Untitled

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library(tidyverse)

## Warning: package 'ggplot2' was built under R version 4.2.3

## Warning: package 'tibble' was built under R version 4.2.3

## Warning: package 'dplyr' was built under R version 4.2.3

## ── Attaching core tidyverse packages ──────────────────────── tidyverse 2.0.0 ──  
## ✔ dplyr 1.1.2 ✔ readr 2.1.4  
## ✔ forcats 1.0.0 ✔ stringr 1.5.0  
## ✔ ggplot2 3.4.2 ✔ tibble 3.2.1  
## ✔ lubridate 1.9.2 ✔ tidyr 1.3.0  
## ✔ purrr 1.0.1   
## ── Conflicts ────────────────────────────────────────── tidyverse\_conflicts() ──  
## ✖ dplyr::filter() masks stats::filter()  
## ✖ dplyr::lag() masks stats::lag()  
## ℹ Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors

library(readxl)  
library(lubridate)  
library(xts)

## Loading required package: zoo  
##   
## Attaching package: 'zoo'  
##   
## The following objects are masked from 'package:base':  
##   
## as.Date, as.Date.numeric  
##   
##   
## Attaching package: 'xts'  
##   
## The following objects are masked from 'package:dplyr':  
##   
## first, last

library(zoo)  
library(tseries)

## Warning: package 'tseries' was built under R version 4.2.3

## Registered S3 method overwritten by 'quantmod':  
## method from  
## as.zoo.data.frame zoo

library(forecast)  
library(fable)

## Warning: package 'fable' was built under R version 4.2.3

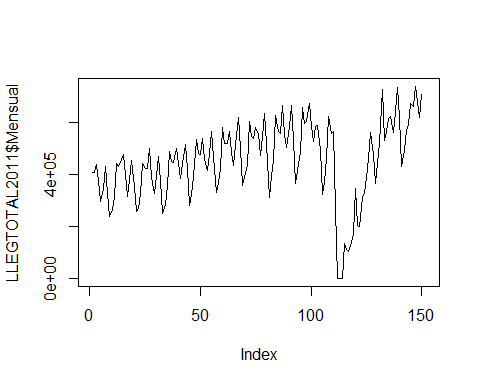
## Loading required package: fabletools

## Warning: package 'fabletools' was built under R version 4.2.3

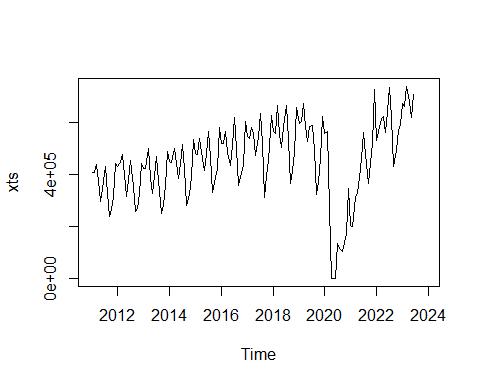
##   
## Attaching package: 'fabletools'  
##   
## The following object is masked from 'package:forecast':  
##   
## accuracy

setwd("D:/USERDATA/2007048/OneDrive - BCRD/Desktop/ESTADISTICAS APLICADA A LOS NEGOCIOS/8VO TRIMESTRE/MODELO PREDICTIVOS/TAREA 1")  
  
library(readxl)  
LLEGTOTAL2011 <- read\_excel("LLEGTOTAL2011.xls")  
View(LLEGTOTAL2011)  
  
library(readxl)  
LLEGTOTALOG <- read\_excel("LLEGTOTALOG.xls")  
View(LLEGTOTALOG)

plot(LLEGTOTAL2011$Mensual, type="l")



library(tseries)  
xts <- ts(LLEGTOTALOG$Mensual, frequency = 12, start = c(2011,01,01))  
plot(xts)



attach(LLEGTOTALOG)

## The following object is masked from package:datasets:  
##   
## euro

mod5 <- (lm(lnmensual ~ tsdolar+lnpasaje+lnhbr+lngtRD+lngtpuntacana+lngtcaribe+lneuro))  
u <- mod5$residuals  
yhat <- mod5$fitted.values  
  
summary (mod5)

