RWorksheet_Olivo#6

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2023-12-19

1. Create a data frame for the table below. Show your solution.

a. Compute the descriptive statistics using different packages (Hmisc and pastecs). Write the codes and its result.

```
studentScore <- data.frame(
  Student = c(1:10),
  Pre_test = c(55,54,47,57,51,61,57,54,63,58),
  Post_test = c(61,60,56,63,56,63,59,56,62,61)
)
studentScore
```

```
##    Student Pre_test Post_test
## 1        1       55        61
## 2        2       54        60
## 3        3       47        56
## 4        4       57        63
## 5        5       51        56
## 6        6       61        63
## 7        7       57        59
## 8        8       54        56
## 9        9       63        62
## 10      10       58        61
```

```
#install.packages("pastecs")
#install.packages("Hmisc")

library(pastecs)
library(Hmisc)
```

```
##
## Attaching package: 'Hmisc'
```

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

```
pastecsStats <- stat.desc(studentScore)
pastecsStats
```

```
##                Student     Pre_test    Post_test
## nbr.val     10.0000000  10.00000000  10.00000000
## nbr.null     0.0000000   0.00000000   0.00000000
## nbr.na       0.0000000   0.00000000   0.00000000
## min          1.0000000  47.00000000  56.00000000
## max         10.0000000  63.00000000  63.00000000
```

```
## range         9.0000000  16.00000000   7.00000000
## sum          55.0000000 557.00000000 597.00000000
## median        5.5000000  56.00000000  60.50000000
## mean          5.5000000  55.70000000  59.70000000
## SE.mean       0.9574271   1.46855938   0.89504811
## CI.mean.0.95  2.1658506   3.32211213   2.02473948
## var           9.1666667  21.56666667   8.01111111
## std.dev       3.0276504   4.64399254   2.83039063
## coef.var      0.5504819   0.08337509   0.04741023
```

```
hmiscStats <- Hmisc::describe(studentScore[,c("Pre_test","Post_test")])
hmiscStats
```

```
## studentScore[, c("Pre_test", "Post_test")]
##
##  2  Variables      10  Observations
## ---------------------------------------------------------------------------
## Pre_test
##        n  missing distinct     Info     Mean      Gmd
##       10        0        8    0.988     55.7    5.444
##
## Value       47  51  54  55  57  58  61  63
## Frequency    1   1   2   1   2   1   1   1
## Proportion 0.1 0.1 0.2 0.1 0.2 0.1 0.1 0.1
##
## For the frequency table, variable is rounded to the nearest 0
## ---------------------------------------------------------------------------
## Post_test
##        n  missing distinct     Info     Mean      Gmd
##       10        0        6    0.964     59.7    3.311
##
## Value       56  59  60  61  62  63
## Frequency    3   1   1   2   1   2
## Proportion 0.3 0.1 0.1 0.2 0.1 0.2
##
## For the frequency table, variable is rounded to the nearest 0
## ---------------------------------------------------------------------------
```

2. The Department of Agriculture was studying the effects of several levels of a fertilizer on the growth of a plant. For some analyses, it might be useful to convert the fertilizer levels to an ordered factor.

```
#install.packages("dplyr")

library(dplyr)
```

```
##
## Attaching package: 'dplyr'

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

## The following objects are masked from 'package:pastecs':
##
##     first, last

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

```
##     filter, lag
```

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

```
lvlFertilizer <- c(10,10,10, 20,20,50,10,20,10,50,20,50,20,10)
orderedLvlFertilizer <- factor(lvlFertilizer, levels = unique(lvlFertilizer))

summaryFertilizer <- summary(orderedLvlFertilizer)
summaryFertilizer
```

```
## 10 20 50
##  6  5  3
```

3. Abdul Hassan, president of Floor Coverings Unlimited, has asked you to study the exercise levels undertaken by 10 subjects were “l”, “n”, “n”, “i”, “l” , “l”, “n”, “n”, “i”, “l” ; n=none, l=light, i=intense

a. What is the best way to represent this in R?

```
lvlExercise <- c("n", "l", "n", "n", "l", "l", "n", "n", "i", "l")
factoredLvlExercise <- factor(lvlExercise, levels = c("n","l","i"))

summaryExercise <- summary(factoredLvlExercise)
summaryExercise
```

```
## n l i
## 5 4 1
```

4. Sample of 30 tax accountants from all the states and territories of Australia and their individual state of origin is specified by a character vector of state mnemonics as: state <- c(“tas”, “sa”, “qld”, “nsw”, “nsw”, “nt”, “wa”, “wa”, “qld”, “vic”, “nsw”, “vic”, “qld”, “qld”, “sa”, “tas”, “sa”, “nt”, “wa”, “vic”, “qld”, “nsw”, “nsw”, “wa”, “sa”, “act”, “nsw”, “vic”, “vic”, “act”)

a. Apply the factor function and factor level. Describe the results.

```
states <- c("tas", "sa", "qld", "nsw", "nsw", "nt", "wa", "wa", "qld", "vic", "nsw", "vic", "qld", "qld

factoredState <- factor(states)
factoredState
```

```
##  [1] tas sa  qld nsw nsw nt  wa  wa  qld vic nsw vic qld qld sa  tas sa  nt  wa
## [20] vic qld nsw nsw wa  sa  act nsw vic vic act
## Levels: act nsw nt qld sa tas vic wa
```

```
summaryStates <- summary(factoredState)
summaryStates
```

```
## act nsw  nt qld  sa tas vic  wa
##   2   6   2   5   4   2   5   4
```

```
# The result will be a factor that aligns with the unique values in the original character vector. Each
```

5. From #4 - continuation:

• Suppose we have the incomes of the same tax accountants in another vector (in suitably large units of money)

incomes <- c(60, 49, 40, 61, 64, 60, 59, 54, 62, 69, 70, 42, 56, 61, 61, 61, 58, 51, 48, 65, 49, 49, 41, 48, 52, 46, 59, 46, 58, 43)

a. Calculate the sample mean income for each state we can now use the special function tapply():

Example: giving a means vector with the components labelled by the levels incmeans <- tapply(incomes, statef, mean)

Note: The function tapply() is used to apply a function, here mean(), to each group of components of the first argument, here incomes, defined by the levels of the second component, here state 2

```
incomes <- c(60, 49, 40, 61, 64, 60, 59, 54,
62, 69, 70, 42, 56, 61, 61, 61, 58, 51, 48,
65, 49, 49, 41, 48, 52, 46, 59, 46, 58, 43)

meanIncomes <- tapply(incomes, factoredState, mean)
meanIncomes
```

```
##      act      nsw       nt      qld       sa      tas      vic       wa
## 44.50000 57.33333 55.50000 53.60000 55.00000 60.50000 56.00000 52.25000
```

b.Copy the results and interpret.

Result:

```
act      nsw       nt      qld       sa      tas      vic       wa
```

44.50000 57.33333 55.50000 53.60000 55.00000 60.50000 56.00000 52.25000

This output contains the mean of income for each state. And each names are levels of the factor of stateFactor.

6.Calculate the standard errors of the state income means (refer again to number 3)

stdError <- function(x) sqrt(var(x)/length(x))

Note: After this assignment, the standard errors are calculated by: incster <- tapply(incomes, statef, stdError)

a. What is the standard error? Write the codes.

```
stdError <- function(x) sqrt(var(x)/length(x))
incster <- tapply(incomes, states, stdError)

standardError <- tapply(incomes, factoredState, stdError)
standardError
```

```
##      act      nsw       nt      qld       sa      tas      vic       wa
## 1.500000 4.310195 4.500000 4.106093 2.738613 0.500000 5.244044 2.657536
```

b. Interpret the results.

The vector incster contains the standard errors associated with the estimated mean income for each state. The standard error reflects the variability of the sample mean, with larger standard errors indicating greater variability.

7. Use the titanic dataset.

a. Subset the titatic dataset of those who survived and not survived. Show the codes and its result.

```
#install.packages("titanic")

library(titanic)

data("titanic_train")

titanic_data <- titanic_train

str(titanic_data)
```

```
## 'data.frame':    891 obs. of  12 variables:
##  $ PassengerId: int  1 2 3 4 5 6 7 8 9 10 ...
##  $ Survived   : int  0 1 1 1 0 0 0 0 1 1 ...
##  $ Pclass     : int  3 1 3 1 3 3 1 3 3 2 ...
##  $ Name       : chr  "Braund, Mr. Owen Harris" "Cumings, Mrs. John Bradley (Florence Briggs Thayer)"
##  $ Sex        : chr  "male" "female" "female" "female" ...
##  $ Age        : num  22 38 26 35 35 NA 54 2 27 14 ...
##  $ SibSp      : int  1 1 0 1 0 0 0 3 0 1 ...
##  $ Parch      : int  0 0 0 0 0 0 0 1 2 0 ...
##  $ Ticket     : chr  "A/5 21171" "PC 17599" "STON/O2. 3101282" "113803" ...
##  $ Fare       : num  7.25 71.28 7.92 53.1 8.05 ...
##  $ Cabin      : chr  "" "C85" "" "C123" ...
##  $ Embarked   : chr  "S" "C" "S" "S" ...
```

```
survived <- subset(titanic_data, Survived == 1)
survived
```

```
##     PassengerId Survived Pclass
## 2             2        1      1
## 3             3        1      3
## 4             4        1      1
## 9             9        1      3
## 10           10        1      2
## 11           11        1      3
## 12           12        1      1
## 16           16        1      2
## 18           18        1      2
## 20           20        1      3
## 22           22        1      2
## 23           23        1      3
## 24           24        1      1
## 26           26        1      3
## 29           29        1      3
## 32           32        1      1
## 33           33        1      3
## 37           37        1      3
## 40           40        1      3
## 44           44        1      2
## 45           45        1      3
## 48           48        1      3
## 53           53        1      1
## 54           54        1      2
## 56           56        1      1
## 57           57        1      2
## 59           59        1      2
## 62           62        1      1
## 66           66        1      3
## 67           67        1      2
## 69           69        1      3
## 75           75        1      3
## 79           79        1      2
## 80           80        1      3
## 82           82        1      3
## 83           83        1      3
## 85           85        1      2
```

```
## 86           86        1       3
## 89           89        1       1
## 98           98        1       1
## 99           99        1       2
## 107         107        1       3
## 108         108        1       3
## 110         110        1       3
## 124         124        1       2
## 126         126        1       3
## 128         128        1       3
## 129         129        1       3
## 134         134        1       2
## 137         137        1       1
## 142         142        1       3
## 143         143        1       3
## 147         147        1       3
## 152         152        1       1
## 157         157        1       3
## 162         162        1       2
## 166         166        1       3
## 167         167        1       1
## 173         173        1       3
## 184         184        1       2
## 185         185        1       3
## 187         187        1       3
## 188         188        1       1
## 191         191        1       2
## 193         193        1       3
## 194         194        1       2
## 195         195        1       1
## 196         196        1       1
## 199         199        1       3
## 205         205        1       3
## 208         208        1       3
## 209         209        1       3
## 210         210        1       1
## 212         212        1       2
## 216         216        1       1
## 217         217        1       3
## 219         219        1       1
## 221         221        1       3
## 225         225        1       1
## 227         227        1       2
## 231         231        1       1
## 234         234        1       3
## 238         238        1       2
## 242         242        1       3
## 248         248        1       2
## 249         249        1       1
## 256         256        1       3
## 257         257        1       1
## 258         258        1       1
## 259         259        1       1
## 260         260        1       2
```

```
## 262         262         1       3
## 268         268         1       3
## 269         269         1       1
## 270         270         1       1
## 272         272         1       3
## 273         273         1       2
## 275         275         1       3
## 276         276         1       1
## 280         280         1       3
## 284         284         1       3
## 287         287         1       3
## 289         289         1       2
## 290         290         1       3
## 291         291         1       1
## 292         292         1       1
## 299         299         1       1
## 300         300         1       1
## 301         301         1       3
## 302         302         1       3
## 304         304         1       2
## 306         306         1       1
## 307         307         1       1
## 308         308         1       1
## 310         310         1       1
## 311         311         1       1
## 312         312         1       1
## 316         316         1       3
## 317         317         1       2
## 319         319         1       1
## 320         320         1       1
## 323         323         1       2
## 324         324         1       2
## 326         326         1       1
## 328         328         1       2
## 329         329         1       3
## 330         330         1       1
## 331         331         1       3
## 335         335         1       1
## 338         338         1       1
## 339         339         1       3
## 341         341         1       2
## 342         342         1       1
## 346         346         1       2
## 347         347         1       2
## 348         348         1       3
## 349         349         1       3
## 357         357         1       1
## 359         359         1       3
## 360         360         1       3
## 367         367         1       1
## 368         368         1       3
## 369         369         1       3
## 370         370         1       1
## 371         371         1       1
```

```
## 376         376         1       1
## 377         377         1       3
## 381         381         1       1
## 382         382         1       3
## 384         384         1       1
## 388         388         1       2
## 390         390         1       2
## 391         391         1       1
## 392         392         1       3
## 394         394         1       1
## 395         395         1       3
## 400         400         1       2
## 401         401         1       3
## 408         408         1       2
## 413         413         1       1
## 415         415         1       3
## 417         417         1       2
## 418         418         1       2
## 427         427         1       2
## 428         428         1       2
## 430         430         1       3
## 431         431         1       1
## 432         432         1       3
## 433         433         1       2
## 436         436         1       1
## 438         438         1       2
## 441         441         1       2
## 444         444         1       2
## 445         445         1       3
## 446         446         1       1
## 447         447         1       2
## 448         448         1       1
## 449         449         1       3
## 450         450         1       1
## 454         454         1       1
## 456         456         1       3
## 458         458         1       1
## 459         459         1       2
## 461         461         1       1
## 470         470         1       3
## 473         473         1       2
## 474         474         1       2
## 480         480         1       3
## 484         484         1       3
## 485         485         1       1
## 487         487         1       1
## 490         490         1       3
## 497         497         1       1
## 505         505         1       1
## 507         507         1       2
## 508         508         1       1
## 510         510         1       3
## 511         511         1       3
## 513         513         1       1
```

```
## 514         514         1       1
## 517         517         1       2
## 519         519         1       2
## 521         521         1       1
## 524         524         1       1
## 527         527         1       2
## 531         531         1       2
## 534         534         1       3
## 536         536         1       2
## 538         538         1       1
## 540         540         1       1
## 541         541         1       1
## 544         544         1       2
## 547         547         1       2
## 548         548         1       2
## 550         550         1       2
## 551         551         1       1
## 554         554         1       3
## 555         555         1       3
## 557         557         1       1
## 559         559         1       1
## 560         560         1       3
## 570         570         1       3
## 571         571         1       2
## 572         572         1       1
## 573         573         1       1
## 574         574         1       3
## 577         577         1       2
## 578         578         1       1
## 580         580         1       3
## 581         581         1       2
## 582         582         1       1
## 586         586         1       1
## 588         588         1       1
## 592         592         1       1
## 597         597         1       2
## 600         600         1       1
## 601         601         1       2
## 605         605         1       1
## 608         608         1       1
## 609         609         1       2
## 610         610         1       1
## 613         613         1       3
## 616         616         1       2
## 619         619         1       2
## 622         622         1       1
## 623         623         1       3
## 628         628         1       1
## 631         631         1       1
## 633         633         1       1
## 636         636         1       2
## 642         642         1       1
## 644         644         1       3
## 645         645         1       3
```

```
## 646         646         1       1
## 648         648         1       1
## 650         650         1       3
## 652         652         1       2
## 654         654         1       3
## 661         661         1       1
## 665         665         1       3
## 670         670         1       1
## 671         671         1       2
## 674         674         1       2
## 678         678         1       3
## 680         680         1       1
## 682         682         1       1
## 690         690         1       1
## 691         691         1       1
## 692         692         1       3
## 693         693         1       3
## 698         698         1       3
## 701         701         1       1
## 702         702         1       1
## 707         707         1       2
## 708         708         1       1
## 709         709         1       1
## 710         710         1       3
## 711         711         1       1
## 713         713         1       1
## 717         717         1       1
## 718         718         1       2
## 721         721         1       2
## 725         725         1       1
## 727         727         1       2
## 728         728         1       3
## 731         731         1       1
## 738         738         1       1
## 741         741         1       1
## 743         743         1       1
## 745         745         1       3
## 748         748         1       2
## 751         751         1       2
## 752         752         1       3
## 755         755         1       2
## 756         756         1       2
## 760         760         1       1
## 763         763         1       3
## 764         764         1       1
## 766         766         1       1
## 775         775         1       2
## 778         778         1       3
## 780         780         1       1
## 781         781         1       3
## 782         782         1       1
## 787         787         1       3
## 789         789         1       3
## 797         797         1       1
```

```
## 798         798        1      3
## 802         802        1      2
## 803         803        1      1
## 804         804        1      3
## 805         805        1      3
## 810         810        1      1
## 821         821        1      1
## 822         822        1      3
## 824         824        1      3
## 828         828        1      2
## 829         829        1      3
## 830         830        1      1
## 831         831        1      3
## 832         832        1      2
## 836         836        1      1
## 839         839        1      3
## 840         840        1      1
## 843         843        1      1
## 850         850        1      1
## 854         854        1      1
## 856         856        1      3
## 857         857        1      1
## 858         858        1      1
## 859         859        1      3
## 863         863        1      1
## 866         866        1      2
## 867         867        1      2
## 870         870        1      3
## 872         872        1      1
## 875         875        1      2
## 876         876        1      3
## 880         880        1      1
## 881         881        1      2
## 888         888        1      1
## 890         890        1      1
##                                                                  Name
## 2                                 Cumings, Mrs. John Bradley (Florence Briggs Thayer)
## 3                                                      Heikkinen, Miss. Laina
## 4                                       Futrelle, Mrs. Jacques Heath (Lily May Peel)
## 9                                    Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)
## 10                                         Nasser, Mrs. Nicholas (Adele Achem)
## 11                                        Sandstrom, Miss. Marguerite Rut
## 12                                               Bonnell, Miss. Elizabeth
## 16                                          Hewlett, Mrs. (Mary D Kingcome)
## 18                                          Williams, Mr. Charles Eugene
## 20                                               Masselmani, Mrs. Fatima
## 22                                                 Beesley, Mr. Lawrence
## 23                                          McGowan, Miss. Anna "Annie"
## 24                                          Sloper, Mr. William Thompson
## 26                          Asplund, Mrs. Carl Oscar (Selma Augusta Emilia Johansson)
## 29                                          O'Dwyer, Miss. Ellen "Nellie"
## 32                                Spencer, Mrs. William Augustus (Marie Eugenie)
## 33                                               Glynn, Miss. Mary Agatha
## 37                                                       Mamee, Mr. Hanna
```

```
## 40                                                  Nicola-Yarred, Miss. Jamila
## 44                                Laroche, Miss. Simonne Marie Anne Andree
## 45                                            Devaney, Miss. Margaret Delia
## 48                                               O'Driscoll, Miss. Bridget
## 53                                     Harper, Mrs. Henry Sleeper (Myna Haxtun)
## 54                          Faunthorpe, Mrs. Lizzie (Elizabeth Anne Wilkinson)
## 56                                                    Woolner, Mr. Hugh
## 57                                                    Rugg, Miss. Emily
## 59                                          West, Miss. Constance Mirium
## 62                                                   Icard, Miss. Amelie
## 66                                               Moubarek, Master. Gerios
## 67                                            Nye, Mrs. (Elizabeth Ramell)
## 69                                        Andersson, Miss. Erna Alexandra
## 75                                                      Bing, Mr. Lee
## 79                                        Caldwell, Master. Alden Gates
## 80                                             Dowdell, Miss. Elizabeth
## 82                                          Sheerlinck, Mr. Jan Baptist
## 83                                        McDermott, Miss. Brigdet Delia
## 85                                                   Ilett, Miss. Bertha
## 86                 Backstrom, Mrs. Karl Alfred (Maria Mathilda Gustafsson)
## 89                                         Fortune, Miss. Mabel Helen
## 98                                       Greenfield, Mr. William Bertram
## 99                                    Doling, Mrs. John T (Ada Julia Bone)
## 107                                       Salkjelsvik, Miss. Anna Kristine
## 108                                             Moss, Mr. Albert Johan
## 110                                                Moran, Miss. Bertha
## 124                                                Webber, Miss. Susan
## 126                                          Nicola-Yarred, Master. Elias
## 128                                             Madsen, Mr. Fridtjof Arne
## 129                                                  Peter, Miss. Anna
## 134                        Weisz, Mrs. Leopold (Mathilde Francoise Pede)
## 137                                          Newsom, Miss. Helen Monypeny
## 142                                              Nysten, Miss. Anna Sofia
## 143                   Hakkarainen, Mrs. Pekka Pietari (Elin Matilda Dolck)
## 147                          Andersson, Mr. August Edvard ("Wennerstrom")
## 152                                   Pears, Mrs. Thomas (Edith Wearne)
## 157                                 Gilnagh, Miss. Katherine "Katie"
## 162                     Watt, Mrs. James (Elizabeth "Bessie" Inglis Milne)
## 166                        Goldsmith, Master. Frank John William "Frankie"
## 167                               Chibnall, Mrs. (Edith Martha Bowerman)
## 173                                       Johnson, Miss. Eleanor Ileen
## 184                                          Becker, Master. Richard F
## 185                                 Kink-Heilmann, Miss. Luise Gretchen
## 187                       O'Brien, Mrs. Thomas (Johanna "Hannah" Godfrey)
## 188                         Romaine, Mr. Charles Hallace ("Mr C Rolmane")
## 191                                                  Pinsky, Mrs. (Rosa)
## 193                      Andersen-Jensen, Miss. Carla Christine Nielsine
## 194                                    Navratil, Master. Michel M
## 195                          Brown, Mrs. James Joseph (Margaret Tobin)
## 196                                               Lurette, Miss. Elise
## 199                                  Madigan, Miss. Margaret "Maggie"
## 205                                          Cohen, Mr. Gurshon "Gus"
## 208                                      Albimona, Mr. Nassef Cassem
## 209                                        Carr, Miss. Helen "Ellen"
```

