Progamming in R Assignment 3.1

Problem Statement 1:

Import the Titanic Dataset from the link Titanic Data Set.

Perform the following:

a. Preprocess the passenger names to come up with a list of titles that represent families and represent using appropriate visualization graph.

b. Represent the proportion of people survived from the family size using a graph.

c. Impute the missing values in Age variable using Mice Library, create two different graphs showing Age distribution before and after imputation

RStudio

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Session 23_Script.R | feature+engineering.R | model+evaluation1.R | Session 21_Script.R | principal component.R* | Assignment3.1.R*

```
setwd("C:/Users/ngonidzashe.gomo/Documents/01. Network Performance/Data Science Training/assignments")
getwd()
mytitanic=read.csv("titanic3.csv")
#a. Preprocess the passenger names to come up with a list of titles thatrepresent families
mytitanic$tittle <-substring(mytitanic$name,regexpr(",",mytitanic$name)+2,regexpr("\\.",mytitanic$name)-1)



library(dplyr)

#Processing tittles
mytitanic[mytitanic$tittle %in% c('Mme'),'tittle'] ='Mrs'
mytitanic[mytitanic$tittle %in% c('Sir'),'tittle'] ='Mr'
mytitanic[mytitanic$tittle %in% c('Ms','Mlle'),'tittle'] ='Miss'
mytitanic[mytitanic$tittle %in% c('Lady','Major','Don','Dona','Capt','Col','Jonkheer',"the Countess"),'tittle'] ='Others

#represent using appropriate visualization graph.
library(ggplot2)
table(mytitanic$tittle)
ggplot(mytitanic,aes(x= mytitanic$tittle)) +
  geom_bar(stat = 'count')  +   labs(x = 'Tittle')  + labs(y ='Tittle Counts')



#b. Represent the proportion of people survived from the family size using a graph.
mytitanic$familysize <-mytitanic$sibsp + mytitanic$parch + 1
ggplot(mytitanic,aes(x= mytitanic$familysize,  fill = factor(mytitanic$survived ))) +
  geom_bar(stat = 'count')  +   labs(x = 'Family Size')  + labs(y ='Survived')
```

23:1 (Top Level) R Script

Console Terminal

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```
> #a. Preprocess the passenger names to come up with a list of titles thatrepresent families
> mytitanic$tittle <-substring(mytitanic$name,regexpr(",",mytitanic$name)+2,regexpr("\\.",mytitanic$name)-1)
>
>
>
> library(dplyr)
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> #Processing tittles
> mytitanic[mytitanic$tittle %in% c('Mme'),'tittle'] ='Mrs'
> mytitanic[mytitanic$tittle %in% c('Sir'),'tittle'] ='Mr'
> mytitanic[mytitanic$tittle %in% c('Ms','Mlle'),'tittle'] ='Miss'
> mytitanic[mytitanic$tittle %in% c('Lady','Major','Don','Dona','Capt','Col','Jonkheer',"the Countess"),'tittle'] ='Others'
>
> #represent using appropriate visualization graph.
> library(ggplot2)
> table(mytitanic$tittle)

          Dr Master   Miss     Mr    Mrs Others    Rev
           1      8     61    264    758    198     12      8
> ggplot(mytitanic,aes(x= mytitanic$tittle)) +
+   geom_bar(stat = 'count')  +   labs(x = 'Tittle')  + labs(y ='Tittle Counts')
>
```

Environment | History | Connections

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Global Environment

Data

mytitanic 1310 obs. of 15 variables

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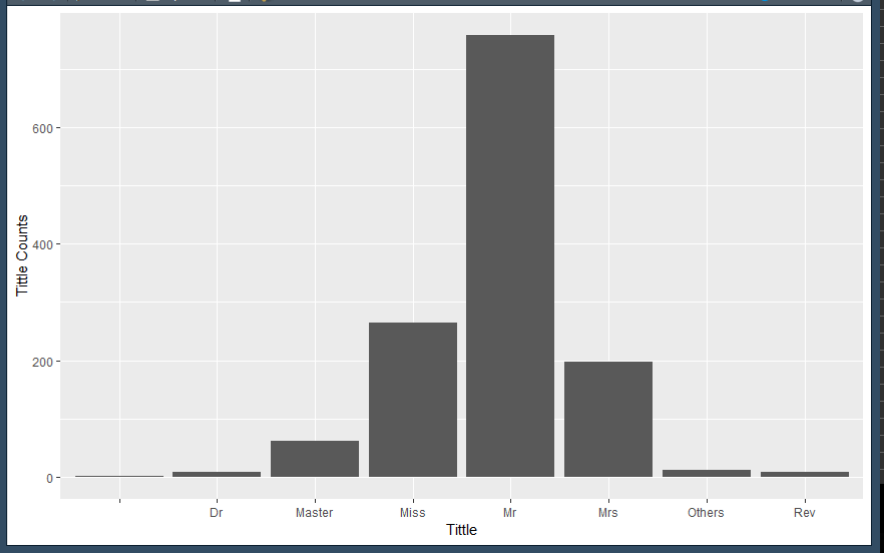

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Source on Save | Run | Source

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#b. Represent the proportion of people survived from the family size using a graph.
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ggplot(mytitanic,aes(x= mytitanic$familysize,  fill = factor(mytitanic$survived ))) +
  geom_bar(stat = 'count')  +   labs(x = 'Family Size')  + labs(y ='Survived')



#Impute the missing values in Age variable using Mice Library, create two
#different graphs showing Age distribution before and after imputation.
install.packages("mice")
#library(mice)
set.seed(8)
computed_df=mytitanic[, names(mytitanic) %in% c('age','sibsp','parch','fare','embarked')]
ageimputed = mice(computed_df, method = "rf", m=5)
imputedage = complete(ageimputed)
par(mfrow=c(1,2))
hist(mytitanic$age, main = "Before Imputation", col = "red")
hist(imputedage$age, main = "After Imputation", col = "green")

