Data Exploration Assignment

2023-05-15

library(dplyr)

##   
## Attaching package: 'dplyr'

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

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

trends\_data <- read.csv("~/Downloads/Lab3\_Rawdata/trends\_up\_to\_inter\_1.csv")  
scorecard\_data <- read.csv("~/Downloads/Lab3\_Rawdata/Most+Recent+Cohorts+(Scorecard+Elements).csv")  
id\_link\_data <- read.csv("~/Downloads/Lab3\_Rawdata/id\_name\_link.csv")

head(trends\_data)

## schid schname keyword keynum  
## 1 0 california college san diego california college san diego 1  
## 2 0 california college san diego california college san diego 1  
## 3 0 california college san diego california college san diego 1  
## 4 0 california college san diego california college san diego 1  
## 5 0 california college san diego california college san diego 1  
## 6 0 california college san diego california college san diego 1  
## monthorweek index  
## 1 2013-03-31 - 2013-04-06 86  
## 2 2013-04-07 - 2013-04-13 69  
## 3 2013-04-14 - 2013-04-20 72  
## 4 2013-04-21 - 2013-04-27 78  
## 5 2013-04-28 - 2013-05-04 78  
## 6 2013-05-05 - 2013-05-11 80

summary(scorecard\_data)

## UNITID OPEID opeid6 INSTNM   
## Min. : 100654 Min. : 100200 Min. : 1002 Length:7804   
## 1st Qu.: 174392 1st Qu.: 345575 1st Qu.: 3440 Class :character   
## Median : 230600 Median : 1063100 Median :10490 Mode :character   
## Mean : 1705430 Mean : 2032428 Mean :16121   
## 3rd Qu.: 446226 3rd Qu.: 2616779 3rd Qu.:25785   
## Max. :48285707 Max. :82098821 Max. :42264   
## CITY STABBR INSTURL NPCURL   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## HCM2 PREDDEG CONTROL LOCALE   
## Min. :0.000000 Min. :0.000 Min. :1.000 Length:7804   
## 1st Qu.:0.000000 1st Qu.:1.000 1st Qu.:1.000 Class :character   
## Median :0.000000 Median :2.000 Median :2.000 Mode :character   
## Mean :0.008842 Mean :1.789 Mean :2.216   
## 3rd Qu.:0.000000 3rd Qu.:3.000 3rd Qu.:3.000   
## Max. :1.000000 Max. :4.000 Max. :3.000   
## HBCU PBI ANNHI TRIBAL   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## AANAPII HSI NANTI MENONLY   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## WOMENONLY RELAFFIL SATVR25 SATVR75   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## SATMT25 SATMT75 SATWR25 SATWR75   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## SATVRMID SATMTMID SATWRMID ACTCM25   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## ACTCM75 ACTEN25 ACTEN75 ACTMT25   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## ACTMT75 ACTWR25 ACTWR75 ACTCMMID   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## ACTENMID ACTMTMID ACTWRMID SAT\_AVG   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## SAT\_AVG\_ALL PCIP01 PCIP03 PCIP04   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## PCIP05 PCIP09 PCIP10 PCIP11   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## PCIP12 PCIP13 PCIP14 PCIP15   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## PCIP16 PCIP19 PCIP22 PCIP23   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## PCIP24 PCIP25 PCIP26 PCIP27   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## PCIP29 PCIP30 PCIP31 PCIP38   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## PCIP39 PCIP40 PCIP41 PCIP42   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## PCIP43 PCIP44 PCIP45 PCIP46   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## PCIP47 PCIP48 PCIP49 PCIP50   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## PCIP51 PCIP52 PCIP54 DISTANCEONLY   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## UGDS UGDS\_WHITE UGDS\_BLACK UGDS\_HISP   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## UGDS\_ASIAN UGDS\_AIAN UGDS\_NHPI UGDS\_2MOR   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## UGDS\_NRA UGDS\_UNKN PPTUG\_EF CURROPER   
## Length:7804 Length:7804 Length:7804 Min. :0.0000   
## Class :character Class :character Class :character 1st Qu.:1.0000   
## Mode :character Mode :character Mode :character Median :1.0000   
## Mean :0.9535   
## 3rd Qu.:1.0000   
## Max. :1.0000   
## NPT4\_PUB.AVERAGE.ANNUAL.COST NPT4\_PRIV NPT41\_PUB   
## Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character   
##   
##   
##   
## NPT42\_PUB NPT43\_PUB NPT44\_PUB NPT45\_PUB   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## NPT41\_PRIV NPT42\_PRIV NPT43\_PRIV NPT44\_PRIV   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## NPT45\_PRIV PCTPELL RET\_FT4 RET\_FTL4   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## RET\_PT4 RET\_PTL4 PCTFLOAN UG25abv   
## Length:7804 Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character Mode :character   
##   
##   
##   
## GRAD\_DEBT\_MDN\_SUPP GRAD\_DEBT\_MDN10YR\_SUPP RPY\_3YR\_RT\_SUPP   
## Length:7804 Length:7804 Length:7804   
## Class :character Class :character Class :character   
## Mode :character Mode :character Mode :character   
##   
##   
##   
## C150\_4\_POOLED\_SUPP.REPORTED.GRAD.RATE C200\_L4\_POOLED\_SUPP  
## Length:7804 Length:7804   
## Class :character Class :character   
## Mode :character Mode :character   
##   
##   
##   
## md\_earn\_wne\_p10.REPORTED.EARNINGS gt\_25k\_p6   
## Length:7804 Length:7804   
## Class :character Class :character   
## Mode :character Mode :character   
##   
##   
##

str(id\_link\_data)

## 'data.frame': 3595 obs. of 3 variables:  
## $ unitid : int 180203 222178 138558 172866 412173 108232 475635 126182 188429 188438 ...  
## $ opeid : int 2517500 353700 154100 2050300 3346300 753100 4185500 134500 266600 286000 ...  
## $ schname: chr "aaniiih nakoda college" "abilene christian university" "abraham baldwin agricultural college" "academy college" ...

