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Alpha Orionis

Probability & Statistics

**CODE:**

# Load R packages

library(shiny)

library(shinythemes)

library(hms)

library(readr)

mydataset <- read\_csv("meteorite\_landings.csv")

data(mydataset)

mydataset <- na.omit(mydataset)

library(Hmisc)

library(dplyr)

library(plyr)

library(magrittr)

library(plotrix)

library(ggplot2)

packages <- c('tidyverse','leaflet','leaflet.extras','DT','ggplot2','htmltools')

for (p in packages){

if (!require(p,character.only=T)){

install.packages(p)

}

library(p, character.only=T)

}

# UI

ui <- fluidPage(theme = shinytheme("cyborg"),

navbarPage(

"Alpha Orionis",

tabPanel("Central Tendency & Dispersion",

mainPanel(

h1("Median"),

h2("Mass"),

verbatimTextOutput("mass"),

h1("Inter Quartile Range"),

h2("Mass"),

verbatimTextOutput("iqrmass"),

)

),

tabPanel("Graphical Representaion",

mainPanel(

h1("Box Plot of Meteorite's Mass"),

plotOutput("box1"),

h1("Histogram of Meteorite Landing Year"),

plotOutput("hist1"),

h1("Histogram of Meteorite's Mass"),

plotOutput("hist2"),

h1("Distribution of Mass"),

plotOutput("g1"),

)

),

tabPanel("Probability Distribution",

mainPanel(

h1("Hypergeometric PDFr"),

verbatimTextOutput("HPDF"),

)

),

tabPanel("Summary of Data", ),

tabPanel("Regression Modelling",

mainPanel(

h1("Linear Regression on Mass & Year"),

verbatimTextOutput("reg"),

plotOutput("reg2"),

)

),

)

)

#server

server <- function(input, output) {

output$mass<- renderText({

x <- mydataset$`mass (g)`

sort(x, decreasing = FALSE)

median(x)

})

output$iqrmass<- renderText({

IQR(mydataset$`mass (g)`)

})

output$box1<-renderPlot({

massofmeteorite=new$`mass (g)`

boxplot(massofmeteorite)

})

output$hist1 <- renderPlot({

landingyear=mydataset$year

hist(landingyear,col=blues9, ylim= c(0, 25000),xlim = c(1800, 2300), breaks=18,main="Histogram of Meteorite Landing Year")

})

output$g1<-renderPlot({

massofmeteorite=new$`mass (g)`

fillColor = "#FFFFFF"

fillColor2 = "#FFA500"

mydataset %>%

ggplot(aes(massofmeteorite) )+

geom\_histogram(fill = fillColor2) +

scale\_x\_log10() +

scale\_y\_log10() +

labs(x = 'Mass in gms' ,y = 'Count', title = paste("Distribution of", "mass")) +

theme\_bw()

})

output$hist2<-renderPlot({

new=mydataset

massofmeteorite=new$`mass (g)`

hist(massofmeteorite,col=blues9, ylim= c(0, 40000),xlim = c(0, 60000000), breaks=18)

})

output$hpdf<-renderText({

((choose(k,x)\*choose(N-k, n-x))/(choose(N,n)))

})

output$reg<-renderUI({

y=mydataset$id

x0=rep(1,38115)

x1=c(mydataset$`mass (g)`)

x2=mydataset$year

x=cbind(x0,x1,x2)

bhat = solve(t(x)%\*%x)%\*%(t(x)%\*%y)

yhat=x%\*%bhat

e=y-yhat

reg = lm(y~(x1+x2))

summary(reg)

})

output$reg2<-renderPlot({

y=mydataset$id

x0=rep(1,38115)

x1=c(mydataset$`mass (g)`)

x2=mydataset$year

x=cbind(x0,x1,x2)

bhat = solve(t(x)%\*%x)%\*%t(x)%\*%y

yhat=x%\*%bhat

e=y-yhat

sum(e^2)

reg = lm(y~(x1+x2))

plot(x1~y)

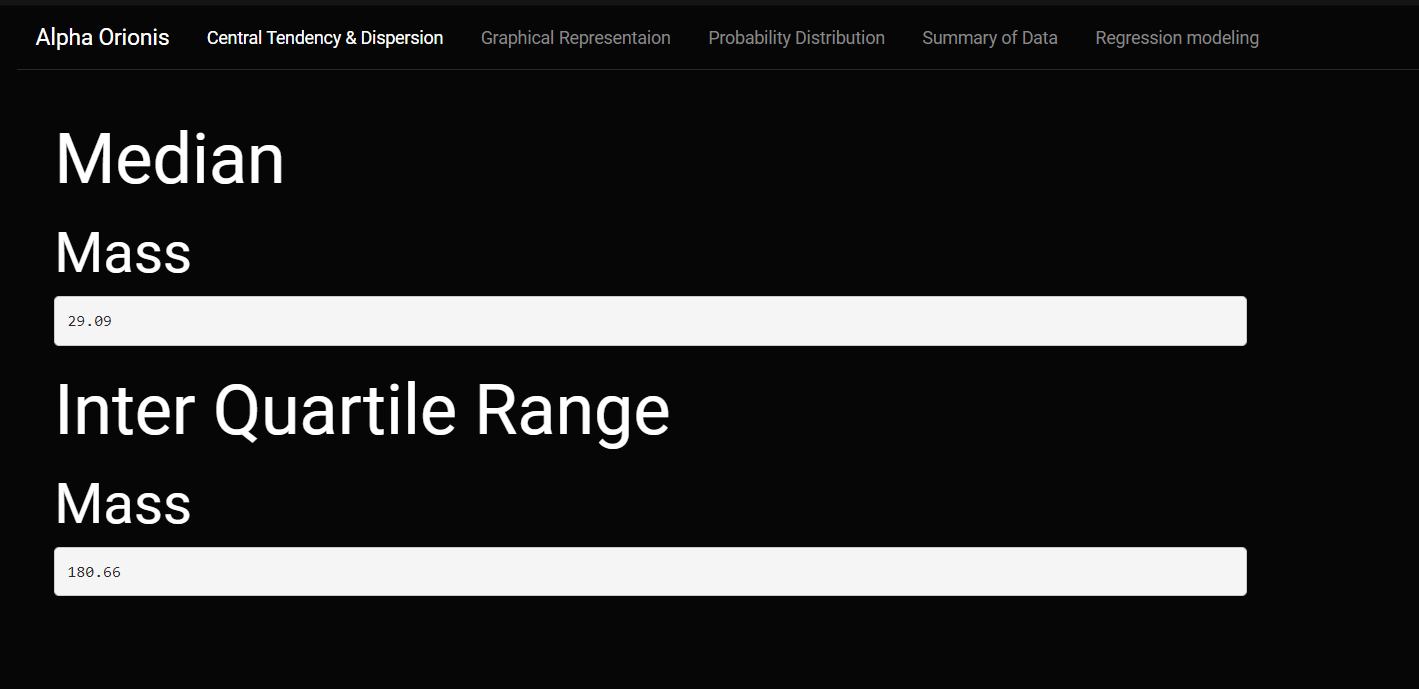
plot(x2~y)

})

}

# Application

shinyApp(ui = ui, server = server)



Chart, box and whisker chart

Description automatically generated with medium confidence

Chart, histogram

Description automatically generated

Graphical user interface, text, application, email

Description automatically generated

Chart, histogram

Description automatically generated

Chart

Description automatically generated

A screenshot of a computer

Description automatically generated with low confidence