

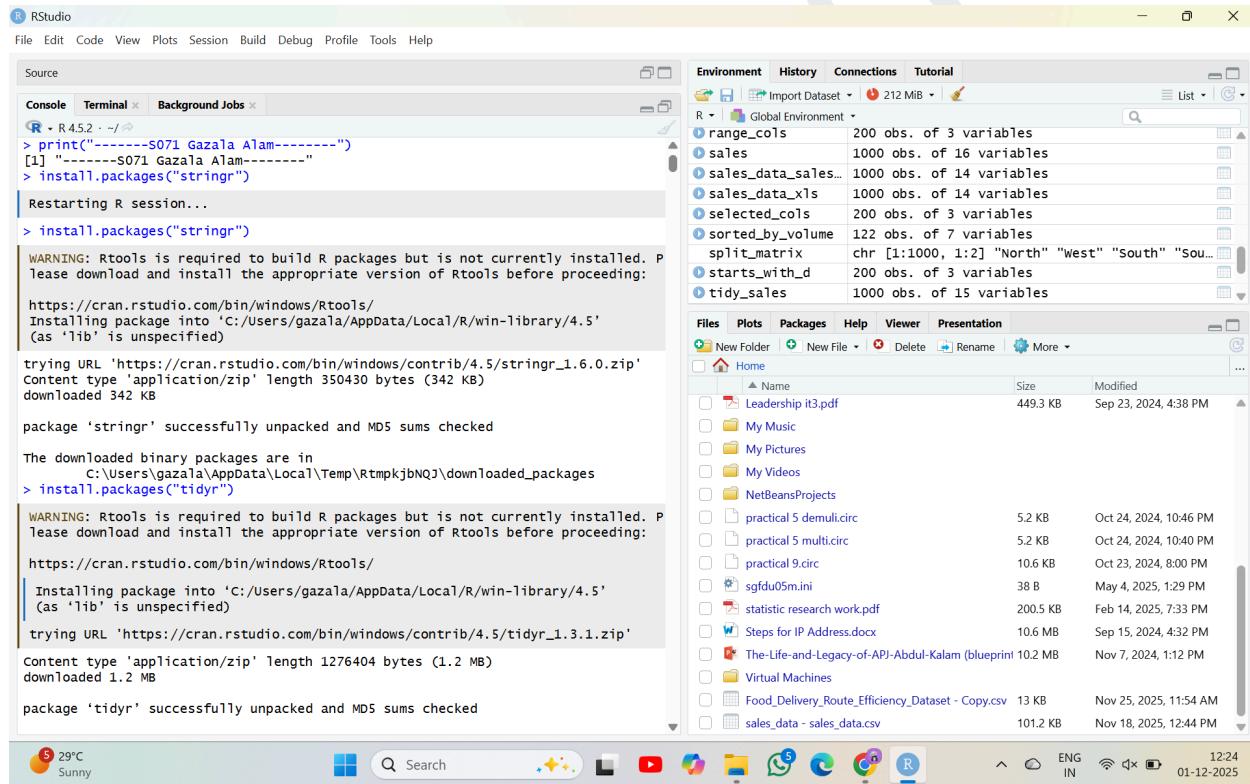
SHETH L.U.J AND SIR M.V COLLEGE

Subject: Data Analysis with SAS / SPSS /R

Practical no. 9

Aim: Performing text manipulation using str_sub(), str_split() (R). import dataset.

Outputs→



The screenshot shows the RStudio interface with the following details:

- Console:** Displays R code and its output. The user prints a string "-----S071 Gazala Alam-----", installs the 'stringr' package, and then installs 'tidyverse'.
- Environment:** Shows the global environment with various objects and their characteristics.
- File Explorer:** Shows the file structure under 'Home'.
- Taskbar:** Includes icons for search, file operations, and system status (29°C, ENG IN, 12:24, 01-12-2025).

```
R + R4.5.2 · ~/R
> print("-----S071 Gazala Alam-----")
[1] "-----S071 Gazala Alam-----"
> install.packages("stringr")
Restarting R session...
> install.packages("stringr")
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/gazala/AppData/Local/R/win-library/4.5'
(as 'lib' is unspecified)
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.5/stringr_1.6.0.zip'
Content type 'application/zip' length 350430 bytes (342 KB)
downloaded 342 KB

package 'stringr' successfully unpacked and MD5 sums checked

The downloaded binary packages are in
  C:/Users/gazala/AppData/Local/Temp/RtmpkjbnQJ/downloaded_packages
> install.packages("tidyverse")
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/gazala/AppData/Local/R/win-library/4.5'
(as 'lib' is unspecified)
trying URL 'https://cran.rstudio.com/bin/windows/contrib/4.5/tidyr_1.3.1.zip'
Content type 'application/zip' length 1276404 bytes (1.2 MB)
downloaded 1.2 MB

package 'tidyverse' successfully unpacked and MD5 sums checked
```

Name	Size	Modified
Leadership it3.pdf	449.3 KB	Sep 23, 2024, 4:38 PM
My Music		
My Pictures		
My Videos		
NetBeansProjects		
practical 5 demulti.circ	5.2 KB	Oct 24, 2024, 10:46 PM
practical 5 multi.circ	5.2 KB	Oct 24, 2024, 10:40 PM
practical 9.circ	10.6 KB	Oct 23, 2024, 8:00 PM
sgfdl05mini	38 B	May 4, 2025, 1:29 PM
statistic research work.pdf	200.5 KB	Feb 14, 2025, 7:33 PM
Steps for IP Address.docx	10.6 MB	Sep 15, 2024, 4:32 PM
The-Life-and-Legacy-of-APJ-Abdul-Kalam (blueprint)	10.2 MB	Nov 7, 2024, 1:12 PM
Virtual Machines		
Food_Delivery_Route_Efficiency_Dataset - Copy.csv	13 KB	Nov 25, 2025, 11:54 AM
sales_data - sales_data.csv	101.2 KB	Nov 18, 2025, 12:44 PM

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The screenshot shows an RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Source Editor:** Displays R code and its output. The code includes loading packages (stringr, tidyverse, dplyr), attaching dplyr, listing masked objects from stats and base packages, and reading a dataset named "sales_data".
- Environment View:** Shows the global environment with objects like range_cols, sales, sales_data_sales..., sales_data_xls, selected_cols, sorted_by_volume, split_matrix, starts_with_d, and tidy_sales.
- Files View:** Shows a file tree under "Home" with files like Leadership It.pdf, My Music, My Pictures, My Videos, NetBeansProjects, practical 5 demulti.circ, practical 5 multi.circ, practical 9.circ, sgfd05m.ini, statistic research work.pdf, Steps for IP Address.docx, The-Life-and-Legacy-of-APJ-Abdul-Kalam (blueprint 10.2 MB), Virtual Machines, Food_Delivery_Route_Efficiency_Dataset - Copy.csv, and sales_data - sales_data.csv.

The screenshot shows the RStudio interface with the following details:

- File Menu:** File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, Help.
- Source Tab:** Contains the R code and its output.
- Console Tab:** Displays the R session history.
- Terminal Tab:** Shows the terminal session history.
- Background Jobs Tab:** Shows the background jobs running in the session.
- Environment Tab:** Shows the global environment with objects like `range_cols`, `sales`, and `tidy_sales`.
- History Tab:** Shows the history of the session.
- Connections Tab:** Shows the connections to databases.
- Tutorial Tab:** Shows the available tutorials.
- File Browser:** Shows the local file system structure under "Home".

Console Output:

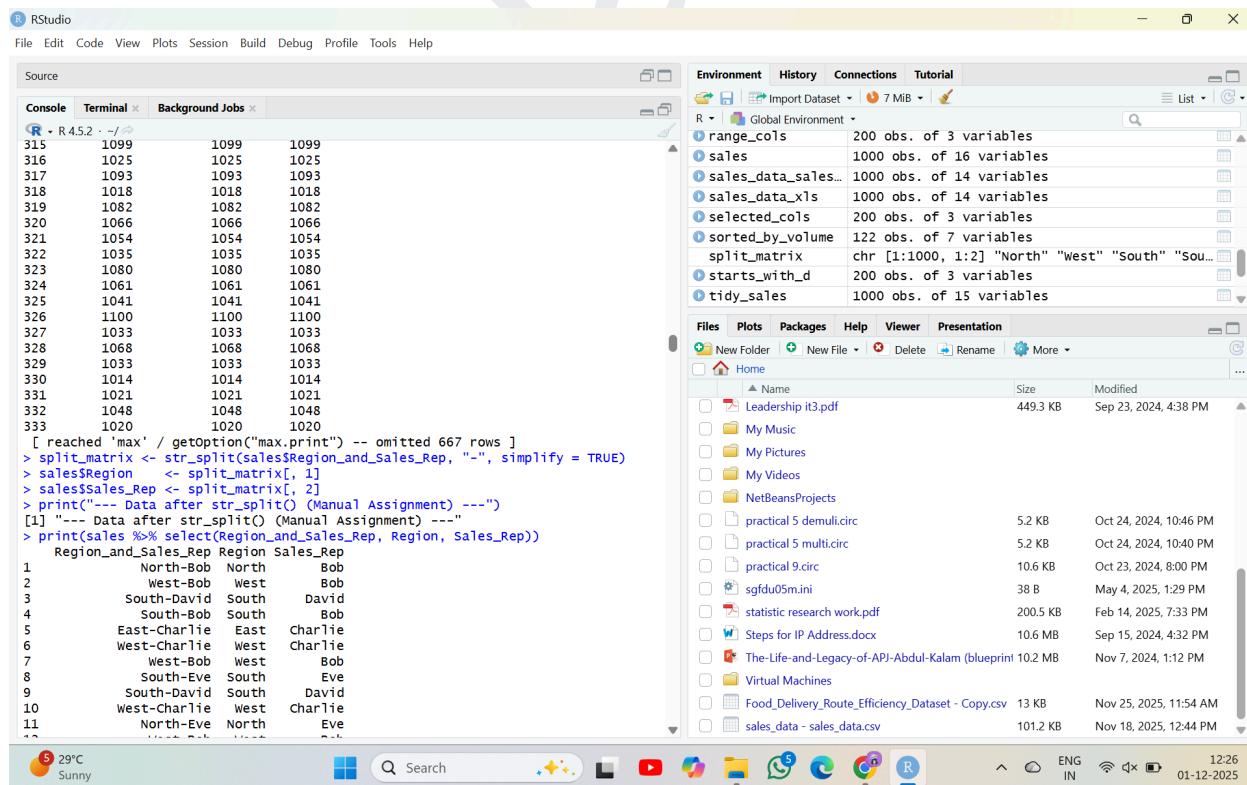
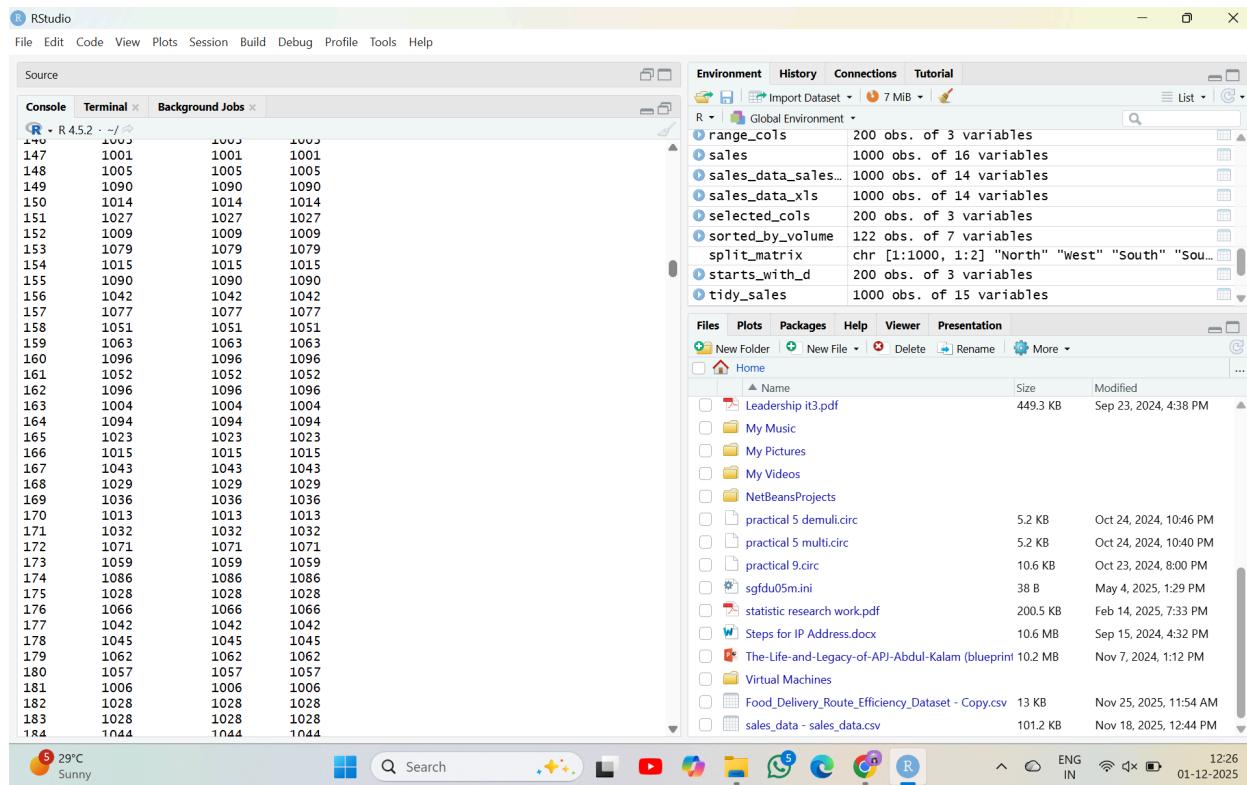
```
R Studio
File Edit Code View Plots Session Build Debug Profile Tools Help

Source
Console Terminal × Background Jobs ×

R > R 4.5.2 - / 
5   Electronics    637.37    692.71      New    0.08    Credit Card
6       Food        900.79   1106.51      New    0.21    Cash
Sales_Channel Region_and_Sales_Rep
1   Online          North-Bob
2   Retail           West-Bob
3   Retail           South-David
4   Retail           South-Bob
5   Online           East-Charlie
6   Online           West-Charlie
> sales$Category_Code <- str_sub(sales$Product_ID, 1, 4)
> sales$item_Code   <- str_sub(sales$Product_ID, -4, -1)
> print("--- Data after str_sub() ---")
[1] "--- Data after str_sub() ---"
> print(sales %>% select(Product_ID, Category_Code, Item_Code))
  Product_ID Category_Code Item_Code
1         1052          1052      1052
2         1093          1093      1093
3         1015          1015      1015
4         1072          1072      1072
5         1061          1061      1061
6         1021          1021      1021
7         1083          1083      1083
8         1087          1087      1087
9         1075          1075      1075
10        1075          1075      1075
11        1088          1088      1088
12        1100          1100      1100
13        1024          1024      1024
14        1003          1003      1003
15        1022          1022      1022
16        1053          1053      1053
17        1002          1002      1002
18        1088          1088      1088
19        1030          1030      1030
20        1038          1038      1038
21        1002          1002      1002
22        1064          1064      1064
23        1060          1060      1060
```

