

## Prac11 output-

R practical no-6,7,8,9,10 - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Source Console Background Jobs x

```
R > R 4.1.2 .
```

```
6 walmart
> library(dplyr)
> library(tidyverse)
>
> df <- read.csv("Supplement_Sales_Weekly_Expanded.csv", na.strings = c("", "NA")) %>%
+   mutate(ProductID = row_number()) %>%
+   select(-ProductID, Category, Price, Discount)
>
> print("--- 1. original wide Data ---")
[1] "--- 1. original wide Data ---"
> print(head(df))
# A tibble: 6 × 4
  ProductID Category Price Discount
    <dbl> <chr>    <dbl>     <dbl>
1         1 Protein    31.98    0.03
2         2 Vitamin    42.51    0.04
3         3 Omega      12.91    0.25
4         4 Vitamin    16.07    0.08
5         5 Performance 35.47    0.25
6         6 Amino Acid 41.19    0.13
>
> long_df <- df %>%
+   pivot_longer(
+     cols = c(Price, Discount),
+     names_to = "Metric",
+     values_to = "value"
+   )
>
> print("--- 2. Long Format (pivot_longer) ---")
[1] "--- 2. Long Format (pivot_longer) ---"
> print(head(long_df, 6))
# A tibble: 6 × 4
  ProductID Category Metric  value
    <dbl> <chr>  <chr>  <dbl>
1         1 Protein Price    32.0
2         1 Protein Discount 0.03
3         2 Vitamin Price    42.5
4         2 Vitamin Discount 0.04
5         3 Omega   Price    12.9
6         3 Omega   Discount 0.25
```

Environment History Connections Tutorial

Global Environment

- category\_pivot 4384 obs. of 11 variables
- df 4384 obs. of 4 variables
- df\_clean 4384 obs. of 4 variables
- long\_df 8768 obs. of 4 variables
- Supplement\_Sal... (1).csv 4384 obs. of 10 variables
- test 4384 obs. of 10 variables
- wide\_df 4384 obs. of 4 variables

Files Plots Packages Help Viewer Presentation

practical no-6,7,8,9,10

11:42 ENG IN 08-12-2025

R practical no-6,7,8,9,10 - RStudio

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Source Console Background Jobs x

```
R > R 4.1.2 .
```

```
<int> <chr> <chr> <dbl>
1 1 Protein Price 32.0
2 1 Protein Discount 0.03
3 2 Vitamin Price 42.5
4 2 Vitamin Discount 0.04
5 3 Omega Price 12.9
6 3 Omega Discount 0.25
>
> wide_df <- long_df %>%
+   pivot_wider(
+     names_from = Metric,
+     values_from = value
+   )
>
> print("--- 3. wide Format (Back to original) ---")
[1] "--- 3. wide Format (Back to original) ---"
> print(head(wide_df))
# A tibble: 6 × 4
  ProductID Category Price Discount
    <dbl> <chr>    <dbl>     <dbl>
1         1 Protein    32.0    0.03
2         2 Vitamin    42.5    0.04
3         3 Omega      12.9    0.25
4         4 Vitamin    16.1    0.08
5         5 Performance 35.5    0.25
6         6 Amino Acid 41.2    0.13
>
> df_clean <- df %>%
+   mutate(Category = ifelse(is.na(Category), "Unknown", category))
>
> category_pivot <- df_clean %>%
+   select(-ProductID, Category, Price) %>%
+   pivot_wider(
+     names_from = Category,
+     values_from = Price
```

Environment History Connections Tutorial

Global Environment

- category\_pivot 4384 obs. of 11 variables
- df 4384 obs. of 4 variables
- df\_clean 4384 obs. of 4 variables
- long\_df 8768 obs. of 4 variables
- Supplement\_Sal... (1).csv 4384 obs. of 10 variables
- test 4384 obs. of 10 variables
- wide\_df 4384 obs. of 4 variables

