

CAC-1

Raghul V_21122048

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Assignment

- Choose a Data set of your interest (any type).
- Use R platform to explain the details of the data set (using R commands).
- Create a short video explaining your work(Time duration :Min: 3mins, Max:7 mins). “Rubrics: Clarity on concepts, Creativity, Depth of your Understanding the data set, Time Management, Submission on Time,Plagiarism”
- Submission is Video file and the Program (in pdf format).

Installing required packages

```
library(ggplot2)
library(dplyr)
```

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

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

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

```
library(readr)
library(knitr)
```

Installing titanic dataset

```
df<-read_csv("/Users/raghul/Downloads/titanic.csv")
```

```
## Rows: 891 Columns: 12
```

```
## -- Column specification -----
## Delimiter: ","
## chr (5): Name, Sex, Ticket, Cabin, Embarked
## dbl (7): PassengerId, Survived, Pclass, Age, SibSp, Parch, Fare
```

```
##
## i Use 'spec()' to retrieve the full column specification for this data.
## i Specify the column types or set 'show_col_types = FALSE' to quiet this message.
```

Head of the dataset

```
head(df)
```

```
## # A tibble: 6 x 12
##   PassengerId Survived Pclass Name      Sex      Age SibSp Parch Ticket   Fare Cabin
##         <dbl>   <dbl> <dbl> <chr>   <chr> <dbl> <dbl> <dbl> <chr>   <dbl> <chr>
## 1             1       0       3 Braund~ male    22      1      0 A/5 2~   7.25 <NA>
## 2             2       1       1 Cuming~ fema~   38      1      0 PC 17~  71.3  C85
## 3             3       1       3 Heikki~ fema~   26      0      0 STON/~   7.92 <NA>
## 4             4       1       1 Futrel~ fema~   35      1      0 113803 53.1  C123
## 5             5       0       3 Allen,~ male    35      0      0 373450  8.05 <NA>
## 6             6       0       3 Moran,~ male    NA      0      0 330877  8.46 <NA>
## # ... with 1 more variable: Embarked <chr>
```

Tail of the dataset

```
tail(df)
```

```
## # A tibble: 6 x 12
##   PassengerId Survived Pclass Name      Sex      Age SibSp Parch Ticket   Fare Cabin
##         <dbl>   <dbl> <dbl> <chr>   <chr> <dbl> <dbl> <dbl> <chr>   <dbl> <chr>
## 1           886       0       3 "Rice,~ fema~   39      0      5 382652 29.1  <NA>
## 2           887       0       2 "Montv~ male    27      0      0 211536 13    <NA>
## 3           888       1       1 "Graha~ fema~   19      0      0 112053 30    B42
## 4           889       0       3 "Johns~ fema~   NA      1      2 W./C.~ 23.4  <NA>
## 5           890       1       1 "Behr,~ male    26      0      0 111369 30    C148
## 6           891       0       3 "Doole~ male    32      0      0 370376  7.75 <NA>
## # ... with 1 more variable: Embarked <chr>
```

Dimension of the dataset

```
dim(df)
```

```
## [1] 891 12
```

Structure of the dataset

```
str(df)
```

```
## spec_tbl_df [891 x 12] (S3: spec_tbl_df/tbl_df/tbl/data.frame)
## $ PassengerId: num [1:891] 1 2 3 4 5 6 7 8 9 10 ...
## $ Survived   : num [1:891] 0 1 1 1 0 0 0 0 1 1 ...
## $ Pclass     : num [1:891] 3 1 3 1 3 3 1 3 3 2 ...
## $ Name       : chr [1:891] "Braund, Mr. Owen Harris" "Cumings, Mrs. John Bradley (Florence Briggs T
## $ Sex        : chr [1:891] "male" "female" "female" "female" ...
## $ Age        : num [1:891] 22 38 26 35 35 NA 54 2 27 14 ...
## $ SibSp      : num [1:891] 1 1 0 1 0 0 0 3 0 1 ...
## $ Parch      : num [1:891] 0 0 0 0 0 0 0 1 2 0 ...
## $ Ticket     : chr [1:891] "A/5 21171" "PC 17599" "STON/O2. 3101282" "113803" ...
## $ Fare       : num [1:891] 7.25 71.28 7.92 53.1 8.05 ...
## $ Cabin      : chr [1:891] NA "C85" NA "C123" ...
## $ Embarked   : chr [1:891] "S" "C" "S" "S" ...
## - attr(*, "spec")=
## .. cols(
## .. PassengerId = col_double(),
## .. Survived = col_double(),
## .. Pclass = col_double(),
## .. Name = col_character(),
## .. Sex = col_character(),
## .. Age = col_double(),
## .. SibSp = col_double(),
## .. Parch = col_double(),
## .. Ticket = col_character(),
## .. Fare = col_double(),
## .. Cabin = col_character(),
## .. Embarked = col_character()
## .. )
## - attr(*, "problems")=<externalptr>
```

