# Big Data Visualisation

## Assignment-1

**C.Adeline Rajaselvam**
**RA2111032010031**

```
R version 4.4.1 (2024-06-14) -- "Race for Your Life"
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 Platform: aarch64-apple-darwin20
 R is free software and comes with ABSOLUTELY NO WARRANTY.
 You are welcome to redistribute it under certain conditions.
 Type 'license()' or 'licence()' for distribution details.
  Natural language support but running in an English locale
 R is a collaborative project with many contributors.
 Type 'contributors()' for more information and
 'citation()' on how to cite R or R packages in publications.
 Type 'demo()' for some demos, 'help()' for on-line help, or
 'help.start()' for an HTML browser interface to help.
 Type 'q()' to quit R.

# Load necessary libraries
library(ggplot2)

# Generate synthetic data
set.seed(123)
data <- data.frame(
  X = rnorm(100, mean = 50, sd = 10),  # Normal distribution for X
  Y = rnorm(100, mean = 30, sd = 5),   # Normal distribution for Y
  Category = sample(letters[1:3], 100, replace = TRUE)  # Categorical data
)

# Scatter plot
ggplot(data, aes(x = X, y = Y)) +
  geom_point() +
  labs(title = "Scatter Plot", x = "X-axis", y = "Y-axis")
```

```
# Histogram
ggplot(data, aes(x = X)) +
  geom_histogram(binwidth = 2, fill = "blue", color = "black") +
  labs(title = "Histogram", x = "X-axis", y = "Count")

# Boxplot
ggplot(data, aes(x = Category, y = Y, fill = Category)) +
  geom_boxplot() +
  labs(title = "Boxplot", x = "Category", y = "Y-axis")

# Line plot
ggplot(data, aes(x = 1:nrow(data), y = X)) +
  geom_line(color = "red") +
  labs(title = "Line Plot", x = "Index", y = "X-axis")

# Density plot
ggplot(data, aes(x = X)) +
  geom_density(fill = "green") +
  labs(title = "Density Plot", x = "X-axis", y = "Density")

# Bar chart
ggplot(data, aes(x = Category)) +
  geom_bar(fill = "orange") +
  labs(title = "Bar Chart", x = "Category", y = "Count")

# Pie chart
pie_data <- table(data$Category)
pie_labels <- paste(names(pie_data), "\n", pie_data, sep = "")
pie(pie_data, labels = pie_labels, main = "Pie Chart", col = rainbow(length(pie_data)))

# Dot chart
dotchart(data$X, labels = rownames(data), main = "Dot Chart", xlab = "X-axis")
```

ODI_Stats

Filter

| | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 | V10 |
|---|---|---|---|---|---|---|---|---|---|---|
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Showing 1 to 18 of 101 entries, 13 total columns

