

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

## PRACTICAL NO: 10,11,12

### OUTPUTS:

#### 10 Creating graphical reports using ,ggplot2 (R).

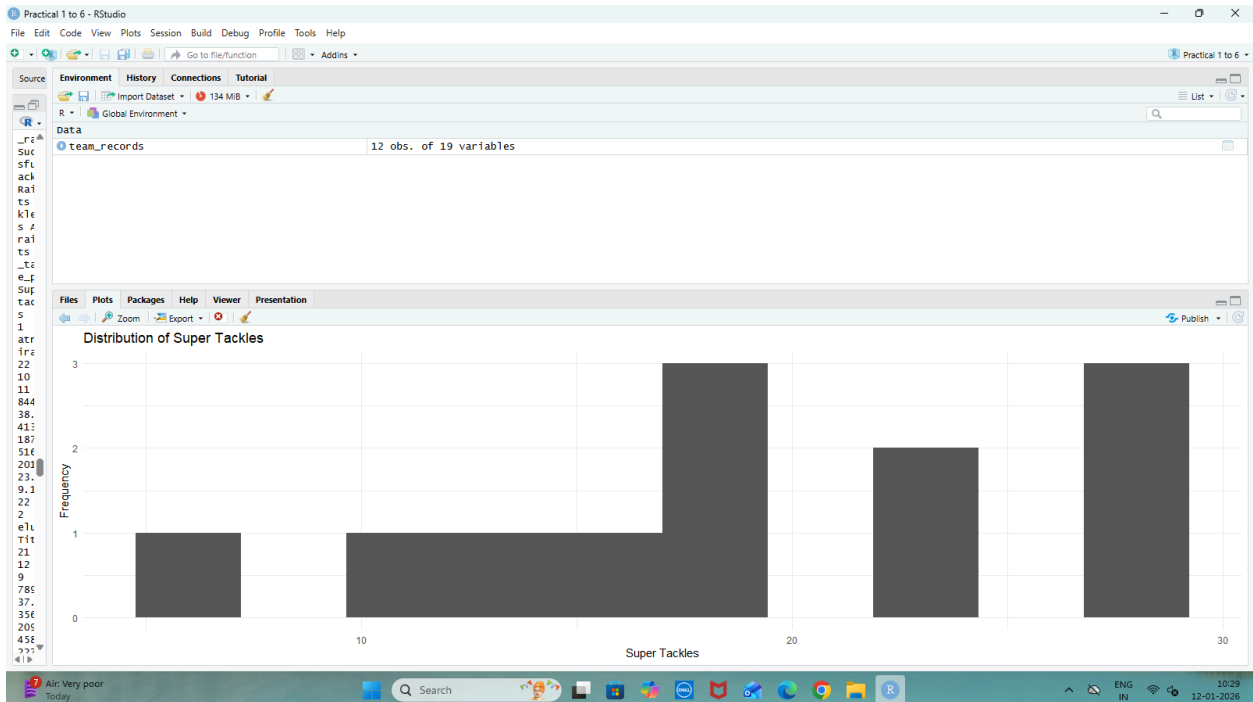
```
Practical 1 to 6 - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Source
Console Terminal Background Jobs
R - R4.5.2 - ~/Practical 1 to 6/
$ Matches_played : int 10 12 14 10 11 6 15 9 10 6 ...
$ Matches_won    : int 11 9 7 9 8 12 5 11 9 12 ...
$ Matches_lost   : int 844 789 792 724 721 698 705 665 663 621 ...
$ Total_pts      : int 38.4 37.6 37.7 38.1 36 ...
$ Avg_pts        : num 9.14 10.81 11.62 11.74 11.05 ...
$ Successful_raids : int 23.2 21.8 20 21.4 20.1 ...
$ Avg_tackle_pts : num 22 18 27 28 19 16 10 19 27 14 ...
$ Super_tackles  : int 65 63 52 43 56 24 65 45 47 42 ...
$ Doo_raids_pts  : int 812 744 728 709 662 807 681 735 687 656 ...
$ Total_pts_conceded : int 11 8 11 8 7 8 20 9 11 8 ...
$ Super_raids    : int 912 864 844 790 815 751 796 830 807 738 ...
$ Total_raids    : int 35 28 39 31 28 20 30 21 20 21 ...
$ All_outs_inflicted : int 24 28 20 30 21 34 20 28 25 27 ...
$ All_outs_conceded : int 24 28 20 30 21 34 20 28 25 27 ...
> head(team_records)
  Team Matches_played Matches_won Matches_lost Total_pts Avg_pts Successful_raids Successful_tackles Raid_pts Tackle_pts Avg_raids_pts Avg_tackle_pts Super_tackles
1 Patna Pirates      22         10          11      844    38.36          413              187        516        201    23.25    9.14          22
2 Telugu Titans      21         12           9      789    37.57          356              209        458        227    21.81   10.81          18
3 Puneri Paltan      21         14           7      792    37.71          351              220        420        244    20.00   11.62          27
4 Haryana Steelers   19         10           9      724    38.11          321              195        407        223    21.42   11.74          28
5 Bengaluru Bulls    20         11           8      721    36.05          318              203        401        221    20.05   11.05          19
6 Bengal warriorz    18          6          12      698    38.78          369              146        462        160    25.67    8.89          16
  Doo_raids_pts Total_pts_conceded Super_raids Total_raids All_outs_inflicted All_outs_conceded
1          65           812          11          912           35           24
2          63           744           8          864           28           28
3          52           728          11          844           39           20
4          43           709           8          790           31           30
5          56           662           7          815           28           21
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)) +
```

