RWorksheet_#6

2023-12-22

#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.

```
#dataframe
StudentScore <- data.frame(Student = c(1,2,3,4,5,6,7,8,9,10),
                           PreTest = c(55,54,47,57,51,61,57,54,63,58),
                           PostTest = c(61,60,56,63,56,63,59,56,62,61))

StudentScore
```

```
##    Student PreTest PostTest
## 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
```

```
#a.Compute the descriptive statistics using different packages (Hmisc and pastecs).
install.packages("htmltools")
```

```
## Installing package into '/cloud/lib/x86_64-pc-linux-gnu-library/4.3'
## (as 'lib' is unspecified)
```

```
library(Hmisc)
```

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

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

```
library(pastecs)

HmiscStats <- describe(StudentScore[,c("PreTest","PostTest")])
HmiscStats
```

```
## StudentScore[, c("PreTest", "PostTest")]
##
##  2  Variables      10  Observations
## ---------------------------------------------------------------------------
## PreTest
##        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
## ---------------------------------------------------------------------------
## PostTest
##        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
## ---------------------------------------------------------------------------
```

```
# Calculate descriptive statistics using pastecs
pastecsStats <- stat.desc(StudentScore)
pastecsStats
```

```
##                 Student      PreTest     PostTest
## 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
```

#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.

```
library(dplyr)
```

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

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

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

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

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

```
fertilizer_levels <- c(10,10,10, 20,20,50,10,20,10,50,20,50,20,10)

orderedFactor <- factor(fertilizer_levels, levels = unique(fertilizer_levels))

basicStats <- summary(orderedFactor)
basicStats
```

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

#3. Abdul Hassan, president of Floor Coverings Unlimited, has asked you to study the ex- #ercise 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?

```
excercise_levels <- c("n", "l", "n", "n", "l", "l", "n", "n", "i", "l")

exercise_factor <- factor(excercise_levels, levels = c("n","l","i"))


basic_stats <- summary(exercise_factor)
basic_stats
```

```
## 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.
# A factor with levels matching the distinct values in the original character vector will be the outcom
```

```
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")

stateFactor <- factor(state)
stateFactor
```

```
##  [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
```

```
summaryState <- summary(stateFactor)
summaryState
```

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

#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():


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)

mean_Income <- tapply(incomes, stateFactor, mean)
mean_Income
```

```
##      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.

#ans. #act nsw nt qld sa tas vic wa #44.50000 57.33333 55.50000 53.60000 55.00000 60.50000 56.00000 52.25000 #The presented results depict the average income for individual states, with each numerical figure representing the mean income of a specific state. The associated names correspond to the levels within the stateFactor factor.

#6.Calculate the standard errors of the state income means (refer again to number 3) #stdError <- function(x) sqrt(var(x)/length(x))

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

```
stdError <- function(x) sqrt(var(x)/length(x))
incster <- tapply(incomes, state, stdError)
standardError <- tapply(incomes, stateFactor, 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 includes the standard errors for each state's projected mean income. #The standard error reflects the variability of the sample mean. Larger standard errors indicate 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.

```
library(titanic)

data("titanic_train")
titanicdata <- titanic_train

str(titanicdata)
```

```
## '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" ...
```

```
subsetSurvived <- subset(titanicdata, Survived == 1)


subsetDead <- subset(titanicdata, Survived == 0)
subsetDead
```

```
##     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
## 314          314          0       3
## 315          315          0       2
## 318          318          0       2
```

```
## 321          321         0       3
## 322          322         0       3
## 325          325         0       3
## 327          327         0       3
## 332          332         0       1
## 333          333         0       1
## 334          334         0       3
## 336          336         0       3
## 337          337         0       1
## 340          340         0       1
## 343          343         0       2
## 344          344         0       2
## 345          345         0       2
## 350          350         0       3
## 351          351         0       3
## 352          352         0       1
## 353          353         0       3
## 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
## 365          365         0       3
## 366          366         0       3
## 372          372         0       3
## 373          373         0       3
## 374          374         0       1
## 375          375         0       3
## 378          378         0       1
## 379          379         0       3
## 380          380         0       3
## 383          383         0       3
## 385          385         0       3
## 386          386         0       2
## 387          387         0       3
## 389          389         0       3
## 393          393         0       3
## 396          396         0       3
## 397          397         0       3
## 398          398         0       2
## 399          399         0       2
## 402          402         0       3
## 403          403         0       3
## 404          404         0       3
## 405          405         0       3
## 406          406         0       2
## 407          407         0       3
## 409          409         0       3
## 410          410         0       3
## 411          411         0       3
## 412          412         0       3
```