##   
## Call:  
## lm(formula = lnmensual ~ tsdolar + lnpasaje + lnhbr + lngtRD +   
## lngtpuntacana + lngtcaribe + lneuro)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -4.0076 -0.2502 0.0195 0.2840 1.2485   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) -8.28540 4.37996 -1.892 0.06057 .   
## tsdolar -0.35481 0.07324 -4.844 3.29e-06 \*\*\*  
## lnpasaje 1.70187 0.39787 4.277 3.45e-05 \*\*\*  
## lnhbr -0.95030 0.58339 -1.629 0.10554   
## lngtRD -0.14074 0.51685 -0.272 0.78578   
## lngtpuntacana 2.29857 0.18837 12.202 < 2e-16 \*\*\*  
## lngtcaribe -0.07964 0.24413 -0.326 0.74473   
## lneuro 2.20921 0.73382 3.011 0.00309 \*\*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.5942 on 142 degrees of freedom  
## (6 observations deleted due to missingness)  
## Multiple R-squared: 0.6853, Adjusted R-squared: 0.6698   
## F-statistic: 44.18 on 7 and 142 DF, p-value: < 2.2e-16

attach(LLEGTOTALOG)

## The following objects are masked from LLEGTOTALOG (pos = 3):  
##   
## Acumulado%, dolar, dolarcan, euro, gtbach, gtbav, gtcabarete,  
## gtcapcana, gtcaribe, gtcasacampo, gtmer, gtpuntacana, gtRD,  
## gtsamana, gtsosua, gtterrenas, HBRP, hotelesbaresyrest,  
## interanual%, lnbach, lndolar, lneuro, lngtbav, lngtcabarete,  
## lngtcapcana, lngtcaribe, lngtcascampo, lngtmer, lngtpuntacana,  
## lngtRD, lngtsam, lngtsosua, lngtterr, lnhbr, lnmensual, lnpaquetes,  
## lnpasaje, Mensual, mensualP, Paquetes turísticos, Pasaje al  
## exterior, pasajeP, PTURP, TIEMPO, tsdolar

## The following object is masked from package:datasets:  
##   
## euro

mod6 <- lm(lnmensual ~ tsdolar + pasajeP + PTURP + HBRP + lngtRD + lngtpuntacana + lngtRD + lngtcaribe + lneuro)  
u <- mod6$residuals  
yhat <- mod6$fitted.values  
  
summary(mod6)

##   
## Call:  
## lm(formula = lnmensual ~ tsdolar + pasajeP + PTURP + HBRP + lngtRD +   
## lngtpuntacana + lngtRD + lngtcaribe + lneuro)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -4.1013 -0.2012 0.0289 0.2739 1.3555   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 1.075180 4.177076 0.257 0.7972   
## tsdolar -0.347861 0.078043 -4.457 1.68e-05 \*\*\*  
## pasajeP 0.009517 0.003735 2.548 0.0119 \*   
## PTURP -0.019513 0.015963 -1.222 0.2236   
## HBRP 0.319430 0.194887 1.639 0.1034   
## lngtRD -1.237565 0.527864 -2.344 0.0204 \*   
## lngtpuntacana 2.638199 0.201168 13.114 < 2e-16 \*\*\*  
## lngtcaribe -0.020302 0.234789 -0.086 0.9312   
## lneuro 1.521330 0.713488 2.132 0.0347 \*   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.6137 on 141 degrees of freedom  
## (6 observations deleted due to missingness)  
## Multiple R-squared: 0.6667, Adjusted R-squared: 0.6478   
## F-statistic: 35.25 on 8 and 141 DF, p-value: < 2.2e-16

attach(LLEGTOTALOG)

## The following objects are masked from LLEGTOTALOG (pos = 3):  
##   
## Acumulado%, dolar, dolarcan, euro, gtbach, gtbav, gtcabarete,  
## gtcapcana, gtcaribe, gtcasacampo, gtmer, gtpuntacana, gtRD,  
## gtsamana, gtsosua, gtterrenas, HBRP, hotelesbaresyrest,  
## interanual%, lnbach, lndolar, lneuro, lngtbav, lngtcabarete,  
## lngtcapcana, lngtcaribe, lngtcascampo, lngtmer, lngtpuntacana,  
## lngtRD, lngtsam, lngtsosua, lngtterr, lnhbr, lnmensual, lnpaquetes,  
## lnpasaje, Mensual, mensualP, Paquetes turísticos, Pasaje al  
## exterior, pasajeP, PTURP, TIEMPO, tsdolar