#clean data by droping universities with the same 'schname'  
unique\_id\_link\_data <- id\_link\_data[!duplicated(id\_link\_data$schname), ]

library(dplyr)  
  
# Read the CSV file  
scorecard\_data <- read.csv("~/Downloads/Lab3\_Rawdata 2/Most+Recent+Cohorts+(Scorecard+Elements).csv", stringsAsFactors = FALSE)  
college\_earning <- scorecard\_data %>%  
 dplyr::select(UNITID, md\_earn\_wne\_p10.REPORTED.EARNINGS)   
  
# View the cleaned data  
head(college\_earning)

## UNITID md\_earn\_wne\_p10.REPORTED.EARNINGS  
## 1 100654 31400  
## 2 100663 40300  
## 3 100690 38100  
## 4 100706 46600  
## 5 100724 27800  
## 6 100751 42400

library(dplyr)  
  
# Read the CSV file  
scorecard\_data <- read.csv("~/Downloads/Lab3\_Rawdata 2/Most+Recent+Cohorts+(Scorecard+Elements).csv", stringsAsFactors = FALSE)  
  
# Select the desired columns  
Student\_interest <- scorecard\_data %>%  
 dplyr::select(UNITID,PREDDEG,CONTROL,LOCALE,SAT\_AVG)   
  
# View the cleaned data  
head(Student\_interest)

## UNITID PREDDEG CONTROL LOCALE SAT\_AVG  
## 1 100654 3 1 12 823  
## 2 100663 3 1 12 1146  
## 3 100690 3 2 12 NULL  
## 4 100706 3 1 12 1180  
## 5 100724 3 1 12 830  
## 6 100751 3 1 13 1171

merged\_data <- merge(Student\_interest, college\_earning, by = "UNITID")  
merged\_data$md\_earn\_wne\_p10.REPORTED.EARNINGS <- as.numeric(merged\_data$md\_earn\_wne\_p10.REPORTED.EARNINGS)

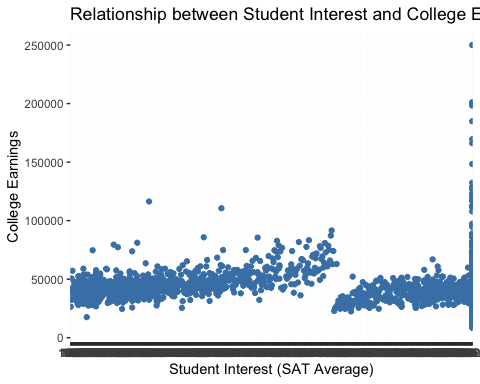
## Warning: NAs introduced by coercion

subset\_data <- merged\_data[complete.cases(merged\_data), ]  
regression\_model <- lm(md\_earn\_wne\_p10.REPORTED.EARNINGS ~ SAT\_AVG, data = subset\_data)  
summary(regression\_model)