Files Plots Packages Help Viewer Presentation

practical no-6,7,8,9,10

11:43 ENG IN 08-12-2025

```

R practical no-6,7,8,9,10 - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Console Background Jobs x
R 4.1.2 . 
# A tibble: 6 x 4
  ProductID Category  Price Discount
  <dbl> <chr>    <dbl> <dbl>
1 1 Protein     32.0   0.03
2 2 Vitamin      42.5   0.04
3 3 Omega        12.9   0.25
4 4 Vitamin      16.1   0.08
5 5 Performance  35.5   0.25
6 6 Amino Acid   41.2   0.13
> df_clean <- df %>%
+   mutate(Category = ifelse(is.na(Category), "Unknown", Category))
> 
> category_pivot <- df_clean %>%
+   select(-ProductID, -Category, -Price) %>%
+   pivot_wider(
+     names_from = Category,
+     values_from = Price
+   )
> 
> print("---- 4. Category Pivot (Spreading Categories) ----")
[1] "---- 4. Category Pivot (Spreading Categories) ----"
> print(head(category_pivot))
# A tibble: 6 x 11
  ProductID Protein Vitamin Omega Performance `Amino Acid` Mineral Herbal `Sleep Aid` `Fat Burner` Hydration
  <dbl> <dbl>
1 1     32.0   NA   NA   NA   NA   NA   NA   NA   NA   NA
2 2     NA     42.5  NA   NA   NA   NA   NA   NA   NA   NA
3 3     NA     NA    12.9  NA   NA   NA   NA   NA   NA   NA
4 4     NA     NA    16.1  NA   NA   NA   NA   NA   NA   NA
5 5     NA     NA    NA    35.5 NA   NA   NA   NA   NA   NA
6 6     NA     NA    NA    NA    41.2  NA   NA   NA   NA   NA
# i 1 more variable: Hydration <dbl>
> 

```

Windows taskbar at the bottom: 29°C Sunny, Search, File Explorer, Google Chrome, RStudio icon, ENG IN, 11:43, 08-12-2025.

## Prac12 output-

```

R practical no-6,7,8,9,10 - RStudio
File Edit Code View Plots Session Build Debug Profile Tools Help
Console Background Jobs x
R 4.1.2 . 
> combined_data <- rbind(iris_clean, flower_clean)
> 
> head(iris_clean)
  FlowerName Height
1 setosa      5.1
2 setosa      4.9
3 setosa      4.7
4 setosa      4.6
5 setosa      5.0
6 setosa      5.4
> head(flower_clean)
  FlowerName Height
1 Artificial   NA
2 Artificial   NA
3 Artificial   NA
4 Artificial   NA
5 Artificial   NA
6 Artificial   NA
> head(combined_data)
  FlowerName Height
1 setosa      5.1
2 setosa      4.9
3 setosa      4.7
4 setosa      4.6
5 setosa      5.0
6 setosa      5.4
> 
> nrow(iris_clean)
[1] 150
> nrow(flower_clean)
[1] 358
> nrow(combined_data)
[1] 508
> 

```

Windows taskbar at the bottom: SENSEX -0.37%, Search, File Explorer, Google Chrome, RStudio icon, ENG IN, 12:18, 08-12-2025.

## Prac13 output-

R practical no-6,7,8,9,10 - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Console Background Jobs

```
> library(dplyr)
>
> orders_df <- data.frame(
+   OrderID = c(101, 102, 102, 103, 104, 101, 104),
+   Customer = c("jelly", "gum", "chocolate ", "milk", "strawberry", "blueberry", "cherry"),
+   Product = c("Laptop", "Phone", "Phone", "Tablet", "Monitor", "Laptop", "Mouse")
+ )
>
> print("Original Dataset")
[1] "Original Dataset"
> print(orders_df)
  OrderID Customer Product
1      101     jelly Laptop
2      102      gum Phone
3      102 chocolate Phone
4      103     milk Tablet
5      104 strawberry Monitor
6      101 blueberry Laptop
7      104   cherry Mouse
>
> duplicates_report <- orders_df %>%
+   group_by(OrderID, Customer, Product) %>%
+   count() %>%
+   filter(n > 1)
>
> print("Duplicates Report")
[1] "Duplicates Report"
> print(duplicates_report)
# A tibble: 0 x 4
# Groups: OrderID, Customer, Product [0]
# i 4 variables: OrderID <dbl>, Customer <chr>, Product <chr>, n <int>
>
> clean_exact <- orders_df %>%
+   distinct()
<
```

R practical no-6,7,8,9,10 - RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Console Background Jobs

```
R - R4.12 .
```

```
# A tibble: 0 x 4
# Groups: OrderID, Customer, Product [0]
# i 4 variables: OrderID <dbl>, Customer <chr>, Product <chr>, n <int>
>
> clean_exact <- orders_df %>%
+   distinct()
>
> print("Removed Exact Duplicates")
[1] "Removed Exact Duplicates"
> print(clean_exact)
  OrderID Customer Product
1      101     jelly Laptop
2      102      gum Phone
3      102 chocolate Phone
4      103     milk Tablet
5      104 strawberry Monitor
6      101 blueberry Laptop
7      104   cherry Mouse
>
> unique_customers <- orders_df %>%
+   distinct(Customer, .keep_all = TRUE)
>
> print("Unique customers only")
[1] "Unique customers only"
> print(unique_customers)
  OrderID Customer Product
1      101     jelly Laptop
2      102      gum Phone
3      102 chocolate Phone
4      103     milk Tablet
5      104 strawberry Monitor
6      101 blueberry Laptop
7      104   cherry Mouse
>
```