## The following objects are masked from LLEGTOTALOG (pos = 4):  
##   
## Acumulado%, dolar, dolarcan, euro, gtbach, gtbav, gtcabarete,  
## gtcapcana, gtcaribe, gtcasacampo, gtmer, gtpuntacana, gtRD,  
## gtsamana, gtsosua, gtterrenas, HBRP, hotelesbaresyrest,  
## interanual%, lnbach, lndolar, lneuro, lngtbav, lngtcabarete,  
## lngtcapcana, lngtcaribe, lngtcascampo, lngtmer, lngtpuntacana,  
## lngtRD, lngtsam, lngtsosua, lngtterr, lnhbr, lnmensual, lnpaquetes,  
## lnpasaje, Mensual, mensualP, Paquetes turísticos, Pasaje al  
## exterior, pasajeP, PTURP, TIEMPO, tsdolar

## The following object is masked from package:datasets:  
##   
## euro

mod7 <- lm(lnmensual ~ tsdolar + lnpasaje + lnpaquetes + lnhbr + lngtRD + lngtpuntacana + lngtRD + lngtcaribe + lneuro + lngtbav +lngtcabarete + lngtcapcana + lngtcascampo + lngtmer + lngtsosua + lngtsam + lngtterr +lnbach)  
u <- mod7$residuals  
yhat <- mod7$fitted.values  
  
summary(mod7)

##   
## Call:  
## lm(formula = lnmensual ~ tsdolar + lnpasaje + lnpaquetes + lnhbr +   
## lngtRD + lngtpuntacana + lngtRD + lngtcaribe + lneuro + lngtbav +   
## lngtcabarete + lngtcapcana + lngtcascampo + lngtmer + lngtsosua +   
## lngtsam + lngtterr + lnbach)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -2.84818 -0.21367 0.01855 0.23402 1.75375   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) -3.34271 7.32774 -0.456 0.64908   
## tsdolar -0.39424 0.08193 -4.812 4.32e-06 \*\*\*  
## lnpasaje 1.27072 0.40862 3.110 0.00233 \*\*   
## lnpaquetes -5.59018 0.91981 -6.078 1.44e-08 \*\*\*  
## lnhbr 0.22051 1.45085 0.152 0.87945   
## lngtRD -1.17864 0.56690 -2.079 0.03970 \*   
## lngtpuntacana 2.82570 0.28888 9.782 < 2e-16 \*\*\*  
## lngtcaribe 0.07254 0.26146 0.277 0.78190   
## lneuro 5.61790 0.87535 6.418 2.76e-09 \*\*\*  
## lngtbav -0.46845 0.31717 -1.477 0.14226   
## lngtcabarete -0.15696 0.31250 -0.502 0.61639   
## lngtcapcana -0.27738 0.21697 -1.278 0.20353   
## lngtcascampo 0.24531 0.25546 0.960 0.33881   
## lngtmer 0.49022 0.45314 1.082 0.28147   
## lngtsosua 1.10763 0.45852 2.416 0.01719 \*   
## lngtsam 0.67499 0.43208 1.562 0.12083   
## lngtterr -0.05458 0.28539 -0.191 0.84866   
## lnbach -0.07260 0.50366 -0.144 0.88562   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 0.516 on 122 degrees of freedom  
## (16 observations deleted due to missingness)  
## Multiple R-squared: 0.7927, Adjusted R-squared: 0.7638   
## F-statistic: 27.45 on 17 and 122 DF, p-value: < 2.2e-16

library(stargazer)

##   
## Please cite as:

## Hlavac, Marek (2022). stargazer: Well-Formatted Regression and Summary Statistics Tables.

## R package version 5.2.3. https://CRAN.R-project.org/package=stargazer

stargazer(mod5,mod6,mod7, type = "text")