##   
## Call:  
## lm(formula = md\_earn\_wne\_p10.REPORTED.EARNINGS ~ SAT\_AVG, data = subset\_data)  
##   
## Residuals:  
## Min 1Q Median 3Q Max   
## -22550 -6813 -1213 3987 219887   
##   
## Coefficients:  
## Estimate Std. Error t value Pr(>|t|)   
## (Intercept) 34000.0 9115.5 3.730 0.000194 \*\*\*  
## SAT\_AVG1001 4700.0 11164.1 0.421 0.673778   
## SAT\_AVG1002 9980.0 10785.5 0.925 0.354847   
## SAT\_AVG1003 6000.0 12891.2 0.465 0.641640   
## SAT\_AVG1004 5940.0 10785.5 0.551 0.581838   
## SAT\_AVG1005 5050.0 11164.1 0.452 0.651041   
## SAT\_AVG1006 6057.1 10336.0 0.586 0.557883   
## SAT\_AVG1007 1616.7 10525.6 0.154 0.877936   
## SAT\_AVG1008 3100.0 10525.6 0.295 0.768373   
## SAT\_AVG1009 3000.0 10525.6 0.285 0.775641   
## SAT\_AVG1010 6252.2 9503.5 0.658 0.510645   
## SAT\_AVG1011 5260.0 10785.5 0.488 0.625790   
## SAT\_AVG1012 12900.0 15788.4 0.817 0.413935   
## SAT\_AVG1013 3166.7 11768.0 0.269 0.787870   
## SAT\_AVG1014 8671.4 10336.0 0.839 0.401532   
## SAT\_AVG1015 10050.0 10525.6 0.955 0.339717   
## SAT\_AVG1016 4480.0 10785.5 0.415 0.677888   
## SAT\_AVG1017 10250.0 10525.6 0.974 0.330194   
## SAT\_AVG1018 5200.0 11164.1 0.466 0.641394   
## SAT\_AVG1019 -4833.3 11768.0 -0.411 0.681296   
## SAT\_AVG1020 8288.9 10077.5 0.823 0.410823   
## SAT\_AVG1021 6660.0 10785.5 0.617 0.536937   
## SAT\_AVG1022 -1750.0 12891.2 -0.136 0.892023   
## SAT\_AVG1023 3000.0 12891.2 0.233 0.815990   
## SAT\_AVG1024 6000.0 10525.6 0.570 0.568677   
## SAT\_AVG1025 16900.0 12891.2 1.311 0.189926   
## SAT\_AVG1026 9133.3 10525.6 0.868 0.385586   
## SAT\_AVG1027 8150.0 11164.1 0.730 0.465412   
## SAT\_AVG1028 942.9 10336.0 0.091 0.927320   
## SAT\_AVG1029 5275.0 10191.4 0.518 0.604764   
## SAT\_AVG1030 6662.5 9396.0 0.709 0.478308   
## SAT\_AVG1031 6533.3 11768.0 0.555 0.578797   
## SAT\_AVG1032 3525.0 11164.1 0.316 0.752210   
## SAT\_AVG1033 6157.1 10336.0 0.596 0.551401   
## SAT\_AVG1034 5625.0 11164.1 0.504 0.614390   
## SAT\_AVG1035 10100.0 10336.0 0.977 0.328530   
## SAT\_AVG1036 7775.0 11164.1 0.696 0.486192   
## SAT\_AVG1037 900.0 15788.4 0.057 0.954544   
## SAT\_AVG1038 7650.0 11164.1 0.685 0.493228   
## SAT\_AVG1039 8275.0 11164.1 0.741 0.458597   
## SAT\_AVG1040 9625.0 11164.1 0.862 0.388652   
## SAT\_AVG1041 9766.7 11768.0 0.830 0.406614   
## SAT\_AVG1042 24900.0 15788.4 1.577 0.114833   
## SAT\_AVG1043 13566.7 11768.0 1.153 0.249028   
## SAT\_AVG1044 -4400.0 15788.4 -0.279 0.780498   
## SAT\_AVG1045 6350.0 10525.6 0.603 0.546342   
## SAT\_AVG1046 6520.0 10785.5 0.605 0.545530   
## SAT\_AVG1047 5050.0 10525.6 0.480 0.631403   
## SAT\_AVG1048 6625.0 11164.1 0.593 0.552926   
## SAT\_AVG1049 4112.5 10191.4 0.404 0.686577   
## SAT\_AVG1050 4724.0 9473.1 0.499 0.618028   
## SAT\_AVG1051 28400.0 12891.2 2.203 0.027635 \*   
## SAT\_AVG1052 13500.0 15788.4 0.855 0.392560   
## SAT\_AVG1053 6800.0 10077.5 0.675 0.499852   
## SAT\_AVG1054 11575.0 11164.1 1.037 0.299875   
## SAT\_AVG1055 -4400.0 15788.4 -0.279 0.780498   
## SAT\_AVG1056 24950.0 12891.2 1.935 0.052992 .   
## SAT\_AVG1057 10440.0 10785.5 0.968 0.333109   
## SAT\_AVG1058 4950.0 11164.1 0.443 0.657506   
## SAT\_AVG1059 20800.0 15788.4 1.317 0.187756   
## SAT\_AVG1060 8483.3 10525.6 0.806 0.420297   
## SAT\_AVG1061 875.0 11164.1 0.078 0.937532   
## SAT\_AVG1062 4320.0 10785.5 0.401 0.688778   
## SAT\_AVG1063 16300.0 15788.4 1.032 0.301932   
## SAT\_AVG1064 4140.0 10785.5 0.384 0.701108   
## SAT\_AVG1065 3900.0 11768.0 0.331 0.740350   
## SAT\_AVG1066 5450.0 12891.2 0.423 0.672481   
## SAT\_AVG1067 4000.0 11768.0 0.340 0.733942   
## SAT\_AVG1068 7480.0 10785.5 0.694 0.488014   
## SAT\_AVG1069 7400.0 10785.5 0.686 0.492679   
## SAT\_AVG1070 8033.3 9487.7 0.847 0.397194   
## SAT\_AVG1071 4400.0 12891.2 0.341 0.732878   
## SAT\_AVG1072 5200.0 11768.0 0.442 0.658597   
## SAT\_AVG1073 9666.7 11768.0 0.821 0.411436   
## SAT\_AVG1075 8620.0 10785.5 0.799 0.424201   
## SAT\_AVG1076 14200.0 15788.4 0.899 0.368485   
## SAT\_AVG1077 10360.0 10785.5 0.961 0.336826   
## SAT\_AVG1078 9950.0 11164.1 0.891 0.372837   
## SAT\_AVG1079 4620.0 10785.5 0.428 0.668414   
## SAT\_AVG1080 26800.0 11768.0 2.277 0.022805 \*   
## SAT\_AVG1081 5440.0 10785.5 0.504 0.614017   
## SAT\_AVG1082 4866.7 11768.0 0.414 0.679220   
## SAT\_AVG1083 8333.3 11768.0 0.708 0.478893   
## SAT\_AVG1084 8200.0 11164.1 0.734 0.462679   
## SAT\_AVG1085 8750.0 11164.1 0.784 0.433216   
## SAT\_AVG1086 11700.0 12891.2 0.908 0.364134   
## SAT\_AVG1087 9275.0 10191.4 0.910 0.362822   
## SAT\_AVG1088 6333.3 11768.0 0.538 0.590474   
## SAT\_AVG1089 6533.3 11768.0 0.555 0.578797   
## SAT\_AVG1090 8500.0 9668.4 0.879 0.379359   
## SAT\_AVG1091 7450.0 12891.2 0.578 0.563348   
## SAT\_AVG1092 17600.0 15788.4 1.115 0.265014   
## SAT\_AVG1093 20100.0 15788.4 1.273 0.203045   
## SAT\_AVG1094 18400.0 10785.5 1.706 0.088071 .   