```
## 210                                                                 Blank, Mr. Henry
## 212                                                      Cameron, Miss. Clear Annie
## 216                                                         Newell, Miss. Madeleine
## 217                                                          Honkanen, Miss. Eliina
## 219                                                           Bazzani, Miss. Albina
## 221                                                 Sunderland, Mr. Victor Francis
## 225                                                   Hoyt, Mr. Frederick Maxfield
## 227                                                      Mellors, Mr. William John
## 231                                    Harris, Mrs. Henry Birkhardt (Irene Wallach)
## 234                                                 Asplund, Miss. Lillian Gertrud
## 238                                               Collyer, Miss. Marjorie "Lottie"
## 242                                                 Murphy, Miss. Katherine "Kate"
## 248                                                Hamalainen, Mrs. William (Anna)
## 249                                                  Beckwith, Mr. Richard Leonard
## 256                                       Touma, Mrs. Darwis (Hanne Youssef Razi)
## 257                                                 Thorne, Mrs. Gertrude Maybelle
## 258                                                           Cherry, Miss. Gladys
## 259                                                               Ward, Miss. Anna
## 260                                                    Parrish, Mrs. (Lutie Davis)
## 262                                               Asplund, Master. Edvin Rojj Felix
## 268                                                      Persson, Mr. Ernst Ulrik
## 269                                    Graham, Mrs. William Thompson (Edith Junkins)
## 270                                                       Bissette, Miss. Amelia
## 272                                                   Tornquist, Mr. William Henry
## 273                                       Mellinger, Mrs. (Elizabeth Anne Maidment)
## 275                                                   Healy, Miss. Hanora "Nora"
## 276                                               Andrews, Miss. Kornelia Theodosia
## 280                                                Abbott, Mrs. Stanton (Rosa Hunt)
## 284                                                      Dorking, Mr. Edward Arthur
## 287                                                         de Mulder, Mr. Theodore
## 289                                                            Hosono, Mr. Masabumi
## 290                                                            Connolly, Miss. Kate
## 291                                                    Barber, Miss. Ellen "Nellie"
## 292                                                 Bishop, Mrs. Dickinson H (Helen Walton)
## 299                                                           Saalfeld, Mr. Adolphe
## 300                                         Baxter, Mrs. James (Helene DeLaudeniere Chaput)
## 301                                               Kelly, Miss. Anna Katherine "Annie Kate"
## 302                                                             McCoy, Mr. Bernard
## 304                                                           Keane, Miss. Nora A
## 306                                                 Allison, Master. Hudson Trevor
## 307                                                        Fleming, Miss. Margaret
## 308 Penasco y Castellana, Mrs. Victor de Satode (Maria Josefa Perez de Soto y Vallejo)
## 310                                                 Francatelli, Miss. Laura Mabel
## 311                                                 Hays, Miss. Margaret Bechstein
## 312                                                     Ryerson, Miss. Emily Borie
## 316                                                 Nilsson, Miss. Helmina Josefina
## 317                                               Kantor, Mrs. Sinai (Miriam Sternin)
## 319                                                       Wick, Miss. Mary Natalie
## 320                                Spedden, Mrs. Frederic Oakley (Margaretta Corning Stone)
## 323                                                 Slayter, Miss. Hilda Mary
## 324                                     Caldwell, Mrs. Albert Francis (Sylvia Mae Harbaugh)
## 326                                                 Young, Miss. Marie Grice
## 328                                                  Ball, Mrs. (Ada E Hall)
## 329                                        Goldsmith, Mrs. Frank John (Emily Alice Brown)
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## 330                                                 Hippach, Miss. Jean Gertrude
## 331                                                       McCoy, Miss. Agnes
## 335                                Frauenthal, Mrs. Henry William (Clara Heinsheimer)
## 338                                           Burns, Miss. Elizabeth Margaret
## 339                                                    Dahl, Mr. Karl Edwart
## 341                                          Navratil, Master. Edmond Roger
## 342                                          Fortune, Miss. Alice Elizabeth
## 346                                           Brown, Miss. Amelia "Mildred"
## 347                                               Smith, Miss. Marion Elsie
## 348                                     Davison, Mrs. Thomas Henry (Mary E Finck)
## 349                                        Coutts, Master. William Loch "William"
## 357                                              Bowerman, Miss. Elsie Edith
## 359                                                    McGovern, Miss. Mary
## 360                                          Mockler, Miss. Helen Mary "Ellie"
## 367                                 Warren, Mrs. Frank Manley (Anna Sophia Atkinson)
## 368                                           Moussa, Mrs. (Mantoura Boulos)
## 369                                                    Jermyn, Miss. Annie
## 370                                          Aubart, Mme. Leontine Pauline
## 371                                            Harder, Mr. George Achilles
## 376                                       Meyer, Mrs. Edgar Joseph (Leila Saks)
## 377                                          Landergren, Miss. Aurora Adelia
## 381                                                    Bidois, Miss. Rosalie
## 382                                                 Nakid, Miss. Maria ("Mary")
## 384                               Holverson, Mrs. Alexander Oskar (Mary Aline Towner)
## 388                                                        Buss, Miss. Kate
## 390                                                    Lehmann, Miss. Bertha
## 391                                             Carter, Mr. William Ernest
## 392                                                 Jansson, Mr. Carl Olof
## 394                                                 Newell, Miss. Marjorie
## 395                               Sandstrom, Mrs. Hjalmar (Agnes Charlotta Bengtsson)
## 400                                           Trout, Mrs. William H (Jessie L)
## 401                                                     Niskanen, Mr. Juha
## 408                                           Richards, Master. William Rowe
## 413                                                    Minahan, Miss. Daisy E
## 415                                                 Sundman, Mr. Johan Julian
## 417                                    Drew, Mrs. James Vivian (Lulu Thorne Christian)
## 418                                           Silven, Miss. Lyyli Karoliina
## 427                                      Clarke, Mrs. Charles V (Ada Maria Winfield)
## 428                 Phillips, Miss. Kate Florence ("Mrs Kate Louise Phillips Marshall")
## 430                                            Pickard, Mr. Berk (Berk Trembisky)
## 431                                      Bjornstrom-Steffansson, Mr. Mauritz Hakan
## 432                                  Thorneycroft, Mrs. Percival (Florence Kate White)
## 433                                 Louch, Mrs. Charles Alexander (Alice Adelaide Slow)
## 436                                                Carter, Miss. Lucile Polk
## 438                                       Richards, Mrs. Sidney (Emily Hocking)
## 441                                     Hart, Mrs. Benjamin (Esther Ada Bloomfield)
## 444                                                 Reynaldo, Ms. Encarnacion
## 445                                          Johannesen-Bratthammer, Mr. Bernt
## 446                                                    Dodge, Master. Washington
## 447                                          Mellinger, Miss. Madeleine Violet
## 448                                                Seward, Mr. Frederic Kimber
## 449                                           Baclini, Miss. Marie Catherine
## 450                                           Peuchen, Major. Arthur Godfrey
## 454                                                 Goldenberg, Mr. Samuel L
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## 456                                                    Jalsevac, Mr. Ivan
## 458                                          Kenyon, Mrs. Frederick R (Marion)
## 459                                                    Toomey, Miss. Ellen
## 461                                                    Anderson, Mr. Harry
## 470                                             Baclini, Miss. Helene Barbara
## 473                                  West, Mrs. Edwy Arthur (Ada Mary Worth)
## 474                                Jerwan, Mrs. Amin S (Marie Marthe Thuillard)
## 480                                                  Hirvonen, Miss. Hildur E
## 484                                                    Turkula, Mrs. (Hedwig)
## 485                                                  Bishop, Mr. Dickinson H
## 487                          Hoyt, Mrs. Frederick Maxfield (Jane Anne Forby)
## 490                                 Coutts, Master. Eden Leslie "Neville"
## 497                                        Eustis, Miss. Elizabeth Mussey
## 505                                                  Maioni, Miss. Roberta
## 507                                Quick, Mrs. Frederick Charles (Jane Richards)
## 508                                Bradley, Mr. George ("George Arthur Brayton")
## 510                                                        Lang, Mr. Fang
## 511                                                  Daly, Mr. Eugene Patrick
## 513                                                McGough, Mr. James Robert
## 514                           Rothschild, Mrs. Martin (Elizabeth L. Barrett)
## 517                                              Lemore, Mrs. (Amelia Milley)
## 519                       Angle, Mrs. William A (Florence "Mary" Agnes Hughes)
## 521                                                Perreault, Miss. Anne
## 524                          Hippach, Mrs. Louis Albert (Ida Sophia Fischer)
## 527                                                 Ridsdale, Miss. Lucy
## 531                                                Quick, Miss. Phyllis May
## 534                                Peter, Mrs. Catherine (Catherine Rizk)
## 536                                                  Hart, Miss. Eva Miriam
## 538                                                    LeRoy, Miss. Bertha
## 540                                    Frolicher, Miss. Hedwig Margaritha
## 541                                                  Crosby, Miss. Harriet R
## 544                                                        Beane, Mr. Edward
## 547                                         Beane, Mrs. Edward (Ethel Clarke)
## 548                                               Padro y Manent, Mr. Julian
## 550                                           Davies, Master. John Morgan Jr
## 551                                             Thayer, Mr. John Borland Jr
## 554                                         Leeni, Mr. Fahim ("Philip Zenni")
## 555                                                  Ohman, Miss. Velin
## 557 Duff Gordon, Lady. (Lucille Christiana Sutherland) ("Mrs Morgan")
## 559                                        Taussig, Mrs. Emil (Tillie Mandelbaum)
## 560                          de Messemaeker, Mrs. Guillaume Joseph (Emma)
## 570                                                  Jonsson, Mr. Carl
## 571                                                  Harris, Mr. George
## 572                            Appleton, Mrs. Edward Dale (Charlotte Lamson)
## 573                                          Flynn, Mr. John Irwin ("Irving")
## 574                                                    Kelly, Miss. Mary
## 577                                                Garside, Miss. Ethel
## 578                               Silvey, Mrs. William Baird (Alice Munger)
## 580                                                  Jussila, Mr. Eiriik
## 581                                               Christy, Miss. Julie Rachel
## 582                       Thayer, Mrs. John Borland (Marian Longstreth Morris)
## 586                                                  Taussig, Miss. Ruth
## 588                                       Frolicher-Stehli, Mr. Maxmillian
## 592                            Stephenson, Mrs. Walter Bertram (Martha Eustis)
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## 597                                                Leitch, Miss. Jessie Wills
## 600                                      Duff Gordon, Sir. Cosmo Edmund ("Mr Morgan")
## 601                                Jacobsohn, Mrs. Sidney Samuel (Amy Frances Christy)
## 605                                               Homer, Mr. Harry ("Mr E Haven")
## 608                                                   Daniel, Mr. Robert Williams
## 609                                Laroche, Mrs. Joseph (Juliette Marie Louise Lafargue)
## 610                                                 Shutes, Miss. Elizabeth W
## 613                                                Murphy, Miss. Margaret Jane
## 616                                                        Herman, Miss. Alice
## 619                                                Becker, Miss. Marion Louise
## 622                                               Kimball, Mr. Edwin Nelson Jr
## 623                                                         Nakid, Mr. Sahid
## 628                                              Longley, Miss. Gretchen Fiske
## 631                                          Barkworth, Mr. Algernon Henry Wilson
## 633                                                 Stahelin-Maeglin, Dr. Max
## 636                                                         Davis, Miss. Mary
## 642                                                 Sagesser, Mlle. Emma
## 644                                                              Foo, Mr. Choong
## 645                                                      Baclini, Miss. Eugenie
## 646                                                Harper, Mr. Henry Sleeper
## 648                                          Simonius-Blumer, Col. Oberst Alfons
## 650                                              Stanley, Miss. Amy Zillah Elsie
## 652                                                         Doling, Miss. Elsie
## 654                                                  O'Leary, Miss. Hanora "Norah"
## 661                                                Frauenthal, Dr. Henry William
## 665                                                  Lindqvist, Mr. Eino William
## 670                                Taylor, Mrs. Elmer Zebley (Juliet Cummins Wright)
## 671                  Brown, Mrs. Thomas William Solomon (Elizabeth Catherine Ford)
## 674                                                       Wilhelms, Mr. Charles
## 678                                                     Turja, Miss. Anna Sofia
## 680                                           Cardeza, Mr. Thomas Drake Martinez
## 682                                                          Hassab, Mr. Hammad
## 690                                            Madill, Miss. Georgette Alexandra
## 691                                                    Dick, Mr. Albert Adrian
## 692                                                         Karun, Miss. Manca
## 693                                                               Lam, Mr. Ali
## 698                                             Mullens, Miss. Katherine "Katie"
## 701                                Astor, Mrs. John Jacob (Madeleine Talmadge Force)
## 702                                           Silverthorne, Mr. Spencer Victor
## 707                                              Kelly, Mrs. Florence "Fannie"
## 708                                           Calderhead, Mr. Edward Pennington
## 709                                                       Cleaver, Miss. Alice
## 710                                Moubarek, Master. Halim Gonios ("William George")
## 711                                 Mayne, Mlle. Berthe Antonine ("Mrs de Villiers")
## 713                                                    Taylor, Mr. Elmer Zebley
## 717                                                 Endres, Miss. Caroline Louise
## 718                                          Troutt, Miss. Edwina Celia "Winnie"
## 721                                            Harper, Miss. Annie Jessie "Nina"
## 725                                                Chambers, Mr. Norman Campbell
## 727                                      Renouf, Mrs. Peter Henry (Lillian Jefferys)
## 728                                                      Mannion, Miss. Margareth
## 731                                                Allen, Miss. Elisabeth Walton
## 738                                                       Lesurer, Mr. Gustave J
## 741                                                  Hawksford, Mr. Walter James
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## 743                                        Ryerson, Miss. Susan Parker "Suzette"
## 745                                                     Stranden, Mr. Juho
## 748                                                  Sinkkonen, Miss. Anna
## 751                                                      Wells, Miss. Joan
## 752                                                    Moor, Master. Meier
## 755                                          Herman, Mrs. Samuel (Jane Laver)
## 756                                                Hamalainen, Master. Viljo
## 760                 Rothes, the Countess. of (Lucy Noel Martha Dyer-Edwards)
## 763                                                  Barah, Mr. Hanna Assi
## 764                                Carter, Mrs. William Ernest (Lucile Polk)
## 766                                     Hogeboom, Mrs. John C (Anna Andrews)
## 775                                   Hocking, Mrs. Elizabeth (Eliza Needs)
## 778                                          Emanuel, Miss. Virginia Ethel
## 780                    Robert, Mrs. Edward Scott (Elisabeth Walton McMillan)
## 781                                                  Ayoub, Miss. Banoura
## 782                                Dick, Mrs. Albert Adrian (Vera Gillespie)
## 787                                                Sjoblom, Miss. Anna Sofia
## 789                                               Dean, Master. Bertram Vere
## 797                                             Leader, Dr. Alice (Farnham)
## 798                                                      Osman, Mrs. Mara
## 802                                Collyer, Mrs. Harvey (Charlotte Annie Tate)
## 803                                        Carter, Master. William Thornton II
## 804                                            Thomas, Master. Assad Alexander
## 805                                                  Hedman, Mr. Oskar Arvid
## 810                              Chambers, Mrs. Norman Campbell (Bertha Griggs)
## 821                           Hays, Mrs. Charles Melville (Clara Jennings Gregg)
## 822                                                      Lulic, Mr. Nikola
## 824                                                    Moor, Mrs. (Beila)
## 828                                                  Mallet, Master. Andre
## 829                                               McCormack, Mr. Thomas Joseph
## 830                                Stone, Mrs. George Nelson (Martha Evelyn)
## 831                                  Yasbeck, Mrs. Antoni (Selini Alexander)
## 832                                          Richards, Master. George Sibley
## 836                                              Compton, Miss. Sara Rebecca
## 839                                                          Chip, Mr. Chang
## 840                                                   Marechal, Mr. Pierre
## 843                                                 Serepeca, Miss. Augusta
## 850                              Goldenberg, Mrs. Samuel L (Edwiga Grabowska)
## 854                                                Lines, Miss. Mary Conover
## 856                                               Aks, Mrs. Sam (Leah Rosen)
## 857                                Wick, Mrs. George Dennick (Mary Hitchcock)
## 858                                                 Daly, Mr. Peter Denis
## 859                                      Baclini, Mrs. Solomon (Latifa Qurban)
## 863                           Swift, Mrs. Frederick Joel (Margaret Welles Barron)
## 866                                                Bystrom, Mrs. (Karolina)
## 867                                              Duran y More, Miss. Asuncion
## 870                                           Johnson, Master. Harold Theodor
## 872                              Beckwith, Mrs. Richard Leonard (Sallie Monypeny)
## 875                                        Abelson, Mrs. Samuel (Hannah Wizosky)
## 876                                     Najib, Miss. Adele Kiamie "Jane"
## 880                                Potter, Mrs. Thomas Jr (Lily Alexenia Wilson)
## 881                                 Shelley, Mrs. William (Imanita Parrish Hall)
## 888                                              Graham, Miss. Margaret Edith
## 890                                                      Behr, Mr. Karl Howell
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```
##        Sex   Age SibSp Parch           Ticket     Fare           Cabin
## 2   female 38.00     1     0         PC 17599  71.2833             C85
## 3   female 26.00     0     0 STON/O2. 3101282   7.9250
## 4   female 35.00     1     0           113803  53.1000            C123
## 9   female 27.00     0     2           347742  11.1333
## 10  female 14.00     1     0           237736  30.0708
## 11  female  4.00     1     1          PP 9549  16.7000              G6
## 12  female 58.00     0     0           113783  26.5500            C103
## 16  female 55.00     0     0           248706  16.0000
## 18    male    NA     0     0           244373  13.0000
## 20  female    NA     0     0             2649   7.2250
## 22    male 34.00     0     0           248698  13.0000             D56
## 23  female 15.00     0     0           330923   8.0292
## 24    male 28.00     0     0           113788  35.5000              A6
## 26  female 38.00     1     5           347077  31.3875
## 29  female    NA     0     0           330959   7.8792
## 32  female    NA     1     0         PC 17569 146.5208             B78
## 33  female    NA     0     0           335677   7.7500
## 37    male    NA     0     0             2677   7.2292
## 40  female 14.00     1     0             2651  11.2417
## 44  female  3.00     1     2    SC/Paris 2123  41.5792
## 45  female 19.00     0     0           330958   7.8792
## 48  female    NA     0     0            14311   7.7500
## 53  female 49.00     1     0         PC 17572  76.7292             D33
## 54  female 29.00     1     0             2926  26.0000
## 56    male    NA     0     0            19947  35.5000             C52
## 57  female 21.00     0     0       C.A. 31026  10.5000
## 59  female  5.00     1     2       C.A. 34651  27.7500
## 62  female 38.00     0     0           113572  80.0000             B28
## 66    male    NA     1     1             2661  15.2458
## 67  female 29.00     0     0       C.A. 29395  10.5000             F33
## 69  female 17.00     4     2          3101281   7.9250
## 75    male 32.00     0     0             1601  56.4958
## 79    male  0.83     0     2           248738  29.0000
## 80  female 30.00     0     0           364516  12.4750
## 82    male 29.00     0     0           345779   9.5000
## 83  female    NA     0     0           330932   7.7875
## 85  female 17.00     0     0       SO/C 14885  10.5000
## 86  female 33.00     3     0          3101278  15.8500
## 89  female 23.00     3     2            19950 263.0000     C23 C25 C27
## 98    male 23.00     0     1         PC 17759  63.3583         D10 D12
## 99  female 34.00     0     1           231919  23.0000
## 107 female 21.00     0     0           343120   7.6500
## 108   male    NA     0     0           312991   7.7750
## 110 female    NA     1     0           371110  24.1500
## 124 female 32.50     0     0            27267  13.0000            E101
## 126   male 12.00     1     0             2651  11.2417
## 128   male 24.00     0     0           C 17369   7.1417
## 129 female    NA     1     1             2668  22.3583           F E69
## 134 female 29.00     1     0           228414  26.0000
## 137 female 19.00     0     2            11752  26.2833             D47
## 142 female 22.00     0     0           347081   7.7500
## 143 female 24.00     1     0 STON/O2. 3101279  15.8500
## 147   male 27.00     0     0           350043   7.7958
```

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## 152 female 22.00     1     0           113776  66.6000             C2
## 157 female 16.00     0     0            35851   7.7333
## 162 female 40.00     0     0        C.A. 33595  15.7500
## 166   male  9.00     0     2           363291  20.5250
## 167 female    NA     0     1           113505  55.0000            E33
## 173 female  1.00     1     1           347742  11.1333
## 184   male  1.00     2     1           230136  39.0000             F4
## 185 female  4.00     0     2           315153  22.0250
## 187 female    NA     1     0           370365  15.5000
## 188   male 45.00     0     0           111428  26.5500
## 191 female 32.00     0     0           234604  13.0000
## 193 female 19.00     1     0           350046   7.8542
## 194   male  3.00     1     1           230080  26.0000             F2
## 195 female 44.00     0     0         PC 17610  27.7208             B4
## 196 female 58.00     0     0         PC 17569 146.5208            B80
## 199 female    NA     0     0           370370   7.7500
## 205   male 18.00     0     0         A/5 3540   8.0500
## 208   male 26.00     0     0             2699  18.7875
## 209 female 16.00     0     0           367231   7.7500
## 210   male 40.00     0     0           112277  31.0000            A31
## 212 female 35.00     0     0     F.C.C. 13528  21.0000
## 216 female 31.00     1     0           35273 113.2750            D36
## 217 female 27.00     0     0 STON/O2. 3101283   7.9250
## 219 female 32.00     0     0            11813  76.2917            D15
## 221   male 16.00     0     0  SOTON/OQ 392089   8.0500
## 225   male 38.00     1     0            19943  90.0000            C93
## 227   male 19.00     0     0        SW/PP 751  10.5000
## 231 female 35.00     1     0           36973  83.4750            C83
## 234 female  5.00     4     2           347077  31.3875
## 238 female  8.00     0     2       C.A. 31921  26.2500
## 242 female    NA     1     0           367230  15.5000
## 248 female 24.00     0     2           250649  14.5000
## 249   male 37.00     1     1            11751  52.5542            D35
## 256 female 29.00     0     2             2650  15.2458
## 257 female    NA     0     0         PC 17585  79.2000
## 258 female 30.00     0     0           110152  86.5000            B77
## 259 female 35.00     0     0         PC 17755 512.3292
## 260 female 50.00     0     1           230433  26.0000
## 262   male  3.00     4     2           347077  31.3875
## 268   male 25.00     1     0           347083   7.7750
## 269 female 58.00     0     1         PC 17582 153.4625           C125
## 270 female 35.00     0     0         PC 17760 135.6333            C99
## 272   male 25.00     0     0             LINE   0.0000
## 273 female 41.00     0     1           250644  19.5000
## 275 female    NA     0     0           370375   7.7500
## 276 female 63.00     1     0            13502  77.9583             D7
## 280 female 35.00     1     1        C.A. 2673  20.2500
## 284   male 19.00     0     0       A/5. 10482   8.0500
## 287   male 30.00     0     0           345774   9.5000
## 289   male 42.00     0     0           237798  13.0000
## 290 female 22.00     0     0           370373   7.7500
## 291 female 26.00     0     0            19877  78.8500
## 292 female 19.00     1     0            11967  91.0792            B49
## 299   male    NA     0     0            19988  30.5000           C106
```

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## 300 female 50.00     0     1          PC 17558 247.5208         B58 B60
## 301 female    NA     0     0              9234   7.7500
## 302   male    NA     2     0            367226  23.2500
## 304 female    NA     0     0            226593  12.3500            E101
## 306   male  0.92     1     2            113781 151.5500         C22 C26
## 307 female    NA     0     0             17421 110.8833
## 308 female 17.00     1     0          PC 17758 108.9000             C65
## 310 female 30.00     0     0          PC 17485  56.9292             E36
## 311 female 24.00     0     0             11767  83.1583             C54
## 312 female 18.00     2     2          PC 17608 262.3750 B57 B59 B63 B66
## 316 female 26.00     0     0            347470   7.8542
## 317 female 24.00     1     0            244367  26.0000
## 319 female 31.00     0     2             36928 164.8667              C7
## 320 female 40.00     1     1             16966 134.5000             E34
## 323 female 30.00     0     0            234818  12.3500
## 324 female 22.00     1     1            248738  29.0000
## 326 female 36.00     0     0          PC 17760 135.6333             C32
## 328 female 36.00     0     0             28551  13.0000               D
## 329 female 31.00     1     1            363291  20.5250
## 330 female 16.00     0     1            111361  57.9792             B18
## 331 female    NA     2     0            367226  23.2500
## 335 female    NA     1     0          PC 17611 133.6500
## 338 female 41.00     0     0             16966 134.5000             E40
## 339   male 45.00     0     0              7598   8.0500
## 341   male  2.00     1     1            230080  26.0000              F2
## 342 female 24.00     3     2             19950 263.0000     C23 C25 C27
## 346 female 24.00     0     0            248733  13.0000             F33
## 347 female 40.00     0     0             31418  13.0000
## 348 female    NA     1     0            386525  16.1000
## 349   male  3.00     1     1        C.A. 37671  15.9000
## 357 female 22.00     0     1            113505  55.0000             E33
## 359 female    NA     0     0            330931   7.8792
## 360 female    NA     0     0            330980   7.8792
## 367 female 60.00     1     0            110813  75.2500             D37
## 368 female    NA     0     0              2626   7.2292
## 369 female    NA     0     0             14313   7.7500
## 370 female 24.00     0     0          PC 17477  69.3000             B35
## 371   male 25.00     1     0             11765  55.4417             E50
## 376 female    NA     1     0          PC 17604  82.1708
## 377 female 22.00     0     0            C 7077   7.2500
## 381 female 42.00     0     0          PC 17757 227.5250
## 382 female  1.00     0     2              2653  15.7417
## 384 female 35.00     1     0            113789  52.0000
## 388 female 36.00     0     0             27849  13.0000
## 390 female 17.00     0     0           SC 1748  12.0000
## 391   male 36.00     1     2            113760 120.0000         B96 B98
## 392   male 21.00     0     0            350034   7.7958
## 394 female 23.00     1     0             35273 113.2750             D36
## 395 female 24.00     0     2           PP 9549  16.7000              G6
## 400 female 28.00     0     0            240929  12.6500
## 401   male 39.00     0     0 STON/O 2. 3101289   7.9250
## 408   male  3.00     1     1             29106  18.7500
## 413 female 33.00     1     0             19928  90.0000             C78
## 415   male 44.00     0     0 STON/O 2. 3101269   7.9250
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## 417 female 34.00     1     1            28220  32.5000
## 418 female 18.00     0     2           250652  13.0000
## 427 female 28.00     1     0             2003  26.0000
## 428 female 19.00     0     0           250655  26.0000
## 430   male 32.00     0     0 SOTON/O.Q. 392078   8.0500             E10
## 431   male 28.00     0     0           110564  26.5500             C52
## 432 female    NA     1     0           376564  16.1000
## 433 female 42.00     1     0       SC/AH 3085  26.0000
## 436 female 14.00     1     2           113760 120.0000         B96 B98
## 438 female 24.00     2     3            29106  18.7500
## 441 female 45.00     1     1     F.C.C. 13529  26.2500
## 444 female 28.00     0     0           230434  13.0000
## 445   male    NA     0     0            65306   8.1125
## 446   male  4.00     0     2            33638  81.8583             A34
## 447 female 13.00     0     1           250644  19.5000
## 448   male 34.00     0     0           113794  26.5500
## 449 female  5.00     2     1             2666  19.2583
## 450   male 52.00     0     0           113786  30.5000            C104
## 454   male 49.00     1     0            17453  89.1042             C92
## 456   male 29.00     0     0           349240   7.8958
## 458 female    NA     1     0            17464  51.8625             D21
## 459 female 50.00     0     0     F.C.C. 13531  10.5000
## 461   male 48.00     0     0            19952  26.5500             E12
## 470 female  0.75     2     1             2666  19.2583
## 473 female 33.00     1     2       C.A. 34651  27.7500
## 474 female 23.00     0     0  SC/AH Basle 541  13.7917               D
## 480 female  2.00     0     1          3101298  12.2875
## 484 female 63.00     0     0             4134   9.5875
## 485   male 25.00     1     0            11967  91.0792             B49
## 487 female 35.00     1     0            19943  90.0000             C93
## 490   male  9.00     1     1       C.A. 37671  15.9000
## 497 female 54.00     1     0            36947  78.2667             D20
## 505 female 16.00     0     0           110152  86.5000             B79
## 507 female 33.00     0     2            26360  26.0000
## 508   male    NA     0     0           111427  26.5500
## 510   male 26.00     0     0             1601  56.4958
## 511   male 29.00     0     0           382651   7.7500
## 513   male 36.00     0     0         PC 17473  26.2875             E25
## 514 female 54.00     1     0         PC 17603  59.4000
## 517 female 34.00     0     0       C.A. 34260  10.5000             F33
## 519 female 36.00     1     0           226875  26.0000
## 521 female 30.00     0     0            12749  93.5000             B73
## 524 female 44.00     0     1           111361  57.9792             B18
## 527 female 50.00     0     0      W./C. 14258  10.5000
## 531 female  2.00     1     1            26360  26.0000
## 534 female    NA     0     2             2668  22.3583
## 536 female  7.00     0     2     F.C.C. 13529  26.2500
## 538 female 30.00     0     0         PC 17761 106.4250
## 540 female 22.00     0     2            13568  49.5000             B39
## 541 female 36.00     0     2        WE/P 5735  71.0000             B22
## 544   male 32.00     1     0             2908  26.0000
## 547 female 19.00     1     0             2908  26.0000
## 548   male    NA     0     0    SC/PARIS 2146  13.8625
## 550   male  8.00     1     1       C.A. 33112  36.7500
```