Summary of the dataset

```
summary(df)
```

```
## PassengerId      Survived      Pclass      Name
## Min.   : 1.0      Min.   :0.0000      Min.   :1.000      Length:891
## 1st Qu.:223.5      1st Qu.:0.0000      1st Qu.:2.000      Class :character
## Median :446.0      Median :0.0000      Median :3.000      Mode  :character
## Mean   :446.0      Mean   :0.3838      Mean   :2.309
## 3rd Qu.:668.5      3rd Qu.:1.0000      3rd Qu.:3.000
## Max.   :891.0      Max.   :1.0000      Max.   :3.000
##
## Sex              Age              SibSp              Parch
## Length:891      Min.   : 0.42      Min.   :0.000      Min.   :0.0000
## Class :character 1st Qu.:20.12      1st Qu.:0.000      1st Qu.:0.0000
## Mode  :character Median :28.00      Median :0.000      Median :0.0000
##                  Mean   :29.70      Mean   :0.523      Mean   :0.3816
##                  3rd Qu.:38.00      3rd Qu.:1.000      3rd Qu.:0.0000
##                  Max.   :80.00      Max.   :8.000      Max.   :6.0000
##                  NA's   :177
## Ticket          Fare              Cabin              Embarked
## Length:891      Min.   : 0.00      Length:891      Length:891
```

```
## Class :character 1st Qu.: 7.91 Class :character Class :character
## Mode :character Median : 14.45 Mode :character Mode :character
## Mean : 32.20
## 3rd Qu.: 31.00
## Max. :512.33
##
```

Number of Rows

```
nrow(df)
```

```
## [1] 891
```

Number of columns

```
ncol(df)
```

```
## [1] 12
```

Checking for null values in age column

```
is.na(df$Age)
```

```
## [1] FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE
## [13] FALSE FALSE FALSE FALSE FALSE TRUE FALSE TRUE FALSE FALSE FALSE FALSE
## [25] FALSE FALSE TRUE FALSE TRUE TRUE FALSE TRUE TRUE FALSE FALSE FALSE
## [37] TRUE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE TRUE TRUE TRUE
## [49] TRUE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE
## [61] FALSE FALSE FALSE FALSE TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE
## [73] FALSE FALSE FALSE FALSE TRUE TRUE FALSE FALSE FALSE FALSE TRUE FALSE
## [85] FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE
## [97] FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE TRUE
## [109] FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [121] FALSE TRUE FALSE FALSE FALSE FALSE TRUE FALSE TRUE FALSE FALSE FALSE
## [133] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE
## [145] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE
## [157] FALSE FALSE TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE
## [169] TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE
## [181] TRUE TRUE FALSE FALSE FALSE TRUE TRUE FALSE FALSE FALSE FALSE FALSE
## [193] FALSE FALSE FALSE FALSE TRUE FALSE TRUE FALSE FALSE TRUE FALSE FALSE
## [205] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE
## [217] FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE
## [229] FALSE TRUE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE
## [241] TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE
## [253] FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE TRUE FALSE FALSE FALSE
## [265] TRUE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE TRUE FALSE
## [277] FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE
```

```

## [289] FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE
## [301] TRUE TRUE FALSE TRUE TRUE FALSE TRUE FALSE FALSE FALSE FALSE FALSE
## [313] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [325] TRUE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE TRUE TRUE
## [337] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE
## [349] FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE FALSE FALSE TRUE TRUE
## [361] FALSE FALSE FALSE FALSE TRUE FALSE FALSE TRUE TRUE FALSE FALSE FALSE
## [373] FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [385] TRUE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [397] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [409] FALSE TRUE TRUE TRUE FALSE TRUE FALSE TRUE FALSE FALSE FALSE FALSE
## [421] TRUE FALSE FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE FALSE TRUE
## [433] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [445] TRUE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE
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## [541] FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE
## [553] TRUE FALSE FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE FALSE TRUE
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## [577] FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE
## [589] FALSE TRUE FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE TRUE FALSE
## [601] FALSE TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE
## [613] TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [625] FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE TRUE FALSE FALSE
## [637] FALSE FALSE FALSE TRUE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE
## [649] TRUE FALSE TRUE FALSE FALSE TRUE FALSE FALSE TRUE FALSE FALSE FALSE
## [661] FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE TRUE FALSE FALSE
## [673] FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE
## [685] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE
## [697] FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [709] FALSE TRUE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE
## [721] FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE
## [733] TRUE FALSE FALSE FALSE FALSE FALSE TRUE TRUE TRUE FALSE FALSE FALSE
## [745] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [757] FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE TRUE FALSE
## [769] TRUE FALSE FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE TRUE FALSE
## [781] FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE
## [793] TRUE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [805] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE
## [817] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE TRUE FALSE
## [829] TRUE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE TRUE FALSE TRUE
## [841] FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE TRUE FALSE FALSE
## [853] FALSE FALSE FALSE FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE TRUE
## [865] FALSE FALSE FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [877] FALSE FALSE TRUE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
## [889] TRUE FALSE FALSE

