819  2023-08-08    Slack  @erin_tweets Hello everyone!  -0.568787924
## 820  2023-08-11    Email  alice@example     Team meeting  -0.641849058
## 821  2023-08-18  Twitter  alice@example     Fun weekend!   0.977650215
## 822  2023-08-16    Slack    @frank_chat     Fun weekend!   0.269629325
## 823  2023-08-06    Slack    carol_slack Need assistance   0.572155187
## 824  2023-08-04    Slack    @frank_chat     Fun weekend!  -0.530567507
## 825  2023-08-14  Twitter    dave@example     Fun weekend!  -0.998980226
## 826  2023-08-09  Twitter    @frank_chat Hello everyone!   0.649366590
## 827  2023-08-12    Email    carol_slack     Team meeting  -0.492082868
## 828  2023-08-03    Slack  alice@example Need assistance   0.135939530
## 829  2023-08-07    Slack    dave@example Hello everyone!   0.593321668
## 830  2023-08-18  Twitter    dave@example     Great work!  -0.160749977
## 831  2023-08-20    Slack    carol_slack     Fun weekend!   0.231915887
## 832  2023-08-03    Email  alice@example     Fun weekend!   0.312383833
## 833  2023-08-14    Slack    @bob_tweets     Team meeting  -0.709024122
## 834  2023-08-18  Twitter    @bob_tweets     Fun weekend!   0.866654206
## 835  2023-08-03    Email  alice@example Hello everyone!  -0.440484574
```

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## 836   2023-08-12 Twitter    carol_slack      Team meeting  0.704733795
## 837   2023-08-10 Twitter    carol_slack       Great work!  0.268422757
## 838   2023-08-18    Slack    @bob_tweets      Fun weekend! -0.898072343
## 839   2023-08-19    Email    @frank_chat       Great work!  0.463513046
## 840   2023-08-03    Email    carol_slack Need assistance -0.161143415
## 841   2023-08-19    Email alice@example Hello everyone! -0.040838550
## 842   2023-08-11    Slack    @frank_chat      Fun weekend!  0.312006338
## 843   2023-08-20    Slack    @bob_tweets Hello everyone!  0.520647362
## 844   2023-08-05 Twitter    @bob_tweets   Exciting news! -0.798021044
## 845   2023-08-14 Twitter alice@example       Great work! -0.652119522
## 846   2023-08-10    Email    @bob_tweets   Exciting news! -0.286527871
## 847   2023-08-10 Twitter    @erin_tweets       Great work!  0.282790715
## 848   2023-08-07 Twitter    @erin_tweets       Great work! -0.597466531
## 849   2023-08-03    Slack    @frank_chat Hello everyone!  0.368215033
## 850   2023-08-08    Slack    @erin_tweets Need assistance  0.593302410
## 851   2023-08-16    Slack    @erin_tweets   Exciting news! -0.113282133
## 852   2023-08-12    Email    carol_slack Need assistance  0.937844194
## 853   2023-08-10    Email    @frank_chat      Fun weekend! -0.520876877
## 854   2023-08-19    Email    @erin_tweets       Great work!  0.570171806
## 855   2023-08-19    Email    dave@example      Team meeting -0.528815492
## 856   2023-08-05    Email    @bob_tweets Hello everyone!  0.725036937
## 857   2023-08-05 Twitter    carol_slack Hello everyone! -0.279889458
## 858   2023-08-12 Twitter    carol_slack      Fun weekend! -0.455487390
## 859   2023-08-03 Twitter    @bob_tweets Hello everyone!  0.401231622
## 860   2023-08-19 Twitter    @erin_tweets   Exciting news!  0.638825124
## 861   2023-08-05    Email alice@example Hello everyone! -0.822144668
## 862   2023-08-07    Slack    @bob_tweets Hello everyone! -0.160779689
## 863   2023-08-14 Twitter    @bob_tweets      Fun weekend!  0.567614020
## 864   2023-08-11 Twitter    @erin_tweets Need assistance -0.102778860
## 865   2023-08-04 Twitter    @bob_tweets   Exciting news!  0.053784013
## 866   2023-08-07    Slack    @bob_tweets      Fun weekend! -0.511013610
## 867   2023-08-10 Twitter    dave@example      Team meeting -0.879799920
## 868   2023-08-06    Slack    @erin_tweets       Great work! -0.387922954
## 869   2023-08-10    Slack    dave@example   Exciting news! -0.750027833
## 870   2023-08-01    Slack    @bob_tweets Need assistance -0.614020258
## 871   2023-08-17    Email    @frank_chat   Exciting news! -0.770805090
## 872   2023-08-15 Twitter    carol_slack Hello everyone! -0.638266036
## 873   2023-08-16 Twitter    dave@example      Team meeting  0.796688539
```