```
## 551   male 17.00     0     2            17421 110.8833            C70
## 554   male 22.00     0     0             2620   7.2250
## 555 female 22.00     0     0           347085   7.7750
## 557 female 48.00     1     0            11755  39.6000            A16
## 559 female 39.00     1     1           110413  79.6500            E67
## 560 female 36.00     1     0           345572  17.4000
## 570   male 32.00     0     0           350417   7.8542
## 571   male 62.00     0     0       S.W./PP 752  10.5000
## 572 female 53.00     2     0            11769  51.4792            C101
## 573   male 36.00     0     0         PC 17474  26.3875            E25
## 574 female    NA     0     0            14312   7.7500
## 577 female 34.00     0     0           243880  13.0000
## 578 female 39.00     1     0            13507  55.9000            E44
## 580   male 32.00     0     0 STON/O 2. 3101286   7.9250
## 581 female 25.00     1     1           237789  30.0000
## 582 female 39.00     1     1            17421 110.8833            C68
## 586 female 18.00     0     2           110413  79.6500            E68
## 588   male 60.00     1     1            13567  79.2000            B41
## 592 female 52.00     1     0            36947  78.2667            D20
## 597 female    NA     0     0           248727  33.0000
## 600   male 49.00     1     0         PC 17485  56.9292            A20
## 601 female 24.00     2     1           243847  27.0000
## 605   male 35.00     0     0           111426  26.5500
## 608   male 27.00     0     0           113804  30.5000
## 609 female 22.00     1     2    SC/Paris 2123  41.5792
## 610 female 40.00     0     0         PC 17582 153.4625            C125
## 613 female    NA     1     0           367230  15.5000
## 616 female 24.00     1     2           220845  65.0000
## 619 female  4.00     2     1           230136  39.0000             F4
## 622   male 42.00     1     0            11753  52.5542            D19
## 623   male 20.00     1     1             2653  15.7417
## 628 female 21.00     0     0            13502  77.9583             D9
## 631   male 80.00     0     0            27042  30.0000            A23
## 633   male 32.00     0     0            13214  30.5000            B50
## 636 female 28.00     0     0           237668  13.0000
## 642 female 24.00     0     0         PC 17477  69.3000            B35
## 644   male    NA     0     0             1601  56.4958
## 645 female  0.75     2     1             2666  19.2583
## 646   male 48.00     1     0         PC 17572  76.7292            D33
## 648   male 56.00     0     0            13213  35.5000            A26
## 650 female 23.00     0     0         CA. 2314   7.5500
## 652 female 18.00     0     1           231919  23.0000
## 654 female    NA     0     0           330919   7.8292
## 661   male 50.00     2     0         PC 17611 133.6500
## 665   male 20.00     1     0 STON/O 2. 3101285   7.9250
## 670 female    NA     1     0            19996  52.0000            C126
## 671 female 40.00     1     1            29750  39.0000
## 674   male 31.00     0     0           244270  13.0000
## 678 female 18.00     0     0             4138   9.8417
## 680   male 36.00     0     1         PC 17755 512.3292    B51 B53 B55
## 682   male 27.00     0     0         PC 17572  76.7292            D49
## 690 female 15.00     0     1            24160 211.3375             B5
## 691   male 31.00     1     0            17474  57.0000            B20
## 692 female  4.00     0     1           349256  13.4167
```

```
## 693   male    NA     0     0             1601  56.4958
## 698 female    NA     0     0            35852   7.7333
## 701 female 18.00     1     0          PC 17757 227.5250         C62 C64
## 702   male 35.00     0     0          PC 17475  26.2875             E24
## 707 female 45.00     0     0           223596  13.5000
## 708   male 42.00     0     0          PC 17476  26.2875             E24
## 709 female 22.00     0     0           113781 151.5500
## 710   male    NA     1     1             2661  15.2458
## 711 female 24.00     0     0          PC 17482  49.5042             C90
## 713   male 48.00     1     0            19996  52.0000            C126
## 717 female 38.00     0     0          PC 17757 227.5250             C45
## 718 female 27.00     0     0            34218  10.5000            E101
## 721 female  6.00     0     1           248727  33.0000
## 725   male 27.00     1     0           113806  53.1000              E8
## 727 female 30.00     3     0            31027  21.0000
## 728 female    NA     0     0            36866   7.7375
## 731 female 29.00     0     0            24160 211.3375              B5
## 738   male 35.00     0     0          PC 17755 512.3292            B101
## 741   male    NA     0     0            16988  30.0000             D45
## 743 female 21.00     2     2          PC 17608 262.3750 B57 B59 B63 B66
## 745   male 31.00     0     0 STON/O 2. 3101288   7.9250
## 748 female 30.00     0     0           250648  13.0000
## 751 female  4.00     1     1            29103  23.0000
## 752   male  6.00     0     1           392096  12.4750            E121
## 755 female 48.00     1     2           220845  65.0000
## 756   male  0.67     1     1           250649  14.5000
## 760 female 33.00     0     0           110152  86.5000             B77
## 763   male 20.00     0     0             2663   7.2292
## 764 female 36.00     1     2           113760 120.0000         B96 B98
## 766 female 51.00     1     0            13502  77.9583             D11
## 775 female 54.00     1     3            29105  23.0000
## 778 female  5.00     0     0           364516  12.4750
## 780 female 43.00     0     1            24160 211.3375              B3
## 781 female 13.00     0     0             2687   7.2292
## 782 female 17.00     1     0            17474  57.0000             B20
## 787 female 18.00     0     0          3101265   7.4958
## 789   male  1.00     1     2         C.A. 2315  20.5750
## 797 female 49.00     0     0            17465  25.9292             D17
## 798 female 31.00     0     0           349244   8.6833
## 802 female 31.00     1     1        C.A. 31921  26.2500
## 803   male 11.00     1     2           113760 120.0000         B96 B98
## 804   male  0.42     0     1             2625   8.5167
## 805   male 27.00     0     0           347089   6.9750
## 810 female 33.00     1     0           113806  53.1000              E8
## 821 female 52.00     1     1            12749  93.5000             B69
## 822   male 27.00     0     0           315098   8.6625
## 824 female 27.00     0     1           392096  12.4750            E121
## 828   male  1.00     0     2   S.C./PARIS 2079  37.0042
## 829   male    NA     0     0           367228   7.7500
## 830 female 62.00     0     0           113572  80.0000             B28
## 831 female 15.00     1     0             2659  14.4542
## 832   male  0.83     1     1            29106  18.7500
## 836 female 39.00     1     1          PC 17756  83.1583             E49
## 839   male 32.00     0     0             1601  56.4958
```

```
## 840   male    NA     0     0            11774  29.7000            C47
## 843 female 30.00     0     0           113798  31.0000
## 850 female    NA     1     0            17453  89.1042            C92
## 854 female 16.00     0     1         PC 17592  39.4000            D28
## 856 female 18.00     0     1           392091   9.3500
## 857 female 45.00     1     1            36928 164.8667
## 858   male 51.00     0     0           113055  26.5500            E17
## 859 female 24.00     0     3             2666  19.2583
## 863 female 48.00     0     0            17466  25.9292            D17
## 866 female 42.00     0     0           236852  13.0000
## 867 female 27.00     1     0    SC/PARIS 2149  13.8583
## 870   male  4.00     1     1           347742  11.1333
## 872 female 47.00     1     1            11751  52.5542            D35
## 875 female 28.00     1     0        P/PP 3381  24.0000
## 876 female 15.00     0     0             2667   7.2250
## 880 female 56.00     0     1            11767  83.1583            C50
## 881 female 25.00     0     1           230433  26.0000
## 888 female 19.00     0     0           112053  30.0000            B42
## 890   male 26.00     0     0           111369  30.0000           C148
##     Embarked
## 2          C
## 3          S
## 4          S
## 9          S
## 10         C
## 11         S
## 12         S
## 16         S
## 18         S
## 20         C
## 22         S
## 23         Q
## 24         S
## 26         S
## 29         Q
## 32         C
## 33         Q
## 37         C
## 40         C
## 44         C
## 45         Q
## 48         Q
## 53         C
## 54         S
## 56         S
## 57         S
## 59         S
## 62
## 66         C
## 67         S
## 69         S
## 75         S
## 79         S
## 80         S
```

```
## 82         S
## 83         Q
## 85         S
## 86         S
## 89         S
## 98         C
## 99         S
## 107        S
## 108        S
## 110        Q
## 124        S
## 126        C
## 128        S
## 129        C
## 134        S
## 137        S
## 142        S
## 143        S
## 147        S
## 152        S
## 157        Q
## 162        S
## 166        S
## 167        S
## 173        S
## 184        S
## 185        S
## 187        Q
## 188        S
## 191        S
## 193        S
## 194        S
## 195        C
## 196        C
## 199        Q
## 205        S
## 208        C
## 209        Q
## 210        C
## 212        S
## 216        C
## 217        S
## 219        C
## 221        S
## 225        S
## 227        S
## 231        S
## 234        S
## 238        S
## 242        Q
## 248        S
## 249        S
## 256        C
## 257        C
```

```
## 258        S
## 259        C
## 260        S
## 262        S
## 268        S
## 269        S
## 270        S
## 272        S
## 273        S
## 275        Q
## 276        S
## 280        S
## 284        S
## 287        S
## 289        S
## 290        Q
## 291        S
## 292        C
## 299        S
## 300        C
## 301        Q
## 302        Q
## 304        Q
## 306        S
## 307        C
## 308        C
## 310        C
## 311        C
## 312        C
## 316        S
## 317        S
## 319        S
## 320        C
## 323        Q
## 324        S
## 326        C
## 328        S
## 329        S
## 330        C
## 331        Q
## 335        S
## 338        C
## 339        S
## 341        S
## 342        S
## 346        S
## 347        S
## 348        S
## 349        S
## 357        S
## 359        Q
## 360        Q
## 367        C
## 368        C
```

```
## 369        Q
## 370        C
## 371        C
## 376        C
## 377        S
## 381        C
## 382        C
## 384        S
## 388        S
## 390        C
## 391        S
## 392        S
## 394        C
## 395        S
## 400        S
## 401        S
## 408        S
## 413        Q
## 415        S
## 417        S
## 418        S
## 427        S
## 428        S
## 430        S
## 431        S
## 432        S
## 433        S
## 436        S
## 438        S
## 441        S
## 444        S
## 445        S
## 446        S
## 447        S
## 448        S
## 449        C
## 450        S
## 454        C
## 456        C
## 458        S
## 459        S
## 461        S
## 470        C
## 473        S
## 474        C
## 480        S
## 484        S
## 485        C
## 487        S
## 490        S
## 497        C
## 505        S
## 507        S
## 508        S
```

```
## 510        S
## 511        Q
## 513        S
## 514        C
## 517        S
## 519        S
## 521        S
## 524        C
## 527        S
## 531        S
## 534        C
## 536        S
## 538        C
## 540        C
## 541        S
## 544        S
## 547        S
## 548        C
## 550        S
## 551        C
## 554        C
## 555        S
## 557        C
## 559        S
## 560        S
## 570        S
## 571        S
## 572        S
## 573        S
## 574        Q
## 577        S
## 578        S
## 580        S
## 581        S
## 582        C
## 586        S
## 588        C
## 592        C
## 597        S
## 600        C
## 601        S
## 605        C
## 608        S
## 609        C
## 610        S
## 613        Q
## 616        S
## 619        S
## 622        S
## 623        C
## 628        S
## 631        S
## 633        C
## 636        S
```

```
## 642        C
## 644        S
## 645        C
## 646        C
## 648        C
## 650        S
## 652        S
## 654        Q
## 661        S
## 665        S
## 670        S
## 671        S
## 674        S
## 678        S
## 680        C
## 682        C
## 690        S
## 691        S
## 692        C
## 693        S
## 698        Q
## 701        C
## 702        S
## 707        S
## 708        S
## 709        S
## 710        C
## 711        C
## 713        S
## 717        C
## 718        S
## 721        S
## 725        S
## 727        S
## 728        Q
## 731        S
## 738        C
## 741        S
## 743        C
## 745        S
## 748        S
## 751        S
## 752        S
## 755        S
## 756        S
## 760        S
## 763        C
## 764        S
## 766        S
## 775        S
## 778        S
## 780        S
## 781        C
## 782        S
```

```
## 787        S
## 789        S
## 797        S
## 798        S
## 802        S
## 803        S
## 804        C
## 805        S
## 810        S
## 821        S
## 822        S
## 824        S
## 828        C
## 829        Q
## 830
## 831        C
## 832        S
## 836        C
## 839        S
## 840        C
## 843        C
## 850        C
## 854        S
## 856        S
## 857        S
## 858        S
## 859        C
## 863        S
## 866        S
## 867        C
## 870        S
## 872        S
## 875        C
## 876        C
## 880        C
## 881        S
## 888        S
## 890        C
```

```
dead <- subset(titanic_data, Survived == 0)
dead
```

```
##     PassengerId Survived Pclass
## 1             1        0      3
## 5             5        0      3
## 6             6        0      3
## 7             7        0      1
## 8             8        0      3
## 13           13        0      3
## 14           14        0      3
## 15           15        0      3
## 17           17        0      3
## 19           19        0      3
## 21           21        0      2
## 25           25        0      3
```

```
## 27          27        0      3
## 28          28        0      1
## 30          30        0      3
## 31          31        0      1
## 34          34        0      2
## 35          35        0      1
## 36          36        0      1
## 38          38        0      3
## 39          39        0      3
## 41          41        0      3
## 42          42        0      2
## 43          43        0      3
## 46          46        0      3
## 47          47        0      3
## 49          49        0      3
## 50          50        0      3
## 51          51        0      3
## 52          52        0      3
## 55          55        0      1
## 58          58        0      3
## 60          60        0      3
## 61          61        0      3
## 63          63        0      1
## 64          64        0      3
## 65          65        0      1
## 68          68        0      3
## 70          70        0      3
## 71          71        0      2
## 72          72        0      3
## 73          73        0      2
## 74          74        0      3
## 76          76        0      3
## 77          77        0      3
## 78          78        0      3
## 81          81        0      3
## 84          84        0      1
## 87          87        0      3
## 88          88        0      3
## 90          90        0      3
## 91          91        0      3
## 92          92        0      3
## 93          93        0      1
## 94          94        0      3
## 95          95        0      3
## 96          96        0      3
## 97          97        0      1
## 100        100        0      2
## 101        101        0      3
## 102        102        0      3
## 103        103        0      1
## 104        104        0      3
## 105        105        0      3
## 106        106        0      3
## 109        109        0      3
```

```
## 111          111         0       1
## 112          112         0       3
## 113          113         0       3
## 114          114         0       3
## 115          115         0       3
## 116          116         0       3
## 117          117         0       3
## 118          118         0       2
## 119          119         0       1
## 120          120         0       3
## 121          121         0       2
## 122          122         0       3
## 123          123         0       2
## 125          125         0       1
## 127          127         0       3
## 130          130         0       3
## 131          131         0       3
## 132          132         0       3
## 133          133         0       3
## 135          135         0       2
## 136          136         0       2
## 138          138         0       1
## 139          139         0       3
## 140          140         0       1
## 141          141         0       3
## 144          144         0       3
## 145          145         0       2
## 146          146         0       2
## 148          148         0       3
## 149          149         0       2
## 150          150         0       2
## 151          151         0       2
## 153          153         0       3
## 154          154         0       3
## 155          155         0       3
## 156          156         0       1
## 158          158         0       3
## 159          159         0       3
## 160          160         0       3
## 161          161         0       3
## 163          163         0       3
## 164          164         0       3
## 165          165         0       3
## 168          168         0       3
## 169          169         0       1
## 170          170         0       3
## 171          171         0       1
## 172          172         0       3
## 174          174         0       3
## 175          175         0       1
## 176          176         0       3
## 177          177         0       3
## 178          178         0       1
## 179          179         0       2
```

```
## 180          180         0       3
## 181          181         0       3
## 182          182         0       2
## 183          183         0       3
## 186          186         0       1
## 189          189         0       3
## 190          190         0       3
## 192          192         0       2
## 197          197         0       3
## 198          198         0       3
## 200          200         0       2
## 201          201         0       3
## 202          202         0       3
## 203          203         0       3
## 204          204         0       3
## 206          206         0       3
## 207          207         0       3
## 211          211         0       3
## 213          213         0       3
## 214          214         0       2
## 215          215         0       3
## 218          218         0       2
## 220          220         0       2
## 222          222         0       2
## 223          223         0       3
## 224          224         0       3
## 226          226         0       3
## 228          228         0       3
## 229          229         0       2
## 230          230         0       3
## 232          232         0       3
## 233          233         0       2
## 235          235         0       2
## 236          236         0       3
## 237          237         0       2
## 239          239         0       2
## 240          240         0       2
## 241          241         0       3
## 243          243         0       2
## 244          244         0       3
## 245          245         0       3
## 246          246         0       1
## 247          247         0       3
## 250          250         0       2
## 251          251         0       3
## 252          252         0       3
## 253          253         0       1
## 254          254         0       3
## 255          255         0       3
## 261          261         0       3
## 263          263         0       1
## 264          264         0       1
## 265          265         0       3
## 266          266         0       2
```

```
## 267         267         0       3
## 271         271         0       1
## 274         274         0       1
## 277         277         0       3
## 278         278         0       2
## 279         279         0       3
## 281         281         0       3
## 282         282         0       3
## 283         283         0       3
## 285         285         0       1
## 286         286         0       3
## 288         288         0       3
## 293         293         0       2
## 294         294         0       3
## 295         295         0       3
## 296         296         0       1
## 297         297         0       3
## 298         298         0       1
## 303         303         0       3
## 305         305         0       3
## 309         309         0       2
## 313         313         0       2
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## 344         344         0       2
## 345         345         0       2
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## 354         354         0       3
## 355         355         0       3
## 356         356         0       3
## 358         358         0       2
## 361         361         0       3
## 362         362         0       2
## 363         363         0       3
## 364         364         0       3
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## 366         366         0       3
## 372         372         0       3
## 373         373         0       3
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## 375         375         0       3
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## 457         457         0       1
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## 462         462         0       3
## 463         463         0       1
## 464         464         0       2
## 465         465         0       3
## 466         466         0       3
```

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## 467         467         0       2
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## 481         481         0       3
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## 492         492         0       3
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## 494         494         0       1
## 495         495         0       3
## 496         496         0       3
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## 535         535         0       3
## 537         537         0       1
## 539         539         0       3
## 542         542         0       3
## 543         543         0       3
## 545         545         0       1
## 546         546         0       1
## 549         549         0       3
## 552         552         0       2
```

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## 553         553         0       3
## 556         556         0       1
## 558         558         0       1
## 561         561         0       3
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## 563         563         0       2
## 564         564         0       3
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## 575         575         0       3
## 576         576         0       3
## 579         579         0       3
## 583         583         0       2
## 584         584         0       1
## 585         585         0       3
## 587         587         0       2
## 589         589         0       3
## 590         590         0       3
## 591         591         0       3
## 593         593         0       3
## 594         594         0       3
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## 611         611         0       3
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## 614         614         0       3
## 615         615         0       3
## 617         617         0       3
## 618         618         0       3
## 620         620         0       2
## 621         621         0       3
## 624         624         0       3
## 625         625         0       3
## 626         626         0       1
## 627         627         0       2
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## 630         630         0       3
## 632         632         0       3
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## 635         635         0       3
## 637         637         0       3
## 638         638         0       2
## 639         639         0       3
## 640         640         0       3
```

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## 641          641         0       3
## 643          643         0       3
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## 649          649         0       3
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## 657          657         0       3
## 658          658         0       3
## 659          659         0       2
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## 662          662         0       3
## 663          663         0       1
## 664          664         0       3
## 666          666         0       2
## 667          667         0       2
## 668          668         0       3
## 669          669         0       3
## 672          672         0       1
## 673          673         0       2
## 675          675         0       2
## 676          676         0       3
## 677          677         0       3
## 679          679         0       3
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## 684          684         0       3
## 685          685         0       2
## 686          686         0       2
## 687          687         0       3
## 688          688         0       3
## 689          689         0       3
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## 695          695         0       1
## 696          696         0       2
## 697          697         0       3
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## 700          700         0       3
## 703          703         0       3
## 704          704         0       3
## 705          705         0       3
## 706          706         0       2
## 712          712         0       1
## 714          714         0       3
## 715          715         0       2
## 716          716         0       3
## 719          719         0       3
## 720          720         0       3
## 722          722         0       3
## 723          723         0       2
## 724          724         0       2
## 726          726         0       3
## 729          729         0       2
```

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## 730         730         0       3
## 732         732         0       3
## 733         733         0       2
## 734         734         0       2
## 735         735         0       2
## 736         736         0       3
## 737         737         0       3
## 739         739         0       3
## 740         740         0       3
## 742         742         0       1
## 744         744         0       3
## 746         746         0       1
## 747         747         0       3
## 749         749         0       1
## 750         750         0       3
## 753         753         0       3
## 754         754         0       3
## 757         757         0       3
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## 761         761         0       3
## 762         762         0       3
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## 767         767         0       1
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## 771         771         0       3
## 772         772         0       3
## 773         773         0       2
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## 776         776         0       3
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## 779         779         0       3
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## 784         784         0       3
## 785         785         0       3
## 786         786         0       3
## 788         788         0       3
## 790         790         0       1
## 791         791         0       3
## 792         792         0       2
## 793         793         0       3
## 794         794         0       1
## 795         795         0       3
## 796         796         0       2
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## 806         806         0       3
## 807         807         0       1
## 808         808         0       3
## 809         809         0       2
## 811         811         0       3
```

```
## 812         812        0      3
## 813         813        0      2
## 814         814        0      3
## 815         815        0      3
## 816         816        0      1
## 817         817        0      3
## 818         818        0      2
## 819         819        0      3
## 820         820        0      3
## 823         823        0      1
## 825         825        0      3
## 826         826        0      3
## 827         827        0      3
## 833         833        0      3
## 834         834        0      3
## 835         835        0      3
## 837         837        0      3
## 838         838        0      3
## 841         841        0      3
## 842         842        0      2
## 844         844        0      3
## 845         845        0      3
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## 847         847        0      3
## 848         848        0      3
## 849         849        0      2
## 851         851        0      3
## 852         852        0      3
## 853         853        0      3
## 855         855        0      2
## 860         860        0      3
## 861         861        0      3
## 862         862        0      2
## 864         864        0      3
## 865         865        0      2
## 868         868        0      1
## 869         869        0      3
## 871         871        0      3
## 873         873        0      1
## 874         874        0      3
## 877         877        0      3
## 878         878        0      3
## 879         879        0      3
## 882         882        0      3
## 883         883        0      3
## 884         884        0      2
## 885         885        0      3
## 886         886        0      3
## 887         887        0      2
## 889         889        0      3
## 891         891        0      3
##                                                    Name    Sex  Age SibSp
## 1                                Braund, Mr. Owen Harris   male 22.0     1
## 5                               Allen, Mr. William Henry   male 35.0     0
```