```

```

df$Survived=as.factor(df$Survived)
df$Sex = as.factor(df$Sex)

```

```
is.na(df)
```

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

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[illegible]

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Sum of all null values

```
sum(is.na(df))
```

```
## [1] 866
```

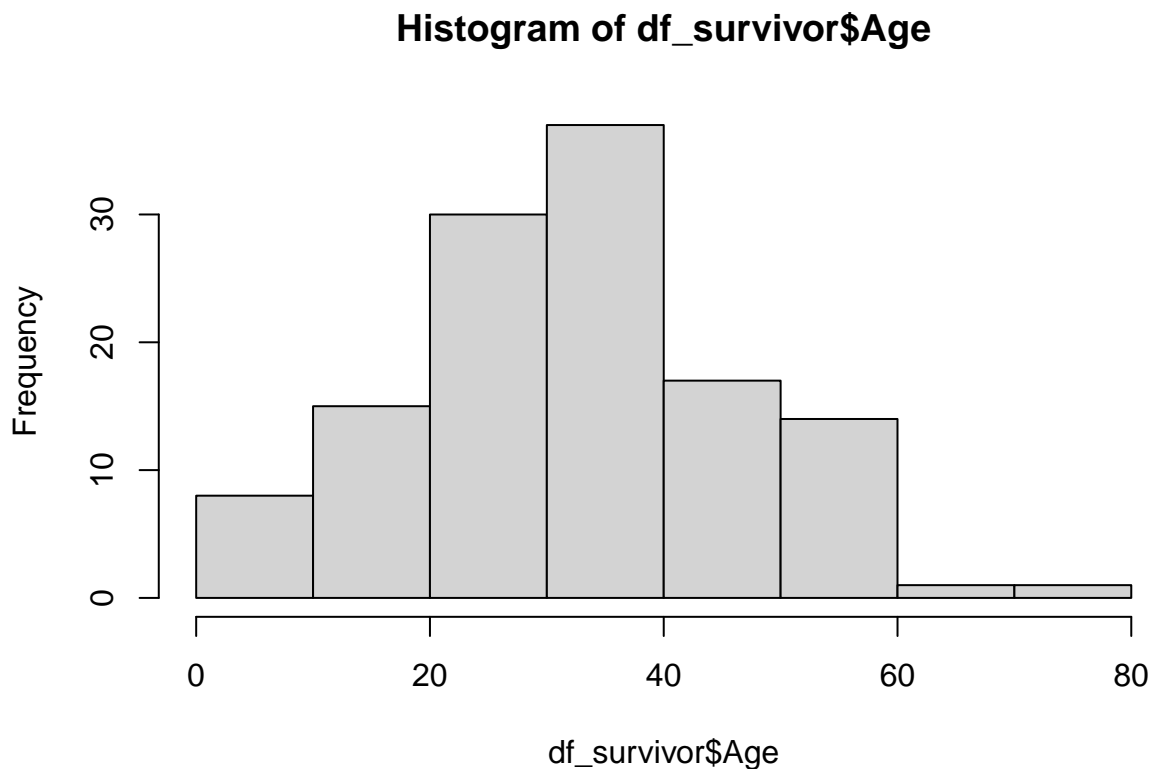
Dropping null values in the row and creating a new column

```
df_droppedna = df[rowSums(is.na(df))<=0,]
```

```
df_survivor = df_droppedna[df_droppedna$Survived==1,]
df_nonsurvivor = df_droppedna[df_droppedna$Survived==0,]
```