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## 874   2023-08-13    Slack    carol_slack Hello everyone! -0.416070993
## 875   2023-08-03    Slack    @bob_tweets     Great work!  0.884830707
## 876   2023-08-14  Twitter  alice@example     Great work! -0.232635738
## 877   2023-08-01  Twitter   @erin_tweets   Exciting news!  0.423581860
## 878   2023-08-05    Email  alice@example  Need assistance  0.694902051
## 879   2023-08-14    Slack  alice@example Hello everyone! -0.798660460
## 880   2023-08-07  Twitter    @bob_tweets     Great work! -0.389785778
## 881   2023-08-12    Email  alice@example  Need assistance  0.120129855
## 882   2023-08-14    Slack  alice@example Hello everyone! -0.691606675
## 883   2023-08-07    Slack    @bob_tweets     Great work!  0.872962321
## 884   2023-08-05  Twitter   @erin_tweets    Fun weekend!  0.619198539
## 885   2023-08-01    Email    carol_slack     Great work!  0.605523043
## 886   2023-08-14    Email   dave@example Hello everyone! -0.359136123
## 887   2023-08-16    Email    @bob_tweets     Great work! -0.351176404
## 888   2023-08-08  Twitter   dave@example Need assistance  0.911442756
## 889   2023-08-13    Email  alice@example Need assistance  0.596431601
## 890   2023-08-01  Twitter    carol_slack     Great work! -0.311684015
## 891   2023-08-09    Email    @frank_chat    Fun weekend! -0.789119672
## 892   2023-08-19    Slack    @frank_chat    Team meeting -0.472906698
## 893   2023-08-19    Slack   dave@example    Team meeting -0.789976987
## 894   2023-08-06    Slack    @bob_tweets Need assistance  0.743181323
## 895   2023-08-01    Email    @frank_chat    Team meeting -0.307752223
## 896   2023-08-01    Email   dave@example     Great work! -0.948017055
## 897   2023-08-05    Email    @frank_chat    Team meeting  0.611721705
## 898   2023-08-06    Email   @erin_tweets Hello everyone! -0.318016798
## 899   2023-08-11    Slack   @erin_tweets    Team meeting -0.893834382
## 900   2023-08-20    Email    carol_slack    Team meeting  0.082343857
## 901   2023-08-03    Slack   @erin_tweets Need assistance -0.600851388
## 902   2023-08-18    Slack    @bob_tweets    Team meeting  0.192284770
## 903   2023-08-10    Email   dave@example Need assistance  0.834841503
## 904   2023-08-17  Twitter    @bob_tweets     Great work!  0.401612313
## 905   2023-08-08    Slack   @erin_tweets    Team meeting  0.068864945
## 906   2023-08-20  Twitter    @frank_chat   Exciting news!  0.307898677
## 907   2023-08-07  Twitter    @bob_tweets     Great work! -0.548428072
## 908   2023-08-15    Slack  alice@example Need assistance  0.899728119
## 909   2023-08-08    Email    carol_slack     Great work!  0.710615378
## 910   2023-08-14    Email   @erin_tweets    Fun weekend!  0.035476264
## 911   2023-08-01  Twitter    @frank_chat Need assistance -0.003094339
```

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## 912  2023-08-10 Twitter    @frank_chat      Fun weekend! -0.528116655
## 913  2023-08-20 Twitter  dave@example       Great work! -0.124954135
## 914  2023-08-10    Slack    @frank_chat Need assistance  0.626154714
## 915  2023-08-02    Slack   carol_slack      Fun weekend!  0.045978463
## 916  2023-08-09    Email  dave@example      Fun weekend!  0.698494015
## 917  2023-08-10    Slack    @frank_chat Need assistance -0.198273231
## 918  2023-08-13    Email    @bob_tweets Hello everyone!  0.264306294
## 919  2023-08-05    Slack  @erin_tweets      Fun weekend! -0.240693055
## 920  2023-08-20    Email  dave@example      Team meeting -0.075425136
## 921  2023-08-15 Twitter alice@example       Great work!  0.798867194
## 922  2023-08-18    Slack alice@example      Fun weekend! -0.088887415
## 923  2023-08-12 Twitter  @erin_tweets Need assistance  0.298994374
## 924  2023-08-17 Twitter alice@example   Exciting news!  0.968932204
## 925  2023-08-10    Slack  dave@example       Great work!  0.746216161
## 926  2023-08-10    Slack alice@example      Team meeting -0.939407335
## 927  2023-08-02    Slack    @bob_tweets       Great work! -0.666475324
## 928  2023-08-10 Twitter   carol_slack Need assistance  0.809991531
## 929  2023-08-09    Slack  dave@example Need assistance  0.662048494
## 930  2023-08-18 Twitter alice@example Hello everyone! -0.936083395
## 931  2023-08-01    Email   carol_slack       Great work! -0.389590032
## 932  2023-08-11    Email   carol_slack      Fun weekend!  0.355941510
## 933  2023-08-03    Slack  @erin_tweets Need assistance  0.896539724
## 934  2023-08-20    Email alice@example Hello everyone! -0.555095884
## 935  2023-08-17    Email  dave@example      Team meeting -0.047711935
## 936  2023-08-13 Twitter  dave@example   Exciting news! -0.618614707
## 937  2023-08-13 Twitter   carol_slack      Fun weekend! -0.412842807
## 938  2023-08-04    Email    @bob_tweets       Great work! -0.251496902
## 939  2023-08-16    Email    @bob_tweets Need assistance -0.459899545
## 940  2023-08-17 Twitter   carol_slack Need assistance -0.101536875
## 941  2023-08-06 Twitter   carol_slack   Exciting news! -0.329569053
## 942  2023-08-01    Slack alice@example   Exciting news!  0.350437745
## 943  2023-08-08    Email alice@example   Exciting news!  0.529548995
## 944  2023-08-13 Twitter alice@example       Great work! -0.806566573
## 945  2023-08-06    Slack   carol_slack   Exciting news! -0.249575844
## 946  2023-08-08    Email  @erin_tweets Hello everyone! -0.064463819
## 947  2023-08-20    Slack  @erin_tweets Hello everyone! -0.357717138
## 948  2023-08-01 Twitter    @frank_chat Need assistance -0.696885624
## 949  2023-08-02    Slack  dave@example   Exciting news! -0.662697271
```

```
## 950   2023-08-11    Email    dave@example Need assistance  0.060486035
## 951   2023-08-11    Slack   @erin_tweets     Great work! -0.704862314
## 952   2023-08-05    Slack    @frank_chat Need assistance -0.129298556
## 953   2023-08-07    Email    @bob_tweets    Fun weekend!  0.079245736
## 954   2023-08-20 Twitter    carol_slack Hello everyone!  0.640248996
## 955   2023-08-01    Slack   dave@example Need assistance -0.988749139
## 956   2023-08-09    Email   @erin_tweets Need assistance  0.953375103
## 957   2023-08-12    Slack    carol_slack Need assistance -0.044029484
## 958   2023-08-19    Slack alice@example   Exciting news!  0.502961815
## 959   2023-08-17 Twitter    carol_slack  Exciting news! -0.237763272
## 960   2023-08-11 Twitter    @frank_chat Hello everyone!  0.807257727
## 961   2023-08-17 Twitter   @erin_tweets    Team meeting -0.666378770
## 962   2023-08-06    Email   dave@example Need assistance  0.492307736
## 963   2023-08-10    Email    @frank_chat  Exciting news! -0.010767524
## 964   2023-08-18    Email    @bob_tweets Need assistance  0.453627230
## 965   2023-08-07    Slack    carol_slack     Great work!  0.937586371
## 966   2023-08-09    Email    @frank_chat    Team meeting -0.712716471
## 967   2023-08-18 Twitter    @bob_tweets     Great work! -0.839583620
## 968   2023-08-06 Twitter   dave@example    Team meeting  0.165403601
## 969   2023-08-02    Slack   @erin_tweets     Great work! -0.887057793
## 970   2023-08-17    Email    @frank_chat Need assistance -0.837423526
## 971   2023-08-08    Email    @frank_chat    Team meeting  0.778342899
## 972   2023-08-20 Twitter   @erin_tweets  Exciting news!  0.131818828
## 973   2023-08-02 Twitter   @erin_tweets Need assistance  0.821079701
## 974   2023-08-08    Slack   @erin_tweets  Exciting news!  0.085280708
## 975   2023-08-01    Email   @erin_tweets    Fun weekend!  0.203746784
## 976   2023-08-12 Twitter   dave@example     Great work! -0.462906254
## 977   2023-08-19 Twitter alice@example Hello everyone!  0.857508211
## 978   2023-08-12 Twitter alice@example    Team meeting  0.582250814
## 979   2023-08-07    Slack    @bob_tweets     Great work!  0.170066014
## 980   2023-08-08 Twitter alice@example     Great work!  0.552484959
## 981   2023-08-14    Email   @erin_tweets     Great work! -0.129584252
## 982   2023-08-13    Email   @erin_tweets    Fun weekend!  0.418006041
## 983   2023-08-18    Email alice@example    Team meeting -0.377541550
## 984   2023-08-10 Twitter   dave@example    Fun weekend! -0.363247766
## 985   2023-08-03    Slack    @bob_tweets Need assistance  0.496275815
## 986   2023-08-08 Twitter    @bob_tweets Need assistance -0.716619523
## 987   2023-08-05    Email    @bob_tweets    Team meeting  0.243233590
```