##   
## ============================================================================================  
## Dependent variable:   
## ------------------------------------------------------------------------  
## lnmensual   
## (1) (2) (3)   
## --------------------------------------------------------------------------------------------  
## tsdolar -0.355\*\*\* -0.348\*\*\* -0.394\*\*\*   
## (0.073) (0.078) (0.082)   
##   
## lnpasaje 1.702\*\*\* 1.271\*\*\*   
## (0.398) (0.409)   
##   
## lnpaquetes -5.590\*\*\*   
## (0.920)   
##   
## lnhbr -0.950 0.221   
## (0.583) (1.451)   
##   
## pasajeP 0.010\*\*   
## (0.004)   
##   
## PTURP -0.020   
## (0.016)   
##   
## HBRP 0.319   
## (0.195)   
##   
## lngtRD -0.141 -1.238\*\* -1.179\*\*   
## (0.517) (0.528) (0.567)   
##   
## lngtpuntacana 2.299\*\*\* 2.638\*\*\* 2.826\*\*\*   
## (0.188) (0.201) (0.289)   
##   
## lngtcaribe -0.080 -0.020 0.073   
## (0.244) (0.235) (0.261)   
##   
## lneuro 2.209\*\*\* 1.521\*\* 5.618\*\*\*   
## (0.734) (0.713) (0.875)   
##   
## lngtbav -0.468   
## (0.317)   
##   
## lngtcabarete -0.157   
## (0.312)   
##   
## lngtcapcana -0.277   
## (0.217)   
##   
## lngtcascampo 0.245   
## (0.255)   
##   
## lngtmer 0.490   
## (0.453)   
##   
## lngtsosua 1.108\*\*   
## (0.459)   
##   
## lngtsam 0.675   
## (0.432)   
##   
## lngtterr -0.055   
## (0.285)   
##   
## lnbach -0.073   
## (0.504)   
##   
## Constant -8.285\* 1.075 -3.343   
## (4.380) (4.177) (7.328)   
##   
## --------------------------------------------------------------------------------------------  
## Observations 150 150 140   
## R2 0.685 0.667 0.793   
## Adjusted R2 0.670 0.648 0.764   
## Residual Std. Error 0.594 (df = 142) 0.614 (df = 141) 0.516 (df = 122)   
## F Statistic 44.179\*\*\* (df = 7; 142) 35.254\*\*\* (df = 8; 141) 27.447\*\*\* (df = 17; 122)  
## ============================================================================================  
## Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

# uso del modelo  
  
  
predicciones <- predict(mod7, newdata = LLEGTOTALOG)  
  
  
# Imprimir las predicciones  
  
   
  
head(predicciones, 100)

## 1 2 3 4 5 6 7 8   
## 13.54442 12.89491 12.50258 12.27823 12.50361 12.38109 13.15721 13.06410   
## 9 10 11 12 13 14 15 16   
## 12.62803 12.50285 12.68475 12.76229 13.05627 12.89912 12.62517 12.42208   
## 17 18 19 20 21 22 23 24   
## 12.30619 12.73584 12.93805 12.98586 12.30226 12.39735 12.69964 13.05373   
## 25 26 27 28 29 30 31 32   
## 13.36016 13.05691 12.56421 12.61680 12.60338 12.92084 13.10224 12.70386   
## 33 34 35 36 37 38 39 40   
## 12.63873 13.39266 13.19032 13.58988 13.75880 12.84908 13.11145 12.96411   
## 41 42 43 44 45 46 47 48   
## 13.01245 12.93188 13.01245 13.10385 12.19493 12.41336 12.89048 13.15635   
## 49 50 51 52 53 54 55 56   
## 13.54570 12.92522 13.10027 12.80408 12.74016 13.35862 13.26025 13.34471   
## 57 58 59 60 61 62 63 64   
## 12.51403 12.71766 12.76505 13.15227 13.45988 12.73141 12.89765 12.79291   
## 65 66 67 68 69 70 71 72   
## 12.91929 13.34115 13.55714 13.38214 12.43685 12.70565 12.84136 12.93002   
## 73 74 75 76 77 78 79 80   
## 13.50503 12.88170 13.25936 13.23054 13.26377 13.51450 13.99387 13.58599   
## 81 82 83 84 85 86 87 88   
## 13.93197 13.05471 13.02140 13.35844 13.53338 13.15087 13.47336 13.19257   
## 89 90 91 92 93 94 95 96   
## 13.22528 13.26577 13.43622 13.41412 13.09296 12.63675 13.31323 13.25568   
## 97 98 99 100   
## 13.38968 13.07278 13.21377 13.46760

print(predicciones)