```
## 414         414         0       2
## 416         416         0       3
## 419         419         0       2
## 420         420         0       3
## 421         421         0       3
## 422         422         0       3
## 423         423         0       3
## 424         424         0       3
## 425         425         0       3
## 426         426         0       3
## 429         429         0       3
## 434         434         0       3
## 435         435         0       1
## 437         437         0       3
## 439         439         0       1
## 440         440         0       2
## 442         442         0       3
## 443         443         0       3
## 451         451         0       2
## 452         452         0       3
## 453         453         0       1
## 455         455         0       3
## 457         457         0       1
## 460         460         0       3
## 462         462         0       3
## 463         463         0       1
## 464         464         0       2
## 465         465         0       3
## 466         466         0       3
## 467         467         0       2
## 468         468         0       1
## 469         469         0       3
## 471         471         0       3
## 472         472         0       3
## 475         475         0       3
## 476         476         0       1
## 477         477         0       2
## 478         478         0       3
## 479         479         0       3
## 481         481         0       3
## 482         482         0       2
## 483         483         0       3
## 486         486         0       3
## 488         488         0       1
## 489         489         0       3
## 491         491         0       3
## 492         492         0       3
## 493         493         0       1
## 494         494         0       1
## 495         495         0       3
## 496         496         0       3
## 498         498         0       3
## 499         499         0       1
## 500         500         0       3
```

```
## 501         501         0       3
## 502         502         0       3
## 503         503         0       3
## 504         504         0       3
## 506         506         0       1
## 509         509         0       3
## 512         512         0       3
## 515         515         0       3
## 516         516         0       1
## 518         518         0       3
## 520         520         0       3
## 522         522         0       3
## 523         523         0       3
## 525         525         0       3
## 526         526         0       3
## 528         528         0       1
## 529         529         0       3
## 530         530         0       2
## 532         532         0       3
## 533         533         0       3
## 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
## 553         553         0       3
## 556         556         0       1
## 558         558         0       1
## 561         561         0       3
## 562         562         0       3
## 563         563         0       2
## 564         564         0       3
## 565         565         0       3
## 566         566         0       3
## 567         567         0       3
## 568         568         0       3
## 569         569         0       3
## 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
## 595         595         0       2
```

```
## 596         596         0       3
## 598         598         0       3
## 599         599         0       3
## 602         602         0       3
## 603         603         0       1
## 604         604         0       3
## 606         606         0       3
## 607         607         0       3
## 611         611         0       3
## 612         612         0       3
## 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
## 629         629         0       3
## 630         630         0       3
## 632         632         0       3
## 634         634         0       1
## 635         635         0       3
## 637         637         0       3
## 638         638         0       2
## 639         639         0       3
## 640         640         0       3
## 641         641         0       3
## 643         643         0       3
## 647         647         0       3
## 649         649         0       3
## 651         651         0       3
## 653         653         0       3
## 655         655         0       3
## 656         656         0       2
## 657         657         0       3
## 658         658         0       3
## 659         659         0       2
## 660         660         0       1
## 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
```

```
## 681          681         0       3
## 683          683         0       3
## 684          684         0       3
## 685          685         0       2
## 686          686         0       2
## 687          687         0       3
## 688          688         0       3
## 689          689         0       3
## 694          694         0       3
## 695          695         0       1
## 696          696         0       2
## 697          697         0       3
## 699          699         0       1
## 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
## 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
## 758          758         0       2
## 759          759         0       3
## 761          761         0       3
## 762          762         0       3
## 765          765         0       3
## 767          767         0       1
## 768          768         0       3
```

```
## 769         769         0       3
## 770         770         0       3
## 771         771         0       3
## 772         772         0       3
## 773         773         0       2
## 774         774         0       3
## 776         776         0       3
## 777         777         0       3
## 779         779         0       3
## 783         783         0       1
## 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
## 799         799         0       3
## 800         800         0       3
## 801         801         0       2
## 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
## 846         846         0       3
## 847         847         0       3
## 848         848         0       3
```

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## 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
```