Histogram for visualizing the no of survivor:their age

```
hist(df_survivor$Age)
```



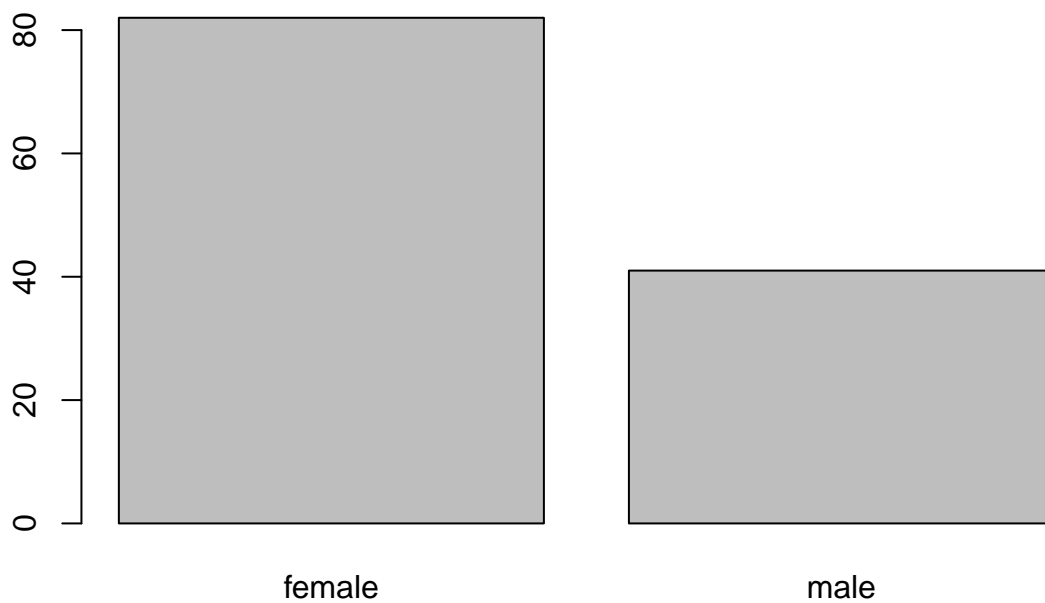
Histogram for visualizing the no of non-survivor:their age

```
hist(df_nonsurvivor$Age)
```



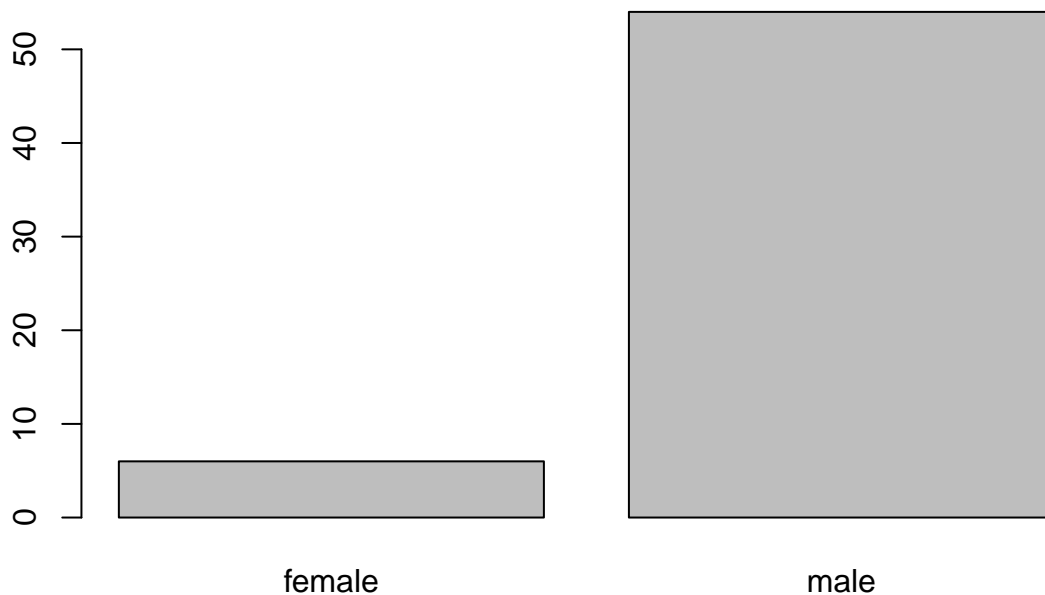
Barplot to show no of survivors MALE:FEMALE

```
barplot(table(df_survivor$Sex))
```