## SAT\_AVG1095 7825.0 11164.1 0.701 0.483393   
## SAT\_AVG1096 7575.0 11164.1 0.679 0.497476   
## SAT\_AVG1097 5850.0 12891.2 0.454 0.649993   
## SAT\_AVG1098 8020.0 10785.5 0.744 0.457160   
## SAT\_AVG1099 3000.0 15788.4 0.190 0.849307   
## SAT\_AVG1100 10428.6 10336.0 1.009 0.313041   
## SAT\_AVG1101 11700.0 15788.4 0.741 0.458697   
## SAT\_AVG1102 11257.1 10336.0 1.089 0.276150   
## SAT\_AVG1104 825.0 11164.1 0.074 0.941095   
## SAT\_AVG1105 8153.9 9791.6 0.833 0.405029   
## SAT\_AVG1106 9300.0 11164.1 0.833 0.404868   
## SAT\_AVG1107 5400.0 15788.4 0.342 0.732348   
## SAT\_AVG1108 13250.0 12891.2 1.028 0.304077   
## SAT\_AVG1109 14650.0 10525.6 1.392 0.164030   
## SAT\_AVG1110 9888.9 10077.5 0.981 0.326499   
## SAT\_AVG1112 12750.0 11164.1 1.142 0.253485   
## SAT\_AVG1113 7266.7 11768.0 0.617 0.536936   
## SAT\_AVG1114 9200.0 15788.4 0.583 0.560117   
## SAT\_AVG1115 11725.0 11164.1 1.050 0.293657   
## SAT\_AVG1116 11500.0 12891.2 0.892 0.372391   
## SAT\_AVG1117 12200.0 12891.2 0.946 0.343998   
## SAT\_AVG1118 20500.0 15788.4 1.298 0.194201   
## SAT\_AVG1119 6550.0 12891.2 0.508 0.611406   
## SAT\_AVG1120 14800.0 15788.4 0.937 0.348599   
## SAT\_AVG1121 15180.0 10785.5 1.407 0.159358   
## SAT\_AVG1122 17400.0 11164.1 1.559 0.119160   
## SAT\_AVG1123 9320.0 10785.5 0.864 0.387563   
## SAT\_AVG1124 1600.0 15788.4 0.101 0.919284   
## SAT\_AVG1125 12740.0 10785.5 1.181 0.237574   
## SAT\_AVG1126 5966.7 11768.0 0.507 0.612159   
## SAT\_AVG1127 10300.0 15788.4 0.652 0.514187   
## SAT\_AVG1129 14000.0 12891.2 1.086 0.277524   
## SAT\_AVG1130 9766.7 11768.0 0.830 0.406614   
## SAT\_AVG1131 6866.7 11768.0 0.584 0.559580   
## SAT\_AVG1132 14850.0 12891.2 1.152 0.249395   
## SAT\_AVG1133 24800.0 15788.4 1.571 0.116297   
## SAT\_AVG1134 11500.0 15788.4 0.728 0.466413   
## SAT\_AVG1135 19800.0 15788.4 1.254 0.209869   
## SAT\_AVG1136 2900.0 12891.2 0.225 0.822020   
## SAT\_AVG1137 12550.0 12891.2 0.974 0.330334   
## SAT\_AVG1138 8100.0 12891.2 0.628 0.529812   
## SAT\_AVG1139 4600.0 15788.4 0.291 0.770793   
## SAT\_AVG1140 5850.0 12891.2 0.454 0.649993   
## SAT\_AVG1141 13200.0 11768.0 1.122 0.262048   
## SAT\_AVG1142 11380.0 10785.5 1.055 0.291422   
## SAT\_AVG1143 8666.7 11768.0 0.736 0.461484   
## SAT\_AVG1144 9800.0 11768.0 0.833 0.405015   
## SAT\_AVG1145 12875.0 10191.4 1.263 0.206531   
## SAT\_AVG1146 3600.0 11768.0 0.306 0.759682   
## SAT\_AVG1147 7900.0 12891.2 0.613 0.540022   
## SAT\_AVG1149 13900.0 11164.1 1.245 0.213166   
## SAT\_AVG1151 5000.0 15788.4 0.317 0.751493   
## SAT\_AVG1153 17066.7 11768.0 1.450 0.147047   
## SAT\_AVG1154 10750.0 11164.1 0.963 0.335639   
## SAT\_AVG1155 17950.0 11164.1 1.608 0.107933   
## SAT\_AVG1156 6600.0 11768.0 0.561 0.574929   
## SAT\_AVG1157 13850.0 12891.2 1.074 0.282704   
## SAT\_AVG1158 18760.0 10785.5 1.739 0.082030 .   
## SAT\_AVG1159 11200.0 15788.4 0.709 0.478121   
## SAT\_AVG1160 10800.0 15788.4 0.684 0.493977   
## SAT\_AVG1161 17700.0 12891.2 1.373 0.169803   
## SAT\_AVG1162 11900.0 15788.4 0.754 0.451054   
## SAT\_AVG1163 10550.0 11164.1 0.945 0.344707   
## SAT\_AVG1164 13600.0 15788.4 0.861 0.389063   
## SAT\_AVG1165 21800.0 10785.5 2.021 0.043308 \*   
## SAT\_AVG1166 9800.0 15788.4 0.621 0.534819   
## SAT\_AVG1168 9720.0 10785.5 0.901 0.367521   
## SAT\_AVG1171 15966.7 11768.0 1.357 0.174908   
## SAT\_AVG1172 32400.0 15788.4 2.052 0.040207 \*   
## SAT\_AVG1173 9050.0 12891.2 0.702 0.482693   
## SAT\_AVG1174 3400.0 15788.4 0.215 0.829505   
## SAT\_AVG1175 10420.0 10785.5 0.966 0.334036   
## SAT\_AVG1176 12600.0 15788.4 0.798 0.424877   
## SAT\_AVG1177 7900.0 15788.4 0.500 0.616838   
## SAT\_AVG1178 20300.0 15788.4 1.286 0.198587   
## SAT\_AVG1180 12600.0 15788.4 0.798 0.424877   
## SAT\_AVG1181 15950.0 12891.2 1.237 0.216040   
## SAT\_AVG1182 14875.0 11164.1 1.332 0.182789   
## SAT\_AVG1183 12600.0 12891.2 0.977 0.328411   
## SAT\_AVG1186 8250.0 12891.2 0.640 0.522220   
## SAT\_AVG1187 34400.0 15788.4 2.179 0.029391 \*   
## SAT\_AVG1190 6000.0 12891.2 0.465 0.641640   
## SAT\_AVG1192 18550.0 12891.2 1.439 0.150221   
## SAT\_AVG1193 9700.0 12891.2 0.752 0.451814   
## SAT\_AVG1194 28100.0 15788.4 1.780 0.075170 .   
## SAT\_AVG1195 29450.0 11164.1 2.638 0.008367 \*\*   
## SAT\_AVG1197 27100.0 15788.4 1.716 0.086140 .   
## SAT\_AVG1198 22466.7 11768.0 1.909 0.056300 .   