R 4.4.1 · ~/

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> # Scatter plot
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+     geom_point() +
+     labs(title = "Scatter Plot", x = "X-axis", y = "Y-axis")
>
> # Histogram
> ggplot(data, aes(x = X)) +
+     geom_histogram(binwidth = 2, fill = "blue", color = "black") +
+     labs(title = "Histogram", x = "X-axis", y = "Count")
>
> # Boxplot
> ggplot(data, aes(x = Category, y = Y, fill = Category)) +
+     geom_boxplot() +
+     labs(title = "Boxplot", x = "Category", y = "Y-axis")
>
> # Line plot
> ggplot(data, aes(x = 1:nrow(data), y = X)) +
+     geom_line(color = "red") +
+     labs(title = "Line Plot", x = "Index", y = "X-axis")
```

Environment | History | Connections | Tutorial

Import Dataset · 308 MiB · List

R · Global Environment

| Data | |
|---|---|
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| data | 100 obs. of 3 variables |
| ODI_Stats | 101 obs. of 13 variables |
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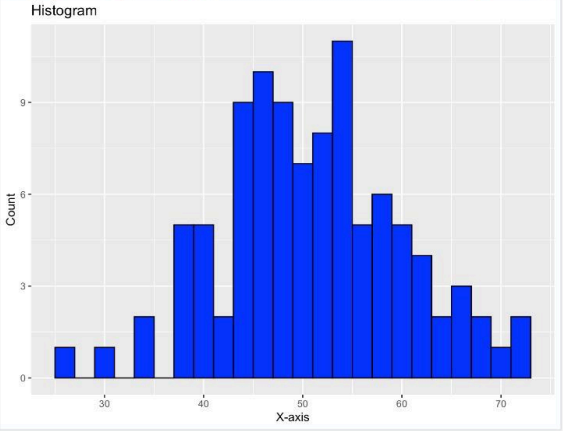
Files | Plots | Packages | Help | Viewer | Presentation

Zoom · Export · Publish

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R · Global Environment

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Files | Plots | Packages | Help | Viewer | Presentation

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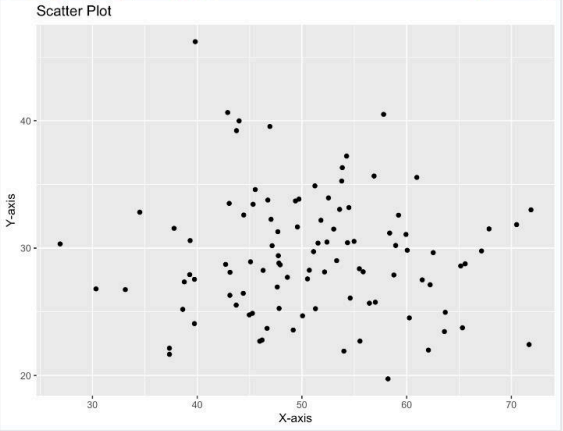

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>
> View(asthma_disease_data)
Warning message:
In doTryCatch(return(expr), name, parentenv, handler) :
  display list redraw incomplete
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> gc()
         used (Mb) gc trigger  (Mb) limit (Mb) max used  (Mb)
Ncells 1236162 66.1    2157927 115.3         NA  2157927 115.3
Vcells 2296183 17.6    8388608  64.0      18432  7037918  53.7
>
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Environment | History | Connections | Tutorial

Import Dataset | 322 MiB | List

R | Global Environment

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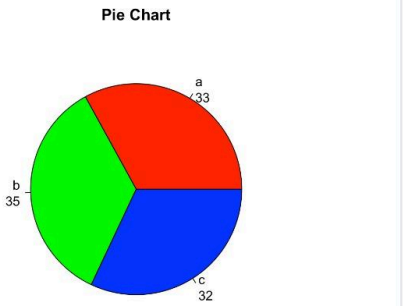


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Files | Plots | Packages | Help | Viewer | Presentation

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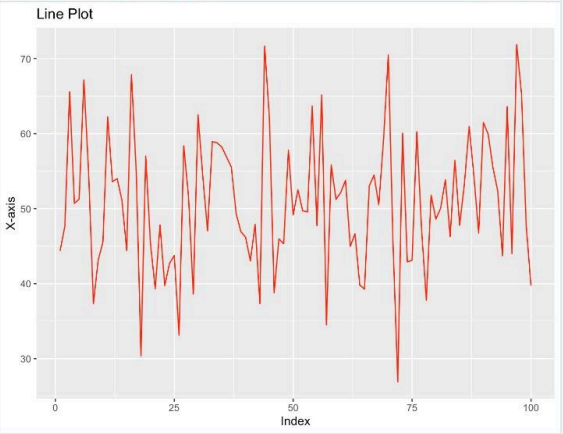

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```

Environment | History | Connections | Tutorial

Import Dataset | 323 MiB | List

R | Global Environment

Data

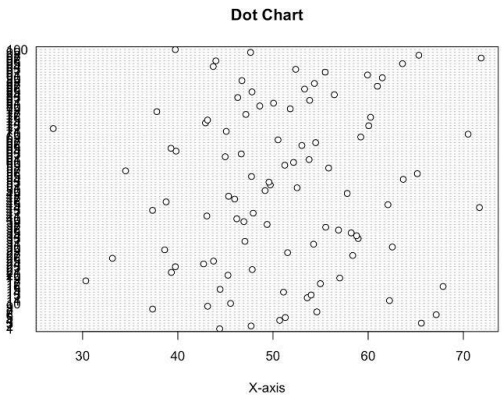
| | |
|---|---|
| asthma_disease_data | 2393 obs. of 29 variables |
| data | 100 obs. of 3 variables |
| ODI_Stats | 101 obs. of 13 variables |

Values

| | |
|---|---|
| gender_count | 'table' int [1:2(1d)] 56 44 |
| pie_data | 'table' int [1:3(1d)] 33 35 32 |
| pie_labels | chr [1:3] "a\n33" "b\n35" "c\n32" |

Files | Plots | Packages | Help | Viewer | Presentation

Zoom | Export | Publish




ODI_Stats

Filter

| | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 | V10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Player (Teams Played) | Span | Matches | Innings | Not Outs | Runs | High Score (* = Not Out) | Average | Balls Faced | Strike Ra |
| 2 | SR Tendulkar (IND) | 1989–2012 | 463 | 452 | 41 | 18426 | 200* | 44.83 | 21368 | 86.23 |
| 3 | KC Sangakkara (Asia/ICC/SL) | 2000–2015 | 404 | 380 | 41 | 14234 | 169 | 41.98 | 18048 | 78.86 |
| 4 | V Kohli (IND) | 2008–2023 | 292 | 280 | 44 | 13848 | 183 | 58.67 | 14797 | 93.58 |
| 5 | RT Ponting (AUS/ICC) | 1995–2012 | 375 | 365 | 39 | 13704 | 164 | 42.03 | 17046 | 80.39 |
| 6 | ST Jayasuriya (Asia/SL) | 1989–2011 | 445 | 433 | 18 | 13430 | 189 | 32.36 | 14725 | 91.2 |
| 7 | DPMD Jayawardene (Asia/SL) | 1998–2015 | 448 | 418 | 39 | 12650 | 144 | 33.37 | 16020 | 78.96 |
| 8 | Inzamam-ul-Haq (Asia/PAK) | 1991–2007 | 378 | 350 | 53 | 11739 | 137* | 39.52 | 15812 | 74.24 |
| 9 | JH Kallis (Afr/ICC/SA) | 1996–2014 | 328 | 314 | 53 | 11579 | 139 | 44.36 | 15885 | 72.89 |
| 10 | SC Ganguly (Asia/IND) | 1992–2007 | 311 | 300 | 23 | 11363 | 183 | 41.02 | 15416 | 73.7 |
| 11 | R Dravid (Asia/ICC/IND) | 1996–2011 | 344 | 318 | 40 | 10889 | 153 | 39.16 | 15285 | 71.23 |
| 12 | MS Dhoni (Asia/IND) | 2004–2019 | 350 | 297 | 84 | 10773 | 183* | 50.57 | 12303 | 87.56 |
| 13 | RG Sharma (IND) | 2007–2023 | 262 | 254 | 36 | 10709 | 264 | 49.12 | 11644 | 91.97 |
| 14 | CH Gayle (ICC/WI) | 1999–2019 | 301 | 294 | 17 | 10480 | 215 | 37.83 | 12019 | 87.19 |
| 15 | BC Lara (ICC/WI) | 1990–2007 | 299 | 289 | 32 | 10405 | 169 | 40.48 | 13086 | 79.51 |
| 16 | TM Dilshan (SL) | 1999–2016 | 330 | 303 | 41 | 10290 | 161* | 39.27 | 11933 | 86.23 |
| 17 | Mohammad Yousuf (Asia/PAK) | 1998–2010 | 288 | 273 | 40 | 9720 | 141* | 41.71 | 12942 | 75.1 |
| 18 | AC Gilchrist (AUS/ICC) | 1996–2008 | 287 | 279 | 11 | 9619 | 172 | 35.89 | 9922 | 96.94 |
| 19 | AB de Villiers (Afr/SA) | 2005–2018 | 228 | 218 | 39 | 9577 | 176 | 53.5 | 9473 | 101.09 |

Showing 1 to 19 of 101 entries, 13 total columns

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```
> pie_labels <- paste(names(pie_data), "\n", pie_data, sep = " ")
> pie(pie_data, labels = pie_labels, main = "Pie Chart", col = rainbow(length(pie_data)))
>
> # Dot chart
> dotchart(data$X, labels = rownames(data), main = "Dot Chart", xlab = "X-axis")
>
> View(asthma_disease_data)
Warning message:
In doTryCatch(return(expr), name, parentenv, handler) :
  display list redraw incomplete
> View(ODI_Stats)
> View(asthma_disease_data)
> View(asthma_disease_data)
> View(asthma_disease_data)
> View(ODI_Stats)
> gc()
         used (Mb) gc trigger  (Mb) limit (Mb) max used  (Mb)
Ncells 1236162 66.1    2157927 115.3         NA  2157927 115.3
Vcells 2296183 17.6    8388608  64.0      18432  7037918  53.7
>
```