## Prac14 output-

The screenshot shows an RStudio interface with the following details:

- Top Bar:** practical no-6,7,8,9,10 - RStudio
- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help
- Toolbar:** Includes icons for file operations like Open, Save, Print, and a search bar labeled "Go to file/function".
- Source Editor:** Shows R code for creating a data frame, mutating it with date components, and printing the processed data.
- Console:** Displays the output of the R code, including the creation of `dates\_df` and `processed\_data` data frames, and the current time.
- Environment Tab:** Shows the global environment with objects `dates\_df`, `processed\_data`, and `current\_time`.
- Files Tab:** Shows the project directory structure with files like `Artificial\_Flower.csv`, `IRIS.csv`, `practical\_no-11,12,13,14,15.Rproj`, and `Supplement\_Sales\_Weekly\_Expanded.csv`.
- Bottom Status Bar:** Shows system status (Air Very poor Today), network connectivity (ENG IN), battery level (80%), and the date/time (12:37 08-12-2025).

## Prac15 output-

R Practical no-6,7,8,9,10 - RStudio

```

File Edit Code View Plots Session Build Debug Profile Tools Help
+ Go to file/function Addins

Source Environment History Connections Tutorial
Console Data
R 4.1.2 . ~/ ~
> retail_df <- data.frame(
+   ID = 1:6,
+   Category = c("appliances", "Home", "Electronics", "gadgets", "lawn", "Clothing"),
+   Price = c(500.50, 45.00, 900.00, NA, 300.00, 25.00),
+   In_Stock = c(TRUE, TRUE, FALSE, TRUE, FALSE, TRUE),
+   Rating = c(4.5, 3.8, 4.9, 4.0, 3.5, 4.2)
+ )
>
> print("Data Loaded")
[1] "Data Loaded"
> str(retail_df)
'data.frame': 6 obs. of 5 variables:
$ ID : int 1 2 3 4 5 6
$ Category: chr "appliances" "Home" "Electronics" "gadgets" ...
$ Price : num 500.5 45 900 NA 300 ...
$ In_Stock: logi TRUE TRUE FALSE TRUE FALSE TRUE
$ Rating : num 4.5 3.8 4.9 4.0 3.5 4.2
>
> print("Summary Before Factor Conversion")
[1] "Summary Before Factor Conversion"
> summary(retail_df)
   ID Category      Price     In_Stock
Min. :1.00 Length:6    Min. :25.0 Mode :logical
1st Qu.:2.25 Class :character 1st Qu.:45.0 FALSE:2
Median :3.50 Mode :character Median :300.0 TRUE :4
Mean   :3.50
3rd Qu.:4.75            Mean   :354.1
Max.   :6.00            3rd Qu.:500.5
                           Max.   :900.0
                           NA's   :1
Rating
Min. :3.500
1st Qu.:3.850
Median :4.100
Mean   :4.150
3rd Qu.:4.425
Max.   :4.900
>
```

6 30°C Sunny 12:43 08-12-2025

R Practical no-6,7,8,9,10 - RStudio

```

File Edit Code View Plots Session Build Debug Profile Tools Help
+ Go to file/function Addins

Source Environment History Connections Tutorial
Console Data
R 4.1.2 . ~/ ~
3rd Qu.:4.75          3rd Qu.:500.5
Max.   :6.00          Max.   :900.0
NA's   :1
Rating
Min. :3.500
1st Qu.:3.850
Median :4.100
Mean   :4.150
3rd Qu.:4.425
Max.   :4.900
>
> retail_df$Category <- as.factor(retail_df$category)
>
> print("Summary After Factor Conversion")
[1] "Summary After Factor Conversion"
> summary(retail_df)
   ID Category      Price     In_Stock      Rating
Min. :1.00 appliances :1  Min. :25.0 Mode :logical Min. :3.500
1st Qu.:2.25 Clothing   :1  1st Qu.:45.0 FALSE:2  1st Qu.:3.850
Median :3.50 Electronics:1 Median :300.0 TRUE :4   Median :4.100
Mean   :3.50 gadgets   :1  Mean   :354.1      Mean   :4.150
3rd Qu.:4.75 Home      :1  3rd Qu.:500.5      3rd Qu.:4.425
Max.   :6.00 lawn      :1  Max.   :900.0      Max.   :4.900
NA's   :1
>
> avg_rating <- mean(retail_df$Rating)
> max_price <- max(retail_df$Price, na.rm = TRUE)
>
> print(paste("Average Rating:", avg_rating))
[1] "Average Rating: 4.15"
> print(paste("Highest Price:", max_price))
[1] "Highest Price: 900"
>
```

6 30°C Sunny 12:44 08-12-2025