

General Description:

You can work on the project in groups including one or at most three students. Please write your group number and your group members' names on the project paper during the submission of the project.

Please use the sample dataset of “**DatasetNA.txt**” to answer the questions below. The file of “Dataset.txt” includes 100 observations from 11 variables:

IdNo: Id numbers of individuals in the sample

Group: categorical (nominal) variable with 4 levels (Group1, Group2, Group3 and Group4)

Gender: categorical (nominal) variable with 2 levels (Male and Female)

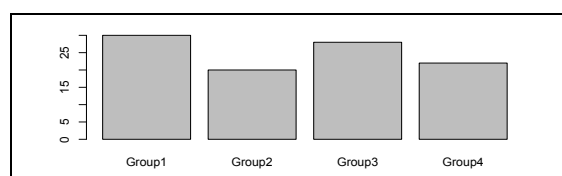
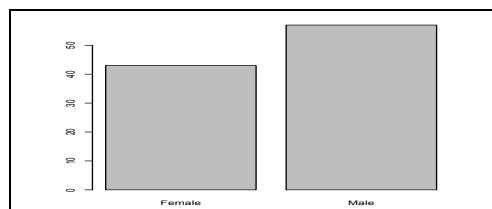
Var1, Var2, Var3, Var4, Var5, Var6, Var7 and Var8: continuous (ratio) variables.

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Questions:

In order to answer each question, please write your own function without using **barplot()**, **hist()** or **boxplot()** and etc. functions in **r-project** or **r-shiny** or **ggplot**, hand in the your r-script and outputs. Please do not copy and paste any function from internet; if you do, you will not get any mark from this question.

- 1) Please make **barplots** for categorical variables (Group and Gender) by writing your own function using r-project:
 - a. The function should have options of main title, x and y labels, x and y limits, color options. **(5 marks)**
 - b. Categorical variables (such as Group and Gender) could be barplotted (output screen). **(10 marks)**

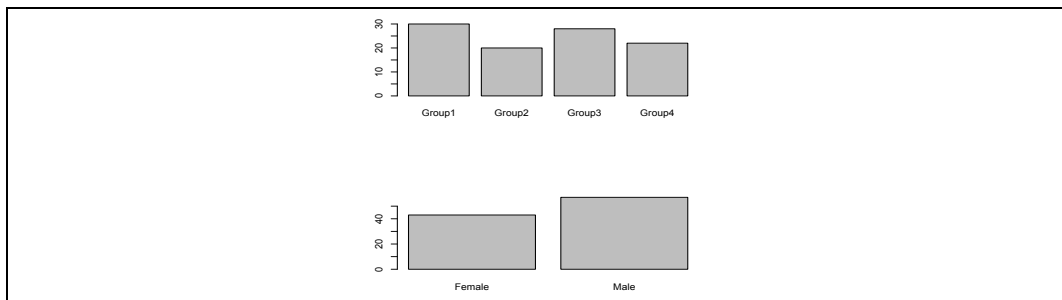
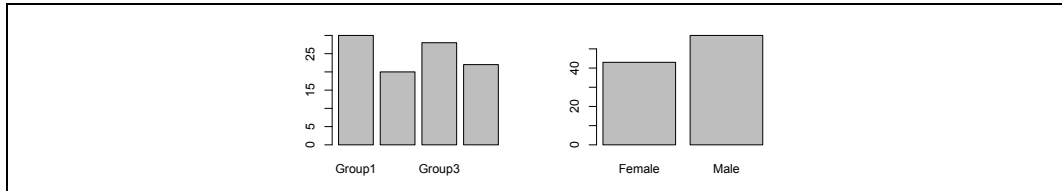


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- c. Two different categorical (such as Group and Gender) variables could be barplotted horizontally or vertically in the same page (output screen) together. **(10 marks)**



- 2) Please make **histogram** for continuous variables (Var1-Var8) by writing your own function using r-project:
- The function should have options of the number of bins, main title, x and y labels, x and y limits, color options. **(5 marks)**
 - Each histogram should be plotted in the output screen. **(10 marks)**
 - More than one histogram could be plotted in the output screen together. **(10 marks)**
- 3) Please make **boxplot** for continuous variables (Var1-Var8) by writing your own function using r-project:
- The function should have options of main title, x and y labels, x and y limits, color options. **(5 marks)**
 - Each boxplot should be plotted in the output screen. **(15 marks)**
 - More than one boxplot could be plotted in the output screen together (for example V1, V3 and V5). **(15 marks)**
 - Boxplot for a continuous variable could be plotted based on a categorical variable in the output screen (for example boxplot of V1 based on Gender). **(15 marks)**