```
## 6                                             Moran, Mr. James   male   NA     0
## 7                                       McCarthy, Mr. Timothy J   male 54.0     0
## 8                                Palsson, Master. Gosta Leonard   male  2.0     3
## 13                               Saundercock, Mr. William Henry   male 20.0     0
## 14                                  Andersson, Mr. Anders Johan   male 39.0     1
## 15                       Vestrom, Miss. Hulda Amanda Adolfina female 14.0     0
## 17                                       Rice, Master. Eugene   male  2.0     4
## 19    Vander Planke, Mrs. Julius (Emelia Maria Vandemoortele) female 31.0     1
## 21                                       Fynney, Mr. Joseph J   male 35.0     0
## 25                                Palsson, Miss. Torborg Danira female  8.0     3
## 27                                     Emir, Mr. Farred Chehab   male   NA     0
## 28                               Fortune, Mr. Charles Alexander   male 19.0     3
## 30                                        Todoroff, Mr. Lalio   male   NA     0
## 31                                   Uruchurtu, Don. Manuel E   male 40.0     0
## 34                                      Wheadon, Mr. Edward H   male 66.0     0
## 35                                    Meyer, Mr. Edgar Joseph   male 28.0     1
## 36                                 Holverson, Mr. Alexander Oskar   male 42.0     1
## 38                                       Cann, Mr. Ernest Charles   male 21.0     0
## 39                           Vander Planke, Miss. Augusta Maria female 18.0     2
## 41               Ahlin, Mrs. Johan (Johanna Persdotter Larsson) female 40.0     1
## 42   Turpin, Mrs. William John Robert (Dorothy Ann Wonnacott) female 27.0     1
## 43                                       Kraeff, Mr. Theodor   male   NA     0
## 46                                    Rogers, Mr. William John   male   NA     0
## 47                                           Lennon, Mr. Denis   male   NA     1
## 49                                       Samaan, Mr. Youssef   male   NA     2
## 50               Arnold-Franchi, Mrs. Josef (Josefine Franchi) female 18.0     1
## 51                                  Panula, Master. Juha Niilo   male  7.0     4
## 52                                Nosworthy, Mr. Richard Cater   male 21.0     0
## 55                               Ostby, Mr. Engelhart Cornelius   male 65.0     0
## 58                                       Novel, Mr. Mansouer   male 28.5     0
## 60                           Goodwin, Master. William Frederick   male 11.0     5
## 61                                   Sirayanian, Mr. Orsen   male 22.0     0
## 63                                 Harris, Mr. Henry Birkhardt   male 45.0     1
## 64                                       Skoog, Master. Harald   male  4.0     3
## 65                                       Stewart, Mr. Albert A   male   NA     0
## 68                                  Crease, Mr. Ernest James   male 19.0     0
## 70                                          Kink, Mr. Vincenz   male 26.0     2
## 71                                 Jenkin, Mr. Stephen Curnow   male 32.0     0
## 72                                 Goodwin, Miss. Lillian Amy female 16.0     5
## 73                                       Hood, Mr. Ambrose Jr   male 21.0     0
## 74                                Chronopoulos, Mr. Apostolos   male 26.0     1
## 76                                   Moen, Mr. Sigurd Hansen   male 25.0     0
## 77                                        Staneff, Mr. Ivan   male   NA     0
## 78                                  Moutal, Mr. Rahamin Haim   male   NA     0
## 81                                      Waelens, Mr. Achille   male 22.0     0
## 84                                   Carrau, Mr. Francisco M   male 28.0     0
## 87                                    Ford, Mr. William Neal   male 16.0     1
## 88                                Slocovski, Mr. Selman Francis   male   NA     0
## 90                                       Celotti, Mr. Francesco   male 24.0     0
## 91                                    Christmann, Mr. Emil   male 29.0     0
## 92                                 Andreasson, Mr. Paul Edvin   male 20.0     0
## 93                                Chaffee, Mr. Herbert Fuller   male 46.0     1
## 94                                    Dean, Mr. Bertram Frank   male 26.0     1
## 95                                          Coxon, Mr. Daniel   male 59.0     0
```

```
## 96                                Shorney, Mr. Charles Joseph   male   NA     0
## 97                                  Goldschmidt, Mr. George B   male 71.0     0
## 100                                        Kantor, Mr. Sinai   male 34.0     1
## 101                                 Petranec, Miss. Matilda female 28.0     0
## 102                           Petroff, Mr. Pastcho ("Pentcho")   male   NA     0
## 103                                 White, Mr. Richard Frasar   male 21.0     0
## 104                                Johansson, Mr. Gustaf Joel   male 33.0     0
## 105                              Gustafsson, Mr. Anders Vilhelm   male 37.0     2
## 106                                  Mionoff, Mr. Stoytcho   male 28.0     0
## 109                                       Rekic, Mr. Tido   male 38.0     0
## 111                              Porter, Mr. Walter Chamberlain   male 47.0     0
## 112                                  Zabour, Miss. Hileni female 14.5     1
## 113                                 Barton, Mr. David John   male 22.0     0
## 114                                Jussila, Miss. Katriina female 20.0     1
## 115                                  Attalah, Miss. Malake female 17.0     0
## 116                                  Pekoniemi, Mr. Edvard   male 21.0     0
## 117                                   Connors, Mr. Patrick   male 70.5     0
## 118                           Turpin, Mr. William John Robert   male 29.0     1
## 119                                 Baxter, Mr. Quigg Edmond   male 24.0     0
## 120                          Andersson, Miss. Ellis Anna Maria female  2.0     4
## 121                                Hickman, Mr. Stanley George   male 21.0     2
## 122                                 Moore, Mr. Leonard Charles   male   NA     0
## 123                                       Nasser, Mr. Nicholas   male 32.5     1
## 125                                White, Mr. Percival Wayland   male 54.0     0
## 127                                       McMahon, Mr. Martin   male   NA     0
## 130                                        Ekstrom, Mr. Johan   male 45.0     0
## 131                                     Drazenoic, Mr. Jozef   male 33.0     0
## 132                                  Coelho, Mr. Domingos Fernandeo   male 20.0     0
## 133          Robins, Mrs. Alexander A (Grace Charity Laury) female 47.0     1
## 135                              Sobey, Mr. Samuel James Hayden   male 25.0     0
## 136                                       Richard, Mr. Emile   male 23.0     0
## 138                                Futrelle, Mr. Jacques Heath   male 37.0     1
## 139                                       Osen, Mr. Olaf Elon   male 16.0     0
## 140                                       Giglio, Mr. Victor   male 24.0     0
## 141                           Boulos, Mrs. Joseph (Sultana) female   NA     0
## 144                                       Burke, Mr. Jeremiah   male 19.0     0
## 145                                 Andrew, Mr. Edgardo Samuel   male 18.0     0
## 146                               Nicholls, Mr. Joseph Charles   male 19.0     1
## 148                          Ford, Miss. Robina Maggie "Ruby" female  9.0     2
## 149                Navratil, Mr. Michel ("Louis M Hoffman")   male 36.5     0
## 150                       Byles, Rev. Thomas Roussel Davids   male 42.0     0
## 151                              Bateman, Rev. Robert James   male 51.0     0
## 153                                        Meo, Mr. Alfonzo   male 55.5     0
## 154                         van Billiard, Mr. Austin Blyler   male 40.5     0
## 155                                    Olsen, Mr. Ole Martin   male   NA     0
## 156                               Williams, Mr. Charles Duane   male 51.0     0
## 158                                         Corn, Mr. Harry   male 30.0     0
## 159                                    Smiljanic, Mr. Mile   male   NA     0
## 160                                 Sage, Master. Thomas Henry   male   NA     8
## 161                                   Cribb, Mr. John Hatfield   male 44.0     0
## 163                                 Bengtsson, Mr. John Viktor   male 26.0     0
## 164                                         Calic, Mr. Jovo   male 17.0     0
## 165                              Panula, Master. Eino Viljami   male  1.0     4
## 168          Skoog, Mrs. William (Anna Bernhardina Karlsson) female 45.0     1
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```
## 169                                 Baumann, Mr. John D   male   NA     0
## 170                                       Ling, Mr. Lee   male 28.0     0
## 171                           Van der hoef, Mr. Wyckoff   male 61.0     0
## 172                                Rice, Master. Arthur   male  4.0     4
## 174                           Sivola, Mr. Antti Wilhelm   male 21.0     0
## 175                             Smith, Mr. James Clinch   male 56.0     0
## 176                              Klasen, Mr. Klas Albin   male 18.0     1
## 177                         Lefebre, Master. Henry Forbes   male   NA     3
## 178                            Isham, Miss. Ann Elizabeth female 50.0     0
## 179                                  Hale, Mr. Reginald   male 30.0     0
## 180                               Leonard, Mr. Lionel   male 36.0     0
## 181                        Sage, Miss. Constance Gladys female   NA     8
## 182                                  Pernot, Mr. Rene   male   NA     0
## 183                 Asplund, Master. Clarence Gustaf Hugo   male  9.0     4
## 186                           Rood, Mr. Hugh Roscoe   male   NA     0
## 189                                Bourke, Mr. John   male 40.0     1
## 190                             Turcin, Mr. Stjepan   male 36.0     0
## 192                           Carbines, Mr. William   male 19.0     0
## 197                             Mernagh, Mr. Robert   male   NA     0
## 198                  Olsen, Mr. Karl Siegwart Andreas   male 42.0     0
## 200               Yrois, Miss. Henriette ("Mrs Harbeck") female 24.0     0
## 201                  Vande Walle, Mr. Nestor Cyriel   male 28.0     0
## 202                             Sage, Mr. Frederick   male   NA     8
## 203                          Johanson, Mr. Jakob Alfred   male 34.0     0
## 204                               Youseff, Mr. Gerious   male 45.5     0
## 206                          Strom, Miss. Telma Matilda female  2.0     0
## 207                          Backstrom, Mr. Karl Alfred   male 32.0     1
## 211                                    Ali, Mr. Ahmed   male 24.0     0
## 213                               Perkin, Mr. John Henry   male 22.0     0
## 214                           Givard, Mr. Hans Kristensen   male 30.0     0
## 215                                  Kiernan, Mr. Philip   male   NA     1
## 218                          Jacobsohn, Mr. Sidney Samuel   male 42.0     1
## 220                                 Harris, Mr. Walter   male 30.0     0
## 222                               Bracken, Mr. James H   male 27.0     0
## 223                             Green, Mr. George Henry   male 51.0     0
## 224                                Nenkoff, Mr. Christo   male   NA     0
## 226                          Berglund, Mr. Karl Ivar Sven   male 22.0     0
## 228                  Lovell, Mr. John Hall ("Henry")   male 20.5     0
## 229                        Fahlstrom, Mr. Arne Jonas   male 18.0     0
## 230                          Lefebre, Miss. Mathilde female   NA     3
## 232                         Larsson, Mr. Bengt Edvin   male 29.0     0
## 233                           Sjostedt, Mr. Ernst Adolf   male 59.0     0
## 235                Leyson, Mr. Robert William Norman   male 24.0     0
## 236                     Harknett, Miss. Alice Phoebe female   NA     0
## 237                                Hold, Mr. Stephen   male 44.0     1
## 239                  Pengelly, Mr. Frederick William   male 19.0     0
## 240                           Hunt, Mr. George Henry   male 33.0     0
## 241                            Zabour, Miss. Thamine female   NA     1
## 243                  Coleridge, Mr. Reginald Charles   male 29.0     0
## 244                    Maenpaa, Mr. Matti Alexanteri   male 22.0     0
## 245                           Attalah, Mr. Sleiman   male 30.0     0
## 246                       Minahan, Dr. William Edward   male 44.0     2
## 247                Lindahl, Miss. Agda Thorilda Viktoria female 25.0     0
## 250                        Carter, Rev. Ernest Courtenay   male 54.0     1
```

