

**SHETH L.U.J AND SIR M.V COLLEGE
PRACTICAL NO: 10,11,12
OUTPUTS:**

10 Creating graphical reports using `ggplot2` (R).

Practical 1 to 6 - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Source

Console Terminal < Background Jobs

R - R452 ~Practical 1 to 6/

```
> # Data frame creation
> team_records<- data.frame(Matches_played= c(22, 10, 11, 844, 38, 36, 413, 187, 516, 201, 23.25, 8.14, 22),
+ Matches_won = c(10, 12, 14, 10, 11, 6, 15, 9, 10, 6, ...),
+ Matches_lost = c(9, 12, 10, 12, 5, 7, 9, 12, 2, ...),
+ Total_pts = c(848, 789, 792, 724, 723, 698, 705, 665, 663, 621, ...),
+ Avg_pts = c(38.4, 37.6, 37.7, 38.1, 36.1, ...),
+ Successful_raids = c(413, 356, 351, 321, 318, 369, 299, 310, 288, 285, ...),
+ Successful_tackles = c(187, 209, 220, 195, 203, 146, 199, 171, 194, 182, ...),
+ Raid_pts = c(516, 458, 420, 407, 401, 462, 395, 385, 352, 354, ...),
+ Tackle_pts = c(201, 227, 244, 223, 221, 160, 207, 188, 219, 195, ...),
+ Avg_raids_pts = c(23.2, 21.8, 20, 21.4, 20.1, ...),
+ Avg_tackles_pts = c(9.14, 10.1, 10.62, 10.74, 11.05, ...),
+ Super_tackles = c(1, 2, 3, 2, 28, 18, 16, 10, 27, 14, ...),
+ DOD_raids_pts = c(65, 63, 52, 43, 56, 24, 65, 45, 47, 42, ...),
+ total_pts_conceded = c(812, 744, 728, 709, 662, 807, 681, 735, 687, 656, ...),
+ Super_raids = c(11, 8, 11, 8, 7, 8, 20, 9, 11, 8, ...),
+ total_raids = c(912, 864, 844, 790, 815, 751, 796, 830, 807, 738, ...),
+ All_outs_inflicted = c(35, 28, 39, 31, 29, 20, 30, 21, 20, 21, ...),
+ All_outs_conceded = c(24, 28, 30, 23, 34, 20, 28, 25, 27, ...))

> head(team_records)
#> # Data frame creation
#> team_records$Team <- as.factor(team_records$Team)

> ggplot(team_records, aes(x = Team)) +
+ geom_bar() +
+ labs(title = "Number of Teams", x = "Team", y = "Count") +
+ theme_minimal() +
+ theme(axis.text.x = element_text(angle = 45, hjust = 1))
#>
#> ggplot(team_records, aes(x = Team, y = Matches_won)) +
```

SHETH L.U.J AND SIR M.V COLLEGE
PRACTICAL NO: 10,11,12
OUTPUTS:

Practical 1 to 6 - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Source

Console Terminal Background Jobs

R 4.5.2 . ~/Practical 1 to 6/

```

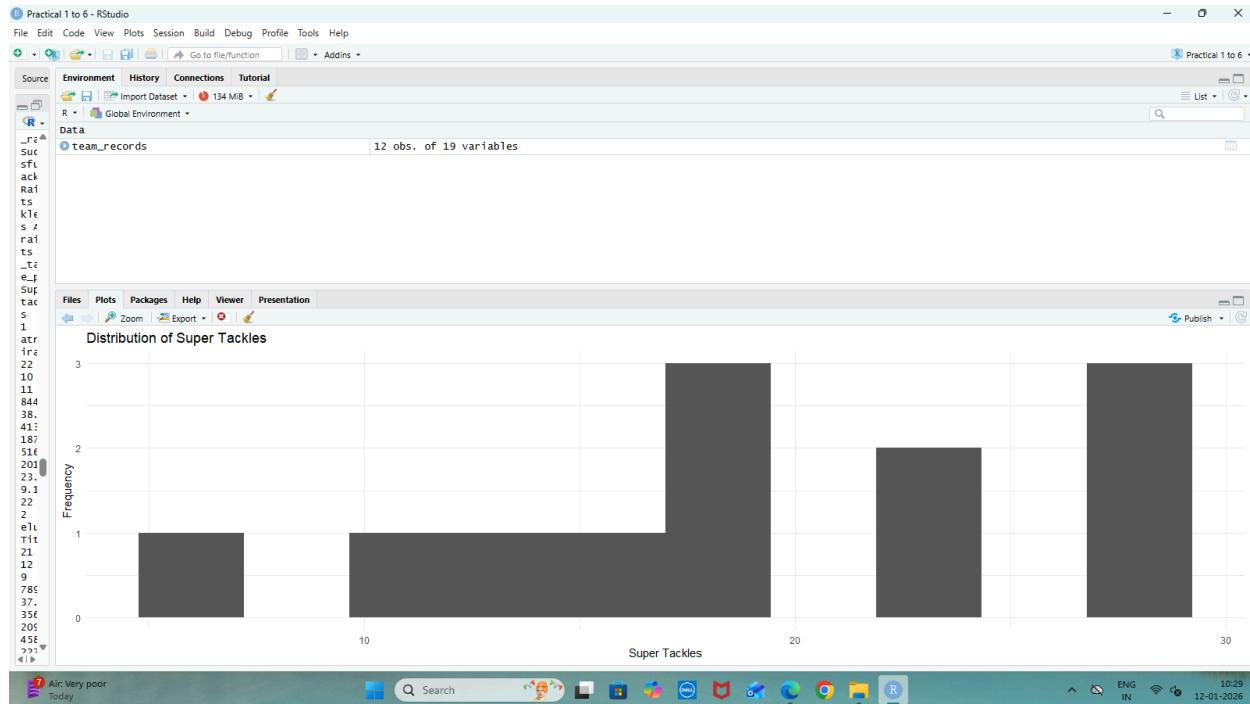
6          24          807          8          751          20          34
>
> team_records$Team <- as.factor(team_records$Team)
>
> ggplot(team_records, aes(x = Team)) +
+   geom_bar() +
+   labs(title = "Number of Teams", x = "Team", y = "Count") +
+   theme_minimal() +
+   theme(axis.text.x = element_text(angle = 45, hjust = 1))
>
> ggplot(team_records, aes(x = Team, y = Matches_won)) +
+   geom_bar(stat = "identity") +
+   labs(title = "Matches Won by Each Team", x = "Team", y = "Matches Won") +
+   theme_minimal() +
+   theme(axis.text.x = element_text(angle = 45, hjust = 1))
>
> ggplot(team_records, aes(x = Team, y = Total_pts)) +
+   geom_bar(stat = "identity") +
+   labs(title = "Total Points by Team", x = "Team", y = "Total Points") +
+   theme_minimal() +
+   theme(axis.text.x = element_text(angle = 45, hjust = 1))
>
> ggplot(team_records, aes(x = Team, y = Avg_pts)) +
+   geom_boxplot() +
+   labs(title = "Average Points Distribution", x = "Team", y = "Average Points") +
+   theme_minimal() +
+   theme(axis.text.x = element_text(angle = 45, hjust = 1))
>
> ggplot(team_records, aes(x = successful_raids, y = successful_tackles)) +
+   geom_point(alpha = 0.7) +
+   labs(title = "Successful Raids vs Successful Tackles",
+        x = "Successful Raids",
+        y = "Successful Tackles") +
+   theme_minimal()
>
> ggplot(team_records, aes(x = super_tackles)) +
+   geom_histogram(bins = 10) +
+   labs(title = "Distribution of Super Tackles",
+        x = "Super Tackles",
+        y = "Frequency") +
+   theme_minimal()
> |

```

Air: Very poor Today

Search

R



SHETH L.U.J AND SIR M.V COLLEGE

PRACTICAL NO: 10,11,12

OUTPUTS:

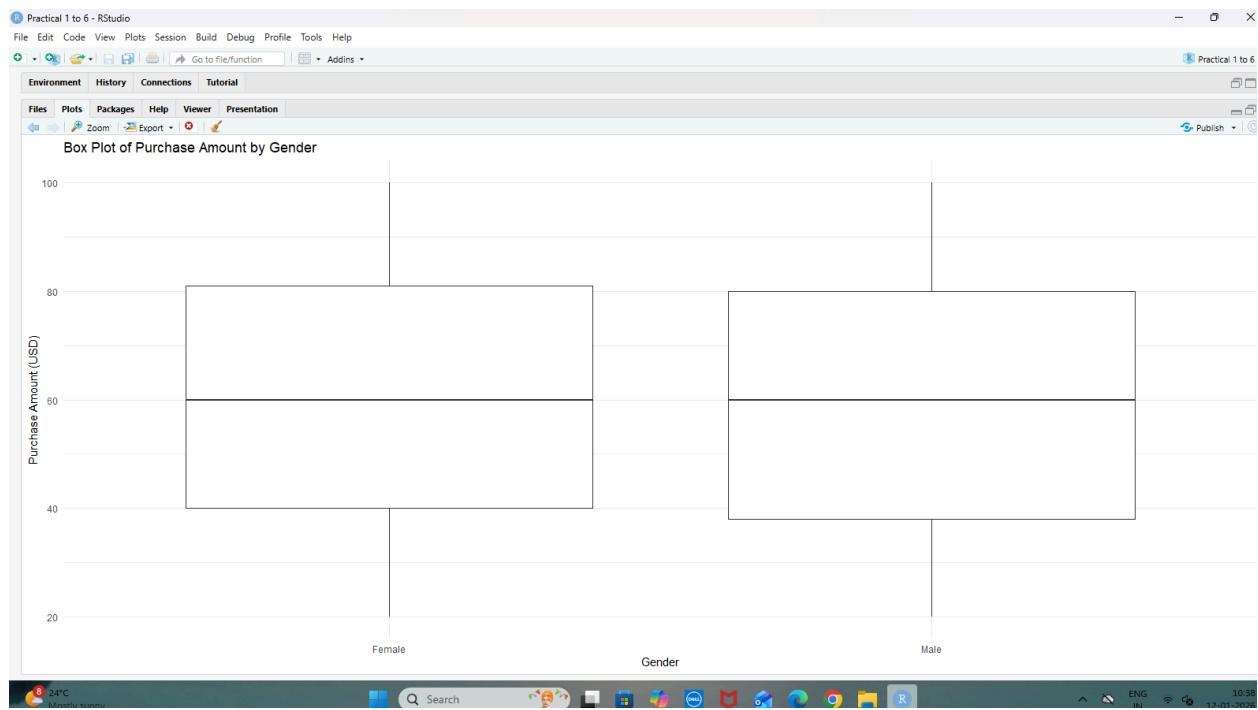
11 Generating histograms and box plots using ggplot2 (R).

```
Practical 1 to 6 - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Source Terminal Background Jobs
R > R 4.5.2 - ~/Practical 1 to 6/
> shopping_data <- read.csv("C:/users/mvlui/Downloads/shopping behaviour.csv")
> head(shopping_data)
Customer.ID Age Gender Item.Purchased Category Purchase.Amount..USD. Location.size Color Season Review.Rating Subscription.Status Discount.Applied Previous.Purchases
1 1 55 Male Blouse Clothing 53 Kentucky L Gray Winter 3.1 Yes Yes 14
2 2 19 Male Sweater Clothing 64 Maine L Maroon Winter 3.1 Yes Yes 2
3 3 50 Male Jeans Clothing 73 Massachusetts S Maroon Spring 3.1 Yes Yes 23
4 4 21 Male Sandals Footwear 90 Rhode Island M Maroon Spring 3.5 Yes Yes 49
5 5 45 Male Blouse Clothing 49 Oregon M Turquoise Spring 2.7 Yes Yes 31
6 6 46 Male Sneakers Footwear 20 Wyoming M White Summer 2.9 Yes Yes 14
Payment.Method Frequency.of.Purchases
1 Verno Fortnightly
2 Cash Fortnightly
3 Credit Card weekly
4 PayPal weekly
5 PayPal Annually
6 Verno weekly
> str(shopping_data)
'data.frame': 3900 obs. of 16 variables:
 $ Customer.ID : int 1 2 3 4 5 6 7 8 9 10 ...
 $ Age          : int 55 19 50 21 45 46 63 27 26 57 ...
 $ Gender        : chr "Male" "Male" "Male" "Male" ...
 $ Item.Purchased: chr "Blouse" "Sweater" "Jeans" "Sandals"
 $ Category      : chr "Clothing" "Clothing" "Clothing" "Footwear" ...
 $ Purchase.Amount..USD. : int 53 64 73 90 49 20 85 34 97 31 ...
 $ Location      : chr "Kentucky" "Maine" "Massachusetts" "Rhode Island" ...
 $ Size          : chr "L" "L" "S" "M" ...
 $ Color          : chr "Gray" "Maroon" "Maroon" "Maroon" ...
 $ Season         : chr "Winter" "Winter" "Spring" "Spring" ...
 $ Review.Rating  : num 3.2 3.1 3.1 3.5 2.7 2.9 3.2 3.2 2.6 4.8 ...
 $ Subscription.Status: chr "Yes" "Yes" "Yes" "Yes" ...
 $ Discount.Applied: chr "Yes" "Yes" "Yes" "Yes" ...
 $ Previous.Purchases : int 14 2 23 49 31 14 49 19 8 4 ...
 $ Payment.Method   : chr "Verno" "Cash" "Credit Card" "PayPal" ...
 $ Frequency.of.Purchases: chr "Fortnightly" "Fortnightly" "weekly" "weekly" ...
>
> ggplot(shopping_data, aes(x = Purchase.Amount..USD.)) +
+   geom_histogram(binwidth = 10) +
+   tabs(
+     title = "Histogram of Purchase Amount",
+     x = "Purchase Amount (USD)",
+     y = "Frequency"
+   )
24°C Mostly sunny 10:38 ENG IN 12-01-2026
```

```
Practical 1 to 6 - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Source Terminal Background Jobs
R > R 4.5.2 - ~/Practical 1 to 6/
$ Subscription.Status : chr "Yes" "Yes" "Yes" "Yes" ...
$ Discount.Applied   : chr "yes" "yes" "yes" ...
$ Previous.Purchases : int 14 2 23 49 31 14 49 19 8 4 ...
$ Payment.Method     : chr "Verno" "Cash" "Credit Card" "PayPal" ...
$ Frequency.of.Purchases: chr "Fortnightly" "Fortnightly" "weekly" "weekly" ...
>
> ggplot(shopping_data, aes(x = Purchase.Amount..USD.)) +
+   geom_histogram(binwidth = 10) +
+   tabs(
+     title = "Histogram of Purchase Amount",
+     x = "Purchase Amount (USD)",
+     y = "Frequency"
+   ) +
+   theme_minimal()
>
> ggplot(shopping_data, aes(x = Purchase.Amount..USD.)) +
+   geom_histogram(binwidth = 10) +
+   facet_wrap(~ Category) +
+   tabs(
+     title = "Histogram of Purchase Amount by Category",
+     x = "Purchase Amount (USD)",
+     y = "Frequency"
+   ) +
+   theme_minimal()
>
> ggplot(shopping_data, aes(y = Purchase.Amount..USD.)) +
+   geom_boxplot() +
+   tabs(
+     title = "Box Plot of Purchase Amount",
+     y = "Purchase Amount (USD)"
+   ) +
+   theme_minimal()
>
> ggplot(shopping_data, aes(x = Gender, y = Purchase.Amount..USD.)) +
+   geom_boxplot() +
+   tabs(
+     title = "Box Plot of Purchase Amount by Gender",
+     x = "Gender",
+     y = "Purchase Amount (USD)"
+   ) +
+   theme_minimal()
> |
```