```

31:80 (Top Level) R Script

Console | Terminal

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```
> #b. Represent the proportion of people survived from the family size using a graph.
> mytitanic$familysize <-mytitanic$sibsp + mytitanic$parch + 1
> ggplot(mytitanic,aes(x= mytitanic$familysize,  fill = factor(mytitanic$survived ))) +
+   geom_bar(stat = 'count')  +   labs(x = 'Family Size')  + labs(y ='Survived')
Warning message:
Removed 1 rows containing non-finite values (stat_count).
>
```

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Data

mytitanic 1310 obs. of 16 variables

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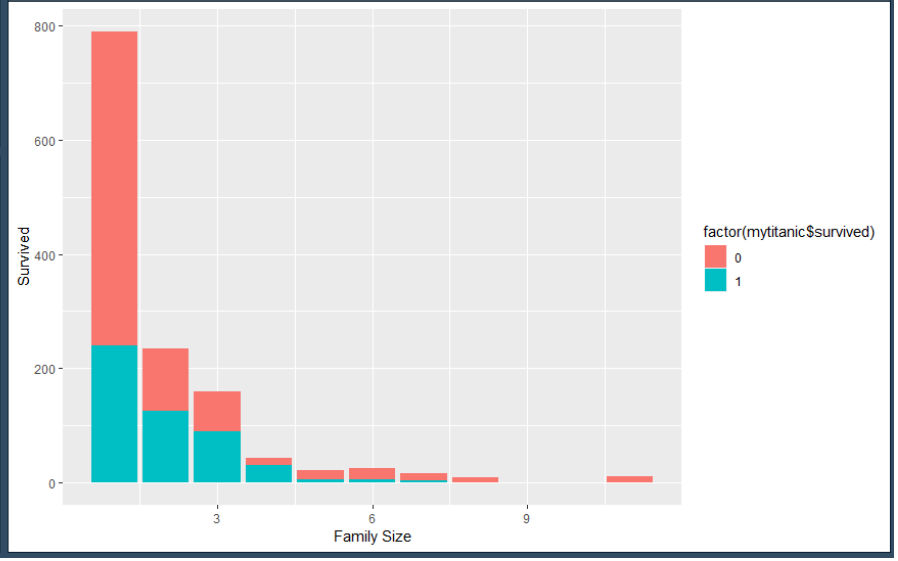

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table(mytitanic$tittle)
ggplot(mytitanic,aes(x= mytitanic$tittle)) +
  geom_bar(stat = 'count')  +   labs(x = 'Tittle')  + labs(y ='Tittle Counts')




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#Impute the missing values in Age variable using Mice Library, create two
#different graphs showing Age distribution before and after imputation.
#install.packages("mice")
library(mice)
set.seed(8)
computed_df=mytitanic[, names(mytitanic) %in% c('age','sibsp','parch','fare','embarked')]
ageimputed = mice(computed_df, method = "rf", m=5)
imputedage = complete(ageimputed)
par(mfrow=c(1,2))
hist(mytitanic$age, main = "Before Imputation", col = "red")
hist(imputedage$age, main = "After Imputation", col = "green")
```

46:1 (Top Level) R Script

Console Terminal

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```
  2   4  age  sibsp  parch  fare
  2   5  age  sibsp  parch  fare
  3   1  age  sibsp  parch  fare
  3   2  age  sibsp  parch  fare
  3   3  age  sibsp  parch  fare
  3   4  age  sibsp  parch  fare
  3   5  age  sibsp  parch  fare
  4   1  age  sibsp  parch  fare
  4   2  age  sibsp  parch  fare
  4   3  age  sibsp  parch  fare
  4   4  age  sibsp  parch  fare
  4   5  age  sibsp  parch  fare
  5   1  age  sibsp  parch  fare
  5   2  age  sibsp  parch  fare
  5   3  age  sibsp  parch  fare
  5   4  age  sibsp  parch  fare
  5   5  age  sibsp  parch  fare
> imputedage = complete(ageimputed)
> par(mfrow=c(1,2))
> hist(mytitanic$age, main = "Before Imputation", col = "red")
> hist(imputedage$age, main = "After Imputation", col = "green")
>
```

Environment | History | Connections

Import Dataset | List

Global Environment

Data

ageimputed	List of 21
computed_df	1310 obs. of 5 variables
imputedage	1310 obs. of 5 variables
mytitanic	1310 obs. of 16 variables

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