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## 988   2023-08-17    Slack   @erin_tweets Hello everyone!   0.937329018
## 989   2023-08-03    Slack   dave@example      Great work!   0.675534202
## 990   2023-08-07    Slack  alice@example      Fun weekend!   0.844455994
## 991   2023-08-18    Slack    @frank_chat      Great work!  -0.071027102
## 992   2023-08-12    Slack   @erin_tweets Hello everyone!  -0.360894154
## 993   2023-08-10    Email    @bob_tweets Need assistance  -0.316063035
## 994   2023-08-14    Slack   dave@example   Exciting news!  -0.531753783
## 995   2023-08-04 Twitter   dave@example     Team meeting  -0.785379849
## 996   2023-08-05 Twitter    @frank_chat Hello everyone!   0.599585856
## 997   2023-08-12 Twitter  alice@example   Exciting news!   0.874988238
## 998   2023-08-07    Slack   carol_slack   Exciting news!   0.186763622
## 999   2023-08-08    Slack   @erin_tweets     Fun weekend!   0.172925062
## 1000 2023-08-03    Email    @frank_chat Hello everyone!   0.583445542
##       sentiment_label
## 1             Positive
## 2             Positive
## 3             Negative
## 4             Positive
## 5             Positive
## 6             Negative
## 7             Negative
## 8             Negative
## 9             Positive
## 10            Negative
## 11            Positive
## 12            Positive
## 13            Positive
## 14            Positive
## 15            Positive
## 16            Positive
## 17            Positive
## 18            Positive
## 19            Negative
## 20            Positive
## 21            Negative
## 22            Negative
## 23            Positive
## 24            Positive
```