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The screenshot shows the RStudio interface. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. The left sidebar has tabs for Source, Console, Terminal, and Background Jobs. The main area displays the following R console output:

```
R - R 4.5.2 - ~/r
4   South-Bob  South    Bob
5   East-Charlie  East    Charlie
6   West-Charlie  West    Charlie
7   West-Bob  West    Bob
8   South-Eve  South    Eve
9   South-David  South    David
10  West-Charlie  West    Charlie
11  North-Eve  North    Eve
12  West-Bob  West    Bob
13  West-Eve  West    Eve
14  South-Alice  South    Alice
15  south-Charlie  South    Charlie
16  North-Bob  North    Bob
17  North-David  North    David
18  East-Bob  East    Bob
19  West-David  West    David
20  South-Bob  South    Bob
21  North-Eve  North    Eve
22  East-Eve  East    Eve
23  East-Eve  East    Eve
24  South-Alice  South    Alice
25  South-David  South    David
26  East-Eve  East    Eve
27  North-Alice  North    Alice
28  East-David  East    David
29  West-Bob  West    Bob
30  West-Alice  West    Alice
31  South-Charlie  South    Charlie
32  North-Alice  North    Alice
33  North-Alice  North    Alice
34  West-David  West    David
35  East-Bob  East    Bob
36  South-Charlie  South    Charlie
37  East-Eve  East    Eve
38  East-Eve  East    Eve
39  East-Alice  East    Alice
40  North-David  North    David
41  West-David  West    David
```