```
## 251                            Reed, Mr. James George   male   NA     0
## 252          Strom, Mrs. Wilhelm (Elna Matilda Persson) female 29.0     1
## 253                          Stead, Mr. William Thomas   male 62.0     0
## 254                           Lobb, Mr. William Arthur   male 30.0     1
## 255        Rosblom, Mrs. Viktor (Helena Wilhelmina) female 41.0     0
## 261                               Smith, Mr. Thomas   male   NA     0
## 263                               Taussig, Mr. Emil   male 52.0     1
## 264                           Harrison, Mr. William   male 40.0     0
## 265                              Henry, Miss. Delia female   NA     0
## 266                               Reeves, Mr. David   male 36.0     0
## 267                         Panula, Mr. Ernesti Arvid   male 16.0     4
## 271                             Cairns, Mr. Alexander   male   NA     0
## 274                             Natsch, Mr. Charles H   male 37.0     0
## 277                  Lindblom, Miss. Augusta Charlotta female 45.0     0
## 278                        Parkes, Mr. Francis "Frank"   male   NA     0
## 279                                Rice, Master. Eric   male  7.0     4
## 281                                 Duane, Mr. Frank   male 65.0     0
## 282                  Olsson, Mr. Nils Johan Goransson   male 28.0     0
## 283                         de Pelsmaeker, Mr. Alfons   male 16.0     0
## 285                        Smith, Mr. Richard William   male   NA     0
## 286                               Stankovic, Mr. Ivan   male 33.0     0
## 288                             Naidenoff, Mr. Penko   male 22.0     0
## 293                          Levy, Mr. Rene Jacques   male 36.0     0
## 294                             Haas, Miss. Aloisia female 24.0     0
## 295                                Mineff, Mr. Ivan   male 24.0     0
## 296                              Lewy, Mr. Ervin G   male   NA     0
## 297                              Hanna, Mr. Mansour   male 23.5     0
## 298                    Allison, Miss. Helen Loraine female  2.0     1
## 303                 Johnson, Mr. William Cahoone Jr   male 19.0     0
## 305                Williams, Mr. Howard Hugh "Harry"   male   NA     0
## 309                             Abelson, Mr. Samuel   male 30.0     1
## 313          Lahtinen, Mrs. William (Anna Sylfven) female 26.0     1
## 314                          Hendekovic, Mr. Ignjac   male 28.0     0
## 315                              Hart, Mr. Benjamin   male 43.0     1
## 318                           Moraweck, Dr. Ernest   male 54.0     0
## 321                             Dennis, Mr. Samuel   male 22.0     0
## 322                               Danoff, Mr. Yoto   male 27.0     0
## 325                           Sage, Mr. George John Jr   male   NA     8
## 327                         Nysveen, Mr. Johan Hansen   male 61.0     0
## 332                               Partner, Mr. Austen   male 45.5     0
## 333                         Graham, Mr. George Edward   male 38.0     0
## 334                      Vander Planke, Mr. Leo Edmondus   male 16.0     2
## 336                               Denkoff, Mr. Mitto   male   NA     0
## 337                         Pears, Mr. Thomas Clinton   male 29.0     1
## 340                      Blackwell, Mr. Stephen Weart   male 45.0     0
## 343                        Collander, Mr. Erik Gustaf   male 28.0     0
## 344          Sedgwick, Mr. Charles Frederick Waddington   male 25.0     0
## 345                          Fox, Mr. Stanley Hubert   male 36.0     0
## 350                               Dimic, Mr. Jovan   male 42.0     0
## 351                         Odahl, Mr. Nils Martin   male 23.0     0
## 352              Williams-Lambert, Mr. Fletcher Fellows   male   NA     0
## 353                               Elias, Mr. Tannous   male 15.0     1
## 354                         Arnold-Franchi, Mr. Josef   male 25.0     1
## 355                               Yousif, Mr. Wazli   male   NA     0
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## 356                                Vanden Steen, Mr. Leo Peter   male 28.0     0
## 358                                  Funk, Miss. Annie Clemmer female 38.0     0
## 361                                         Skoog, Mr. Wilhelm   male 40.0     1
## 362                                      del Carlo, Mr. Sebastiano   male 29.0     1
## 363                              Barbara, Mrs. (Catherine David) female 45.0     0
## 364                                          Asim, Mr. Adola   male 35.0     0
## 365                                       O'Brien, Mr. Thomas   male   NA     1
## 366                               Adahl, Mr. Mauritz Nils Martin   male 30.0     0
## 372                                    Wiklund, Mr. Jakob Alfred   male 18.0     1
## 373                                  Beavan, Mr. William Thomas   male 19.0     0
## 374                                         Ringhini, Mr. Sante   male 22.0     0
## 375                                Palsson, Miss. Stina Viola female  3.0     3
## 378                                  Widener, Mr. Harry Elkins   male 27.0     0
## 379                                         Betros, Mr. Tannous   male 20.0     0
## 380                                Gustafsson, Mr. Karl Gideon   male 19.0     0
## 383                                          Tikkanen, Mr. Juho   male 32.0     0
## 385                                     Plotcharsky, Mr. Vasil   male   NA     0
## 386                                   Davies, Mr. Charles Henry   male 18.0     0
## 387                              Goodwin, Master. Sidney Leonard   male  1.0     5
## 389                                       Sadlier, Mr. Matthew   male   NA     0
## 393                                Gustafsson, Mr. Johan Birger   male 28.0     2
## 396                                         Johansson, Mr. Erik   male 22.0     0
## 397                                         Olsson, Miss. Elina female 31.0     0
## 398                                      McKane, Mr. Peter David   male 46.0     0
## 399                                          Pain, Dr. Alfred   male 23.0     0
## 402                                          Adams, Mr. John   male 26.0     0
## 403                                    Jussila, Miss. Mari Aina female 21.0     1
## 404                                 Hakkarainen, Mr. Pekka Pietari   male 28.0     1
## 405                                       Oreskovic, Miss. Marija female 20.0     0
## 406                                          Gale, Mr. Shadrach   male 34.0     1
## 407                              Widegren, Mr. Carl/Charles Peter   male 51.0     0
## 409                             Birkeland, Mr. Hans Martin Monsen   male 21.0     0
## 410                                       Lefebre, Miss. Ida female   NA     3
## 411                                       Sdycoff, Mr. Todor   male   NA     0
## 412                                          Hart, Mr. Henry   male   NA     0
## 414                                Cunningham, Mr. Alfred Fleming   male   NA     0
## 416                        Meek, Mrs. Thomas (Annie Louise Rowley) female   NA     0
## 419                                  Matthews, Mr. William John   male 30.0     0
## 420                                 Van Impe, Miss. Catharina female 10.0     0
## 421                                    Gheorgheff, Mr. Stanio   male   NA     0
## 422                                       Charters, Mr. David   male 21.0     0
## 423                                        Zimmerman, Mr. Leo   male 29.0     0
## 424    Danbom, Mrs. Ernst Gilbert (Anna Sigrid Maria Brogren) female 28.0     1
## 425                                 Rosblom, Mr. Viktor Richard   male 18.0     1
## 426                                      Wiseman, Mr. Phillippe   male   NA     0
## 429                                           Flynn, Mr. James   male   NA     0
## 434                                 Kallio, Mr. Nikolai Erland   male 17.0     0
## 435                                  Silvey, Mr. William Baird   male 50.0     1
## 437                        Ford, Miss. Doolina Margaret "Daisy" female 21.0     2
## 439                                       Fortune, Mr. Mark   male 64.0     1
## 440                      Kvillner, Mr. Johan Henrik Johannesson   male 31.0     0
## 442                                          Hampe, Mr. Leon   male 20.0     0
## 443                                 Petterson, Mr. Johan Emil   male 25.0     1
## 451                                     West, Mr. Edwy Arthur   male 36.0     1
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## 452                          Hagland, Mr. Ingvald Olai Olsen   male   NA     1
## 453                          Foreman, Mr. Benjamin Laventall   male 30.0     0
## 455                                Peduzzi, Mr. Joseph   male   NA     0
## 457                               Millet, Mr. Francis Davis   male 65.0     0
## 460                                   O'Connor, Mr. Maurice   male   NA     0
## 462                                  Morley, Mr. William   male 34.0     0
## 463                                    Gee, Mr. Arthur H   male 47.0     0
## 464                             Milling, Mr. Jacob Christian   male 48.0     0
## 465                                  Maisner, Mr. Simon   male   NA     0
## 466                          Goncalves, Mr. Manuel Estanslas   male 38.0     0
## 467                                Campbell, Mr. William   male   NA     0
## 468                               Smart, Mr. John Montgomery   male 56.0     0
## 469                                  Scanlan, Mr. James   male   NA     0
## 471                                   Keefe, Mr. Arthur   male   NA     0
## 472                                     Cacic, Mr. Luka   male 38.0     0
## 475                             Strandberg, Miss. Ida Sofia female 22.0     0
## 476                             Clifford, Mr. George Quincy   male   NA     0
## 477                                 Renouf, Mr. Peter Henry   male 34.0     1
## 478                                Braund, Mr. Lewis Richard   male 29.0     1
## 479                                Karlsson, Mr. Nils August   male 22.0     0
## 481                           Goodwin, Master. Harold Victor   male  9.0     5
## 482                         Frost, Mr. Anthony Wood "Archie"   male   NA     0
## 483                                 Rouse, Mr. Richard Henry   male 50.0     0
## 486                                   Lefebre, Miss. Jeannie female   NA     3
## 488                                  Kent, Mr. Edward Austin   male 58.0     0
## 489                               Somerton, Mr. Francis William   male 30.0     0
## 491                       Hagland, Mr. Konrad Mathias Reiersen   male   NA     1
## 492                                    Windelov, Mr. Einar   male 21.0     0
## 493                                 Molson, Mr. Harry Markland   male 55.0     0
## 494                                    Artagaveytia, Mr. Ramon   male 71.0     0
## 495                                 Stanley, Mr. Edward Roland   male 21.0     0
## 496                                     Yousseff, Mr. Gerious   male   NA     0
## 498                             Shellard, Mr. Frederick William   male   NA     0
## 499          Allison, Mrs. Hudson J C (Bessie Waldo Daniels) female 25.0     1
## 500                                   Svensson, Mr. Olof   male 24.0     0
## 501                                     Calic, Mr. Petar   male 17.0     0
## 502                                  Canavan, Miss. Mary female 21.0     0
## 503                           O'Sullivan, Miss. Bridget Mary female   NA     0
## 504                           Laitinen, Miss. Kristina Sofia female 37.0     0
## 506                Penasco y Castellana, Mr. Victor de Satode   male 18.0     1
## 509                                 Olsen, Mr. Henry Margido   male 28.0     0
## 512                                    Webber, Mr. James   male   NA     0
## 515                                    Coleff, Mr. Satio   male 24.0     0
## 516                               Walker, Mr. William Anderson   male 47.0     0
## 518                                    Ryan, Mr. Patrick   male   NA     0
## 520                                  Pavlovic, Mr. Stefo   male 32.0     0
## 522                                      Vovk, Mr. Janko   male 22.0     0
## 523                                   Lahoud, Mr. Sarkis   male   NA     0
## 525                                    Kassem, Mr. Fared   male   NA     0
## 526                                   Farrell, Mr. James   male 40.5     0
## 528                                   Farthing, Mr. John   male   NA     0
## 529                                Salonen, Mr. Johan Werner   male 39.0     0
## 530                               Hocking, Mr. Richard George   male 23.0     2
## 532                                    Toufik, Mr. Nakli   male   NA     0
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## 533                                     Elias, Mr. Joseph Jr   male 17.0     1
## 535                                      Cacic, Miss. Marija female 30.0     0
## 537                           Butt, Major. Archibald Willingham   male 45.0     0
## 539                                    Risien, Mr. Samuel Beard   male   NA     0
## 542                         Andersson, Miss. Ingeborg Constanzia female  9.0     4
## 543                            Andersson, Miss. Sigrid Elisabeth female 11.0     4
## 545                                   Douglas, Mr. Walter Donald   male 50.0     1
## 546                                Nicholson, Mr. Arthur Ernest   male 64.0     0
## 549                                   Goldsmith, Mr. Frank John   male 33.0     1
## 552                                 Sharp, Mr. Percival James R   male 27.0     0
## 553                                       O'Brien, Mr. Timothy   male   NA     0
## 556                                     Wright, Mr. George   male 62.0     0
## 558                                     Robbins, Mr. Victor   male   NA     0
## 561                                   Morrow, Mr. Thomas Rowan   male   NA     0
## 562                                       Sivic, Mr. Husein   male 40.0     0
## 563                                  Norman, Mr. Robert Douglas   male 28.0     0
## 564                                       Simmons, Mr. John   male   NA     0
## 565                           Meanwell, Miss. (Marion Ogden) female   NA     0
## 566                                     Davies, Mr. Alfred J   male 24.0     2
## 567                                     Stoytcheff, Mr. Ilia   male 19.0     0
## 568                Palsson, Mrs. Nils (Alma Cornelia Berglund) female 29.0     0
## 569                                      Doharr, Mr. Tannous   male   NA     0
## 575                                  Rush, Mr. Alfred George John   male 16.0     0
## 576                                     Patchett, Mr. George   male 19.0     0
## 579                           Caram, Mrs. Joseph (Maria Elias) female   NA     1
## 583                                  Downton, Mr. William James   male 54.0     0
## 584                                     Ross, Mr. John Hugo   male 36.0     0
## 585                                     Paulner, Mr. Uscher   male   NA     0
## 587                                  Jarvis, Mr. John Denzil   male 47.0     0
## 589                                   Gilinski, Mr. Eliezer   male 22.0     0
## 590                                     Murdlin, Mr. Joseph   male   NA     0
## 591                                    Rintamaki, Mr. Matti   male 35.0     0
## 593                                  Elsbury, Mr. William James   male 47.0     0
## 594                                      Bourke, Miss. Mary female   NA     0
## 595                                  Chapman, Mr. John Henry   male 37.0     1
## 596                               Van Impe, Mr. Jean Baptiste   male 36.0     1
## 598                                     Johnson, Mr. Alfred   male 49.0     0
## 599                                      Boulos, Mr. Hanna   male   NA     0
## 602                                   Slabenoff, Mr. Petco   male   NA     0
## 603                                Harrington, Mr. Charles H   male   NA     0
## 604                                Torber, Mr. Ernst William   male 44.0     0
## 606                             Lindell, Mr. Edvard Bengtsson   male 36.0     1
## 607                                      Karaic, Mr. Milan   male 30.0     0
## 611 Andersson, Mrs. Anders Johan (Alfrida Konstantia Brogren) female 39.0     1
## 612                                   Jardin, Mr. Jose Neto   male   NA     0
## 614                                       Horgan, Mr. John   male   NA     0
## 615                            Brocklebank, Mr. William Alfred   male 35.0     0
## 617                                  Danbom, Mr. Ernst Gilbert   male 34.0     1
## 618          Lobb, Mrs. William Arthur (Cordelia K Stanlick) female 26.0     1
## 620                                     Gavey, Mr. Lawrence   male 26.0     0
## 621                                     Yasbeck, Mr. Antoni   male 27.0     1
## 624                                Hansen, Mr. Henry Damsgaard   male 21.0     0
## 625                                Bowen, Mr. David John "Dai"   male 21.0     0
## 626                                     Sutton, Mr. Frederick   male 61.0     0
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## 627                           Kirkland, Rev. Charles Leonard   male 57.0     0
## 629                                Bostandyeff, Mr. Guentcho   male 26.0     0
## 630                                 O'Connell, Mr. Patrick D   male   NA     0
## 632                              Lundahl, Mr. Johan Svensson   male 51.0     0
## 634                             Parr, Mr. William Henry Marsh   male   NA     0
## 635                                       Skoog, Miss. Mabel female  9.0     3
## 637                                Leinonen, Mr. Antti Gustaf   male 32.0     0
## 638                                      Collyer, Mr. Harvey   male 31.0     1
## 639                    Panula, Mrs. Juha (Maria Emilia Ojala) female 41.0     0
## 640                                Thorneycroft, Mr. Percival   male   NA     1
## 641                                    Jensen, Mr. Hans Peder   male 20.0     0
## 643                             Skoog, Miss. Margit Elizabeth female  2.0     3
## 647                                       Cor, Mr. Liudevit   male 19.0     0
## 649                                     Willey, Mr. Edward    male   NA     0
## 651                                      Mitkoff, Mr. Mito    male   NA     0
## 653                             Kalvik, Mr. Johannes Halvorsen   male 21.0     0
## 655                           Hegarty, Miss. Hanora "Nora" female 18.0     0
## 656                              Hickman, Mr. Leonard Mark   male 24.0     2
## 657                                  Radeff, Mr. Alexander   male   NA     0
## 658                           Bourke, Mrs. John (Catherine) female 32.0     1
## 659                            Eitemiller, Mr. George Floyd   male 23.0     0
## 660                              Newell, Mr. Arthur Webster   male 58.0     0
## 662                                       Badt, Mr. Mohamed   male 40.0     0
## 663                             Colley, Mr. Edward Pomeroy   male 47.0     0
## 664                                       Coleff, Mr. Peju   male 36.0     0
## 666                                     Hickman, Mr. Lewis   male 32.0     2
## 667                            Butler, Mr. Reginald Fenton   male 25.0     0
## 668                            Rommetvedt, Mr. Knud Paust   male   NA     0
## 669                                       Cook, Mr. Jacob   male 43.0     0
## 672                                Davidson, Mr. Thornton   male 31.0     1
## 673                            Mitchell, Mr. Henry Michael   male 70.0     0
## 675                              Watson, Mr. Ennis Hastings   male   NA     0
## 676                           Edvardsson, Mr. Gustaf Hjalmar   male 18.0     0
## 677                            Sawyer, Mr. Frederick Charles   male 24.5     0
## 679                  Goodwin, Mrs. Frederick (Augusta Tyler) female 43.0     1
## 681                                 Peters, Miss. Katie female   NA     0
## 683                             Olsvigen, Mr. Thor Anderson   male 20.0     0
## 684                             Goodwin, Mr. Charles Edward   male 14.0     5
## 685                       Brown, Mr. Thomas William Solomon   male 60.0     1
## 686                    Laroche, Mr. Joseph Philippe Lemercier   male 25.0     1
## 687                              Panula, Mr. Jaako Arnold   male 14.0     4
## 688                                     Dakic, Mr. Branko   male 19.0     0
## 689                          Fischer, Mr. Eberhard Thelander   male 18.0     0
## 694                                       Saad, Mr. Khalil   male 25.0     0
## 695                                        Weir, Col. John   male 60.0     0
## 696                             Chapman, Mr. Charles Henry   male 52.0     0
## 697                                       Kelly, Mr. James   male 44.0     0
## 699                               Thayer, Mr. John Borland   male 49.0     1
## 700                  Humblen, Mr. Adolf Mathias Nicolai Olsen   male 42.0     0
## 703                                 Barbara, Miss. Saiide female 18.0     0
## 704                               Gallagher, Mr. Martin   male 25.0     0
## 705                                Hansen, Mr. Henrik Juul   male 26.0     1
## 706           Morley, Mr. Henry Samuel ("Mr Henry Marshall")   male 39.0     0
## 712                                    Klaber, Mr. Herman   male   NA     0
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## 714                              Larsson, Mr. August Viktor   male 29.0     0
## 715                                  Greenberg, Mr. Samuel   male 52.0     0
## 716                 Soholt, Mr. Peter Andreas Lauritz Andersen   male 19.0     0
## 719                                   McEvoy, Mr. Michael   male   NA     0
## 720                             Johnson, Mr. Malkolm Joackim   male 33.0     0
## 722                                Jensen, Mr. Svend Lauritz   male 17.0     1
## 723                             Gillespie, Mr. William Henry   male 34.0     0
## 724                                  Hodges, Mr. Henry Price   male 50.0     0
## 726                                      Oreskovic, Mr. Luka   male 20.0     0
## 729                           Bryhl, Mr. Kurt Arnold Gottfrid   male 25.0     1
## 730                            Ilmakangas, Miss. Pieta Sofia female 25.0     1
## 732                                  Hassan, Mr. Houssein G N   male 11.0     0
## 733                                      Knight, Mr. Robert J   male   NA     0
## 734                                 Berriman, Mr. William John   male 23.0     0
## 735                               Troupiansky, Mr. Moses Aaron   male 23.0     0
## 736                                       Williams, Mr. Leslie   male 28.5     0
## 737                 Ford, Mrs. Edward (Margaret Ann Watson) female 48.0     1
## 739                                    Ivanoff, Mr. Kanio   male   NA     0
## 740                                    Nankoff, Mr. Minko   male   NA     0
## 742                             Cavendish, Mr. Tyrell William   male 36.0     1
## 744                                     McNamee, Mr. Neal   male 24.0     1
## 746                               Crosby, Capt. Edward Gifford   male 70.0     1
## 747                                Abbott, Mr. Rossmore Edward   male 16.0     1
## 749                                  Marvin, Mr. Daniel Warner   male 19.0     1
## 750                                   Connaghton, Mr. Michael   male 31.0     0
## 753                           Vande Velde, Mr. Johannes Joseph   male 33.0     0
## 754                                    Jonkoff, Mr. Lalio   male 23.0     0
## 757                               Carlsson, Mr. August Sigfrid   male 28.0     0
## 758                                   Bailey, Mr. Percy Andrew   male 18.0     0
## 759                               Theobald, Mr. Thomas Leonard   male 34.0     0
## 761                                    Garfirth, Mr. John   male   NA     0
## 762                             Nirva, Mr. Iisakki Antino Aijo   male 41.0     0
## 765                                  Eklund, Mr. Hans Linus   male 16.0     0
## 767                               Brewe, Dr. Arthur Jackson   male   NA     0
## 768                                    Mangan, Miss. Mary female 30.5     0
## 769                                   Moran, Mr. Daniel J   male   NA     1
## 770                         Gronnestad, Mr. Daniel Danielsen   male 32.0     0
## 771                                  Lievens, Mr. Rene Aime   male 24.0     0
## 772                                Jensen, Mr. Niels Peder   male 48.0     0
## 773                                     Mack, Mrs. (Mary) female 57.0     0
## 774                                      Elias, Mr. Dibo   male   NA     0
## 776                 Myhrman, Mr. Pehr Fabian Oliver Malkolm   male 18.0     0
## 777                                    Tobin, Mr. Roger   male   NA     0
## 779                               Kilgannon, Mr. Thomas J   male   NA     0
## 783                                 Long, Mr. Milton Clyde   male 29.0     0
## 784                                Johnston, Mr. Andrew G   male   NA     1
## 785                                      Ali, Mr. William   male 25.0     0
## 786                      Harmer, Mr. Abraham (David Lishin)   male 25.0     0
## 788                               Rice, Master. George Hugh   male  8.0     4
## 790                              Guggenheim, Mr. Benjamin   male 46.0     0
## 791                              Keane, Mr. Andrew "Andy"   male   NA     0
## 792                                   Gaskell, Mr. Alfred   male 16.0     0
## 793                             Sage, Miss. Stella Anna female   NA     8
## 794                               Hoyt, Mr. William Fisher   male   NA     0
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## 795                                    Dantcheff, Mr. Ristiu   male 25.0     0
## 796                                      Otter, Mr. Richard   male 39.0     0
## 799                               Ibrahim Shawah, Mr. Yousseff   male 30.0     0
## 800     Van Impe, Mrs. Jean Baptiste (Rosalie Paula Govaert) female 30.0     1
## 801                                    Ponesell, Mr. Martin   male 34.0     0
## 806                                Johansson, Mr. Karl Johan   male 31.0     0
## 807                                  Andrews, Mr. Thomas Jr   male 39.0     0
## 808                            Pettersson, Miss. Ellen Natalia female 18.0     0
## 809                                    Meyer, Mr. August   male 39.0     0
## 811                                 Alexander, Mr. William   male 26.0     0
## 812                                    Lester, Mr. James   male 39.0     0
## 813                                Slemen, Mr. Richard James   male 35.0     0
## 814                         Andersson, Miss. Ebba Iris Alfrida female  6.0     4
## 815                                Tomlin, Mr. Ernest Portage   male 30.5     0
## 816                                     Fry, Mr. Richard   male   NA     0
## 817                             Heininen, Miss. Wendla Maria female 23.0     0
## 818                                    Mallet, Mr. Albert   male 31.0     1
## 819                          Holm, Mr. John Fredrik Alexander   male 43.0     0
## 820                              Skoog, Master. Karl Thorsten   male 10.0     3
## 823                           Reuchlin, Jonkheer. John George   male 38.0     0
## 825                              Panula, Master. Urho Abraham   male  2.0     4
## 826                                   Flynn, Mr. John   male   NA     0
## 827                                      Lam, Mr. Len   male   NA     0
## 833                                    Saad, Mr. Amin   male   NA     0
## 834                                Augustsson, Mr. Albert   male 23.0     0
## 835                                Allum, Mr. Owen George   male 18.0     0
## 837                                      Pasic, Mr. Jakob   male 21.0     0
## 838                                  Sirota, Mr. Maurice   male   NA     0
## 841                               Alhomaki, Mr. Ilmari Rudolf   male 20.0     0
## 842                                  Mudd, Mr. Thomas Charles   male 16.0     0
## 844                               Lemberopolous, Mr. Peter L   male 34.5     0
## 845                                      Culumovic, Mr. Jeso   male 17.0     0
## 846                                      Abbing, Mr. Anthony   male 42.0     0
## 847                                 Sage, Mr. Douglas Bullen   male   NA     8
## 848                                      Markoff, Mr. Marin   male 35.0     0
## 849                                    Harper, Rev. John   male 28.0     0
## 851                  Andersson, Master. Sigvard Harald Elias   male  4.0     4
## 852                                    Svensson, Mr. Johan   male 74.0     0
## 853                                 Boulos, Miss. Nourelain female  9.0     1
## 855           Carter, Mrs. Ernest Courtenay (Lilian Hughes) female 44.0     1
## 860                                     Razi, Mr. Raihed   male   NA     0
## 861                                Hansen, Mr. Claus Peter   male 41.0     2
## 862                              Giles, Mr. Frederick Edward   male 21.0     1
## 864                         Sage, Miss. Dorothy Edith "Dolly" female   NA     8
## 865                                  Gill, Mr. John William   male 24.0     0
## 868                       Roebling, Mr. Washington Augustus II   male 31.0     0
## 869                                van Melkebeke, Mr. Philemon   male   NA     0
## 871                                     Balkic, Mr. Cerin   male 26.0     0
## 873                                  Carlsson, Mr. Frans Olof   male 33.0     0
## 874                                Vander Cruyssen, Mr. Victor   male 47.0     0
## 877                              Gustafsson, Mr. Alfred Ossian   male 20.0     0
## 878                                    Petroff, Mr. Nedelio   male 19.0     0
## 879                                      Laleff, Mr. Kristo   male   NA     0
## 882                                      Markun, Mr. Johann   male 33.0     0
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## 883                              Dahlberg, Miss. Gerda Ulrika female 22.0     0
## 884                            Banfield, Mr. Frederick James   male 28.0     0
## 885                                   Sutehall, Mr. Henry Jr   male 25.0     0
## 886                     Rice, Mrs. William (Margaret Norton) female 39.0     0
## 887                                    Montvila, Rev. Juozas   male 27.0     0
## 889                  Johnston, Miss. Catherine Helen "Carrie" female   NA     1
## 891                                       Dooley, Mr. Patrick   male 32.0     0
##     Parch            Ticket     Fare       Cabin Embarked
## 1       0         A/5 21171   7.2500                   S
## 5       0            373450   8.0500                   S
## 6       0            330877   8.4583                   Q
## 7       0             17463  51.8625         E46       S
## 8       1            349909  21.0750                   S
## 13      0         A/5. 2151   8.0500                   S
## 14      5            347082  31.2750                   S
## 15      0            350406   7.8542                   S
## 17      1            382652  29.1250                   Q
## 19      0            345763  18.0000                   S
## 21      0            239865  26.0000                   S
## 25      1            349909  21.0750                   S
## 27      0              2631   7.2250                   C
## 28      2             19950 263.0000 C23 C25 C27       S
## 30      0            349216   7.8958                   S
## 31      0          PC 17601  27.7208                   C
## 34      0        C.A. 24579  10.5000                   S
## 35      0          PC 17604  82.1708                   C
## 36      0            113789  52.0000                   S
## 38      0        A./5. 2152   8.0500                   S
## 39      0            345764  18.0000                   S
## 41      0              7546   9.4750                   S
## 42      0             11668  21.0000                   S
## 43      0            349253   7.8958                   C
## 46      0    S.C./A.4. 23567   8.0500                   S
## 47      0            370371  15.5000                   Q
## 49      0              2662  21.6792                   C
## 50      0            349237  17.8000                   S
## 51      1           3101295  39.6875                   S
## 52      0         A/4. 39886   7.8000                   S
## 55      1            113509  61.9792         B30       C
## 58      0              2697   7.2292                   C
## 60      2           CA 2144  46.9000                   S
## 61      0              2669   7.2292                   C
## 63      0             36973  83.4750         C83       S
## 64      2            347088  27.9000                   S
## 65      0          PC 17605  27.7208                   C
## 68      0          S.P. 3464   8.1583                   S
## 70      0            315151   8.6625                   S
## 71      0         C.A. 33111  10.5000                   S
## 72      2           CA 2144  46.9000                   S
## 73      0       S.O.C. 14879  73.5000                   S
## 74      0              2680  14.4542                   C
## 76      0            348123   7.6500       F G73       S
## 77      0            349208   7.8958                   S
## 78      0            374746   8.0500                   S
```

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## 81      0            345767   9.0000                S
## 84      0            113059  47.1000                S
## 87      3         W./C. 6608  34.3750                S
## 88      0    SOTON/OQ 392086   8.0500                S
## 90      0            343275   8.0500                S
## 91      0            343276   8.0500                S
## 92      0            347466   7.8542                S
## 93      0       W.E.P. 5734  61.1750         E31    S
## 94      2         C.A. 2315  20.5750                S
## 95      0            364500   7.2500                S
## 96      0            374910   8.0500                S
## 97      0          PC 17754  34.6542          A5    C
## 100     0            244367  26.0000                S
## 101     0            349245   7.8958                S
## 102     0            349215   7.8958                S
## 103     1             35281  77.2875         D26    S
## 104     0              7540   8.6542                S
## 105     0           3101276   7.9250                S
## 106     0            349207   7.8958                S
## 109     0            349249   7.8958                S
## 111     0            110465  52.0000        C110    S
## 112     0              2665  14.4542                C
## 113     0            324669   8.0500                S
## 114     0              4136   9.8250                S
## 115     0              2627  14.4583                C
## 116     0  STON/O 2. 3101294   7.9250                S
## 117     0            370369   7.7500                Q
## 118     0             11668  21.0000                S
## 119     1          PC 17558 247.5208     B58 B60    C
## 120     2            347082  31.2750                S
## 121     0      S.O.C. 14879  73.5000                S
## 122     0         A4. 54510   8.0500                S
## 123     0            237736  30.0708                C
## 125     1             35281  77.2875         D26    S
## 127     0            370372   7.7500                Q
## 130     0            347061   6.9750                S
## 131     0            349241   7.8958                C
## 132     0 SOTON/O.Q. 3101307   7.0500                S
## 133     0         A/5. 3337  14.5000                S
## 135     0        C.A. 29178  13.0000                S
## 136     0     SC/PARIS 2133  15.0458                C
## 138     0            113803  53.1000        C123    S
## 139     0              7534   9.2167                S
## 140     0          PC 17593  79.2000         B86    C
## 141     2              2678  15.2458                C
## 144     0            365222   6.7500                Q
## 145     0            231945  11.5000                S
## 146     1        C.A. 33112  36.7500                S
## 148     2        W./C. 6608  34.3750                S
## 149     2            230080  26.0000          F2    S
## 150     0            244310  13.0000                S
## 151     0       S.O.P. 1166  12.5250                S
## 153     0        A.5. 11206   8.0500                S
## 154     2          A/5. 851  14.5000                S
```

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## 155     0          Fa 265302   7.3125                S
## 156     1           PC 17597  61.3792                C
## 158     0    SOTON/OQ 392090   8.0500                S
## 159     0             315037   8.6625                S
## 160     2          CA. 2343  69.5500                S
## 161     1             371362  16.1000                S
## 163     0             347068   7.7750                S
## 164     0             315093   8.6625                S
## 165     1            3101295  39.6875                S
## 168     4             347088  27.9000                S
## 169     0           PC 17318  25.9250                S
## 170     0               1601  56.4958                S
## 171     0             111240  33.5000         B19    S
## 172     1             382652  29.1250                Q
## 174     0  STON/O 2. 3101280   7.9250                S
## 175     0              17764  30.6958          A7    C
## 176     1             350404   7.8542                S
## 177     1               4133  25.4667                S
## 178     0           PC 17595  28.7125         C49    C
## 179     0             250653  13.0000                S
## 180     0               LINE   0.0000                S
## 181     2          CA. 2343  69.5500                S
## 182     0      SC/PARIS 2131  15.0500                C
## 183     2             347077  31.3875                S
## 186     0             113767  50.0000         A32    S
## 189     1             364849  15.5000                Q
## 190     0             349247   7.8958                S
## 192     0              28424  13.0000                S
## 197     0             368703   7.7500                Q
## 198     1               4579   8.4042                S
## 200     0             248747  13.0000                S
## 201     0             345770   9.5000                S
## 202     2          CA. 2343  69.5500                S
## 203     0            3101264   6.4958                S
## 204     0               2628   7.2250                C
## 206     1             347054  10.4625          G6    S
## 207     0            3101278  15.8500                S
## 211     0 SOTON/O.Q. 3101311   7.0500                S
## 213     0          A/5 21174   7.2500                S
## 214     0             250646  13.0000                S
## 215     0             367229   7.7500                Q
## 218     0             243847  27.0000                S
## 220     0          W/C 14208  10.5000                S
## 222     0             220367  13.0000                S
## 223     0              21440   8.0500                S
## 224     0             349234   7.8958                S
## 226     0            PP 4348   9.3500                S
## 228     0          A/5 21173   7.2500                S
## 229     0             236171  13.0000                S
## 230     1               4133  25.4667                S
## 232     0             347067   7.7750                S
## 233     0             237442  13.5000                S
## 235     0         C.A. 29566  10.5000                S
## 236     0         W./C. 6609   7.5500                S
```

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## 237     0             26707  26.0000                S
## 239     0             28665  10.5000                S
## 240     0        SCO/W 1585  12.2750                S
## 241     0              2665  14.4542                C
## 243     0       W./C. 14263  10.5000                S
## 244     0 STON/O 2. 3101275   7.1250                S
## 245     0              2694   7.2250                C
## 246     0             19928  90.0000         C78    Q
## 247     0            347071   7.7750                S
## 250     0            244252  26.0000                S
## 251     0            362316   7.2500                S
## 252     1            347054  10.4625          G6    S
## 253     0            113514  26.5500         C87    S
## 254     0         A/5. 3336  16.1000                S
## 255     2            370129  20.2125                S
## 261     0            384461   7.7500                Q
## 263     1            110413  79.6500         E67    S
## 264     0            112059   0.0000         B94    S
## 265     0            382649   7.7500                Q
## 266     0        C.A. 17248  10.5000                S
## 267     1           3101295  39.6875                S
## 271     0            113798  31.0000                S
## 274     1          PC 17596  29.7000        C118    C
## 277     0            347073   7.7500                S
## 278     0            239853   0.0000                S
## 279     1            382652  29.1250                Q
## 281     0            336439   7.7500                Q
## 282     0            347464   7.8542                S
## 283     0            345778   9.5000                S
## 285     0            113056  26.0000         A19    S
## 286     0            349239   8.6625                C
## 288     0            349206   7.8958                S
## 293     0     SC/Paris 2163  12.8750           D    C
## 294     0            349236   8.8500                S
## 295     0            349233   7.8958                S
## 296     0          PC 17612  27.7208                C
## 297     0              2693   7.2292                C
## 298     2            113781 151.5500     C22 C26    S
## 303     0              LINE   0.0000                S
## 305     0          A/5 2466   8.0500                S
## 309     0         P/PP 3381  24.0000                C
## 313     1            250651  26.0000                S
## 314     0            349243   7.8958                S
## 315     1      F.C.C. 13529  26.2500                S
## 318     0             29011  14.0000                S
## 321     0         A/5 21172   7.2500                S
## 322     0            349219   7.8958                S
## 325     2          CA. 2343  69.5500                S
## 327     0            345364   6.2375                S
## 332     0            113043  28.5000        C124    S
## 333     1          PC 17582 153.4625         C91    S
## 334     0            345764  18.0000                S
## 336     0            349225   7.8958                S
## 337     0            113776  66.6000          C2    S
```

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## 340     0             113784  35.5000           T        S
## 343     0             248740  13.0000                    S
## 344     0             244361  13.0000                    S
## 345     0             229236  13.0000                    S
## 350     0             315088   8.6625                    S
## 351     0               7267   9.2250                    S
## 352     0             113510  35.0000        C128        S
## 353     1               2695   7.2292                    C
## 354     0             349237  17.8000                    S
## 355     0               2647   7.2250                    C
## 356     0             345783   9.5000                    S
## 358     0             237671  13.0000                    S
## 361     4             347088  27.9000                    S
## 362     0     SC/PARIS 2167  27.7208                    C
## 363     1               2691  14.4542                    C
## 364     0 SOTON/O.Q. 3101310   7.0500                    S
## 365     0             370365  15.5000                    Q
## 366     0             C 7076   7.2500                    S
## 372     0            3101267   6.4958                    S
## 373     0             323951   8.0500                    S
## 374     0          PC 17760 135.6333                    C
## 375     1             349909  21.0750                    S
## 378     2             113503 211.5000         C82        C
## 379     0               2648   4.0125                    C
## 380     0             347069   7.7750                    S
## 383     0  STON/O 2. 3101293   7.9250                    S
## 385     0             349227   7.8958                    S
## 386     0       S.O.C. 14879  73.5000                    S
## 387     2            CA 2144  46.9000                    S
## 389     0             367655   7.7292                    Q
## 393     0            3101277   7.9250                    S
## 396     0             350052   7.7958                    S
## 397     0             350407   7.8542                    S
## 398     0              28403  26.0000                    S
## 399     0             244278  10.5000                    S
## 402     0             341826   8.0500                    S
## 403     0               4137   9.8250                    S
## 404     0   STON/O2. 3101279  15.8500                    S
## 405     0             315096   8.6625                    S
## 406     0              28664  21.0000                    S
## 407     0             347064   7.7500                    S
## 409     0             312992   7.7750                    S
## 410     1               4133  25.4667                    S
## 411     0             349222   7.8958                    S
## 412     0             394140   6.8583                    Q
## 414     0             239853   0.0000                    S
## 416     0             343095   8.0500                    S
## 419     0              28228  13.0000                    S
## 420     2             345773  24.1500                    S
## 421     0             349254   7.8958                    C
## 422     0         A/5. 13032   7.7333                    Q
## 423     0             315082   7.8750                    S
## 424     1             347080  14.4000                    S
## 425     1             370129  20.2125                    S
```

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## 426     0         A/4. 34244   7.2500                S
## 429     0             364851   7.7500                Q
## 434     0  STON/O 2. 3101274   7.1250                S
## 435     0              13507  55.9000         E44    S
## 437     2         W./C. 6608  34.3750                S
## 439     4              19950 263.0000 C23 C25 C27    S
## 440     0         C.A. 18723  10.5000                S
## 442     0             345769   9.5000                S
## 443     0             347076   7.7750                S
## 451     2         C.A. 34651  27.7500                S
## 452     0              65303  19.9667                S
## 453     0             113051  27.7500        C111    C
## 455     0           A/5 2817   8.0500                S
## 457     0              13509  26.5500         E38    S
## 460     0             371060   7.7500                Q
## 462     0             364506   8.0500                S
## 463     0             111320  38.5000         E63    S
## 464     0             234360  13.0000                S
## 465     0           A/S 2816   8.0500                S
## 466     0 SOTON/O.Q. 3101306   7.0500                S
## 467     0             239853   0.0000                S
## 468     0             113792  26.5500                S
## 469     0              36209   7.7250                Q
## 471     0             323592   7.2500                S
## 472     0             315089   8.6625                S
## 475     0               7553   9.8375                S
## 476     0             110465  52.0000         A14    S
## 477     0              31027  21.0000                S
## 478     0               3460   7.0458                S
## 479     0             350060   7.5208                S
## 481     2            CA 2144  46.9000                S
## 482     0             239854   0.0000                S
## 483     0           A/5 3594   8.0500                S
## 486     1               4133  25.4667                S
## 488     0             11771  29.7000         B37    C
## 489     0         A.5. 18509   8.0500                S
## 491     0              65304  19.9667                S
## 492     0   SOTON/OQ 3101317   7.2500                S
## 493     0             113787  30.5000         C30    S
## 494     0           PC 17609  49.5042                C
## 495     0          A/4 45380   8.0500                S
## 496     0               2627  14.4583                C
## 498     0          C.A. 6212  15.1000                S
## 499     2             113781 151.5500     C22 C26    S
## 500     0             350035   7.7958                S
## 501     0             315086   8.6625                S
## 502     0             364846   7.7500                Q
## 503     0             330909   7.6292                Q
## 504     0               4135   9.5875                S
## 506     0           PC 17758 108.9000         C65    C
## 509     0             C 4001  22.5250                S
## 512     0   SOTON/OQ 3101316   8.0500                S
## 515     0             349209   7.4958                S
## 516     0              36967  34.0208         D46    S
```

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## 518     0             371110  24.1500                Q
## 520     0             349242   7.8958                S
## 522     0             349252   7.8958                S
## 523     0               2624   7.2250                C
## 525     0               2700   7.2292                C
## 526     0             367232   7.7500                Q
## 528     0          PC 17483 221.7792         C95    S
## 529     0            3101296   7.9250                S
## 530     1              29104  11.5000                S
## 532     0               2641   7.2292                C
## 533     1               2690   7.2292                C
## 535     0             315084   8.6625                S
## 537     0             113050  26.5500         B38    S
## 539     0             364498  14.5000                S
## 542     2             347082  31.2750                S
## 543     2             347082  31.2750                S
## 545     0          PC 17761 106.4250         C86    C
## 546     0                693  26.0000                S
## 549     1             363291  20.5250                S
## 552     0             244358  26.0000                S
## 553     0             330979   7.8292                Q
## 556     0             113807  26.5500                S
## 558     0          PC 17757 227.5250                C
## 561     0             372622   7.7500                Q
## 562     0             349251   7.8958                S
## 563     0             218629  13.5000                S
## 564     0    SOTON/OQ 392082   8.0500                S
## 565     0  SOTON/O.Q. 392087   8.0500                S
## 566     0          A/4 48871  24.1500                S
## 567     0             349205   7.8958                S
## 568     4             349909  21.0750                S
## 569     0               2686   7.2292                C
## 575     0         A/4. 20589   8.0500                S
## 576     0             358585  14.5000                S
## 579     0               2689  14.4583                C
## 583     0              28403  26.0000                S
## 584     0              13049  40.1250         A10    C
## 585     0               3411   8.7125                C
## 587     0             237565  15.0000                S
## 589     0              14973   8.0500                S
## 590     0         A./5. 3235   8.0500                S
## 591     0  STON/O 2. 3101273   7.1250                S
## 593     0           A/5 3902   7.2500                S
## 594     2             364848   7.7500                Q
## 595     0        SC/AH 29037  26.0000                S
## 596     1             345773  24.1500                S
## 598     0               LINE   0.0000                S
## 599     0               2664   7.2250                C
## 602     0             349214   7.8958                S
## 603     0             113796  42.4000                S
## 604     0             364511   8.0500                S
## 606     0             349910  15.5500                S
## 607     0             349246   7.8958                S
## 611     5             347082  31.2750                S
```

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## 612     0 SOTON/O.Q. 3101305   7.0500                S
## 614     0             370377   7.7500                Q
## 615     0             364512   8.0500                S
## 617     1             347080  14.4000                S
## 618     0          A/5. 3336  16.1000                S
## 620     0              31028  10.5000                S
## 621     0               2659  14.4542                C
## 624     0             350029   7.8542                S
## 625     0              54636  16.1000                S
## 626     0              36963  32.3208         D50    S
## 627     0             219533  12.3500                Q
## 629     0             349224   7.8958                S
## 630     0             334912   7.7333                Q
## 632     0             347743   7.0542                S
## 634     0             112052   0.0000                S
## 635     2             347088  27.9000                S
## 637     0  STON/O 2. 3101292   7.9250                S
## 638     1         C.A. 31921  26.2500                S
## 639     5            3101295  39.6875                S
## 640     0             376564  16.1000                S
## 641     0             350050   7.8542                S
## 643     2             347088  27.9000                S
## 647     0             349231   7.8958                S
## 649     0      S.O./P.P. 751   7.5500                S
## 651     0             349221   7.8958                S
## 653     0               8475   8.4333                S
## 655     0             365226   6.7500                Q
## 656     0       S.O.C. 14879  73.5000                S
## 657     0             349223   7.8958                S
## 658     1             364849  15.5000                Q
## 659     0              29751  13.0000                S
## 660     2              35273 113.2750         D48    C
## 662     0               2623   7.2250                C
## 663     0               5727  25.5875         E58    S
## 664     0             349210   7.4958                S
## 666     0       S.O.C. 14879  73.5000                S
## 667     0             234686  13.0000                S
## 668     0             312993   7.7750                S
## 669     0           A/5 3536   8.0500                S
## 672     0         F.C. 12750  52.0000         B71    S
## 673     0         C.A. 24580  10.5000                S
## 675     0             239856   0.0000                S
## 676     0             349912   7.7750                S
## 677     0             342826   8.0500                S
## 679     6            CA 2144  46.9000                S
## 681     0             330935   8.1375                Q
## 683     0               6563   9.2250                S
## 684     2            CA 2144  46.9000                S
## 685     1              29750  39.0000                S
## 686     2      SC/Paris 2123  41.5792                C
## 687     1            3101295  39.6875                S
## 688     0             349228  10.1708                S
## 689     0             350036   7.7958                S
## 694     0               2672   7.2250                C
```

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## 695     0            113800  26.5500                S
## 696     0            248731  13.5000                S
## 697     0            363592   8.0500                S
## 699     1             17421 110.8833         C68    C
## 700     0            348121   7.6500       F G63    S
## 703     1              2691  14.4542                C
## 704     0             36864   7.7417                Q
## 705     0            350025   7.8542                S
## 706     0            250655  26.0000                S
## 712     0            113028  26.5500        C124    S
## 714     0              7545   9.4833                S
## 715     0            250647  13.0000                S
## 716     0            348124   7.6500       F G73    S
## 719     0             36568  15.5000                Q
## 720     0            347062   7.7750                S
## 722     0            350048   7.0542                S
## 723     0             12233  13.0000                S
## 724     0            250643  13.0000                S
## 726     0            315094   8.6625                S
## 729     0            236853  26.0000                S
## 730     0   STON/O2. 3101271   7.9250                S
## 732     0              2699  18.7875                C
## 733     0            239855   0.0000                S
## 734     0             28425  13.0000                S
## 735     0            233639  13.0000                S
## 736     0             54636  16.1000                S
## 737     3        W./C. 6608  34.3750                S
## 739     0            349201   7.8958                S
## 740     0            349218   7.8958                S
## 742     0             19877  78.8500         C46    S
## 744     0            376566  16.1000                S
## 746     1         WE/P 5735  71.0000         B22    S
## 747     1          C.A. 2673  20.2500                S
## 749     0            113773  53.1000         D30    S
## 750     0            335097   7.7500                Q
## 753     0            345780   9.5000                S
## 754     0            349204   7.8958                S
## 757     0            350042   7.7958                S
## 758     0             29108  11.5000                S
## 759     0            363294   8.0500                S
## 761     0            358585  14.5000                S
## 762     0   SOTON/O2 3101272   7.1250                S
## 765     0            347074   7.7750                S
## 767     0            112379  39.6000                C
## 768     0            364850   7.7500                Q
## 769     0            371110  24.1500                Q
## 770     0              8471   8.3625                S
## 771     0            345781   9.5000                S
## 772     0            350047   7.8542                S
## 773     0       S.O./P.P. 3  10.5000         E77    S
## 774     0              2674   7.2250                C
## 776     0            347078   7.7500                S
## 777     0            383121   7.7500         F38    Q
## 779     0             36865   7.7375                Q
```

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## 783     0            113501  30.0000          D6        S
## 784     2        W./C. 6607  23.4500                    S
## 785     0 SOTON/O.Q. 3101312   7.0500                    S
## 786     0            374887   7.2500                    S
## 788     1            382652  29.1250                    Q
## 790     0          PC 17593  79.2000     B82 B84        C
## 791     0             12460   7.7500                    Q
## 792     0            239865  26.0000                    S
## 793     2          CA. 2343  69.5500                    S
## 794     0          PC 17600  30.6958                    C
## 795     0            349203   7.8958                    S
## 796     0             28213  13.0000                    S
## 799     0              2685   7.2292                    C
## 800     1            345773  24.1500                    S
## 801     0            250647  13.0000                    S
## 806     0            347063   7.7750                    S
## 807     0            112050   0.0000         A36        S
## 808     0            347087   7.7750                    S
## 809     0            248723  13.0000                    S
## 811     0              3474   7.8875                    S
## 812     0         A/4 48871  24.1500                    S
## 813     0             28206  10.5000                    S
## 814     2            347082  31.2750                    S
## 815     0            364499   8.0500                    S
## 816     0            112058   0.0000        B102        S
## 817     0   STON/O2. 3101290   7.9250                    S
## 818     1    S.C./PARIS 2079  37.0042                    C
## 819     0            C 7075   6.4500                    S
## 820     2            347088  27.9000                    S
## 823     0             19972   0.0000                    S
## 825     1           3101295  39.6875                    S
## 826     0            368323   6.9500                    Q
## 827     0              1601  56.4958                    S
## 833     0              2671   7.2292                    C
## 834     0            347468   7.8542                    S
## 835     0              2223   8.3000                    S
## 837     0            315097   8.6625                    S
## 838     0            392092   8.0500                    S
## 841     0   SOTON/O2 3101287   7.9250                    S
## 842     0        S.O./P.P. 3  10.5000                    S
## 844     0              2683   6.4375                    C
## 845     0            315090   8.6625                    S
## 846     0         C.A. 5547   7.5500                    S
## 847     2          CA. 2343  69.5500                    S
## 848     0            349213   7.8958                    C
## 849     1            248727  33.0000                    S
## 851     2            347082  31.2750                    S
## 852     0            347060   7.7750                    S
## 853     1              2678  15.2458                    C
## 855     0            244252  26.0000                    S
## 860     0              2629   7.2292                    C
## 861     0            350026  14.1083                    S
## 862     0             28134  11.5000                    S
## 864     2          CA. 2343  69.5500                    S
```

```
## 865     0             233866  13.0000                   S
## 868     0          PC 17590  50.4958         A24       S
## 869     0             345777   9.5000                   S
## 871     0             349248   7.8958                   S
## 873     0                695   5.0000 B51 B53 B55       S
## 874     0             345765   9.0000                   S
## 877     0               7534   9.8458                   S
## 878     0             349212   7.8958                   S
## 879     0             349217   7.8958                   S
## 882     0             349257   7.8958                   S
## 883     0               7552  10.5167                   S
## 884     0   C.A./SOTON 34068  10.5000                   S
## 885     0    SOTON/OQ 392076   7.0500                   S
## 886     5             382652  29.1250                   Q
## 887     0             211536  13.0000                   S
## 889     2         W./C. 6607  23.4500                   S
## 891     0             370376   7.7500                   Q
```

```
head(survived)
```

```
##    PassengerId Survived Pclass
## 2            2        1      1
## 3            3        1      3
## 4            4        1      1
## 9            9        1      3
## 10          10        1      2
## 11          11        1      3
##                                                  Name    Sex Age SibSp Parch
## 2  Cumings, Mrs. John Bradley (Florence Briggs Thayer) female  38     1     0
## 3                               Heikkinen, Miss. Laina female  26     0     0
## 4         Futrelle, Mrs. Jacques Heath (Lily May Peel) female  35     1     0
## 9    Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg) female  27     0     2
## 10                Nasser, Mrs. Nicholas (Adele Achem) female  14     1     0
## 11                    Sandstrom, Miss. Marguerite Rut female   4     1     1
##              Ticket    Fare Cabin Embarked
## 2          PC 17599 71.2833   C85        C
## 3  STON/O2. 3101282  7.9250              S
## 4            113803 53.1000  C123        S
## 9            347742 11.1333              S
## 10           237736 30.0708              C
## 11          PP 9549 16.7000    G6        S
```

```
head(dead)
```

```
##    PassengerId Survived Pclass                          Name  Sex Age SibSp
## 1            1        0      3       Braund, Mr. Owen Harris male  22     1
## 5            5        0      3      Allen, Mr. William Henry male  35     0
## 6            6        0      3              Moran, Mr. James male  NA     0
## 7            7        0      1       McCarthy, Mr. Timothy J male  54     0
## 8            8        0      3 Palsson, Master. Gosta Leonard male   2     3
## 13          13        0      3 Saundercock, Mr. William Henry male  20     0
##    Parch    Ticket    Fare Cabin Embarked
## 1      0 A/5 21171  7.2500              S
## 5      0    373450  8.0500              S
## 6      0    330877  8.4583              Q
## 7      0     17463 51.8625   E46        S
```

```
## 8      1    349909 21.0750              S
## 13     0 A/5. 2151  8.0500              S
```

8. The data sets are about the breast cancer Wisconsin. The samples arrive periodically as Dr. Wolberg reports his clinical cases. The database therefore reflects this chronologi https://drive.google.com/file/d/16MFLoehCgx2MJuNSAuB2CsBy6eDIIr- u/view?usp=drive_link)

d. Compute the descriptive statistics using different packages. Find the values of: d.1 Standard error of the mean for clump thickness. d.2 Coefficient of variability for Marginal Adhesion. d.3 Number of null values of Bare Nuclei. d.4 Mean and standard deviation for Bland Chromatin d.5 Confidence interval of the mean for Uniformity of Cell Shape

e. Describe what is the dataset all about.

This dataset is about the classification of breast cancer based on various features or cell characteristics. It has features related to cell characteristics.

The dataset consists of 699 observations and 11 variables.