## 1 2 3 4 5 6 7 8   
## 13.544418 12.894912 12.502577 12.278232 12.503607 12.381089 13.157206 13.064100   
## 9 10 11 12 13 14 15 16   
## 12.628034 12.502848 12.684751 12.762294 13.056270 12.899117 12.625172 12.422078   
## 17 18 19 20 21 22 23 24   
## 12.306190 12.735843 12.938052 12.985863 12.302257 12.397346 12.699635 13.053729   
## 25 26 27 28 29 30 31 32   
## 13.360158 13.056910 12.564214 12.616802 12.603376 12.920844 13.102243 12.703861   
## 33 34 35 36 37 38 39 40   
## 12.638731 13.392657 13.190318 13.589876 13.758805 12.849078 13.111447 12.964112   
## 41 42 43 44 45 46 47 48   
## 13.012450 12.931880 13.012452 13.103849 12.194927 12.413357 12.890480 13.156354   
## 49 50 51 52 53 54 55 56   
## 13.545698 12.925221 13.100272 12.804083 12.740162 13.358617 13.260247 13.344713   
## 57 58 59 60 61 62 63 64   
## 12.514029 12.717662 12.765049 13.152273 13.459880 12.731414 12.897645 12.792905   
## 65 66 67 68 69 70 71 72   
## 12.919292 13.341152 13.557135 13.382137 12.436854 12.705653 12.841357 12.930016   
## 73 74 75 76 77 78 79 80   
## 13.505028 12.881704 13.259360 13.230543 13.263773 13.514497 13.993868 13.585991   
## 81 82 83 84 85 86 87 88   
## 13.931970 13.054708 13.021403 13.358440 13.533379 13.150867 13.473357 13.192570   
## 89 90 91 92 93 94 95 96   
## 13.225279 13.265766 13.436217 13.414119 13.092958 12.636751 13.313226 13.255683   
## 97 98 99 100 101 102 103 104   
## 13.389685 13.072783 13.213767 13.467599 13.313167 13.928788 12.959881 12.883638   
## 105 106 107 108 109 110 111 112   
## 12.409950 12.043092 13.186196 13.238461 13.370998 12.701805 10.752605 8.228073   
## 113 114 115 116 117 118 119 120   
## 7.670783 7.487607 10.161079 10.473272 11.315976 11.974130 11.857534 12.117984   
## 121 122 123 124 125 126 127 128   
## 12.211861 11.898673 12.725643 13.049497 13.210096 13.359068 13.205152 13.316962   
## 129 130 131 132 133 134 135 136   
## 13.049458 12.876183 13.217951 12.841172 12.904242 13.944940 13.841763 12.851155   
## 137 138 139 140 141 142 143 144   
## 12.671293 13.029720 13.371773 13.639266 NA NA NA NA   
## 145 146 147 148 149 150 151 152   
## NA NA NA NA NA NA NA NA   
## 153 154 155 156   
## NA NA NA NA

# Crear un nuevo dataframe con características, valores reales y predicciones  
  
resultados <- data.frame(LLEGADA = LLEGTOTALOG$lnmensual,  
  
 Prediccion = predicciones)  
  
   
  
# Imprimir el dataframe de resultados  
  
   
  
head(resultados,160)