```
## 25            Negative
## 26            Positive
## 27            Negative
## 28            Positive
## 29            Positive
## 30            Negative
## 31            Negative
## 32            Positive
## 33            Positive
## 34            Negative
## 35            Positive
## 36            Positive
## 37            Positive
## 38            Negative
## 39            Negative
## 40            Positive
## 41            Positive
## 42            Negative
## 43            Negative
## 44            Negative
## 45            Negative
## 46            Positive
## 47            Positive
## 48            Positive
## 49            Negative
## 50            Positive
## 51            Positive
## 52            Negative
## 53            Positive
## 54            Negative
## 55            Negative
## 56            Positive
## 57            Positive
## 58            Positive
## 59            Negative
## 60            Negative
## 61            Positive
## 62            Negative
```

```
## 63         Negative
## 64         Positive
## 65         Negative
## 66         Positive
## 67         Negative
## 68         Positive
## 69         Positive
## 70         Positive
## 71         Negative
## 72         Negative
## 73         Negative
## 74         Positive
## 75         Negative
## 76         Positive
## 77         Negative
## 78         Positive
## 79         Negative
## 80         Positive
## 81         Positive
## 82         Positive
## 83         Positive
## 84         Negative
## 85         Negative
## 86         Negative
## 87         Negative
## 88         Negative
## 89         Positive
## 90         Negative
## 91         Negative
## 92         Negative
## 93         Negative
## 94         Negative
## 95         Negative
## 96         Negative
## 97         Negative
## 98         Negative
## 99         Negative
## 100        Negative
```

```
## 101          Positive
## 102          Positive
## 103          Positive
## 104          Positive
## 105          Negative
## 106          Negative
## 107          Positive
## 108          Negative
## 109          Negative
## 110          Negative
## 111          Positive
## 112          Negative
## 113          Negative
## 114          Negative
## 115          Positive
## 116          Negative
## 117          Negative
## 118          Positive
## 119          Negative
## 120          Negative
## 121          Positive
## 122          Negative
## 123          Negative
## 124          Negative
## 125          Negative
## 126          Positive
## 127          Negative
## 128          Negative
## 129          Positive
## 130          Negative
## 131          Negative
## 132          Positive
## 133          Positive
## 134          Positive
## 135          Positive
## 136          Positive
## 137          Positive
## 138          Positive
```

```
## 139      Positive
## 140      Negative
## 141      Positive
## 142      Positive
## 143      Negative
## 144      Positive
## 145      Negative
## 146      Positive
## 147      Negative
## 148      Positive
## 149      Positive
## 150      Positive
## 151      Negative
## 152      Positive
## 153      Negative
## 154      Positive
## 155      Negative
## 156      Negative
## 157      Negative
## 158      Negative
## 159      Positive
## 160      Negative
## 161      Negative
## 162      Positive
## 163      Positive
## 164      Positive
## 165      Negative
## 166      Negative
## 167      Negative
## 168      Negative
## 169      Positive
## 170      Positive
## 171      Negative
## 172      Positive
## 173      Negative
## 174      Positive
## 175      Positive
## 176      Negative
```

```
## 177        Negative
## 178        Negative
## 179        Negative
## 180        Positive
## 181        Negative
## 182        Negative
## 183        Positive
## 184        Negative
## 185        Positive
## 186        Negative
## 187        Positive
## 188        Negative
## 189        Positive
## 190        Negative
## 191        Positive
## 192        Negative
## 193        Positive
## 194        Positive
## 195        Positive
## 196        Negative
## 197        Negative
## 198        Negative
## 199        Positive
## 200        Positive
## 201        Positive
## 202        Positive
## 203        Negative
## 204        Positive
## 205        Negative
## 206        Positive
## 207        Positive
## 208        Negative
## 209        Positive
## 210        Positive
## 211        Negative
## 212        Positive
## 213        Positive
## 214        Positive
```

```
## 215          Positive
## 216          Negative
## 217          Negative
## 218          Negative
## 219          Positive
## 220          Positive
## 221          Negative
## 222          Negative
## 223          Positive
## 224          Negative
## 225          Positive
## 226          Negative
## 227          Negative
## 228          Positive
## 229          Negative
## 230          Negative
## 231          Positive
## 232          Negative
## 233          Negative
## 234          Negative
## 235          Positive
## 236          Positive
## 237          Positive
## 238          Positive
## 239          Positive
## 240          Positive
## 241          Negative
## 242          Negative
## 243          Positive
## 244          Positive
## 245          Negative
## 246          Negative
## 247          Positive
## 248          Positive
## 249          Negative
## 250          Negative
## 251          Positive
## 252          Positive
```

```
## 253          Negative
## 254          Positive
## 255          Negative
## 256          Positive
## 257          Positive
## 258          Positive
## 259          Positive
## 260          Positive
## 261          Positive
## 262          Negative
## 263          Positive
## 264          Negative
## 265          Positive
## 266          Negative
## 267          Positive
## 268          Positive
## 269          Negative
## 270          Negative
## 271          Positive
## 272          Positive
## 273          Negative
## 274          Positive
## 275          Negative
## 276          Negative
## 277          Negative
## 278          Negative
## 279          Positive
## 280          Negative
## 281          Positive
## 282          Negative
## 283          Positive
## 284          Positive
## 285          Negative
## 286          Negative
## 287          Positive
## 288          Positive
## 289          Positive
## 290          Negative
```

```
## 291          Positive
## 292          Positive
## 293          Positive
## 294          Positive
## 295          Negative
## 296          Positive
## 297          Positive
## 298          Negative
## 299          Positive
## 300          Negative
## 301          Positive
## 302          Negative
## 303          Negative
## 304          Negative
## 305          Positive
## 306          Negative
## 307          Negative
## 308          Negative
## 309          Positive
## 310          Positive
## 311          Negative
## 312          Positive
## 313          Negative
## 314          Negative
## 315          Positive
## 316          Negative
## 317          Negative
## 318          Positive
## 319          Negative
## 320          Positive
## 321          Positive
## 322          Positive
## 323          Negative
## 324          Negative
## 325          Negative
## 326          Positive
## 327          Negative
## 328          Positive
```

```
## 329          Positive
## 330          Negative
## 331          Positive
## 332          Positive
## 333          Negative
## 334          Negative
## 335          Positive
## 336          Negative
## 337          Negative
## 338          Positive
## 339          Negative
## 340          Positive
## 341          Negative
## 342          Positive
## 343          Negative
## 344          Positive
## 345          Positive
## 346          Positive
## 347          Positive
## 348          Negative
## 349          Negative
## 350          Negative
## 351          Positive
## 352          Negative
## 353          Negative
## 354          Negative
## 355          Positive
## 356          Positive
## 357          Positive
## 358          Positive
## 359          Positive
## 360          Positive
## 361          Positive
## 362          Positive
## 363          Positive
## 364          Positive
## 365          Positive
## 366          Positive
```

```
## 367           Positive
## 368           Positive
## 369           Negative
## 370           Negative
## 371           Positive
## 372           Positive
## 373           Positive
## 374           Positive
## 375           Negative
## 376           Positive
## 377           Negative
## 378           Negative
## 379           Negative
## 380           Positive
## 381           Negative
## 382           Positive
## 383           Positive
## 384           Negative
## 385           Negative
## 386           Positive
## 387           Negative
## 388           Positive
## 389           Positive
## 390           Negative
## 391           Positive
## 392           Positive
## 393           Negative
## 394           Negative
## 395           Positive
## 396           Negative
## 397           Negative
## 398           Negative
## 399           Positive
## 400           Negative
## 401           Positive
## 402           Positive
## 403           Positive
## 404           Negative
```

```
## 405          Negative
## 406          Positive
## 407          Negative
## 408          Positive
## 409          Positive
## 410          Positive
## 411          Positive
## 412          Positive
## 413          Positive
## 414          Positive
## 415          Negative
## 416          Negative
## 417          Negative
## 418          Positive
## 419          Positive
## 420          Negative
## 421          Negative
## 422          Negative
## 423          Negative
## 424          Negative
## 425          Positive
## 426          Positive
## 427          Positive
## 428          Negative
## 429          Positive
## 430          Negative
## 431          Negative
## 432          Positive
## 433          Positive
## 434          Positive
## 435          Positive
## 436          Negative
## 437          Negative
## 438          Positive
## 439          Negative
## 440          Positive
## 441          Positive
## 442          Positive
```

```
## 443          Negative
## 444          Negative
## 445          Positive
## 446          Positive
## 447          Positive
## 448          Positive
## 449          Positive
## 450          Positive
## 451          Negative
## 452          Negative
## 453          Positive
## 454          Negative
## 455          Negative
## 456          Positive
## 457          Negative
## 458          Positive
## 459          Positive
## 460          Negative
## 461          Negative
## 462          Negative
## 463          Negative
## 464          Negative
## 465          Negative
## 466          Positive
## 467          Positive
## 468          Positive
## 469          Positive
## 470          Positive
## 471          Positive
## 472          Positive
## 473          Positive
## 474          Negative
## 475          Negative
## 476          Positive
## 477          Positive
## 478          Negative
## 479          Negative
## 480          Negative
```

```
## 481          Negative
## 482          Positive
## 483          Negative
## 484          Negative
## 485          Positive
## 486          Positive
## 487          Negative
## 488          Negative
## 489          Negative
## 490          Positive
## 491          Negative
## 492          Positive
## 493          Positive
## 494          Negative
## 495          Negative
## 496          Negative
## 497          Positive
## 498          Positive
## 499          Negative
## 500          Negative
## 501          Positive
## 502          Positive
## 503          Positive
## 504          Negative
## 505          Positive
## 506          Negative
## 507          Negative
## 508          Positive
## 509          Negative
## 510          Negative
## 511          Negative
## 512          Positive
## 513          Positive
## 514          Negative
## 515          Negative
## 516          Positive
## 517          Negative
## 518          Positive
```

```
## 519          Positive
## 520          Positive
## 521          Positive
## 522          Positive
## 523          Positive
## 524          Negative
## 525          Positive
## 526          Negative
## 527          Positive
## 528          Negative
## 529          Positive
## 530          Negative
## 531          Positive
## 532          Negative
## 533          Negative
## 534          Negative
## 535          Positive
## 536          Positive
## 537          Negative
## 538          Positive
## 539          Positive
## 540          Negative
## 541          Positive
## 542          Negative
## 543          Positive
## 544          Negative
## 545          Positive
## 546          Positive
## 547          Positive
## 548          Negative
## 549          Negative
## 550          Positive
## 551          Negative
## 552          Positive
## 553          Negative
## 554          Positive
## 555          Negative
## 556          Positive
```

```
## 557          Negative
## 558          Negative
## 559          Positive
## 560          Positive
## 561          Positive
## 562          Negative
## 563          Negative
## 564          Negative
## 565          Positive
## 566          Negative
## 567          Negative
## 568          Positive
## 569          Positive
## 570          Positive
## 571          Negative
## 572          Positive
## 573          Positive
## 574          Negative
## 575          Negative
## 576          Positive
## 577          Negative
## 578          Positive
## 579          Positive
## 580          Negative
## 581          Positive
## 582          Negative
## 583          Positive
## 584          Positive
## 585          Positive
## 586          Negative
## 587          Positive
## 588          Negative
## 589          Positive
## 590          Positive
## 591          Positive
## 592          Negative
## 593          Positive
## 594          Negative
```