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### OUTPUTS:

```
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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()
> |
```



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### OUTPUTS:

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

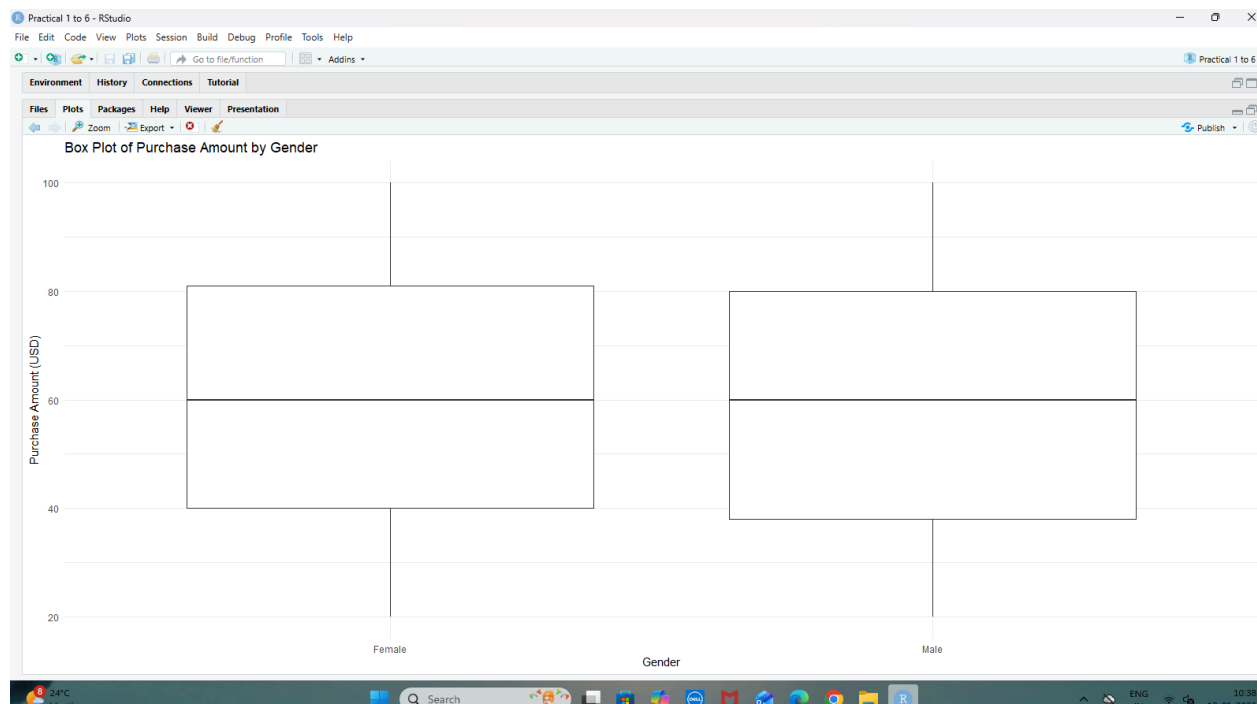
```
Practical 1 to 6 - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
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Source
Console Terminal Background Jobs
R - R 4.5.2 - ~/Practical 1 to 6/
> shopping_data <- read.csv("c:/Users/mvlui/Downloads/shopping behaviour.csv")
>
> 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      Venmo      Fortnightly
2      Cash      Fortnightly
3 Credit Card      weekly
4      PayPal      weekly
5      PayPal      Annually
6      Venmo      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  3.1 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  "Venmo" "Cash" "Credit Card" "PayPal" ...
 $ Frequency.of.Purchases: chr  "Fortnightly" "Fortnightly" "weekly" "weekly" ...
>
> ggplot(shopping_data, aes(x = Purchase.Amount..USD.)) +
+   geom_histogram(binwidth = 10) +
+   labs(
+     title = "Histogram of Purchase Amount",
+     x = "Purchase Amount (USD)",
+     y = "Frequency"
+   )
+ 
```

```
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R - R 4.5.2 - ~/Practical 1 to 6/
$ 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  "Venmo" "Cash" "Credit Card" "PayPal" ...
$ Frequency.of.Purchases: chr  "Fortnightly" "Fortnightly" "weekly" "weekly" ...
>
> ggplot(shopping_data, aes(x = Purchase.Amount..USD.)) +
+   geom_histogram(binwidth = 10) +
+   labs(
+     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) +
+   labs(
+     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() +
+   labs(
+     title = "Box Plot of Purchase Amount",
+     y = "Purchase Amount (USD)"
+   ) +
+   theme_minimal()
>
> ggplot(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()
> 
```

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

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### OUTPUTS:



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

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### OUTPUTS:

```
> ggplot(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/mvlu/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      Venmo      Fortnightly
2      cash      Fortnightly
3 Credit Card      weekly
4      PayPal      weekly
5      PayPal      Annually
6      Venmo      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  3.1 3.1 3.1 3.5 2.7 2.9 3.2 2.6 4.8 ...
```

```
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 • R 4.5.2 • ~/Practical 1 to 6/
Customer.ID      Customer.ID      Age Purchase.Amount..USD. Review.Rating Previous.Purchases
1.000000000 -0.004078574      0.011047801      0.001343012 -0.039158526
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/mvlu/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))
```

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## PRACTICAL NO: 10,11,12

### OUTPUTS:

