

## **Practical No 1 Module II**

**Aim :** Generating descriptive statistics using summary() or describe() (R)

**Output :**

The screenshot shows the RStudio interface with the following R session history:

```
R - R 4.5.1 - ~/R
> # Install required packages
> install.packages("dplyr")
WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:
https://cran.rstudio.com/bin/windows/Rtools/
Installing package into 'C:/Users/mvluc/AppData/Local/R/win-library/4.5'
(as 'lib' is unspecified)
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.5/dplyr_1.1.4.zip'
Content type 'application/zip' length 1593482 bytes (1.5 MB)
downloaded 1.5 MB

package 'dplyr' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
  C:/users/mvluc/Appdata/Local/Temp/RtmpuMWN3T/downloaded_packages
> install.packages("psych")
WARNING: Rtools is required to build R packages but is not currently installed. Please download and install the appropriate version of Rtools before proceeding:
https://cran.rstudio.com/bin/windows/Rtools/
Installing package into 'C:/Users/mvluc/AppData/Local/R/win-library/4.5'
(as 'lib' is unspecified)
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.5/psych_2.5.6.zip'
Content type 'application/zip' length 3594552 bytes (3.4 MB)
downloaded 3.4 MB

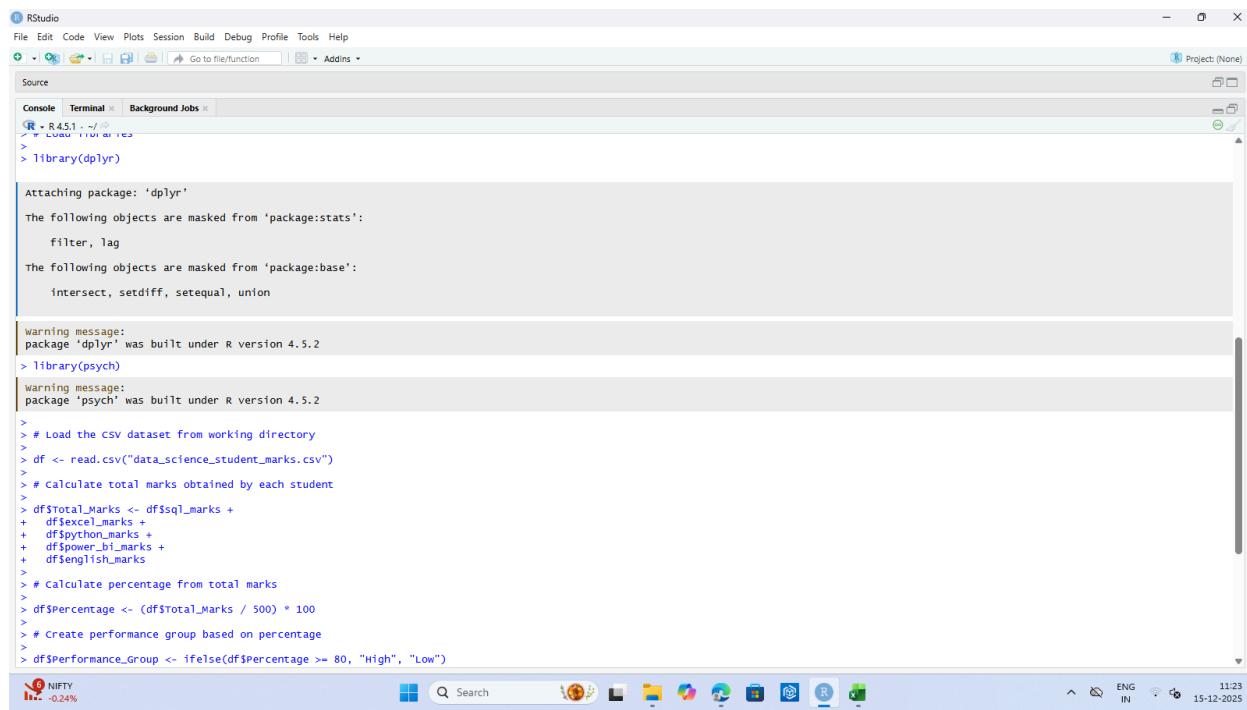
package 'psych' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
  C:/users/mvluc/Appdata/Local/Temp/RtmpuMWN3T/downloaded_packages
> # Load libraries
> library(dplyr)

Attaching package: 'dplyr'
```