d. Compute the descriptive statistics using different packages. Find the values of: d.1 Standard error of the mean for clump thickness. d.2 Coefficient of variability for Marginal Adhesion. d.3 Number of null values of Bare Nuclei. d.4 Mean and standard deviation for Bland Chromatin d.5 Confidence interval of the mean for Uniformity of Cell Shape

```r
library(readr)
library(pastecs)
library(Hmisc)

breastCancer <- read.csv("breastcancer_wisconsin.csv")
breastCancer
```

```
##           id clump_thickness size_uniformity shape_uniformity marginal_adhesion
## 1    1000025               5               1                1                 1
## 2    1002945               5               4                4                 5
## 3    1015425               3               1                1                 1
## 4    1016277               6               8                8                 1
## 5    1017023               4               1                1                 3
## 6    1017122               8              10               10                 8
## 7    1018099               1               1                1                 1
## 8    1018561               2               1                2                 1
## 9    1033078               2               1                1                 1
## 10   1033078               4               2                1                 1
## 11   1035283               1               1                1                 1
## 12   1036172               2               1                1                 1
## 13   1041801               5               3                3                 3
## 14   1043999               1               1                1                 1
## 15   1044572               8               7                5                10
## 16   1047630               7               4                6                 4
## 17   1048672               4               1                1                 1
## 18   1049815               4               1                1                 1
## 19   1050670              10               7                7                 6
## 20   1050718               6               1                1                 1
## 21   1054590               7               3                2                10
## 22   1054593              10               5                5                 3
## 23   1056784               3               1                1                 1
## 24   1057013               8               4                5                 1
## 25   1059552               1               1                1                 1
## 26   1065726               5               2                3                 4
```

```
## 27   1066373              3              2              1              1
## 28   1066979              5              1              1              1
## 29   1067444              2              1              1              1
## 30   1070935              1              1              3              1
## 31   1070935              3              1              1              1
## 32   1071760              2              1              1              1
## 33   1072179             10              7              7              3
## 34   1074610              2              1              1              2
## 35   1075123              3              1              2              1
## 36   1079304              2              1              1              1
## 37   1080185             10             10             10              8
## 38   1081791              6              2              1              1
## 39   1084584              5              4              4              9
## 40   1091262              2              5              3              3
## 41   1096800              6              6              6              9
## 42   1099510             10              4              3              1
## 43   1100524              6             10             10              2
## 44   1102573              5              6              5              6
## 45   1103608             10             10             10              4
## 46   1103722              1              1              1              1
## 47   1105257              3              7              7              4
## 48   1105524              1              1              1              1
## 49   1106095              4              1              1              3
## 50   1106829              7              8              7              2
## 51   1108370              9              5              8              1
## 52   1108449              5              3              3              4
## 53   1110102             10              3              6              2
## 54   1110503              5              5              5              8
## 55   1110524             10              5              5              6
## 56   1111249             10              6              6              3
## 57   1112209              8             10             10              1
## 58   1113038              8              2              4              1
## 59   1113483              5              2              3              1
## 60   1113906              9              5              5              2
## 61   1115282              5              3              5              5
## 62   1115293              1              1              1              1
## 63   1116116              9             10             10              1
## 64   1116132              6              3              4              1
## 65   1116192              1              1              1              1
## 66   1116998             10              4              2              1
## 67   1117152              4              1              1              1
## 68   1118039              5              3              4              1
## 69   1120559              8              3              8              3
## 70   1121732              1              1              1              1
## 71   1121919              5              1              3              1
## 72   1123061              6             10              2              8
## 73   1124651              1              3              3              2
## 74   1125035              9              4              5             10
## 75   1126417             10              6              4              1
## 76   1131294              1              1              2              1
## 77   1132347              1              1              4              1
## 78   1133041              5              3              1              2
## 79   1133136              3              1              1              1
## 80   1136142              2              1              1              1
```

```
## 81   1137156              2              2              2              1
## 82   1143978              4              1              1              2
## 83   1143978              5              2              1              1
## 84   1147044              3              1              1              1
## 85   1147699              3              5              7              8
## 86   1147748              5             10              6              1
## 87   1148278              3              3              6              4
## 88   1148873              3              6              6              6
## 89   1152331              4              1              1              1
## 90   1155546              2              1              1              2
## 91   1156272              1              1              1              1
## 92   1156948              3              1              1              2
## 93   1157734              4              1              1              1
## 94   1158247              1              1              1              1
## 95   1160476              2              1              1              1
## 96   1164066              1              1              1              1
## 97   1165297              2              1              1              2
## 98   1165790              5              1              1              1
## 99   1165926              9              6              9              2
## 100  1166630              7              5              6             10
## 101  1166654             10              3              5              1
## 102  1167439              2              3              4              4
## 103  1167471              4              1              2              1
## 104  1168359              8              2              3              1
## 105  1168736             10             10             10             10
## 106  1169049              7              3              4              4
## 107  1170419             10             10             10              8
## 108  1170420              1              6              8             10
## 109  1171710              1              1              1              1
## 110  1171710              6              5              4              4
## 111  1171795              1              3              1              2
## 112  1171845              8              6              4              3
## 113  1172152             10              3              3             10
## 114  1173216             10             10             10              3
## 115  1173235              3              3              2              1
## 116  1173347              1              1              1              1
## 117  1173347              8              3              3              1
## 118  1173509              4              5              5             10
## 119  1173514              1              1              1              1
## 120  1173681              3              2              1              1
## 121  1174057              1              1              2              2
## 122  1174057              4              2              1              1
## 123  1174131             10             10             10              2
## 124  1174428              5              3              5              1
## 125  1175937              5              4              6              7
## 126  1176406              1              1              1              1
## 127  1176881              7              5              3              7
## 128  1177027              3              1              1              1
## 129  1177399              8              3              5              4
## 130  1177512              1              1              1              1
## 131  1178580              5              1              3              1
## 132  1179818              2              1              1              1
## 133  1180194              5             10              8             10
## 134  1180523              3              1              1              1
```

```
## 135  1180831              3              1              1              1
## 136  1181356              5              1              1              1
## 137  1182404              4              1              1              1
## 138  1182410              3              1              1              1
## 139  1183240              4              1              2              1
## 140  1183246              1              1              1              1
## 141  1183516              3              1              1              1
## 142  1183911              2              1              1              1
## 143  1183983              9              5              5              4
## 144  1184184              1              1              1              1
## 145  1184241              2              1              1              1
## 146  1184840              1              1              3              1
## 147  1185609              3              4              5              2
## 148  1185610              1              1              1              1
## 149  1187457              3              1              1              3
## 150  1187805              8              8              7              4
## 151  1188472              1              1              1              1
## 152  1189266              7              2              4              1
## 153  1189286             10             10              8              6
## 154  1190394              4              1              1              1
## 155  1190485              1              1              1              1
## 156  1192325              5              5              5              6
## 157  1193091              1              2              2              1
## 158  1193210              2              1              1              1
## 159  1193683              1              1              2              1
## 160  1196295              9              9             10              3
## 161  1196915             10              7              7              4
## 162  1197080              4              1              1              1
## 163  1197270              3              1              1              1
## 164  1197440              1              1              1              2
## 165  1197510              5              1              1              1
## 166  1197979              4              1              1              1
## 167  1197993              5              6              7              8
## 168  1198128             10              8             10             10
## 169  1198641              3              1              1              1
## 170  1199219              1              1              1              2
## 171  1199731              3              1              1              1
## 172  1199983              1              1              1              1
## 173  1200772              1              1              1              1
## 174  1200847              6             10             10             10
## 175  1200892              8              6              5              4
## 176  1200952              5              8              7              7
## 177  1201834              2              1              1              1
## 178  1201936              5             10             10              3
## 179  1202125              4              1              1              1
## 180  1202812              5              3              3              3
## 181  1203096              1              1              1              1
## 182  1204242              1              1              1              1
## 183  1204898              6              1              1              1
## 184  1205138              5              8              8              8
## 185  1205579              8              7              6              4
## 186  1206089              2              1              1              1
## 187  1206695              1              5              8              6
## 188  1206841             10              5              6             10
```

```
## 189  1207986              5              8              4             10
## 190  1208301              1              2              3              1
## 191  1210963             10             10             10              8
## 192  1211202              7              5             10             10
## 193  1212232              5              1              1              1
## 194  1212251              1              1              1              1
## 195  1212422              3              1              1              1
## 196  1212422              4              1              1              1
## 197  1213375              8              4              4              5
## 198  1213383              5              1              1              4
## 199  1214092              1              1              1              1
## 200  1214556              3              1              1              1
## 201  1214966              9              7              7              5
## 202  1216694             10              8              8              4
## 203  1216947              1              1              1              1
## 204  1217051              5              1              1              1
## 205  1217264              1              1              1              1
## 206  1218105              5             10             10              9
## 207  1218741             10             10              9              3
## 208  1218860              1              1              1              1
## 209  1218860              1              1              1              1
## 210  1219406              5              1              1              1
## 211  1219525              8             10             10             10
## 212  1219859              8             10              8              8
## 213  1220330              1              1              1              1
## 214  1221863             10             10             10             10
## 215  1222047             10             10             10             10
## 216  1222936              8              7              8              7
## 217  1223282              1              1              1              1
## 218  1223426              1              1              1              1
## 219  1223793              6             10              7              7
## 220  1223967              6              1              3              1
## 221  1224329              1              1              1              2
## 222  1225799             10              6              4              3
## 223  1226012              4              1              1              3
## 224  1226612              7              5              6              3
## 225  1227210             10              5              5              6
## 226  1227244              1              1              1              1
## 227  1227481             10              5              7              4
## 228  1228152              8              9              9              5
## 229  1228311              1              1              1              1
## 230  1230175             10             10             10              3
## 231  1230688              7              4              7              4
## 232  1231387              6              8              7              5
## 233  1231706              8              4              6              3
## 234  1232225             10              4              5              5
## 235  1236043              3              3              2              1
## 236  1241232              3              1              4              1
## 237  1241559             10              8              8              2
## 238  1241679              9              8              8              5
## 239  1242364              8             10             10              8
## 240  1243256             10              4              3              2
## 241  1270479              5              1              3              3
## 242  1276091              3              1              1              3
```

```
## 243  1277018              2                1                1                1
## 244   128059              1                1                1                1
## 245  1285531              1                1                1                1
## 246  1287775              5                1                1                2
## 247   144888              8               10               10                8
## 248   145447              8                4                4                1
## 249   167528              4                1                1                1
## 250   169356              3                1                1                1
## 251   183913              1                2                2                1
## 252   191250             10                4                4               10
## 253  1017023              6                3                3                5
## 254  1100524              6               10               10                2
## 255  1116116              9               10               10                1
## 256  1168736              5                6                6                2
## 257  1182404              3                1                1                1
## 258  1182404              3                1                1                1
## 259  1198641              3                1                1                1
## 260   242970              5                7                7                1
## 261   255644             10                5                8               10
## 262   263538              5               10               10                6
## 263   274137              8                8                9                4
## 264   303213             10                4                4               10
## 265   314428              7                9                4               10
## 266  1182404              5                1                4                1
## 267  1198641             10               10                6                3
## 268   320675              3                3                5                2
## 269   324427             10                8                8                2
## 270   385103              1                1                1                1
## 271   390840              8                4                7                1
## 272   411453              5                1                1                1
## 273   320675              3                3                5                2
## 274   428903              7                2                4                1
## 275   431495              3                1                1                1
## 276   432809              3                1                3                1
## 277   434518              3                1                1                1
## 278   452264              1                1                1                1
## 279   456282              1                1                1                1
## 280   476903             10                5                7                3
## 281   486283              3                1                1                1
## 282   486662              2                1                1                2
## 283   488173              1                4                3               10
## 284   492268             10                4                6                1
## 285   508234              7                4                5               10
## 286   527363              8               10               10               10
## 287   529329             10               10               10               10
## 288   535331              3                1                1                1
## 289   543558              6                1                3                1
## 290   555977              5                6                6                8
## 291   560680              1                1                1                1
## 292   561477              1                1                1                1
## 293   563649              8                8                8                1
## 294   601265             10                4                4                6
## 295   606140              1                1                1                1
## 296   606722              5                5                7                8
```

```
## 297   616240             5              3              4              3
## 298    61634             5              4              3              1
## 299   625201             8              2              1              1
## 300    63375             9              1              2              6
## 301   635844             8              4             10              5
## 302   636130             1              1              1              1
## 303   640744            10             10             10              7
## 304   646904             1              1              1              1
## 305   653777             8              3              4              9
## 306   659642            10              8              4              4
## 307   666090             1              1              1              1
## 308   666942             1              1              1              1
## 309   667204             7              8              7              6
## 310   673637             3              1              1              1
## 311   684955             2              1              1              1
## 312   688033             1              1              1              1
## 313   691628             8              6              4             10
## 314   693702             1              1              1              1
## 315   704097             1              1              1              1
## 316   704168             4              6              5              6
## 317   706426             5              5              5              2
## 318   709287             6              8              7              8
## 319   718641             1              1              1              1
## 320   721482             4              4              4              4
## 321   730881             7              6              3              2
## 322   733639             3              1              1              1
## 323   733639             3              1              1              1
## 324   733823             5              4              6             10
## 325   740492             1              1              1              1
## 326   743348             3              2              2              1
## 327   752904            10              1              1              1
## 328   756136             1              1              1              1
## 329   760001             8             10              3              2
## 330   760239            10              4              6              4
## 331    76389            10              4              7              2
## 332   764974             5              1              1              1
## 333   770066             5              2              2              2
## 334   785208             5              4              6              6
## 335   785615             8              6              7              3
## 336   792744             1              1              1              1
## 337   797327             6              5              5              8
## 338   798429             1              1              1              1
## 339   704097             1              1              1              1
## 340   806423             8              5              5              5
## 341   809912            10              3              3              1
## 342   810104             1              1              1              1
## 343   814265             2              1              1              1
## 344   814911             1              1              1              1
## 345   822829             7              6              4              8
## 346   826923             1              1              1              1
## 347   830690             5              2              2              2
## 348   831268             1              1              1              1
## 349   832226             3              4              4             10
## 350   832567             4              2              3              5
```

```
## 351   836433          5           1           1           3
## 352   837082          2           1           1           1
## 353   846832          3           4           5           3
## 354   850831          2           7          10          10
## 355   855524          1           1           1           1
## 356   857774          4           1           1           1
## 357   859164          5           3           3           1
## 358   859350          8          10          10           7
## 359   866325          8          10           5           3
## 360   873549         10           3           5           4
## 361   877291          6          10          10          10
## 362   877943          3          10           3          10
## 363   888169          3           2           2           1
## 364   888523          4           4           4           2
## 365   896404          2           1           1           1
## 366   897172          2           1           1           1
## 367    95719          6          10          10          10
## 368   160296          5           8           8          10
## 369   342245          1           1           3           1
## 370   428598          1           1           3           1
## 371   492561          4           3           2           1
## 372   493452          1           1           3           1
## 373   493452          4           1           2           1
## 374   521441          5           1           1           2
## 375   560680          3           1           2           1
## 376   636437          1           1           1           1
## 377   640712          1           1           1           1
## 378   654244          1           1           1           1
## 379   657753          3           1           1           4
## 380   685977          5           3           4           1
## 381   805448          1           1           1           1
## 382   846423         10           6           3           6
## 383  1002504          3           2           2           2
## 384  1022257          2           1           1           1
## 385  1026122          2           1           1           1
## 386  1071084          3           3           2           2
## 387  1080233          7           6           6           3
## 388  1114570          5           3           3           2
## 389  1114570          2           1           1           1
## 390  1116715          5           1           1           1
## 391  1131411          1           1           1           2
## 392  1151734         10           8           7           4
## 393  1156017          3           1           1           1
## 394  1158247          1           1           1           1
## 395  1158405          1           2           3           1
## 396  1168278          3           1           1           1
## 397  1176187          3           1           1           1
## 398  1196263          4           1           1           1
## 399  1196475          3           2           1           1
## 400  1206314          1           2           3           1
## 401  1211265          3          10           8           7
## 402  1213784          3           1           1           1
## 403  1223003          5           3           3           1
## 404  1223306          3           1           1           1
```

```
## 405  1223543              1              2              1              3
## 406  1229929              1              1              1              1
## 407  1231853              4              2              2              1
## 408  1234554              1              1              1              1
## 409  1236837              2              3              2              2
## 410  1237674              3              1              2              1
## 411  1238021              1              1              1              1
## 412  1238464              1              1              1              1
## 413  1238633             10             10             10              6
## 414  1238915              5              1              2              1
## 415  1238948              8              5              6              2
## 416  1239232              3              3              2              6
## 417  1239347              8              7              8              5
## 418  1239967              1              1              1              1
## 419  1240337              5              2              2              2
## 420  1253505              2              3              1              1
## 421  1255384              3              2              2              3
## 422  1257200             10             10             10              7
## 423  1257648              4              3              3              1
## 424  1257815              5              1              3              1
## 425  1257938              3              1              1              1
## 426  1258549              9             10             10             10
## 427  1258556              5              3              6              1
## 428  1266154              8              7              8              2
## 429  1272039              1              1              1              1
## 430  1276091              2              1              1              1
## 431  1276091              1              3              1              1
## 432  1276091              5              1              1              3
## 433  1277629              5              1              1              1
## 434  1293439              3              2              2              3
## 435  1293439              6              9              7              5
## 436  1294562             10              8             10              1
## 437  1295186             10             10             10              1
## 438   527337              4              1              1              1
## 439   558538              4              1              3              3
## 440   566509              5              1              1              1
## 441   608157             10              4              3             10
## 442   677910              5              2              2              4
## 443   734111              1              1              1              3
## 444   734111              1              1              1              1
## 445   780555              5              1              1              6
## 446   827627              2              1              1              1
## 447  1049837              1              1              1              1
## 448  1058849              5              1              1              1
## 449  1182404              1              1              1              1
## 450  1193544              5              7              9              8
## 451  1201870              4              1              1              3
## 452  1202253              5              1              1              1
## 453  1227081              3              1              1              3
## 454  1230994              4              5              5              8
## 455  1238410              2              3              1              1
## 456  1246562             10              2              2              1
## 457  1257470             10              6              5              8
## 458  1259008              8              8              9              6
```

```
## 459  1266124              5              1              2              1
## 460  1267898              5              1              3              1
## 461  1268313              5              1              1              3
## 462  1268804              3              1              1              1
## 463  1276091              6              1              1              3
## 464  1280258              4              1              1              1
## 465  1293966              4              1              1              1
## 466  1296572             10              9              8              7
## 467  1298416             10              6              6              2
## 468  1299596              6              6              6              5
## 469  1105524              4              1              1              1
## 470  1181685              1              1              2              1
## 471  1211594              3              1              1              1
## 472  1238777              6              1              1              3
## 473  1257608              6              1              1              1
## 474  1269574              4              1              1              1
## 475  1277145              5              1              1              1
## 476  1287282              3              1              1              1
## 477  1296025              4              1              2              1
## 478  1296263              4              1              1              1
## 479  1296593              5              2              1              1
## 480  1299161              4              8              7             10
## 481  1301945              5              1              1              1
## 482  1302428              5              3              2              4
## 483  1318169              9             10             10             10
## 484   474162              8              7              8              5
## 485   787451              5              1              2              1
## 486  1002025              1              1              1              3
## 487  1070522              3              1              1              1
## 488  1073960             10             10             10             10
## 489  1076352              3              6              4             10
## 490  1084139              6              3              2              1
## 491  1115293              1              1              1              1
## 492  1119189              5              8              9              4
## 493  1133991              4              1              1              1
## 494  1142706              5             10             10             10
## 495  1155967              5              1              2             10
## 496  1170945              3              1              1              1
## 497  1181567              1              1              1              1
## 498  1182404              4              2              1              1
## 499  1204558              4              1              1              1
## 500  1217952              4              1              1              1
## 501  1224565              6              1              1              1
## 502  1238186              4              1              1              1
## 503  1253917              4              1              1              2
## 504  1265899              4              1              1              1
## 505  1268766              1              1              1              1
## 506  1277268              3              3              1              1
## 507  1286943              8             10             10             10
## 508  1295508              1              1              1              1
## 509  1297327              5              1              1              1
## 510  1297522              2              1              1              1
## 511  1298360              1              1              1              1
## 512  1299924              5              1              1              1
```

```
## 513  1299994             5              1              1              1
## 514  1304595             3              1              1              1
## 515  1306282             6              6              7             10
## 516  1313325             4             10              4              7
## 517  1320077             1              1              1              1
## 518  1320077             1              1              1              1
## 519  1320304             3              1              2              2
## 520  1330439             4              7              8              3
## 521   333093             1              1              1              1
## 522   369565             4              1              1              1
## 523   412300            10              4              5              4
## 524   672113             7              5              6             10
## 525   749653             3              1              1              1
## 526   769612             3              1              1              2
## 527   769612             4              1              1              1
## 528   798429             4              1              1              1
## 529   807657             6              1              3              2
## 530  8233704             4              1              1              1
## 531   837480             7              4              4              3
## 532   867392             4              2              2              1
## 533   869828             1              1              1              1
## 534  1043068             3              1              1              1
## 535  1056171             2              1              1              1
## 536  1061990             1              1              3              2
## 537  1113061             5              1              1              1
## 538  1116192             5              1              2              1
## 539  1135090             4              1              1              1
## 540  1145420             6              1              1              1
## 541  1158157             5              1              1              1
## 542  1171578             3              1              1              1
## 543  1174841             5              3              1              1
## 544  1184586             4              1              1              1
## 545  1186936             2              1              3              2
## 546  1197527             5              1              1              1
## 547  1222464             6             10             10             10
## 548  1240603             2              1              1              1
## 549  1240603             3              1              1              1
## 550  1241035             7              8              3              7
## 551  1287971             3              1              1              1
## 552  1289391             1              1              1              1
## 553  1299924             3              2              2              2
## 554  1306339             4              4              2              1
## 555  1313658             3              1              1              1
## 556  1313982             4              3              1              1
## 557  1321264             5              2              2              2
## 558  1321321             5              1              1              3
## 559  1321348             2              1              1              1
## 560  1321931             5              1              1              1
## 561  1321942             5              1              1              1
## 562  1321942             5              1              1              1
## 563  1328331             1              1              1              1
## 564  1328755             3              1              1              1
## 565  1331405             4              1              1              1
## 566  1331412             5              7             10             10
```

```
## 567  1333104              3              1              2              1
## 568  1334071              4              1              1              1
## 569  1343068              8              4              4              1
## 570  1343374             10             10              8             10
## 571  1344121              8             10              4              4
## 572   142932              7              6             10              5
## 573   183936              3              1              1              1
## 574   324382              1              1              1              1
## 575   378275             10              9              7              3
## 576   385103              5              1              2              1
## 577   690557              5              1              1              1
## 578   695091              1              1              1              1
## 579   695219              1              1              1              1
## 580   824249              1              1              1              1
## 581   871549              5              1              2              1
## 582   878358              5              7             10              6
## 583  1107684              6             10              5              5
## 584  1115762              3              1              1              1
## 585  1217717              5              1              1              6
## 586  1239420              1              1              1              1
## 587  1254538              8             10             10             10
## 588  1261751              5              1              1              1
## 589  1268275              9              8              8              9
## 590  1272166              5              1              1              1
## 591  1294261              4             10              8              5
## 592  1295529              2              5              7              6
## 593  1298484             10              3              4              5
## 594  1311875              5              1              2              1
## 595  1315506              4              8              6              3
## 596  1320141              5              1              1              1
## 597  1325309              4              1              2              1
## 598  1333063              5              1              3              1
## 599  1333495              3              1              1              1
## 600  1334659              5              2              4              1
## 601  1336798              3              1              1              1
## 602  1344449              1              1              1              1
## 603  1350568              4              1              1              1
## 604  1352663              5              4              6              8
## 605   188336              5              3              2              8
## 606   352431             10              5             10              3
## 607   353098              4              1              1              2
## 608   411453              1              1              1              1
## 609   557583              5             10             10             10
## 610   636375              5              1              1              1
## 611   736150             10              4              3             10
## 612   803531              5             10             10             10
## 613   822829              8             10             10             10
## 614  1016634              2              3              1              1
## 615  1031608              2              1              1              1
## 616  1041043              4              1              3              1
## 617  1042252              3              1              1              1
## 618  1057067              1              1              1              1
## 619  1061990              4              1              1              1
## 620  1073836              5              1              1              1
```

```
## 621  1083817              3              1              1              1
## 622  1096352              6              3              3              3
## 623  1140597              7              1              2              3
## 624  1149548              1              1              1              1
## 625  1174009              5              1              1              2
## 626  1183596              3              1              3              1
## 627  1190386              4              6              6              5
## 628  1190546              2              1              1              1
## 629  1213273              2              1              1              1
## 630  1218982              4              1              1              1
## 631  1225382              6              2              3              1
## 632  1235807              5              1              1              1
## 633  1238777              1              1              1              1
## 634  1253955              8              7              4              4
## 635  1257366              3              1              1              1
## 636  1260659              3              1              4              1
## 637  1268952             10             10              7              8
## 638  1275807              4              2              4              3
## 639  1277792              4              1              1              1
## 640  1277792              5              1              1              3
## 641  1285722              4              1              1              3
## 642  1288608              3              1              1              1
## 643  1290203              3              1              1              1
## 644  1294413              1              1              1              1
## 645  1299596              2              1              1              1
## 646  1303489              3              1              1              1
## 647  1311033              1              2              2              1
## 648  1311108              1              1              1              3
## 649  1315807              5             10             10             10
## 650  1318671              3              1              1              1
## 651  1319609              3              1              1              2
## 652  1323477              1              2              1              3
## 653  1324572              5              1              1              1
## 654  1324681              4              1              1              1
## 655  1325159              3              1              1              1
## 656  1326892              3              1              1              1
## 657  1330361              5              1              1              1
## 658  1333877              5              4              5              1
## 659  1334015              7              8              8              7
## 660  1334667              1              1              1              1
## 661  1339781              1              1              1              1
## 662  1339781              4              1              1              1
## 663 13454352              1              1              3              1
## 664  1345452              1              1              3              1
## 665  1345593              3              1              1              3
## 666  1347749              1              1              1              1
## 667  1347943              5              2              2              2
## 668  1348851              3              1              1              1
## 669  1350319              5              7              4              1
## 670  1350423              5             10             10              8
## 671  1352848              3             10              7              8
## 672  1353092              3              2              1              2
## 673  1354840              2              1              1              1
## 674  1354840              5              3              2              1
```

```
## 675  1355260              1              1               1               1
## 676  1365075              4              1               4               1
## 677  1365328              1              1               2               1
## 678  1368267              5              1               1               1
## 679  1368273              1              1               1               1
## 680  1368882              2              1               1               1
## 681  1369821             10             10              10              10
## 682  1371026              5             10              10              10
## 683  1371920              5              1               1               1
## 684   466906              1              1               1               1
## 685   466906              1              1               1               1
## 686   534555              1              1               1               1
## 687   536708              1              1               1               1
## 688   566346              3              1               1               1
## 689   603148              4              1               1               1
## 690   654546              1              1               1               1
## 691   654546              1              1               1               3
## 692   695091              5             10              10               5
## 693   714039              3              1               1               1
## 694   763235              3              1               1               1
## 695   776715              3              1               1               1
## 696   841769              2              1               1               1
## 697   888820              5             10              10               3
## 698   897471              4              8               6               4
## 699   897471              4              8               8               5
##     epithelial_size bare_nucleoli bland_chromatin normal_nucleoli mitoses class
## 1                 2             1               3               1       1     2
## 2                 7            10               3               2       1     2
## 3                 2             2               3               1       1     2
## 4                 3             4               3               7       1     2
## 5                 2             1               3               1       1     2
## 6                 7            10               9               7       1     4
## 7                 2            10               3               1       1     2
## 8                 2             1               3               1       1     2
## 9                 2             1               1               1       5     2
## 10                2             1               2               1       1     2
## 11                1             1               3               1       1     2
## 12                2             1               2               1       1     2
## 13                2             3               4               4       1     4
## 14                2             3               3               1       1     2
## 15                7             9               5               5       4     4
## 16                6             1               4               3       1     4
## 17                2             1               2               1       1     2
## 18                2             1               3               1       1     2
## 19                4            10               4               1       2     4
## 20                2             1               3               1       1     2
## 21                5            10               5               4       4     4
## 22                6             7               7              10       1     4
## 23                2             1               2               1       1     2
## 24                2          <NA>               7               3       1     4
## 25                2             1               3               1       1     2
## 26                2             7               3               6       1     4
## 27                1             1               2               1       1     2
## 28                2             1               2               1       1     2
```

```
## 29      2      1      2      1     1     2
## 30      2      1      1      1     1     2
## 31      1      1      2      1     1     2
## 32      2      1      3      1     1     2
## 33      8      5      7      4     3     4
## 34      2      1      3      1     1     2
## 35      2      1      2      1     1     2
## 36      2      1      2      1     1     2
## 37      6      1      8      9     1     4
## 38      1      1      7      1     1     2
## 39      2     10      5      6     1     4
## 40      6      7      7      5     1     4
## 41      6   <NA>      7      8     1     2
## 42      3      3      6      5     2     4
## 43      8     10      7      3     3     4
## 44     10      1      3      1     1     4
## 45      8      1      8     10     1     4
## 46      2      1      2      1     2     2
## 47      4      9      4      8     1     4
## 48      2      1      2      1     1     2
## 49      2      1      3      1     1     2
## 50      4      8      3      8     2     4
## 51      2      3      2      1     5     4
## 52      2      4      3      4     1     4
## 53      3      5      4     10     2     4
## 54     10      8      7      3     7     4
## 55      8      8      7      1     1     4
## 56      4      5      3      6     1     4
## 57      3      6      3      9     1     4
## 58      5      1      5      4     4     4
## 59      6     10      5      1     1     4
## 60      2      2      5      1     1     4
## 61      3      3      4     10     1     4
## 62      2      2      2      1     1     2
## 63     10      8      3      3     1     4
## 64      5      2      3      9     1     4
## 65      2      1      2      1     1     2
## 66      3      2      4      3    10     4
## 67      2      1      3      1     1     2
## 68      8     10      4      9     1     4
## 69      4      9      8      9     8     4
## 70      2      1      3      2     1     2
## 71      2      1      2      1     1     2
## 72     10      2      7      8    10     4
## 73      2      1      7      2     1     2
## 74      6     10      4      8     1     4
## 75      3      4      3      2     3     4
## 76      2      2      4      2     1     2
## 77      2      1      2      1     1     2
## 78      2      1      2      1     1     2
## 79      2      3      3      1     1     2
## 80      3      1      2      1     1     2
## 81      1      1      7      1     1     2
## 82      2      1      2      1     1     2
```

```
## 83    2    1    3    1    1    2
## 84    2    2    7    1    1    2
## 85    8    9    7   10    7    4
## 86   10    4    4   10   10    4
## 87    5    8    4    4    1    4
## 88    5   10    6    8    3    4
## 89    2    1    3    1    1    2
## 90    3    1    2    1    1    2
## 91    2    1    3    1    1    2
## 92    2    1    1    1    1    2
## 93    2    1    3    1    1    2
## 94    2    1    2    1    1    2
## 95    2    1    3    1    1    2
## 96    2    1    3    1    1    2
## 97    2    1    1    1    1    2
## 98    2    1    3    1    1    2
## 99   10    6    2    9   10    4
## 100   5   10    7    9    4    4
## 101  10    5    3   10    2    4
## 102   2    5    2    5    1    4
## 103   2    1    3    1    1    2
## 104   6    3    7    1    1    4
## 105  10    1    8    8    8    4
## 106   3    3    3    2    7    4
## 107   2   10    4    1    1    4
## 108   8   10    5    7    1    4
## 109   2    1    2    3    1    2
## 110   3    9    7    8    3    4
## 111   2    2    5    3    2    2
## 112   5    9    3    1    1    4
## 113   2   10    7    3    3    4
## 114  10    8    8    1    1    4
## 115   2    3    3    1    1    2
## 116   2    5    1    1    1    2
## 117   2    2    3    2    1    2
## 118   4   10    7    5    8    4
## 119   4    3    1    1    1    2
## 120   2    2    3    1    1    2
## 121   2    1    3    1    1    2
## 122   2    2    3    1    1    2
## 123  10   10    5    3    3    4
## 124   8   10    5    3    1    4
## 125   9    7    8   10    1    4
## 126   2    1    2    1    1    2
## 127   4   10    7    5    5    4
## 128   2    1    3    1    1    2
## 129   5   10    1    6    2    4
## 130  10    1    1    1    1    2
## 131   2    1    2    1    1    2
## 132   2    1    3    1    1    2
## 133   8   10    3    6    3    4
## 134   2    1    2    2    1    2
## 135   3    1    2    1    1    2
## 136   2    2    3    3    1    2
```

```
## 137      2      1      2      1    1    2
## 138      2      1      1      1    1    2
## 139      2      1      2      1    1    2
## 140      1   <NA>      2      1    1    2
## 141      2      1      1      1    1    2
## 142      2      1      1      1    1    2
## 143      4      5      4      3    3    4
## 144      2      5      1      1    1    2
## 145      2      1      2      1    1    2
## 146      2   <NA>      2      1    1    2
## 147      6      8      4      1    1    4
## 148      3      2      2      1    1    2
## 149      8      1      5      8    1    2
## 150     10     10      7      8    7    4
## 151      1      1      3      1    1    2
## 152      6     10      5      4    3    4
## 153      4      5      8     10    1    4
## 154      2      3      1      1    1    2
## 155      2      1      1      1    1    2
## 156      3     10      3      1    1    4
## 157      2      1      2      1    1    2
## 158      2      1      3      1    1    2
## 159      3   <NA>      1      1    1    2
## 160      6     10      7     10    6    4
## 161      5     10      5      7    2    4
## 162      2      1      3      2    1    2
## 163      2      1      3      1    1    2
## 164      1      3      1      1    7    2
## 165      2   <NA>      3      1    1    2
## 166      2      2      3      2    1    2
## 167      8     10      3     10    3    4
## 168      6      1      3      1   10    4
## 169      2      1      3      1    1    2
## 170      1      1      1      1    1    2
## 171      2      1      1      1    1    2
## 172      2      1      3      1    1    2
## 173      2      1      2      1    1    2
## 174      8     10     10     10    7    4
## 175      3     10      6      1    1    4
## 176     10     10      5      7    1    4
## 177      2      1      3      1    1    2
## 178      8      1      5     10    3    4
## 179      2      1      3      1    1    2
## 180      6     10      3      1    1    4
## 181      1      1      3      1    1    2
## 182      2      1      1      1    1    2
## 183      2      1      3      1    1    2
## 184      5     10      7      8    1    4
## 185      4     10      5      1    1    4
## 186      1      1      3      1    1    2
## 187      5      8      7     10    1    4
## 188      6     10      7      7   10    4
## 189      5      8      9     10    1    4
## 190      2      1      3      1    1    2
```

```
## 191    6    8    7   10   1   4
## 192   10   10    4   10   3   4
## 193    2    1    2    1   1   2
## 194    2    1    3    1   1   2
## 195    2    1    3    1   1   2
## 196    2    1    3    1   1   2
## 197    4    7    7    8   2   2
## 198    2    1    3    1   1   2
## 199    2    1    1    1   1   2
## 200    2    1    2    1   1   2
## 201    5   10    7    8   3   4
## 202   10   10    8    1   1   4
## 203    2    1    3    1   1   2
## 204    2    1    3    1   1   2
## 205    2    1    3    1   1   2
## 206    6   10    7   10   5   4
## 207    7    5    3    5   1   4
## 208    1    1    3    1   1   2
## 209    1    1    3    1   1   2
## 210    1    1    3    1   1   2
## 211    5   10    8   10   6   4
## 212    4    8    7    7   1   4
## 213    2    1    3    1   1   2
## 214    7   10    7   10   4   4
## 215    3   10   10    6   1   4
## 216    5    5    5   10   2   4
## 217    2    1    2    1   1   2
## 218    2    1    3    1   1   2
## 219    6    4    8   10   2   4
## 220    2    1    3    1   1   2
## 221    2    1    3    1   1   2
## 222   10   10    9   10   1   4
## 223    1    5    2    1   1   4
## 224    3    8    7    4   1   4
## 225    3   10    7    9   2   4
## 226    2    1    2    1   1   2
## 227    4   10    8    9   1   4
## 228    3    5    7    7   1   4
## 229    1    1    3    1   1   2
## 230   10   10    9   10   1   4
## 231    3    7    7    6   1   4
## 232    6    8    8    9   2   4
## 233    3    1    4    3   1   2
## 234    5   10    4    1   1   4
## 235    3    1    3    6   1   2
## 236    2 <NA>    3    1   1   2
## 237    8   10    4    8  10   4
## 238    6    2    4   10   4   4
## 239    6    9    3   10  10   4
## 240    3   10    5    3   2   4
## 241    2    2    2    3   1   2
## 242    1    1    3    1   1   2
## 243    2    1    3    1   1   2
## 244    2    5    5    1   1   2
```

```
## 245     2      1     3     1     1     2
## 246     2      2     3     1     1     2
## 247     5     10     7     8     1     4
## 248     2      9     3     3     1     4
## 249     2      1     3     6     1     2
## 250     2   <NA>     3     1     1     2
## 251     2      1     1     1     1     2
## 252     2     10     5     3     3     4
## 253     3     10     3     5     3     2
## 254     8     10     7     3     3     4
## 255    10      8     3     3     1     4
## 256     4     10     3     6     1     4
## 257     2      1     1     1     1     2
## 258     2      1     2     1     1     2
## 259     2      1     3     1     1     2
## 260     5      8     3     4     1     2
## 261     3     10     5     1     3     4
## 262    10     10    10     6     5     4
## 263     5     10     7     8     1     4
## 264     6     10     5     5     1     4
## 265    10      3     5     3     3     4
## 266     2      1     3     2     1     2
## 267     3     10     4     3     2     4
## 268     3     10     7     1     1     4
## 269     3      4     8     7     8     4
## 270     2      1     3     1     1     2
## 271     3     10     3     9     2     4
## 272     2      1     3     1     1     2
## 273     3     10     7     1     1     4
## 274     3      4     3     3     1     4
## 275     2      1     3     2     1     2
## 276     2   <NA>     2     1     1     2
## 277     2      1     2     1     1     2
## 278     2      1     2     1     1     2
## 279     2      1     3     1     1     2
## 280     3      7     3     3     8     4
## 281     2      1     3     1     1     2
## 282     2      1     3     1     1     2
## 283     4     10     5     6     1     4
## 284     2     10     5     3     1     4
## 285     2     10     3     8     2     4
## 286     8     10    10     7     3     4
## 287    10     10     4    10    10     4
## 288     3      1     2     1     1     2
## 289     4      5     5    10     1     4
## 290     6     10     4    10     4     4
## 291     2      1     1     1     1     2
## 292     2      1     3     1     1     2
## 293     2   <NA>     6    10     1     4
## 294     2     10     2     3     1     4
## 295     2   <NA>     2     1     1     2
## 296     6     10     7     4     1     4
## 297     4      5     4     7     1     2
## 298     2   <NA>     2     3     1     2
```

```
## 299   5    1   1   1   1   2
## 300   4   10   7   7   2   4
## 301   4    4   7  10   1   4
## 302   2    1   3   1   1   2
## 303   9   10   7  10  10   4
## 304   2    1   3   1   1   2
## 305   3   10   3   3   1   4
## 306   4   10   3  10   4   4
## 307   2    1   3   1   1   2
## 308   2    1   3   1   1   2
## 309   4    3   8   8   4   4
## 310   2    5   5   1   1   2
## 311   3    1   2   1   1   2
## 312   2    1   1   1   1   2
## 313  10    1   3   5   1   4
## 314   2    1   1   1   1   2
## 315   1    1   2   1   1   2
## 316   7 <NA>   4   9   1   2
## 317   5   10   4   3   1   4
## 318   6    8   8   9   1   4
## 319   5    1   3   1   1   2
## 320   6    5   7   3   1   2
## 321   5   10   7   4   6   4
## 322   2 <NA>   3   1   1   2
## 323   2    1   3   1   1   2
## 324   2   10   4   1   1   4
## 325   2    1   3   1   1   2
## 326   2    1   2   3   1   2
## 327   2   10   5   4   1   4
## 328   2    1   2   1   1   2
## 329   6    4   3  10   1   4
## 330   5   10   7   1   1   4
## 331   2    8   6   1   1   4
## 332   2    1   3   1   2   2
## 333   2    1   2   2   1   2
## 334   4   10   4   3   1   4
## 335   3   10   3   4   2   4
## 336   2    1   1   1   1   2
## 337   4   10   3   4   1   4
## 338   2    1   3   1   1   2
## 339   1    1   2   1   1   2
## 340   2   10   4   3   1   4
## 341   2   10   7   6   1   4
## 342   2    1   3   1   1   2
## 343   2    1   1   1   1   2
## 344   2    1   1   1   1   2
## 345  10   10   9   5   3   4
## 346   2    1   1   1   1   2
## 347   3    1   1   3   1   2
## 348   1    1   1   3   1   2
## 349   5    1   3   3   1   4
## 350   3    8   7   6   1   4
## 351   2    1   1   1   1   2
## 352   2    1   3   1   1   2
```

```
## 353   7   3   4   6   1   2
## 354   7  10   4   9   4   4
## 355   2   1   2   1   1   2
## 356   3   1   2   2   1   2
## 357   3   3   3   3   3   4
## 358  10  10   7   3   8   4
## 359   8   4   4  10   3   4
## 360   3   7   3   5   3   4
## 361  10  10   8  10  10   4
## 362   6  10   5   1   4   4
## 363   4   3   2   1   1   2
## 364   2   3   2   1   1   2
## 365   2   1   3   1   1   2
## 366   2   1   2   1   1   2
## 367   8  10   7  10   7   4
## 368   5  10   8  10   3   4
## 369   2   1   1   1   1   2
## 370   1   1   2   1   1   2
## 371   3   1   2   1   1   2
## 372   2   1   1   1   1   2
## 373   2   1   2   1   1   2
## 374   2   1   2   1   1   2
## 375   2   1   2   1   1   2
## 376   2   1   1   1   1   2
## 377   2   1   2   1   1   2
## 378   1   1   2   1   1   2
## 379   3   1   2   2   1   2
## 380   4   1   3   1   1   2
## 381   2   1   1   1   1   2
## 382   4  10   7   8   4   4
## 383   2   1   3   2   1   2
## 384   2   1   1   1   1   2
## 385   2   1   1   1   1   2
## 386   3   1   1   2   3   2
## 387   2  10   7   1   1   4
## 388   3   1   3   1   1   2
## 389   2   1   2   2   1   2
## 390   3   2   2   2   1   2
## 391   2   1   2   1   1   2
## 392   3  10   7   9   1   4
## 393   2   1   2   1   1   2
## 394   1   1   1   1   1   2
## 395   2   1   2   1   1   2
## 396   2   1   2   1   1   2
## 397   2   1   3   1   1   2
## 398   2   1   1   1   1   2
## 399   2   1   2   2   1   2
## 400   2   1   1   1   1   2
## 401   6   9   9   3   8   4
## 402   2   1   1   1   1   2
## 403   2   1   2   1   1   2
## 404   2   4   1   1   1   2
## 405   2   1   1   2   1   2
## 406   2   1   2   1   1   2
```

```
## 407     2     1     2     1     1     2
## 408     2     1     2     1     1     2
## 409     2     2     3     1     1     2
## 410     2     1     2     1     1     2
## 411     2     1     2     1     1     2
## 412     1  <NA>     2     1     1     2
## 413     8     4     8     5     1     4
## 414     2     1     3     1     1     2
## 415     3    10     6     6     1     4
## 416     3     3     3     5     1     2
## 417    10    10     7     2     1     4
## 418     2     1     2     1     1     2
## 419     2     2     3     2     2     2
## 420     5     1     1     1     1     2
## 421     2     3     3     1     1     2
## 422    10    10     8     2     1     4
## 423     2     1     3     3     1     2
## 424     2     1     2     1     1     2
## 425     2     1     1     1     1     2
## 426    10    10    10    10     1     4
## 427     2     1     1     1     1     2
## 428     4     2     5    10     1     4
## 429     2     1     2     1     1     2
## 430     2     1     2     1     1     2
## 431     2     1     2     2     1     2
## 432     4     1     3     2     1     2
## 433     2     1     2     2     1     2
## 434     2     1     1     1     1     2
## 435     5     8     4     2     1     2
## 436     3    10     5     1     1     4
## 437     6     1     2     8     1     4
## 438     2     1     1     1     1     2
## 439     2     1     1     1     1     2
## 440     2     1     1     1     1     2
## 441     4    10    10     1     1     4
## 442     2     4     1     1     1     2
## 443     2     3     1     1     1     2
## 444     2     2     1     1     1     2
## 445     3     1     2     1     1     2
## 446     2     1     1     1     1     2
## 447     2     1     1     1     1     2
## 448     2     1     1     1     1     2
## 449     1     1     1     1     1     2
## 450     6    10     8    10     1     4
## 451     1     1     2     1     1     2
## 452     2     1     1     1     1     2
## 453     2     1     1     1     1     2
## 454     6    10    10     7     1     4
## 455     3     1     1     1     1     2
## 456     2     6     1     1     2     4
## 457     5    10     8     6     1     4
## 458     6     3    10    10     1     4
## 459     2     1     1     1     1     2
## 460     2     1     1     1     1     2
```

```
## 461   2   1   1   1   1   2
## 462   2   5   1   1   1   2
## 463   2   1   1   1   1   2
## 464   2   1   1   2   1   2
## 465   2   1   1   1   1   2
## 466   6   4   7   10  3   4
## 467   4   10  9   7   1   4
## 468   4   10  7   6   2   4
## 469   2   1   1   1   1   2
## 470   2   1   2   1   1   2
## 471   1   1   2   1   1   2
## 472   2   1   1   1   1   2
## 473   1   1   1   1   1   2
## 474   2   1   1   1   1   2
## 475   2   1   1   1   1   2
## 476   2   1   1   1   1   2
## 477   2   1   1   1   1   2
## 478   2   1   1   1   1   2
## 479   2   1   1   1   1   2
## 480   4   10  7   5   1   4
## 481   1   1   1   1   1   2
## 482   2   1   1   1   1   2
## 483   10  5   10  10  10  4
## 484   5   10  9   10  1   4
## 485   2   1   1   1   1   2
## 486   1   3   1   1   1   2
## 487   1   1   2   1   1   2
## 488   6   10  8   1   5   4
## 489   3   3   3   4   1   4
## 490   3   4   4   1   1   4
## 491   2   1   1   1   1   2
## 492   3   10  7   1   1   4
## 493   1   1   2   1   1   2
## 494   6   10  6   5   2   4
## 495   4   5   2   1   1   2
## 496   1   1   2   1   1   2
## 497   1   1   1   1   1   2
## 498   2   1   1   1   1   2
## 499   2   1   2   1   1   2
## 500   2   1   2   1   1   2
## 501   2   1   3   1   1   2
## 502   2   1   2   1   1   2
## 503   2   1   2   1   1   2
## 504   2   1   3   1   1   2
## 505   2   1   1   1   1   2
## 506   2   1   1   1   1   2
## 507   7   5   4   8   7   4
## 508   2   4   1   1   1   2
## 509   2   1   1   1   1   2
## 510   2   1   1   1   1   2
## 511   2   1   1   1   1   2
## 512   2   1   2   1   1   2
## 513   2   1   1   1   1   2
## 514   1   1   2   1   1   2
```

```
## 515  3  10  8  10  2  4
## 516  3  10  9  10  1  4
## 517  1  1  1  1  1  2
## 518  1  1  2  1  1  2
## 519  2  1  1  1  1  2
## 520  4  10  9  1  1  4
## 521  3  1  1  1  1  2
## 522  3  1  1  1  1  2
## 523  3  5  7  3  1  4
## 524  4  10  5  3  1  4
## 525  2  1  2  1  1  2
## 526  2  1  1  1  1  2
## 527  2  1  1  1  1  2
## 528  2  1  3  1  1  2
## 529  2  1  1  1  1  2
## 530  1  1  2  1  1  2
## 531  4  10  6  9  1  4
## 532  2  1  2  1  1  2
## 533  1  1  3  1  1  2
## 534  2  1  2  1  1  2
## 535  2  1  2  1  1  2
## 536  2  1  3  1  1  2
## 537  2  1  3  1  1  2
## 538  2  1  3  1  1  2
## 539  2  1  2  1  1  2
## 540  2  1  2  1  1  2
## 541  2  2  2  1  1  2
## 542  2  1  1  1  1  2
## 543  2  1  1  1  1  2
## 544  2  1  2  1  1  2
## 545  2  1  2  1  1  2
## 546  2  1  2  1  1  2
## 547  4  10  7  10  1  4
## 548  1  1  1  1  1  2
## 549  1  1  1  1  1  2
## 550  4  5  7  8  2  4
## 551  2  1  2  1  1  2
## 552  2  1  3  1  1  2
## 553  2  1  4  2  1  2
## 554  2  5  2  1  2  2
## 555  2  1  1  1  1  2
## 556  2  1  4  8  1  2
## 557  1  1  2  1  1  2
## 558  2  1  1  1  1  2
## 559  2  1  2  1  1  2
## 560  2  1  2  1  1  2
## 561  2  1  3  1  1  2
## 562  2  1  3  1  1  2
## 563  2  1  3  1  1  2
## 564  2  1  2  1  1  2
## 565  2  1  3  2  1  2
## 566  5  10  10  10  1  4
## 567  2  1  3  1  1  2
## 568  2  3  2  1  1  2
```

```
## 569    6   10    2    5    2    4
## 570    6    5   10    3    1    4
## 571    8   10    8    2    1    4
## 572    3   10    9   10    2    4
## 573    2    1    2    1    1    2
## 574    2    1    2    1    1    2
## 575    4    2    7    7    1    4
## 576    2    1    3    1    1    2
## 577    2    1    2    1    1    2
## 578    2    1    2    1    1    2
## 579    2    1    2    1    1    2
## 580    2    1    3    1    1    2
## 581    2    1    2    1    1    2
## 582    5   10    7    5    1    4
## 583    4   10    6   10    1    4
## 584    2    1    1    1    1    2
## 585    3    1    1    1    1    2
## 586    2    1    1    1    1    2
## 587    6   10   10   10    1    4
## 588    2    1    2    2    1    2
## 589    6    3    4    1    1    4
## 590    2    1    1    1    1    2
## 591    4    1   10    1    1    4
## 592    4   10    7    6    1    4
## 593    3   10    4    1    1    4
## 594    2    1    1    1    1    2
## 595    4   10    7    1    1    4
## 596    2    1    2    1    1    2
## 597    2    1    2    1    1    2
## 598    2    1    3    1    1    2
## 599    2    1    2    1    1    2
## 600    1    1    1    1    1    2
## 601    2    1    2    1    1    2
## 602    1    1    2    1    1    2
## 603    2    1    2    1    1    2
## 604    4    1    8   10    1    4
## 605    5   10    8    1    2    4
## 606    5    8    7    8    3    4
## 607    2    1    1    1    1    2
## 608    2    1    1    1    1    2
## 609   10   10   10    1    1    4
## 610    2    1    1    1    1    2
## 611    3   10    7    1    2    4
## 612    5    2    8    5    1    4
## 613    6   10   10   10   10    4
## 614    2    1    2    1    1    2
## 615    1    1    2    1    1    2
## 616    2    1    2    1    1    2
## 617    2    1    2    1    1    2
## 618    1    ?    1    1    1    2
## 619    2    1    2    1    1    2
## 620    2    1    2    1    1    2
## 621    2    1    2    1    1    2
## 622    3    2    6    1    1    2
```

```
## 623     2     1     2     1     1     2
## 624     2     1     1     1     1     2
## 625     1     1     2     1     1     2
## 626     3     4     1     1     1     2
## 627     7     6     7     7     3     4
## 628     2     5     1     1     1     2
## 629     2     1     1     1     1     2
## 630     2     1     1     1     1     2
## 631     2     1     1     1     1     2
## 632     2     1     2     1     1     2
## 633     2     1     1     1     1     2
## 634     5     3     5    10     1     4
## 635     2     1     1     1     1     2
## 636     2     1     1     1     1     2
## 637     7     1    10    10     3     4
## 638     2     2     2     1     1     2
## 639     2     1     1     1     1     2
## 640     2     1     1     1     1     2
## 641     2     1     1     1     1     2
## 642     2     1     2     1     1     2
## 643     2     1     2     1     1     2
## 644     2     1     1     1     1     2
## 645     2     1     1     1     1     2
## 646     2     1     2     1     1     2
## 647     2     1     1     1     1     2
## 648     2     1     1     1     1     2
## 649    10     2    10    10    10     4
## 650     2     1     2     1     1     2
## 651     3     4     1     1     1     2
## 652     2     1     2     1     1     2
## 653     2     1     2     2     1     2
## 654     2     1     2     1     1     2
## 655     2     1     3     1     1     2
## 656     2     1     2     1     1     2
## 657     2     1     2     1     1     2
## 658     8     1     3     6     1     2
## 659     3    10     7     2     3     4
## 660     2     1     1     1     1     2
## 661     2     1     2     1     1     2
## 662     2     1     3     1     1     2
## 663     2     1     2     1     1     2
## 664     2     1     2     1     1     2
## 665     2     1     2     1     1     2
## 666     2     1     1     1     1     2
## 667     2     1     1     1     2     2
## 668     2     1     3     1     1     2
## 669     6     1     7    10     3     4
## 670     5     5     7    10     1     4
## 671     5     8     7     4     1     4
## 672     2     1     3     1     1     2
## 673     2     1     3     1     1     2
## 674     3     1     1     1     1     2
## 675     2     1     2     1     1     2
## 676     2     1     1     1     1     2
```

```
## 677              2             1              2              1       1     2
## 678              2             1              1              1       1     2
## 679              2             1              1              1       1     2
## 680              2             1              1              1       1     2
## 681              5            10             10             10       7     4
## 682              4            10              5              6       3     4
## 683              2             1              3              2       1     2
## 684              2             1              1              1       1     2
## 685              2             1              1              1       1     2
## 686              2             1              1              1       1     2
## 687              2             1              1              1       1     2
## 688              2             1              2              3       1     2
## 689              2             1              1              1       1     2
## 690              2             1              1              1       8     2
## 691              2             1              1              1       1     2
## 692              4             5              4              4       1     4
## 693              2             1              1              1       1     2
## 694              2             1              2              1       2     2
## 695              3             2              1              1       1     2
## 696              2             1              1              1       1     2
## 697              7             3              8             10       2     4
## 698              3             4             10              6       1     4
## 699              4             5             10              4       1     4
```

```
breastCancerStats <- stat.desc(breastCancer)
breastCancerStats
```

```
##                        id clump_thickness size_uniformity shape_uniformity
## nbr.val      6.990000e+02     699.0000000     699.0000000      699.0000000
## nbr.null     0.000000e+00       0.0000000       0.0000000        0.0000000
## nbr.na       0.000000e+00       0.0000000       0.0000000        0.0000000
## min          6.163400e+04       1.0000000       1.0000000        1.0000000
## max          1.345435e+07      10.0000000      10.0000000       10.0000000
## range        1.339272e+07       9.0000000       9.0000000        9.0000000
## sum          7.491212e+08    3088.0000000    2191.0000000     2242.0000000
## median       1.171710e+06       4.0000000       1.0000000        1.0000000
## mean         1.071704e+06       4.4177396       3.1344778        3.2074392
## SE.mean      2.334070e+04       0.1065011       0.1154168        0.1124081
## CI.mean.0.95 4.582640e+04       0.2091009       0.2266057        0.2206984
## var          3.808071e+11       7.9283955       9.3114027        8.8322655
## std.dev      6.170957e+05       2.8157407       3.0514591        2.9719128
## coef.var     5.758079e-01       0.6373713       0.9735143        0.9265687
##              marginal_adhesion epithelial_size bare_nucleoli bland_chromatin
## nbr.val              699.0000000    6.990000e+02            NA    6.990000e+02
## nbr.null               0.0000000    0.000000e+00            NA    0.000000e+00
## nbr.na                 0.0000000    0.000000e+00            NA    0.000000e+00
## min                    1.0000000    1.000000e+00            NA    1.000000e+00
## max                   10.0000000    1.000000e+01            NA    1.000000e+01
## range                  9.0000000    9.000000e+00            NA    9.000000e+00
## sum                 1962.0000000    2.248000e+03            NA    2.403000e+03
## median                 1.0000000    2.000000e+00            NA    3.000000e+00
## mean                   2.8068670    3.216023e+00            NA    3.437768e+00
## SE.mean                0.1080004    8.375251e-02            NA    9.222741e-02
## CI.mean.0.95           0.2120445    1.644370e-01            NA    1.810764e-01
## var                    8.1531906    4.903124e+00            NA    5.945620e+00
```

```
## std.dev              2.8553792    2.214300e+00           NA    2.438364e+00
## coef.var             1.0172834    6.885212e-01           NA    7.092870e-01
##              normal_nucleoli      mitoses        class
## nbr.val          699.0000000 6.990000e+02 6.990000e+02
## nbr.null           0.0000000 0.000000e+00 0.000000e+00
## nbr.na             0.0000000 0.000000e+00 0.000000e+00
## min                1.0000000 1.000000e+00 2.000000e+00
## max               10.0000000 1.000000e+01 4.000000e+00
## range              9.0000000 9.000000e+00 2.000000e+00
## sum             2004.0000000 1.111000e+03 1.880000e+03
## median             1.0000000 1.000000e+00 2.000000e+00
## mean               2.8669528 1.589413e+00 2.689557e+00
## SE.mean            0.1154990 6.487021e-02 3.598043e-02
## CI.mean.0.95       0.2267672 1.273641e-01 7.064284e-02
## var                9.3246800 2.941492e+00 9.049194e-01
## std.dev            3.0536339 1.715078e+00 9.512725e-01
## coef.var           1.0651148 1.079063e+00 3.536912e-01
```

```
clump_thickness_SEmean <- breastCancerStats["SE.mean", "clump_thickness"]
clump_thickness_SEmean
```

```
## [1] 0.1065011
```

```
marginal_adhesion_coefVar <- breastCancerStats["coef.var", "marginal_adhesion"]
marginal_adhesion_coefVar
```

```
## [1] 1.017283
```

```
bare_nucleoli_null <- breastCancerStats["nbr.null", "bare_nucleoli"]
bare_nucleoli_null
```

```
## [1] NA
```

```
bland_chromatin_mean <- breastCancerStats["mean", "bland_chromatin"]
bland_chromatin_mean
```

```
## [1] 3.437768
```

```
bland_chromatin_std_dev <- breastCancerStats["std.dev", "bland_chromatin"]
bland_chromatin_std_dev
```

```
## [1] 2.438364
```

```
shape_uniformity_CImean <- breastCancerStats["CI.mean", "shape_uniformity"]
shape_uniformity_CImean
```

```
## [1] 0.2206984
```