```
## 595          Positive
## 596          Positive
## 597          Negative
## 598          Positive
## 599          Positive
## 600          Positive
## 601          Negative
## 602          Negative
## 603          Negative
## 604          Negative
## 605          Negative
## 606          Negative
## 607          Negative
## 608          Negative
## 609          Positive
## 610          Positive
## 611          Negative
## 612          Positive
## 613          Negative
## 614          Positive
## 615          Positive
## 616          Negative
## 617          Positive
## 618          Negative
## 619          Positive
## 620          Negative
## 621          Negative
## 622          Positive
## 623          Negative
## 624          Positive
## 625          Negative
## 626          Positive
## 627          Negative
## 628          Positive
## 629          Negative
## 630          Positive
## 631          Negative
## 632          Negative
```

```
## 633          Positive
## 634          Positive
## 635          Positive
## 636          Positive
## 637          Negative
## 638          Negative
## 639          Negative
## 640          Positive
## 641          Negative
## 642          Positive
## 643          Positive
## 644          Negative
## 645          Positive
## 646          Negative
## 647          Positive
## 648          Negative
## 649          Negative
## 650          Negative
## 651          Negative
## 652          Negative
## 653          Positive
## 654          Positive
## 655          Positive
## 656          Positive
## 657          Positive
## 658          Negative
## 659          Positive
## 660          Positive
## 661          Positive
## 662          Negative
## 663          Positive
## 664          Negative
## 665          Positive
## 666          Negative
## 667          Negative
## 668          Positive
## 669          Negative
## 670          Negative
```

```
## 671          Positive
## 672          Negative
## 673          Positive
## 674          Negative
## 675          Negative
## 676          Negative
## 677          Positive
## 678          Negative
## 679          Negative
## 680          Positive
## 681          Negative
## 682          Negative
## 683          Positive
## 684          Positive
## 685          Positive
## 686          Positive
## 687          Negative
## 688          Positive
## 689          Negative
## 690          Positive
## 691          Negative
## 692          Negative
## 693          Positive
## 694          Negative
## 695          Negative
## 696          Negative
## 697          Negative
## 698          Positive
## 699          Negative
## 700          Positive
## 701          Negative
## 702          Negative
## 703          Negative
## 704          Positive
## 705          Negative
## 706          Positive
## 707          Positive
## 708          Positive
```

```
## 709         Negative
## 710         Positive
## 711         Positive
## 712         Negative
## 713         Positive
## 714         Negative
## 715         Negative
## 716         Positive
## 717         Positive
## 718         Positive
## 719         Positive
## 720         Negative
## 721         Positive
## 722         Negative
## 723         Negative
## 724         Negative
## 725         Negative
## 726         Negative
## 727         Negative
## 728         Positive
## 729         Positive
## 730         Positive
## 731         Positive
## 732         Negative
## 733         Negative
## 734         Positive
## 735         Positive
## 736         Negative
## 737         Positive
## 738         Positive
## 739         Positive
## 740         Positive
## 741         Positive
## 742         Negative
## 743         Negative
## 744         Positive
## 745         Positive
## 746         Positive
```

```
## 747          Negative
## 748          Positive
## 749          Negative
## 750          Positive
## 751          Negative
## 752          Negative
## 753          Negative
## 754          Positive
## 755          Negative
## 756          Positive
## 757          Positive
## 758          Negative
## 759          Negative
## 760          Positive
## 761          Positive
## 762          Positive
## 763          Positive
## 764          Positive
## 765          Negative
## 766          Negative
## 767          Positive
## 768          Positive
## 769          Negative
## 770          Negative
## 771          Positive
## 772          Negative
## 773          Positive
## 774          Negative
## 775          Positive
## 776          Negative
## 777          Negative
## 778          Positive
## 779          Negative
## 780          Positive
## 781          Positive
## 782          Negative
## 783          Positive
## 784          Negative
```

```
## 785          Negative
## 786          Negative
## 787          Positive
## 788          Negative
## 789          Positive
## 790          Negative
## 791          Negative
## 792          Positive
## 793          Negative
## 794          Negative
## 795          Positive
## 796          Positive
## 797          Positive
## 798          Positive
## 799          Positive
## 800          Negative
## 801          Negative
## 802          Positive
## 803          Negative
## 804          Positive
## 805          Positive
## 806          Negative
## 807          Negative
## 808          Positive
## 809          Positive
## 810          Negative
## 811          Negative
## 812          Positive
## 813          Negative
## 814          Positive
## 815          Positive
## 816          Negative
## 817          Positive
## 818          Negative
## 819          Negative
## 820          Negative
## 821          Positive
## 822          Positive
```