Barplot to show the no of non-survivors MALE:FEMALE

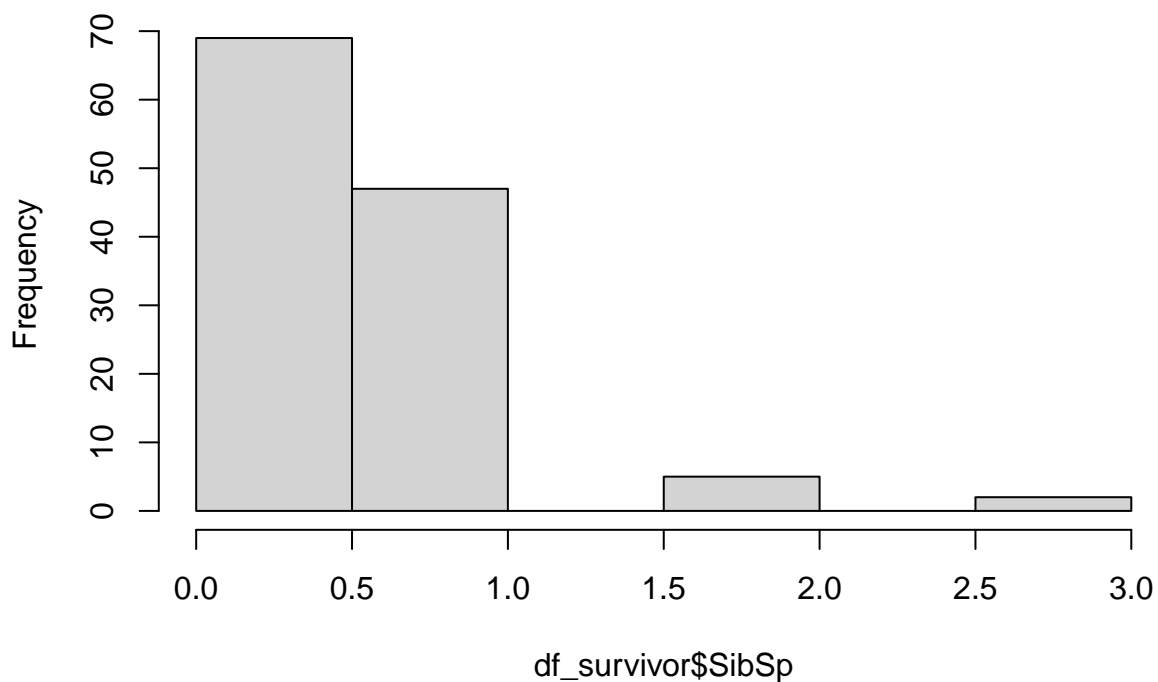
```
barplot(table(df_nonsurvivor$Sex))
```