24°C Mostly sunny 10:38 ENG IN 12-01-2026

SHETH L.U.J AND SIR M.V COLLEGE
PRACTICAL NO: 10,11,12
OUTPUTS:



12 Generating correlation matrices using `cor()` (R).

SHETH L.U.J AND SIR M.V COLLEGE

PRACTICAL NO: 10,11,12

OUTPUTS:

```
> ggpplot(shopping_data, aes(x = Gender, y = Purchase.Amount..USD.)) +
+   geom_boxplot() +
+   labs(
+     title = "Box Plot of Purchase Amount by Gender",
+     x = "Gender",
+     y = "Purchase Amount (USD)"
+   ) +
+   theme_minimal()
> shopping_data <- read.csv("C:/Users/mvlui/Downloads/shopping behaviour.csv")
> head(shopping_data)
#> #> #> #> #>
Customer.ID Age Gender Item.Purchased Category Purchase.Amount..USD. Location Size Color Season Review.Rating Subscription.Status Discount.Applied Previous.Purchases
#> 1 55 Male Blouse Clothing 53 Kentucky L Gray Winter 3.1 Yes Yes Yes 14
#> 2 19 Male Sweater Clothing 64 Maine L Maroon Winter 3.1 Yes Yes Yes 2
#> 3 50 Male Jeans Clothing 73 Massachusetts S Maroon Spring 3.1 Yes Yes Yes 23
#> 4 21 Male Sandals Footwear 90 Rhode Island M Maroon Spring 3.5 Yes Yes Yes 49
#> 5 45 Male Blouse Clothing 49 Oregon M Turquoise Spring 2.7 Yes Yes Yes 31
#> 6 61 Male Sandals Footwear 20 Wyoming M White Summer 2.9 Yes Yes Yes 14
Payment.Method Frequency.of.Purchases
#> 1 Venmo Fortnightly
#> 2 Cash Fortnightly
#> 3 Credit Card Weekly
#> 4 Paypal Weekly
#> 5 Paypal Annually
#> 6 Venmo Weekly
> str(shopping_data)
#> #> #> #> #> #>
datatype: 3900 obs. of 16 variables:
$ Customer.ID : int 1 2 3 4 5 6 7 8 9 10 ...
$ Age          : int 55 19 50 21 45 46 63 27 26 57 ...
$ Gender        : chr "Male" "Male" "Male" "Male" ...
$ Item.Purchased : chr "Blouse" "Sweater" "Jeans" "Sandals" ...
$ Category      : chr "Clothing" "Clothing" "Clothing" "Footwear" ...
$ Purchase.Amount..USD. : int 53 64 73 90 49 20 85 34 97 31 ...
$ Location      : chr "Kentucky" "Maine" "Massachusetts" "Rhode Island" ...
$ Size          : chr "L" "L" "S" "M" ...
$ Color         : chr "Gray" "Maroon" "Maroon" "Maroon" ...
$ Season         : chr "Winter" "Winter" "Spring" "Spring" ...
$ Review.Rating : num 3.1 3.1 3.1 3.5 2.7 2.9 3.2 3.2 2.6 4.8 ...