d. How many attributes?

num_attributes <- ncol(breastCancer) num_attributes

e. Find the percentage of respondents who are malignant. Interpret the results.

```
# Assuming class 4 is malignant

percentage_malignant <- (sum(breastCancer$class == 4) / nrow(breastCancer)) * 100
paste0("Percentage of Respondents who are Malignant: ", percentage_malignant,"%")
```

```
## [1] "Percentage of Respondents who are Malignant: 34.4778254649499%"
```

9. Export the data abalone to the Microsoft excel file. Copy the codes.

install.packages("AppliedPredictiveModeling") library("AppliedPredictiveModeling") view(abalone) head(abalone) summary(abalone)

```
#install.packages("AppliedPredictiveModeling")


library("AppliedPredictiveModeling")
library("xlsx")

data(abalone)

#View(abalone)
head(abalone)
```

```
##   Type LongestShell Diameter Height WholeWeight ShuckedWeight VisceraWeight
## 1    M        0.455    0.365  0.095      0.5140        0.2245        0.1010
## 2    M        0.350    0.265  0.090      0.2255        0.0995        0.0485
## 3    F        0.530    0.420  0.135      0.6770        0.2565        0.1415
## 4    M        0.440    0.365  0.125      0.5160        0.2155        0.1140
## 5    I        0.330    0.255  0.080      0.2050        0.0895        0.0395
## 6    I        0.425    0.300  0.095      0.3515        0.1410        0.0775
##   ShellWeight Rings
## 1       0.150    15
## 2       0.070     7
## 3       0.210     9
## 4       0.155    10
## 5       0.055     7
## 6       0.120     8
```

```
summary(abalone)
```

```
##  Type       LongestShell       Diameter           Height        WholeWeight
##  F:1307   Min.   :0.075   Min.   :0.0550   Min.   :0.0000   Min.   :0.0020
##  I:1342   1st Qu.:0.450   1st Qu.:0.3500   1st Qu.:0.1150   1st Qu.:0.4415
##  M:1528   Median :0.545   Median :0.4250   Median :0.1400   Median :0.7995
##           Mean   :0.524   Mean   :0.4079   Mean   :0.1395   Mean   :0.8287
##           3rd Qu.:0.615   3rd Qu.:0.4800   3rd Qu.:0.1650   3rd Qu.:1.1530
##           Max.   :0.815   Max.   :0.6500   Max.   :1.1300   Max.   :2.8255
##  ShuckedWeight    VisceraWeight     ShellWeight         Rings
##  Min.   :0.0010   Min.   :0.0005   Min.   :0.0015   Min.   : 1.000
##  1st Qu.:0.1860   1st Qu.:0.0935   1st Qu.:0.1300   1st Qu.: 8.000
##  Median :0.3360   Median :0.1710   Median :0.2340   Median : 9.000
##  Mean   :0.3594   Mean   :0.1806   Mean   :0.2388   Mean   : 9.934
##  3rd Qu.:0.5020   3rd Qu.:0.2530   3rd Qu.:0.3290   3rd Qu.:11.000
##  Max.   :1.4880   Max.   :0.7600   Max.   :1.0050   Max.   :29.000
```

```
#write.xlsx(abalone, "abalone.xlsx")
```