Histogram to show the no.of.siblings of the survivors

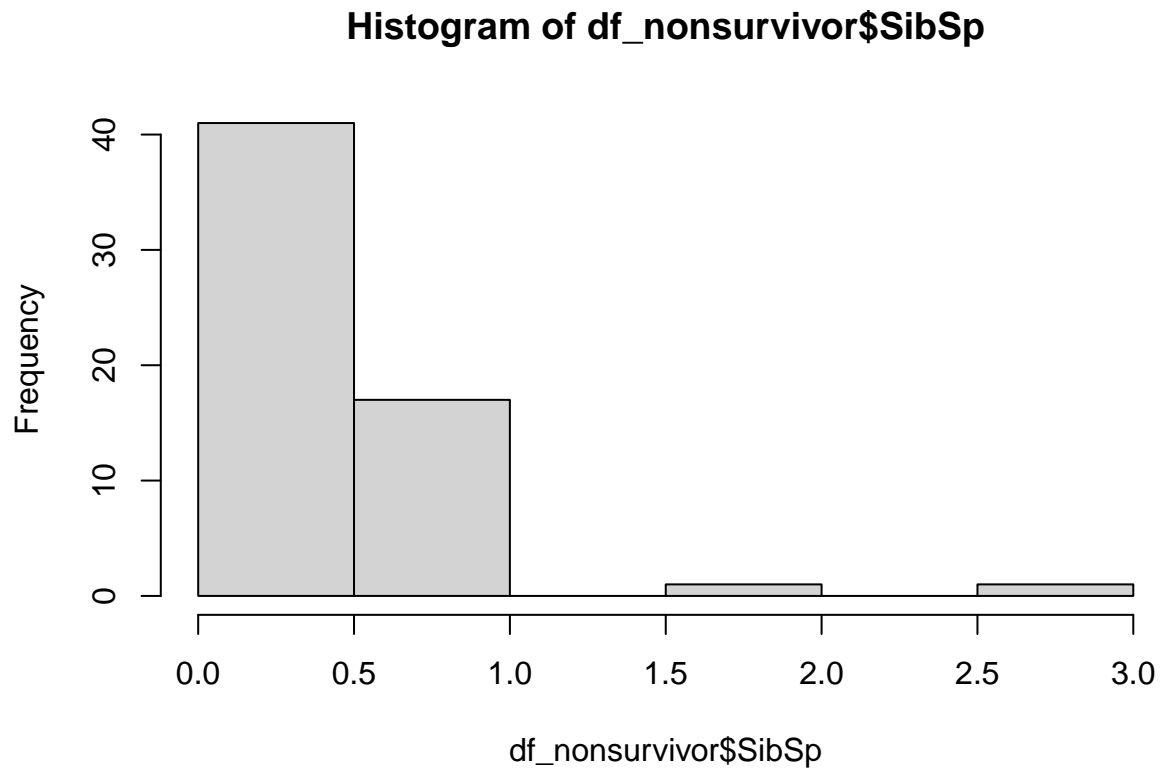
```
hist(df_survivor$SibSp)
```

Histogram of df_survivor\$SibSp



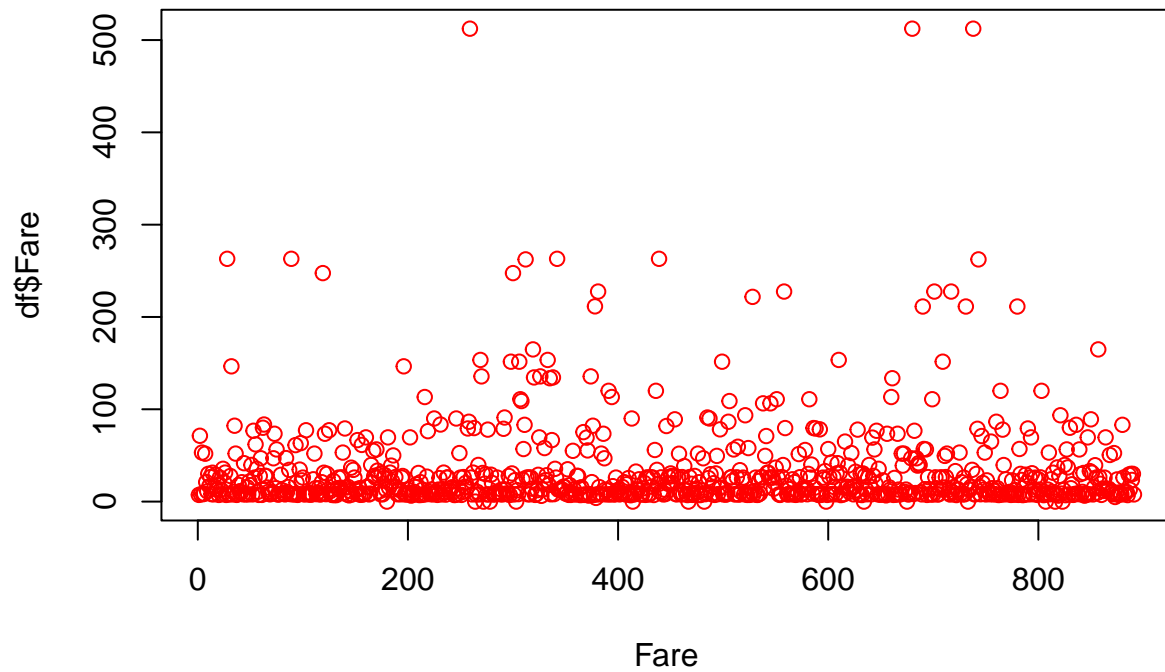
Histogram to show the no.of.sibilings of the non-survivors.

```
hist(df_nonsurvivor$SibSp)
```



Bubble sort to visualize the fare of the tickets

```
plot(df$Fare,xlab="Fare", col="red")
```



Conclusion

- Was able to successfully execute some of the basic data exploration commands.
- Gained knowledge and experience in libraries such as ggplot2, dplyr, knitr etc.