```



```
Practical 1 to 6 - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Source
Console Terminal Background Jobs
R 4.5.2 - ~/Practical 1 to 6/
#> #> #> #> #> #>
Customer.ID Age Purchase.Amount..USD. Review.Rating Previous.Purchases
Customer.ID 1.000000000 -0.004078574 0.011047801 0.001343012 -0.029158526
Age -0.004078574 1.000000000 -0.010423647 -0.021949148 0.040444531
Purchase.Amount..USD. 0.011047801 -0.010423647 1.000000000 0.030775923 0.008063412
Review.Rating 0.001343012 -0.021949148 0.030775923 1.000000000 0.004229099
Previous.Purchases -0.039158526 0.040444531 0.008063412 0.004229099 1.000000000
#> > rounded.correlation <- round(correlation_matrix, 2)
#> > print(rounded.correlation)
#> #> #> #> #> #>
Customer.ID Age Purchase.Amount..USD. Review.Rating Previous.Purchases
Customer.ID 1.00 0.00 0.01 0.00 -0.04
Age 0.00 1.00 -0.01 -0.02 0.04
Purchase.Amount..USD. 0.01 -0.01 1.00 0.03 0.01
Review.Rating 0.00 -0.02 0.03 1.00 0.00
Previous.Purchases -0.04 0.04 0.01 0.00 1.00
> library(ggplot2)
> library(dplyr)

team_records <- read.csv("C:/Users/mvlui/Downloads/team_records.csv")

str(team_records)
head(team_records)

team_records$Team <- as.factor(team_records$Team)

ggplot(team_records, aes(x = Team)) +
  geom_bar() +
  labs(title = "Number of Teams", x = "Team", y = "Count") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

ggplot(team_records, aes(x = Team, y = Matches_won)) +
  geom_bar(stat = "identity") +
  labs(title = "Matches won by Each Team", x = "Team", y = "Matches won") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

ggplot(team_records, aes(x = Team, y = Total_pts)) +
  geom_bar(stat = "identity") +
  labs(title = "Total Points by Team", x = "Team", y = "Total Points") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

```



SHETH L.U.J AND SIR M.V COLLEGE
PRACTICAL NO: 10,11,12
OUTPUTS:

Practical 1 to 6 - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins

Source

Console Terminal Background Jobs

R 4.5.2 . ~/Practical 1 to 6/

```
str(team_records)
head(team_records)

team_records$Team <- as.factor(team_records$Team)

ggplot(team_records, aes(x = Team)) +
  geom_bar() +
  labs(title = "Number of Teams", x = "Team", y = "Count") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

ggplot(team_records, aes(x = Team, y = Matches_won)) +
  geom_bar(stat = "identity") +
  labs(title = "Matches won by Each Team", x = "Team", y = "Matches won") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

ggplot(team_records, aes(x = Team, y = Total_pts)) +
  geom_bar(stat = "identity") +
  labs(title = "Total Points by Team", x = "Team", y = "Total Points") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

ggplot(team_records, aes(x = Team, y = Avg_pts)) +
  geom_boxplot() +
  labs(title = "Average Points Distribution", x = "Team", y = "Average Points") +
  theme_minimal() +
  theme(axis.text.x = element_text(angle = 45, hjust = 1))

ggplot(team_records, aes(x = successful_raids, y = successful_tackles)) +
  geom_point(alpha = 0.7) +
  labs(title = "Successful Raids vs Successful Tackles",
       x = "Successful Raids",
       y = "Successful Tackles") +
  theme_minimal()

ggplot(team_records, aes(x = super_tackles)) +
  geom_histogram(bins = 10) +
  labs(title = "Distribution of Super Tackles",
       x = "super Tackles",
       y = "Frequency") +
  theme_minimal()
```

