Information Visualization

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Project Description

Students Performance:

Description of the data set and it’s attributes:

This Project includes information about a sample of students studying in two different institutes as well as their grades in three different exams. we intended to study and analyze a series of the real dataset. By making some statistics, visualization and then use best test and perform data analytics techniques.

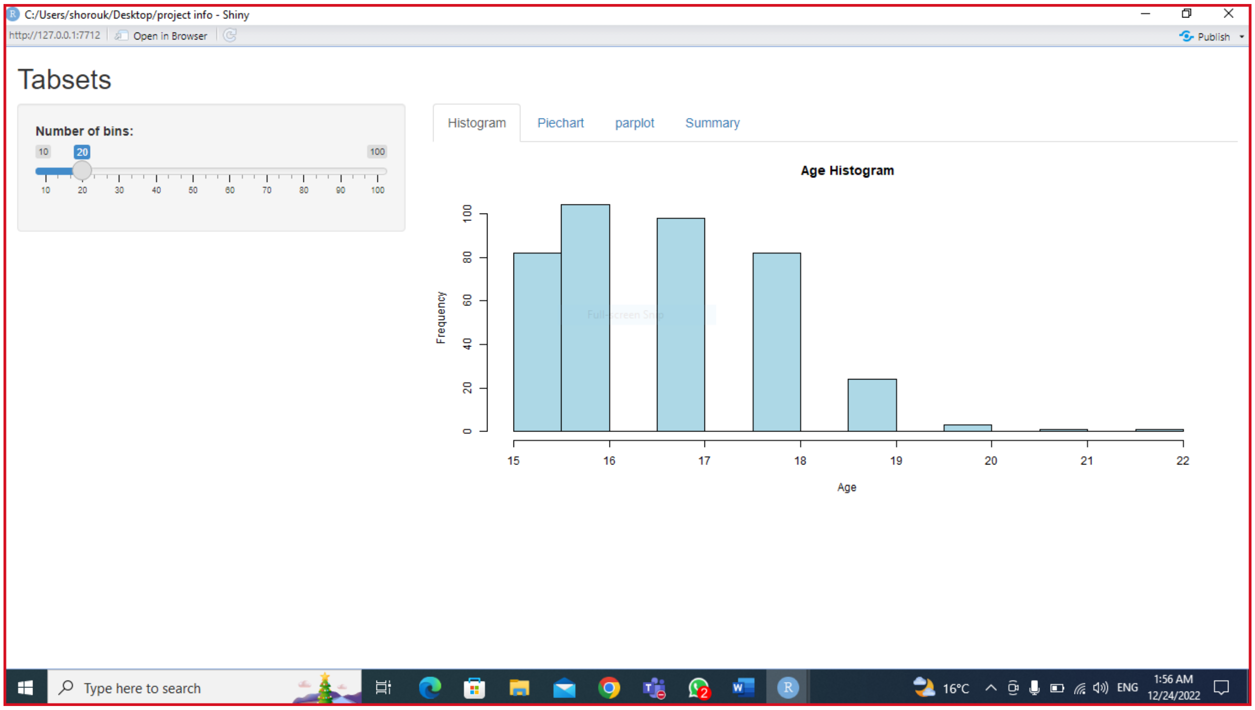
Code:

```
library(shiny)

library(ggplot2)

library(plotly)



data_set =read.csv('C:/Users/shorouk/Desktop/StudentsPerformance.csv' ,header = TRUE,  sep = ",")



########################################

##  DATA CLEANING


dim(data_set)


## missing  data :

sum(is.na(data_set))


#duplicate data
```

```
duplicated(data_set)

#remove duplicated row
data_set = unique(data_set)

#summary
summary(data_set)

str(data_set)
###########################################
##ui of charts and summary


ui <- fluidPage(

  # App title ----
  titlePanel("Tabsets"),

  # Sidebar layout with input and output definitions ----
  sidebarLayout(

    # Sidebar panel for inputs ----
    sidebarPanel(

      # Input: Slider for the number of observations to generate ----
      sliderInput(inputId = "n",
                  "Number of bins:",
                  value = 20,
                  min = 10,
                  max = 100,
                  step = 10)

    ),

    # Main panel for displaying outputs ----
  mainPanel(

   # Output: Tabset w/ plot, summary, and table ----
   tabsetPanel(type = "tabs",
         tabPanel("Histogram", plotOutput("Histogram")),
         tabPanel("Piechart", plotOutput("Piechart")),
         tabPanel("parplot", plotOutput("parplot")),
         tabPanel("Summary", verbatimTextOutput("summary"))
   )

  )
 )
)


##################################################################

server <- function(input, output) {

 ##Histogram chart
 output$Histogram <- renderPlot({
  n <- input$n
  hist(data_set$age,col="lightblue",xlab = "Age",main = "Age Histogram",breaks= n)

 })
 ##########################
 ##Pie chart
 output$Piechart <- renderPlot({
  G1=data_set$G1
  G1=sum(G1)
  G2=data_set$G2
  G2=sum(G2)
  G3=data_set$G3
  G3=sum(G3)
```

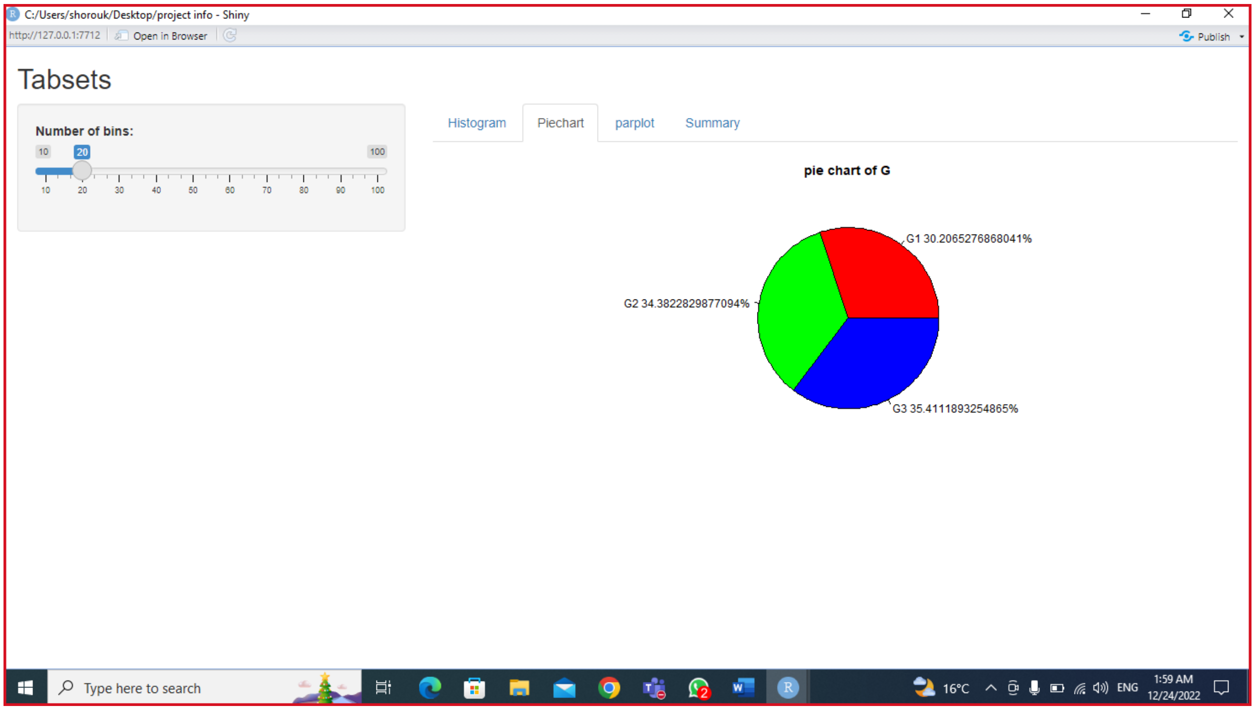
```
    slices<-c(G1,G2,G3)


    lbls<-c("G1","G2","G3")


    pct<-slices/sum(slices)*100

    #calculate percentile

    lbls<-paste(lbls,pct)

    #add percent to labels

    lbls<-paste(lbls,"%",sep = "")

    #add % to labels

    pie(slices,labels = lbls,col = rainbow(length(lbls)),main="pie chart of G")


  })

  ###########################

  ##parplot

  output$parplot <- renderPlot({graph<-table(data_set$goout)

  barplot(graph,main="Go_out Distribution")


  Avg_goout_PerDay<-aggregate(data_set[,1],list(data_set$absences), mean)


  })


  ################################

  # Generate a summary of the data ----

  output$summary <- renderPrint({

    summary(data_set)

  })


 ##########################################

}

shinyApp(ui=ui,server=server)


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

1)



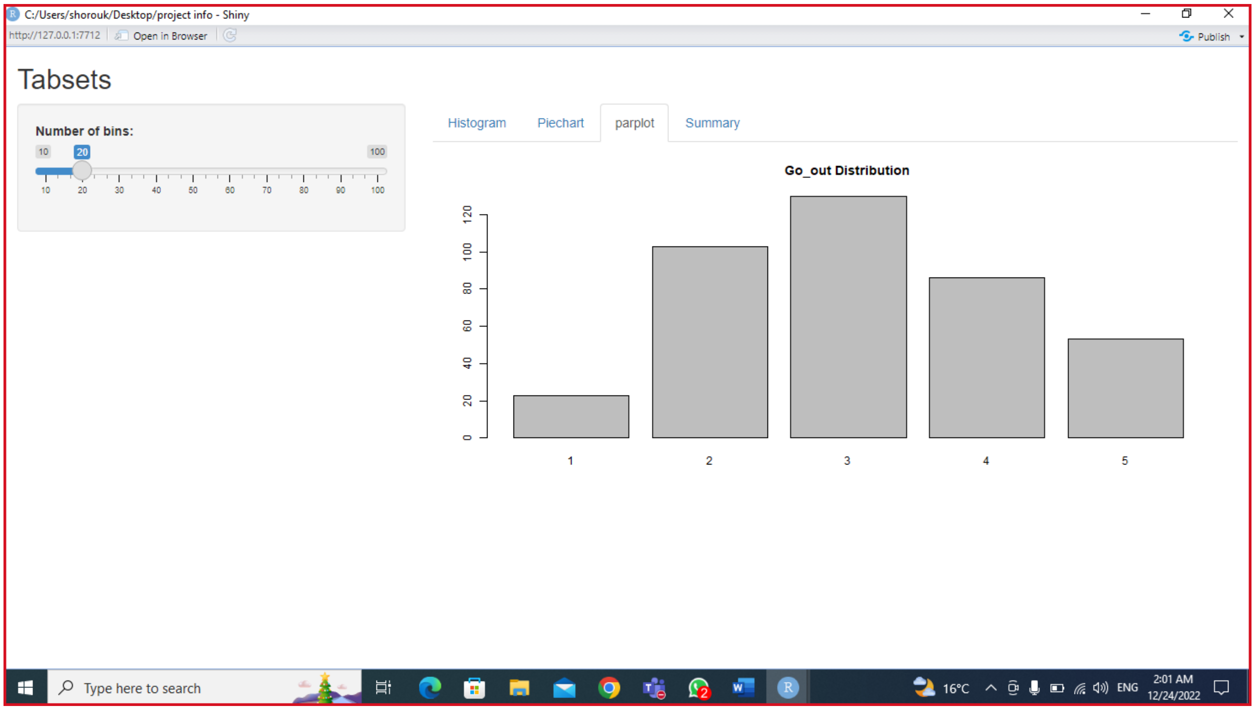
C:/Users/shorouk/Desktop/project info - Shiny
http://127.0.0.1:7712
Open in Browser
Publish
Tabsets
Number of bins:
10
20
100
10 20 30 40 50 60 70 80 90 100
Histogram
Piechart
parplot
Summary
Age Histogram
Frequency
0 20 40 60 80 100
15 16 17 18 19 20 21 22
Age
Type here to search
16°C
ENG
1:56 AM
12/24/2022

2) Pie chart

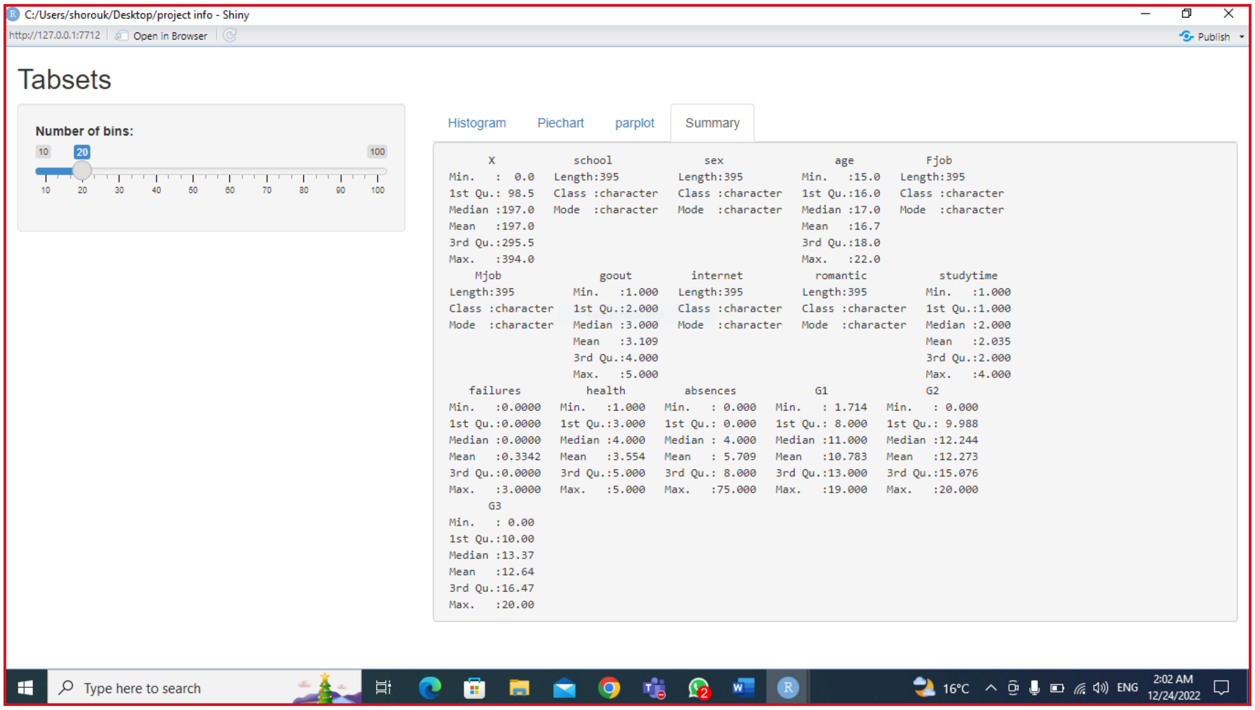


C:/Users/shorouk/Desktop/project info - Shiny
http://127.0.0.1:7712
Open in Browser
Publish
Tabsets
Number of bins:
10
20
100
10 20 30 40 50 60 70 80 90 100
Histogram
Piechart
parplot
Summary
pie chart of G
G1 30.2065276868041%
G2 34.3822829877094%
G3 35.4111893254865%
Type here to search
16°C
ENG
1:59 AM
12/24/2022

3) Par chart:



4)Summary:



```
       X            school              sex                 age            Fjob          
 Min.   :  0.0   Length:395         Length:395         Min.   :15.0   Length:395        
 1st Qu.: 98.5   Class :character   Class :character   1st Qu.:16.0   Class :character  
 Median :197.0   Mode  :character   Mode  :character   Median :17.0   Mode  :character  
 Mean   :197.0                                         Mean   :16.7                     
 3rd Qu.:295.5                                         3rd Qu.:18.0                     
 Max.   :394.0                                         Max.   :22.0                     
     Mjob               goout         internet           romantic           studytime    
 Length:395         Min.   :1.000   Length:395         Length:395         Min.   :1.000  
 Class :character   1st Qu.:2.000   Class :character   Class :character   1st Qu.:1.000  
 Mode  :character   Median :3.000   Mode  :character   Mode  :character   Median :2.000  
                    Mean   :3.109                                         Mean   :2.035  
                    3rd Qu.:4.000                                         3rd Qu.:2.000  
                    Max.   :5.000                                         Max.   :4.000  
    failures          health         absences            G1               G2        
 Min.   :0.0000   Min.   :1.000   Min.   : 0.000   Min.   : 1.714   Min.   : 0.000  
 1st Qu.:0.0000   1st Qu.:3.000   1st Qu.: 0.000   1st Qu.: 8.000   1st Qu.: 9.988  
 Median :0.0000   Median :4.000   Median : 4.000   Median :11.000   Median :12.244  
 Mean   :0.3342   Mean   :3.554   Mean   : 5.709   Mean   :10.783   Mean   :12.273  
 3rd Qu.:0.0000   3rd Qu.:5.000   3rd Qu.: 8.000   3rd Qu.:13.000   3rd Qu.:15.076  
 Max.   :3.0000   Max.   :5.000   Max.   :75.000   Max.   :19.000   Max.   :20.000  
       G3       
 Min.   : 0.00  
 1st Qu.:10.00  
 Median :13.37  
 Mean   :12.64  
 3rd Qu.:16.47  
 Max.   :20.00  
```