```
## 823          Positive
## 824          Negative
## 825          Negative
## 826          Positive
## 827          Negative
## 828          Positive
## 829          Positive
## 830          Negative
## 831          Positive
## 832          Positive
## 833          Negative
## 834          Positive
## 835          Negative
## 836          Positive
## 837          Positive
## 838          Negative
## 839          Positive
## 840          Negative
## 841          Negative
## 842          Positive
## 843          Positive
## 844          Negative
## 845          Negative
## 846          Negative
## 847          Positive
## 848          Negative
## 849          Positive
## 850          Positive
## 851          Negative
## 852          Positive
## 853          Negative
## 854          Positive
## 855          Negative
## 856          Positive
## 857          Negative
## 858          Negative
## 859          Positive
## 860          Positive
```

```
## 861       Negative
## 862       Negative
## 863       Positive
## 864       Negative
## 865       Positive
## 866       Negative
## 867       Negative
## 868       Negative
## 869       Negative
## 870       Negative
## 871       Negative
## 872       Negative
## 873       Positive
## 874       Negative
## 875       Positive
## 876       Negative
## 877       Positive
## 878       Positive
## 879       Negative
## 880       Negative
## 881       Positive
## 882       Negative
## 883       Positive
## 884       Positive
## 885       Positive
## 886       Negative
## 887       Negative
## 888       Positive
## 889       Positive
## 890       Negative
## 891       Negative
## 892       Negative
## 893       Negative
## 894       Positive
## 895       Negative
## 896       Negative
## 897       Positive
## 898       Negative
```

```
## 899          Negative
## 900          Positive
## 901          Negative
## 902          Positive
## 903          Positive
## 904          Positive
## 905          Positive
## 906          Positive
## 907          Negative
## 908          Positive
## 909          Positive
## 910          Positive
## 911          Negative
## 912          Negative
## 913          Negative
## 914          Positive
## 915          Positive
## 916          Positive
## 917          Negative
## 918          Positive
## 919          Negative
## 920          Negative
## 921          Positive
## 922          Negative
## 923          Positive
## 924          Positive
## 925          Positive
## 926          Negative
## 927          Negative
## 928          Positive
## 929          Positive
## 930          Negative
## 931          Negative
## 932          Positive
## 933          Positive
## 934          Negative
## 935          Negative
## 936          Negative
```

```
## 937          Negative
## 938          Negative
## 939          Negative
## 940          Negative
## 941          Negative
## 942          Positive
## 943          Positive
## 944          Negative
## 945          Negative
## 946          Negative
## 947          Negative
## 948          Negative
## 949          Negative
## 950          Positive
## 951          Negative
## 952          Negative
## 953          Positive
## 954          Positive
## 955          Negative
## 956          Positive
## 957          Negative
## 958          Positive
## 959          Negative
## 960          Positive
## 961          Negative
## 962          Positive
## 963          Negative
## 964          Positive
## 965          Positive
## 966          Negative
## 967          Negative
## 968          Positive
## 969          Negative
## 970          Negative
## 971          Positive
## 972          Positive
## 973          Positive
## 974          Positive
```

```
## 975        Positive
## 976        Negative
## 977        Positive
## 978        Positive
## 979        Positive
## 980        Positive
## 981        Negative
## 982        Positive
## 983        Negative
## 984        Negative
## 985        Positive
## 986        Negative
## 987        Positive
## 988        Positive
## 989        Positive
## 990        Positive
## 991        Negative
## 992        Negative
## 993        Negative
## 994        Negative
## 995        Negative
## 996        Positive
## 997        Positive
## 998        Positive
## 999        Positive
## 1000       Positive
```

Question-11: Message Impact

Create a new dataframe using the mutate and arrange commands that calculates the product of the sentiment score and the length of each message. Arrange the results in descending order.

Solution:

```
# Enter code here
new_data <- comm_data %>%
  mutate(sentiment_length_product = sentiment * nchar(message))
sorted_data <- new_data %>%
  arrange(desc(sentiment_length_product))
```

Question-12: Daily Message Challenge

Use the group_by, summarise, and arrange commands to find the day with the highest total number of characters sent across all messages in the "comm_data" dataframe.

Solution:

```
# Enter code here
char_count_by_day <- comm_data %>%
  group_by(date) %>%
  summarise(total_chars_sent = sum(nchar(message)))
sorted_char_count <- char_count_by_day %>%
  arrange(desc(total_chars_sent))
day_with_highest_chars <- sorted_char_count[1, ]
day_with_highest_chars
```

```
## # A tibble: 1 × 2
##   date        total_chars_sent
##   <chr>                  <int>
## 1 2023-08-10               875
```

Question-13: Untidy data

Can you list at least two reasons why the dataset illustrated in slide 10 is non-tidy? How can it be made Tidy?

Solution: *Messy columns, missing data etc. all can lead to a need of reshaping of untidy dataset. pivot_longer from dplyr is an effective tool to rectify it.*