## LLEGADA Prediccion  
## 1 12.922787 13.544418  
## 2 12.918078 12.894912  
## 3 12.993650 12.502577  
## 4 12.842673 12.278232  
## 5 12.604137 12.503607  
## 6 12.756293 12.381089  
## 7 12.978530 13.157206  
## 8 12.701817 13.064100  
## 9 12.387168 12.628034  
## 10 12.490650 12.502848  
## 11 12.663016 12.684751  
## 12 13.004449 12.762294  
## 13 12.971987 13.056270  
## 14 13.008529 12.899117  
## 15 13.080195 12.625172  
## 16 12.897075 12.422078  
## 17 12.664690 12.306190  
## 18 12.854492 12.735843  
## 19 13.025469 12.938052  
## 20 12.775862 12.985863  
## 21 12.463849 12.302257  
## 22 12.501939 12.397346  
## 23 12.703062 12.699635  
## 24 13.005848 13.053729  
## 25 12.956545 13.360158  
## 26 12.954515 13.056910  
## 27 13.123786 12.564214  
## 28 12.870267 12.616802  
## 29 12.705095 12.603376  
## 30 12.888669 12.920844  
## 31 13.061001 13.102243  
## 32 12.838580 12.703861  
## 33 12.426938 12.638731  
## 34 12.555891 13.392657  
## 35 12.791050 13.190318  
## 36 13.102199 13.589876  
## 37 13.015110 13.758805  
## 38 13.009177 12.849078  
## 39 13.124393 13.111447  
## 40 13.005870 12.964112  
## 41 12.863362 13.012450  
## 42 12.999153 12.931880  
## 43 13.151174 13.012452  
## 44 12.959174 13.103849  
## 45 12.550800 12.194927  
## 46 12.686917 12.413357  
## 47 12.879739 12.890480  
## 48 13.188769 13.156354  
## 49 13.087735 13.545698  
## 50 13.078996 12.925221  
## 51 13.194944 13.100272  
## 52 13.043238 12.804083  
## 53 12.940803 12.740162  
## 54 13.082406 13.358617  
## 55 13.250445 13.260247  
## 56 13.051525 13.344713  
## 57 12.705277 12.514029  
## 58 12.822555 12.717662  
## 59 12.955723 12.765049  
## 60 13.277233 13.152273  
## 61 13.161540 13.459880  
## 62 13.159833 12.731414  
## 63 13.245222 12.897645  
## 64 13.091486 12.792905  
## 65 12.988462 12.919292  
## 66 13.155005 13.341152  
## 67 13.337029 13.557135  
## 68 13.126993 13.382137  
## 69 12.791253 12.436854  
## 70 12.880783 12.705653  
## 71 12.984358 12.841357  
## 72 13.316030 12.930016  
## 73 13.209691 13.505028  
## 74 13.195835 12.881704  
## 75 13.273987 13.259360  
## 76 13.231252 13.230543  
## 77 13.066614 13.263773  
## 78 13.209746 13.514497  
## 79 13.365565 13.993868  
## 80 13.163102 13.585991  
## 81 12.648712 13.931970  
## 82 12.888326 13.054708  
## 83 13.025048 13.021403  
## 84 13.348311 13.358440  
## 85 13.247756 13.533379  
## 86 13.235655 13.150867  
## 87 13.411362 13.473357  
## 88 13.224015 13.192570  
## 89 13.134644 13.225279  
## 90 13.282451 13.265766  
## 91 13.408548 13.436217  
## 92 13.194824 13.414119  
## 93 12.808660 13.092958  
## 94 12.935990 12.636751  
## 95 13.092895 13.313226  
## 96 13.398491 13.255683  
## 97 13.301677 13.389685  
## 98 13.312946 13.072783  
## 99 13.419455 13.213767  
## 100 13.278134 13.467599  
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## 106 12.827200 12.043092  
## 107 13.043028 13.186196  
## 108 13.344335 13.238461  
## 109 13.230735 13.370998  
## 110 13.244898 12.701805  
## 111 12.506359 10.752605  
## 112 5.379897 8.228073  
## 113 5.976351 7.670783  
## 114 6.928538 7.487607  
## 115 11.814237 10.161079  
## 116 11.610814 10.473272  
## 117 11.551588 11.315976  
## 118 11.837007 11.974130  
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## 120 12.761290 12.117984  
## 121 12.232281 12.211861  
## 122 12.198469 11.898673  
## 123 12.654881 12.725643  
## 124 12.697942 13.049497  
## 125 12.876330 13.210096  
## 126 13.044480 13.359068  
## 127 13.242786 13.205152  
## 128 13.074380 13.316962  
## 129 12.809131 13.049458  
## 130 13.001366 12.876183  
## 131 13.160073 13.217951  
## 132 13.498516 12.841172  
## 133 13.182437 12.904242  
## 134 13.246764 13.944940  
## 135 13.333849 13.841763  
## 136 13.347123 12.851155  
## 137 13.238052 12.671293  
## 138 13.376795 13.029720  
## 139 13.507713 13.371773  
## 140 13.340620 13.639266  
## 141 12.971853 NA  
## 142 13.105820 NA  
## 143 13.255817 NA  
## 144 13.292955 NA  
## 145 13.422097 NA  
## 146 13.401658 NA  
## 147 13.514922 NA  
## 148 13.432163 NA  
## 149 13.340029 NA  
## 150 13.469212 NA  
## 151 NA NA  
## 152 NA NA  
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## 154 NA NA  
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## 156 NA NA

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