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## SUBJECT : R Programming



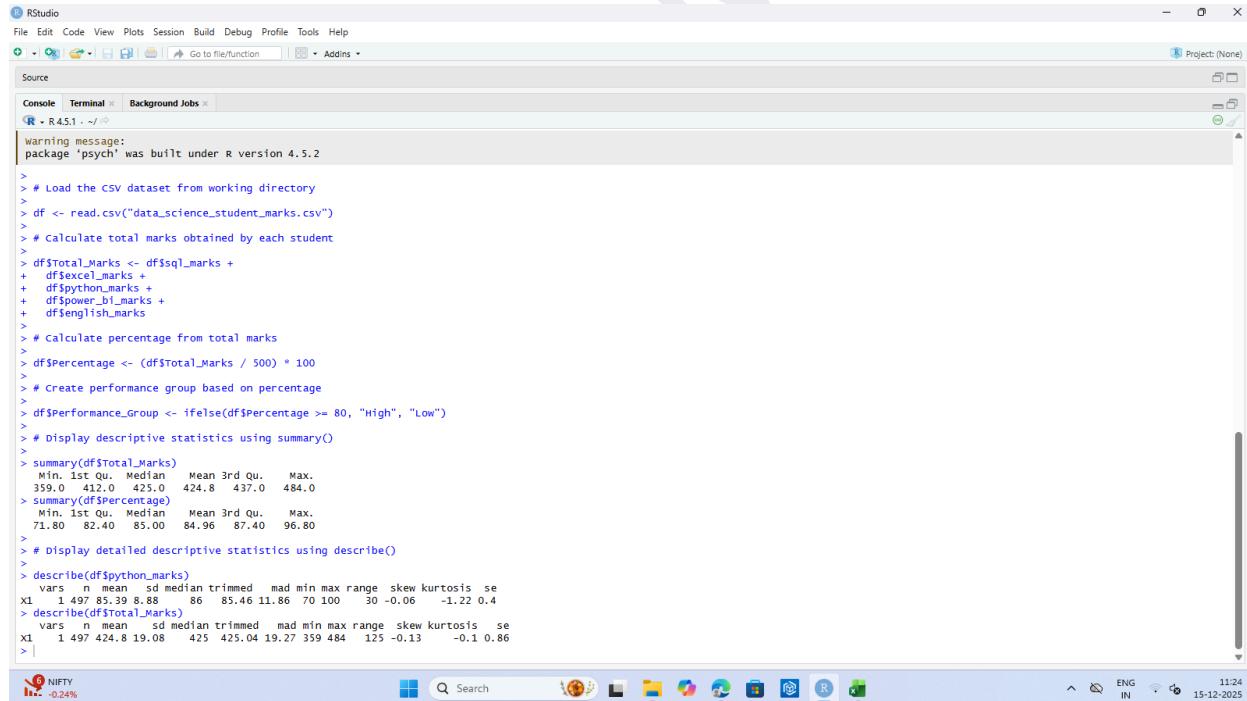
The screenshot shows the RStudio interface with the following R code in the console:

```
R > library(dplyr)
Attaching package: 'dplyr'
The following objects are masked from 'package:stats':
  filter, lag
The following objects are masked from 'package:base':
  intersect, setdiff, setequal, union

warning message:
  package 'dplyr' was built under R version 4.5.2
> library(psych)
warning message:
  package 'psych' was built under R version 4.5.2

> # Load the csv dataset from working directory
> df <- read.csv("data_science_student_marks.csv")
> 
> # calculate total marks obtained by each student
> 
> df$total_marks <- df$sql_marks +
+ df$excel_marks +
+ df$python_marks +
+ df$power_b1_marks +
+ df$english_marks
> 
> # calculate percentage from total marks
> 
> df$Percentage <- (df$total_marks / 500) * 100
> 
> # Create performance group based on percentage
> 
> df$Performance_Group <- ifelse(df$Percentage >= 80, "High", "Low")
```

At the bottom of the window, there is a status bar showing the NIFTY index at -0.24%, the date 15-12-2025, and the time 11:23.

The screenshot shows the RStudio interface with the following R code in the console:

```
R > warning message:
  package 'psych' was built under R version 4.5.2

> # Load the csv dataset from working directory
> df <- read.csv("data_science_student_marks.csv")
> 
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> df$total_marks <- df$sql_marks +
+ df$excel_marks +
+ df$python_marks +
+ df$power_b1_marks +
+ df$english_marks
> 
> # calculate percentage from total marks
> 
> df$Percentage <- (df$total_marks / 500) * 100
> 
> # Create performance group based on percentage
> 
> df$Performance_Group <- ifelse(df$Percentage >= 80, "High", "Low")
> 
> # Display descriptive statistics using summary()
> 
> summary(df$total_marks)
   Min. 1st Qu. Median  Mean 3rd Qu.   Max.
359.0 412.0 425.0 424.8 437.0 484.0
> summary(df$Percentage)
   Min. 1st Qu. Median  Mean 3rd Qu.   Max.
71.80 82.40 85.00 84.96 87.40 96.80
> 
> # Display detailed descriptive statistics using describe()
> 
> describe(df$python_marks)
   vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 497 85.39 8.88 86 85.46 11.86 70 100 30 -0.06 -1.22 0.4
> describe(df$total_marks)
   vars n mean sd median trimmed mad min max range skew kurtosis se
X1 1 497 424.8 19.08 425 425.04 19.27 359 484 125 -0.13 -0.1 0.86
```

At the bottom of the window, there is a status bar showing the NIFTY index at -0.24%, the date 15-12-2025, and the time 11:24.