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Files | Plots | Packages | Help | Viewer | Presentation

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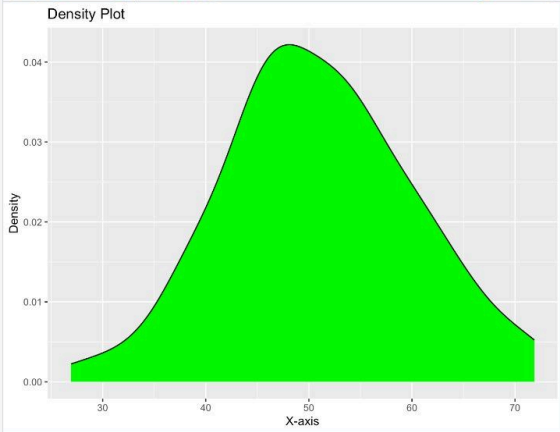

ODI_Stats

| | V1 | V2 | V3 | V4 | V5 | V6 | V7 | V8 | V9 | V10 |
|---|---|---|---|---|---|---|---|---|---|---|
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Showing 1 to 18 of 101 entries, 13 total columns

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```
>
> # Scatter plot
> ggplot(data, aes(x = X, y = Y)) +
+     geom_point() +
+     labs(title = "Scatter Plot", x = "X-axis", y = "Y-axis")
>
> # Histogram
> ggplot(data, aes(x = X)) +
+     geom_histogram(binwidth = 2, fill = "blue", color = "black") +
+     labs(title = "Histogram", x = "X-axis", y = "Count")
>
> # Boxplot
> ggplot(data, aes(x = Category, y = Y, fill = Category)) +
+     geom_boxplot() +
+     labs(title = "Boxplot", x = "Category", y = "Y-axis")
>
> # Line plot
> ggplot(data, aes(x = 1:nrow(data), y = X)) +
+     geom_line(color = "red") +
+     labs(title = "Line Plot", x = "Index", y = "X-axis")
```

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