## SAT\_AVG1199 10000.0 11768.0 0.850 0.395497   
## SAT\_AVG1200 12466.7 11768.0 1.059 0.289481   
## SAT\_AVG1202 21600.0 15788.4 1.368 0.171343   
## SAT\_AVG1204 14050.0 12891.2 1.090 0.275812   
## SAT\_AVG1206 20600.0 12891.2 1.598 0.110107   
## SAT\_AVG1208 16250.0 12891.2 1.261 0.207528   
## SAT\_AVG1209 17550.0 12891.2 1.361 0.173449   
## SAT\_AVG1210 20800.0 15788.4 1.317 0.187756   
## SAT\_AVG1211 18600.0 15788.4 1.178 0.238820   
## SAT\_AVG1212 15466.7 11768.0 1.314 0.188804   
## SAT\_AVG1213 7100.0 15788.4 0.450 0.652948   
## SAT\_AVG1214 14200.0 12891.2 1.102 0.270719   
## SAT\_AVG1215 13433.3 11768.0 1.142 0.253709   
## SAT\_AVG1216 11200.0 15788.4 0.709 0.478121   
## SAT\_AVG1217 21600.0 12891.2 1.676 0.093885 .   
## SAT\_AVG1220 23900.0 15788.4 1.514 0.130146   
## SAT\_AVG1221 14200.0 15788.4 0.899 0.368485   
## SAT\_AVG1224 16100.0 15788.4 1.020 0.307902   
## SAT\_AVG1225 20000.0 15788.4 1.267 0.205302   
## SAT\_AVG1227 3900.0 15788.4 0.247 0.804905   
## SAT\_AVG1228 22300.0 15788.4 1.412 0.157885   
## SAT\_AVG1229 13500.0 15788.4 0.855 0.392560   
## SAT\_AVG1231 13900.0 12891.2 1.078 0.280970   
## SAT\_AVG1232 22900.0 15788.4 1.450 0.147000   
## SAT\_AVG1233 18700.0 12891.2 1.451 0.146951   
## SAT\_AVG1234 29500.0 12891.2 2.288 0.022155 \*   
## SAT\_AVG1235 25100.0 12891.2 1.947 0.051581 .   
## SAT\_AVG1237 17350.0 12891.2 1.346 0.178400   
## SAT\_AVG1239 13300.0 15788.4 0.842 0.399609   
## SAT\_AVG1240 16360.0 10785.5 1.517 0.129367   
## SAT\_AVG1241 20600.0 15788.4 1.305 0.192035   
## SAT\_AVG1242 26900.0 15788.4 1.704 0.088483 .   
## SAT\_AVG1243 8700.0 15788.4 0.551 0.581633   
## SAT\_AVG1244 31700.0 15788.4 2.008 0.044717 \*   
## SAT\_AVG1246 22000.0 15788.4 1.393 0.163551   
## SAT\_AVG1247 10800.0 12891.2 0.838 0.402193   
## SAT\_AVG1248 4200.0 15788.4 0.266 0.790236   
## SAT\_AVG1252 34200.0 15788.4 2.166 0.030346 \*   
## SAT\_AVG1253 21500.0 15788.4 1.362 0.173334   
## SAT\_AVG1258 27250.0 11164.1 2.441 0.014686 \*   
## SAT\_AVG1259 15400.0 15788.4 0.975 0.329409   
## SAT\_AVG1262 10866.7 11768.0 0.923 0.355838   
## SAT\_AVG1263 31500.0 15788.4 1.995 0.046081 \*   
## SAT\_AVG1267 6500.0 15788.4 0.412 0.680581   
## SAT\_AVG1268 14000.0 12891.2 1.086 0.277524   
## SAT\_AVG1270 16500.0 12891.2 1.280 0.200623   
## SAT\_AVG1272 17300.0 15788.4 1.096 0.273244   
## SAT\_AVG1274 12700.0 15788.4 0.804 0.421211   
## SAT\_AVG1276 25600.0 15788.4 1.621 0.104984   
## SAT\_AVG1277 23400.0 15788.4 1.482 0.138375   
## SAT\_AVG1279 15066.7 11768.0 1.280 0.200494   
## SAT\_AVG1282 18200.0 15788.4 1.153 0.249069   
## SAT\_AVG1283 35800.0 15788.4 2.267 0.023402 \*   
## SAT\_AVG1285 16350.0 12891.2 1.268 0.204745   
## SAT\_AVG1288 16300.0 15788.4 1.032 0.301932   
## SAT\_AVG1289 16900.0 12891.2 1.311 0.189926   
## SAT\_AVG1290 10800.0 15788.4 0.684 0.493977   
## SAT\_AVG1294 33700.0 15788.4 2.134 0.032851 \*   
## SAT\_AVG1297 27450.0 12891.2 2.129 0.033272 \*   
## SAT\_AVG1298 40700.0 15788.4 2.578 0.009970 \*\*   
## SAT\_AVG1302 18200.0 15788.4 1.153 0.249069   
## SAT\_AVG1303 26066.7 11768.0 2.215 0.026800 \*   
## SAT\_AVG1305 48800.0 15788.4 3.091 0.002006 \*\*   
## SAT\_AVG1306 34800.0 15788.4 2.204 0.027558 \*   
## SAT\_AVG1310 35000.0 12891.2 2.715 0.006649 \*\*   
## SAT\_AVG1313 23666.7 11768.0 2.011 0.044366 \*   
## SAT\_AVG1316 39700.0 15788.4 2.514 0.011950 \*   
## SAT\_AVG1318 8600.0 15788.4 0.545 0.585982   
## SAT\_AVG1322 42800.0 15788.4 2.711 0.006733 \*\*   
## SAT\_AVG1323 7100.0 15788.4 0.450 0.652948   
## SAT\_AVG1327 9000.0 15788.4 0.570 0.568677   
## SAT\_AVG1328 9700.0 15788.4 0.614 0.538995   
## SAT\_AVG1332 18400.0 15788.4 1.165 0.243907   
## SAT\_AVG1334 16400.0 15788.4 1.039 0.298976   
## SAT\_AVG1340 23400.0 15788.4 1.482 0.138375   
## SAT\_AVG1341 18400.0 15788.4 1.165 0.243907   
## SAT\_AVG1343 19000.0 15788.4 1.203 0.228872   
## SAT\_AVG1347 24800.0 15788.4 1.571 0.116297   
## SAT\_AVG1350 20200.0 12891.2 1.567 0.117185   
## SAT\_AVG1352 29566.7 11768.0 2.512 0.012019 \*   
## SAT\_AVG1353 23000.0 12891.2 1.784 0.074456 .   
## SAT\_AVG1354 4400.0 15788.4 0.279 0.780498   
## SAT\_AVG1357 11600.0 15788.4 0.735 0.462546   
## SAT\_AVG1358 21050.0 12891.2 1.633 0.102552   
## SAT\_AVG1362 24600.0 15788.4 1.558 0.119270   
## SAT\_AVG1363 25000.0 15788.4 1.583 0.113383   
## SAT\_AVG1364 13200.0 15788.4 0.836 0.403162   
## SAT\_AVG1366 47700.0 15788.4 3.021 0.002530 \*\*   
## SAT\_AVG1370 27500.0 15788.4 1.742 0.081606 .   
## SAT\_AVG1371 2200.0 15788.4 0.139 0.889185   
## SAT\_AVG1375 33000.0 15788.4 2.090 0.036654 \*   
## SAT\_AVG1377 33000.0 15788.4 2.090 0.036654 \*   
## SAT\_AVG1380 32100.0 15788.4 2.033 0.042090 \*   
## SAT\_AVG1384 23300.0 15788.4 1.476 0.140068   
## SAT\_AVG1387 16900.0 15788.4 1.070 0.284487   
## SAT\_AVG1391 19400.0 15788.4 1.229 0.219222   
## SAT\_AVG1392 43600.0 15788.4 2.762 0.005774 \*\*   
## SAT\_AVG1394 19600.0 12891.2 1.520 0.128467   
## SAT\_AVG1397 29600.0 15788.4 1.875 0.060878 .   
## SAT\_AVG1398 49300.0 15788.4 3.123 0.001803 \*\*   
## SAT\_AVG1399 22700.0 15788.4 1.438 0.150562   
## SAT\_AVG1400 21600.0 15788.4 1.368 0.171343   
## SAT\_AVG1406 12100.0 15788.4 0.766 0.443483   
## SAT\_AVG1418 35200.0 15788.4 2.229 0.025825 \*   
## SAT\_AVG1422 36900.0 15788.4 2.337 0.019469 \*   
## SAT\_AVG1423 20800.0 15788.4 1.317 0.187756   
## SAT\_AVG1425 25700.0 15788.4 1.628 0.103634   
## SAT\_AVG1428 33800.0 15788.4 2.141 0.032336 \*   
## SAT\_AVG1432 38000.0 15788.4 2.407 0.016127 \*   
## SAT\_AVG1434 22800.0 15788.4 1.444 0.148773   
## SAT\_AVG1439 24100.0 15788.4 1.526 0.126963   
## SAT\_AVG1442 29800.0 12891.2 2.312 0.020836 \*   
## SAT\_AVG1444 42700.0 15788.4 2.705 0.006863 \*\*   
## SAT\_AVG1446 33100.0 15788.4 2.096 0.036089 \*   
## SAT\_AVG1450 35400.0 15788.4 2.242 0.024994 \*   
## SAT\_AVG1454 22250.0 12891.2 1.726 0.084410 .   
## SAT\_AVG1458 30100.0 15788.4 1.906 0.056646 .   
## SAT\_AVG1466 46900.0 15788.4 2.971 0.002987 \*\*   
## SAT\_AVG1471 38900.0 15788.4 2.464 0.013779 \*   
## SAT\_AVG1474 28300.0 15788.4 1.792 0.073119 .   
## SAT\_AVG1475 26900.0 15788.4 1.704 0.088483 .   
## SAT\_AVG1483 44600.0 15788.4 2.825 0.004748 \*\*   
## SAT\_AVG1495 41100.0 15788.4 2.603 0.009263 \*\*   
## SAT\_AVG1497 32000.0 15788.4 2.027 0.042734 \*   
## SAT\_AVG1501 53200.0 15788.4 3.370 0.000758 \*\*\*  
## SAT\_AVG1503 57600.0 15788.4 3.648 0.000267 \*\*\*  
## SAT\_AVG1504 28800.0 15788.4 1.824 0.068192 .   
## SAT\_AVG1534 40000.0 15788.4 2.534 0.011322 \*   
## SAT\_AVG666 -11100.0 15788.4 -0.703 0.482058   
## SAT\_AVG716 -9000.0 15788.4 -0.570 0.568677   
## SAT\_AVG723 -7900.0 15788.4 -0.500 0.616838   
## SAT\_AVG735 29000.0 15788.4 1.837 0.066299 .   
## SAT\_AVG749 -5800.0 15788.4 -0.367 0.713367   
## SAT\_AVG750 -2400.0 15788.4 -0.152 0.879185   
## SAT\_AVG755 -6300.0 15788.4 -0.399 0.689890   
## SAT\_AVG756 -9300.0 15788.4 -0.589 0.555861   
## SAT\_AVG760 -2500.0 12891.2 -0.194 0.846238   
## SAT\_AVG775 -4500.0 15788.4 -0.285 0.775641   
## SAT\_AVG777 1400.0 15788.4 0.089 0.929346   
## SAT\_AVG778 -8100.0 15788.4 -0.513 0.607950   
## SAT\_AVG780 -5350.0 12891.2 -0.415 0.678150   
## SAT\_AVG789 -9400.0 15788.4 -0.595 0.551620   
## SAT\_AVG802 -8400.0 15788.4 -0.532 0.594725   
## SAT\_AVG807 200.0 15788.4 0.013 0.989894   
## SAT\_AVG808 -5000.0 15788.4 -0.317 0.751493   
## SAT\_AVG811 400.0 15788.4 0.025 0.979789   
## SAT\_AVG812 -5300.0 15788.4 -0.336 0.737119   
## SAT\_AVG823 -2600.0 15788.4 -0.165 0.869204   
## SAT\_AVG825 -8525.0 11164.1 -0.764 0.445136   
## SAT\_AVG826 -4100.0 12891.2 -0.318 0.750463   
## SAT\_AVG830 2750.0 11164.1 0.246 0.805440   
## SAT\_AVG832 -2700.0 15788.4 -0.171 0.864222   
## SAT\_AVG835 5000.0 15788.4 0.317 0.751493   
## SAT\_AVG836 -3400.0 15788.4 -0.215 0.829505   
## SAT\_AVG837 -1900.0 15788.4 -0.120 0.904217   
## SAT\_AVG838 1900.0 15788.4 0.120 0.904217   
## SAT\_AVG840 -4100.0 15788.4 -0.260 0.795118   
## SAT\_AVG841 -500.0 12891.2 -0.039 0.969062   
## SAT\_AVG842 -1850.0 12891.2 -0.144 0.885894   
## SAT\_AVG845 2366.7 11768.0 0.201 0.840620   
## SAT\_AVG847 -3200.0 15788.4 -0.203 0.839393   
## SAT\_AVG849 -3900.0 15788.4 -0.247 0.804905   
## SAT\_AVG850 4333.3 11768.0 0.368 0.712717   
## SAT\_AVG851 -3300.0 11768.0 -0.280 0.779165   
## SAT\_AVG853 -2750.0 12891.2 -0.213 0.831083   
## SAT\_AVG854 -200.0 15788.4 -0.013 0.989894   
## SAT\_AVG855 7050.0 12891.2 0.547 0.584482   
## SAT\_AVG859 -3850.0 12891.2 -0.299 0.765217   
## SAT\_AVG860 -7400.0 15788.4 -0.469 0.639306   
## SAT\_AVG861 7600.0 15788.4 0.481 0.630277   
## SAT\_AVG863 -1960.0 10785.5 -0.182 0.855806   
## SAT\_AVG864 -4500.0 15788.4 -0.285 0.775641   
## SAT\_AVG865 1225.0 11164.1 0.110 0.912630   
## SAT\_AVG868 2500.0 15788.4 0.158 0.874192   
## SAT\_AVG871 7350.0 12891.2 0.570 0.568596   
## SAT\_AVG873 -6500.0 15788.4 -0.412 0.680581   
## SAT\_AVG874 6600.0 15788.4 0.418 0.675944   
## SAT\_AVG877 7400.0 15788.4 0.469 0.639306   
## SAT\_AVG878 6225.0 11164.1 0.558 0.577148   
## SAT\_AVG879 -1100.0 12891.2 -0.085 0.932003   
## SAT\_AVG880 1333.3 11768.0 0.113 0.909796   
## SAT\_AVG882 -2050.0 12891.2 -0.159 0.873657   
## SAT\_AVG883 800.0 15788.4 0.051 0.959590   
## SAT\_AVG884 8550.0 12891.2 0.663 0.507204   
## SAT\_AVG885 8400.0 15788.4 0.532 0.594725   
## SAT\_AVG886 13000.0 15788.4 0.823 0.410326   
## SAT\_AVG887 -1300.0 15788.4 -0.082 0.934381   
## SAT\_AVG888 11500.0 15788.4 0.728 0.466413   
## SAT\_AVG889 6400.0 12891.2 0.496 0.619589   
## SAT\_AVG890 50.0 11164.1 0.004 0.996427   
## SAT\_AVG891 4700.0 12891.2 0.365 0.715433   
## SAT\_AVG892 5700.0 12891.2 0.442 0.658390   
## SAT\_AVG893 5700.0 15788.4 0.361 0.718096   
## SAT\_AVG894 4300.0 12891.2 0.334 0.738724   
## SAT\_AVG895 1500.0 11768.0 0.127 0.898578   
## SAT\_AVG896 4700.0 12891.2 0.365 0.715433   
## SAT\_AVG897 -2100.0 15788.4 -0.133 0.894192   
## SAT\_AVG899 8200.0 12891.2 0.636 0.524744   
## SAT\_AVG900 10250.0 12891.2 0.795 0.426583   
## SAT\_AVG901 5750.0 12891.2 0.446 0.655587   
## SAT\_AVG902 -400.0 15788.4 -0.025 0.979789   
## SAT\_AVG903 5300.0 15788.4 0.336 0.737119   
## SAT\_AVG904 8600.0 15788.4 0.545 0.585982   
## SAT\_AVG905 4133.3 11768.0 0.351 0.725426   
## SAT\_AVG907 14900.0 15788.4 0.944 0.345352   
## SAT\_AVG908 2700.0 12891.2 0.209 0.834109   
## SAT\_AVG909 -3600.0 15788.4 -0.228 0.819644   
## SAT\_AVG910 1400.0 10191.4 0.137 0.890743   
## SAT\_AVG912 11300.0 15788.4 0.716 0.474200   
## SAT\_AVG913 12100.0 12891.2 0.939 0.347967   
## SAT\_AVG915 3775.0 11164.1 0.338 0.735274   
## SAT\_AVG916 7300.0 15788.4 0.462 0.643840   
## SAT\_AVG917 9400.0 12891.2 0.729 0.465925   
## SAT\_AVG918 6050.0 12891.2 0.469 0.638866   
## SAT\_AVG919 17900.0 15788.4 1.134 0.256956   
## SAT\_AVG920 4300.0 12891.2 0.334 0.738724   
## SAT\_AVG921 9850.0 12891.2 0.764 0.444850   
## SAT\_AVG922 1800.0 15788.4 0.114 0.909236   
## SAT\_AVG923 5566.7 11768.0 0.473 0.636209   
## SAT\_AVG924 2866.7 11768.0 0.244 0.807552   
## SAT\_AVG925 1300.0 15788.4 0.082 0.934381   
## SAT\_AVG926 4200.0 11164.1 0.376 0.706779   
## SAT\_AVG927 3566.7 11768.0 0.303 0.761840   
## SAT\_AVG928 5050.0 11164.1 0.452 0.651041   
## SAT\_AVG930 1115.4 9791.6 0.114 0.909311   
## SAT\_AVG931 9433.3 11768.0 0.802 0.422816   
## SAT\_AVG932 3500.0 11164.1 0.314 0.753910   
## SAT\_AVG933 13050.0 12891.2 1.012 0.311433   
## SAT\_AVG934 5100.0 12891.2 0.396 0.692403   
## SAT\_AVG935 1350.0 12891.2 0.105 0.916600   
## SAT\_AVG936 2800.0 12891.2 0.217 0.828059   
## SAT\_AVG937 2280.0 10785.5 0.211 0.832588   
## SAT\_AVG938 -1200.0 12891.2 -0.093 0.925838   
## SAT\_AVG939 680.0 10785.5 0.063 0.949731   
## SAT\_AVG940 9475.0 10191.4 0.930 0.352566   
## SAT\_AVG941 6866.7 11768.0 0.584 0.559580   
## SAT\_AVG942 4500.0 12891.2 0.349 0.727047   
## SAT\_AVG943 5100.0 11768.0 0.433 0.664758   
## SAT\_AVG944 18000.0 15788.4 1.140 0.254308   
## SAT\_AVG945 4766.7 11768.0 0.405 0.685455   
## SAT\_AVG946 5075.0 11164.1 0.455 0.649429   
## SAT\_AVG947 3300.0 15788.4 0.209 0.834446   
## SAT\_AVG948 7633.3 11768.0 0.649 0.516592   
## SAT\_AVG949 6200.0 11768.0 0.527 0.598319   
## SAT\_AVG950 4468.4 9583.2 0.466 0.641038   
## SAT\_AVG951 7300.0 12891.2 0.566 0.571230   
## SAT\_AVG952 6000.0 15788.4 0.380 0.703942   
## SAT\_AVG953 7050.0 12891.2 0.547 0.584482   
## SAT\_AVG954 3828.6 10336.0 0.370 0.711090   
## SAT\_AVG955 10400.0 11768.0 0.884 0.376871   
## SAT\_AVG956 9450.0 11164.1 0.846 0.397334   
## SAT\_AVG957 10280.0 10785.5 0.953 0.340570   
## SAT\_AVG959 5100.0 12891.2 0.396 0.692403   
## SAT\_AVG960 8700.0 11164.1 0.779 0.435849   
## SAT\_AVG961 5800.0 12891.2 0.450 0.652787   
## SAT\_AVG962 6933.3 11768.0 0.589 0.555774   
## SAT\_AVG963 10050.0 11164.1 0.900 0.368052   
## SAT\_AVG964 3933.3 10525.6 0.374 0.708649   
## SAT\_AVG965 3740.0 10785.5 0.347 0.728786   
## SAT\_AVG966 11400.0 15788.4 0.722 0.470298   
## SAT\_AVG967 3733.3 10525.6 0.355 0.722836   
## SAT\_AVG968 9550.0 12891.2 0.741 0.458839   
## SAT\_AVG969 4725.0 11164.1 0.423 0.672144   
## SAT\_AVG970 2875.0 9668.4 0.297 0.766203   
## SAT\_AVG971 -1950.0 12891.2 -0.151 0.879772   
## SAT\_AVG972 5825.0 11164.1 0.522 0.601859   
## SAT\_AVG973 5580.0 10785.5 0.517 0.604928   
## SAT\_AVG974 5980.0 10785.5 0.554 0.579298   
## SAT\_AVG975 3940.0 10785.5 0.365 0.714900   
## SAT\_AVG976 5900.0 10785.5 0.547 0.584383   
## SAT\_AVG977 2500.0 11768.0 0.212 0.831772   
## SAT\_AVG979 5450.0 12891.2 0.423 0.672481   
## SAT\_AVG980 4250.0 10525.6 0.404 0.686394   
## SAT\_AVG981 8000.0 12891.2 0.621 0.534904   
## SAT\_AVG982 183.3 10525.6 0.017 0.986104   
## SAT\_AVG983 800.0 11768.0 0.068 0.945803   
## SAT\_AVG984 5800.0 10785.5 0.538 0.590768   
## SAT\_AVG985 4500.0 11768.0 0.382 0.702186   
## SAT\_AVG986 3383.3 10525.6 0.321 0.747892   
## SAT\_AVG987 7600.0 11768.0 0.646 0.518425   
## SAT\_AVG988 6366.7 11768.0 0.541 0.588520   
## SAT\_AVG989 6040.0 10785.5 0.560 0.575498   
## SAT\_AVG990 4822.2 9608.5 0.502 0.615781   
## SAT\_AVG991 10075.0 11164.1 0.902 0.366862   
## SAT\_AVG993 3057.1 10336.0 0.296 0.767412   
## SAT\_AVG994 6000.0 15788.4 0.380 0.703942   
## SAT\_AVG995 7957.1 10336.0 0.770 0.441424   
## SAT\_AVG996 4700.0 11164.1 0.421 0.673778   
## SAT\_AVG997 4933.3 11768.0 0.419 0.675076   
## SAT\_AVG998 7516.7 10525.6 0.714 0.475179   
## SAT\_AVG999 5333.3 11768.0 0.453 0.650419   
## SAT\_AVGNULL -3886.9 9117.6 -0.426 0.669898   
## ---  
## Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.' 0.1 ' ' 1  
##   
## Residual standard error: 12890 on 5162 degrees of freedom  
## Multiple R-squared: 0.2327, Adjusted R-squared: 0.1624   
## F-statistic: 3.31 on 473 and 5162 DF, p-value: < 2.2e-16

library(ggplot2)  
  
ggplot(merged\_data, aes(x = SAT\_AVG, y = md\_earn\_wne\_p10.REPORTED.EARNINGS)) +  
 geom\_point(color = 'steelblue') +  
 labs(x = "Student Interest (SAT Average)", y = "College Earnings") +  
 ggtitle("Relationship between Student Interest and College Earnings")

## Warning: Removed 2168 rows containing missing values (`geom\_point()`).



The data presents regression coefficients, p-values, and statistical measures for various levels of the variable “SAT\_AVG,” treated as a categorical variable. These measures allow us to examine how student interest (SAT\_AVG) relates to college earnings (md\_earn\_wne\_p10.REPORTED.EARNINGS). By looking at the coefficients, we can understand the estimated impact of each SAT\_AVG level on earnings. For instance, the coefficient for “SAT\_AVG1001” is 4700.0, indicating that having an SAT\_AVG score of 1001 is associated with an estimated increase of $4700 in college earnings compared to the reference level (Intercept). The p-values, on the other hand, indicate the significance of these coefficients. In the case of “SAT\_AVG1051,” the p-value is 0.027635, suggesting a statistically significant relationship between an SAT\_AVG score of 1051 and college earnings, as it is lower than the commonly used threshold of 0.05.

The analysis conducted on the correlation between student interest, as indicated by SAT scores, and college earnings yields intriguing insights. The linear regression model demonstrates that the intercept carries a statistically significant positive coefficient of 34000, implying that colleges with an average SAT score of 0 are estimated to have reported earnings of $34,000. However, the coefficients for most SAT score levels lack statistical significance, indicating a weak association between student interest (measured by SAT scores) and college earnings.

The coefficients for individual SAT score levels, ranging from SAT\_AVG1001 to SAT\_AVG1114, exhibit substantial variation but lack consistent patterns or statistical significance. This suggests that colleges with higher or lower average SAT scores do not consistently correspond to higher or lower reported earnings.

These findings imply that student interest, as reflected by SAT scores, might not be a dependable predictor of college earnings. Other factors such as program quality, location, reputation, and alumni networks may exert a more significant influence on college earnings than student interest alone.

It is essential to recognize that this analysis is based on a specific dataset and may not encompass all factors that influence the relationship between student interest and college earnings. Further research and analysis are necessary to obtain a more comprehensive understanding of this relationship.”