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## 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
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## 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
## 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
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## 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
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## 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
## 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
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## 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
## 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
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## 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
## 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
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## 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
## 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
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## 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
## 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
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## 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
## 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
```

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## 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
## 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
```

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## 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
## 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
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## 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
## 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
```

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## 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
## 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
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## 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
## 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
## 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
## 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
## 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
## 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
## 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(subsetSurvived)
```

```
##    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(subsetDead)
```

```
##    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

```
library(readr)
library(rcompanion)
breastcancer_wisconsin <- read_csv("breastcancer_wisconsin.csv",col_types = cols(
  id = col_double(),
  clump_thickness = col_double(),
  size_uniformity = col_double(),
  shape_uniformity = col_double(),
  marginal_adhesion = col_double(),
  epithelial_size = col_double(),
  bare_nucleoli = col_character(),
  bland_chromatin = col_double(),
  normal_nucleoli = col_double(),
  mitoses = col_double(),
  class = col_double()
```

```
))
breastcancer_wisconsin
```

```
## # A tibble: 699 x 11
##         id clump_thickness size_uniformity shape_uniformity marginal_adhesion
##      <dbl>           <dbl>           <dbl>            <dbl>              <dbl>
##  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
## # i 689 more rows
## # i 6 more variables: epithelial_size <dbl>, bare_nucleoli <chr>,
## #   bland_chromatin <dbl>, normal_nucleoli <dbl>, mitoses <dbl>, class <dbl>
```

```
#d.1 Standard error of the mean for clump thickness.
clump_thickness <- sd(breastcancer_wisconsin$clump_thickness) / sqrt(length(breastcancer_wisconsin$clump
cat("d.1 Standard Error of the Mean for Clump Thickness:", clump_thickness, "\n")
```

```
## d.1 Standard Error of the Mean for Clump Thickness: 0.1065011
```

```
# d.2 Coefficient of variability for Marginal Adhesion.
marginal_adhesion <- sd(breastcancer_wisconsin$marginal_adhesion) / mean(breastcancer_wisconsin$marginal
cat("d.2 Coefficient of Variability for Marginal Adhesion:", marginal_adhesion, "%\n")
```

```
## d.2 Coefficient of Variability for Marginal Adhesion: 101.7283 %
```

```
# d.3 Number of null values of Bare Nuclei.
values_bare_nuclei <- sum(is.na(breastcancer_wisconsin$bare_nucleoli))
cat("d.3 Number of Null Values in Bare Nuclei:", values_bare_nuclei, "\n")
```

```
## d.3 Number of Null Values in Bare Nuclei: 15
```

```
# d.4 Mean and standard deviation for Bland Chromatin.
mean_bland_chromatin <- mean(breastcancer_wisconsin$bland_chromatin)
mean_bland_chromatin
```

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

```
sd_bland_chromatin <- sd(breastcancer_wisconsin$bland_chromatin)
cat("d.4 Mean for Bland Chromatin:", mean_bland_chromatin, "\n")
```

```
## d.4 Mean for Bland Chromatin: 3.437768
```

```
cat("   Standard Deviation for Bland Chromatin:", sd_bland_chromatin, "\n")
```

```
##    Standard Deviation for Bland Chromatin: 2.438364
```

```
# d.5 Confidence interval of the mean for Uniformity of Cell Shape.

uniformity_of_cell_shape <- t.test(breastcancer_wisconsin$shape_uniformity, conf.level = 0.95)$conf.int
cat("d.5 Confidence Interval for the Mean of Uniformity of Cell Shape:", uniformity_of_cell_shape, "\n"
```

```
## d.5 Confidence Interval for the Mean of Uniformity of Cell Shape: 2.986741 3.428138
```

#d. How many attributes?

There are 11 attributes in the data set.

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

```
percentage_malignant <- (sum(breastcancer_wisconsin$class == "malignant")/ nrow(breastcancer_wisconsin)
cat("The percentage of respondents who are malignant are: ",percentage_malignant,"%")
```

```
## The percentage of respondents who are malignant are:  0 %
```

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

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

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
```

```r
#export

library(xlsx)

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