The right pane contains a file browser titled "Environment" with tabs for History, Connections, and Tutorial. It lists various objects in the Global Environment:

- range_cols: 200 obs. of 3 variables
- sales: 1000 obs. of 16 variables
- sales_data_sales...: 1000 obs. of 14 variables
- sales_data.xls: 1000 obs. of 14 variables
- selected_cols: 200 obs. of 3 variables
- sorted_by_volume: 122 obs. of 7 variables
- split_matrix: chr [1:1000, 1:2] "North" "West" "South" "Sou...
- starts_with_d: 200 obs. of 3 variables
- tidy_sales: 1000 obs. of 15 variables

Below the file browser is a file list under "Home":

- Leadership it3.pdf (449.3 KB)
- My Music
- My Pictures
- My Videos
- NetBeansProjects
- practical 5 demulti.circ (5.2 KB)
- practical 5 multi.circ (5.2 KB)
- practical 9.circ (10.6 KB)
- sgfdlu05m.ini (38 B)
- statistic research work.pdf (200.5 KB)
- Steps for IP Address.docx (10.6 MB)
- The-Life-and-Legacy-of-APJ-Abdul-Kalam (blueprint) (10.2 MB)
- Virtual Machines
- Food_Delivery_Route_Efficiency_Dataset - Copy.csv (13 KB)
- sales_data - sales_data.csv (101.2 KB)

The bottom of the screen features a toolbar with icons for search, file operations, and system status.

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The screenshot shows the RStudio interface. The console window displays the following R code and its output:

```
R > range_cols
R > sales
R > sales_data_sales...
R > sales_data_xls
R > selected_cols
R > sorted_by_volume
R > split_matrix
R > starts_with_d
R > tidy_sales
```

The output shows a dataset with columns: North, South, East, West, Alice, Bob, Charlie, Eve, David.

The environment pane shows various objects in the Global Environment:

- range_cols: 200 obs. of 3 variables
- sales: 1000 obs. of 16 variables
- sales_data_sales...: 1000 obs. of 14 variables
- sales_data_xls: 1000 obs. of 14 variables
- selected_cols: 200 obs. of 3 variables
- sorted_by_volume: 122 obs. of 7 variables
- split_matrix: chr [1:1000, 1:2] "North" "West" "South" "Sou...
- starts_with_d: 200 obs. of 3 variables
- tidy_sales: 1000 obs. of 15 variables

The files pane shows the following files:

- Leadership it3.pdf (449.3 KB, Sep 23, 2024, 4:38 PM)
- My Music
- My Pictures
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- NetBeansProjects
 - practical 5 demulti.circ (5.2 KB, Oct 24, 2024, 10:46 PM)
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- Virtual Machines
- Food_Delivery_Route_Efficiency_Dataset - Copy.csv (13 KB, Nov 25, 2025, 11:54 AM)
- sales_data - sales_data.csv (101.2 KB, Nov 18, 2025, 12:44 PM)

The status bar at the bottom indicates: 29°C Sunny, ENG IN, 12:26, 01-12-2025.

The screenshot shows the RStudio interface with multiple scripts open in the source editor:

- alno_8.R
- S071_Practicalno_9.R*
- S071_Practicalno_5.R
- S071_Practicalno_4.R
- Food_Delive...

The console window displays the same R code and output as the first screenshot.

The environment pane shows the same objects as the first screenshot.

The files pane shows the same files as the first screenshot.

The status bar at the bottom indicates: 29°C Sunny, ENG IN, 12:27, 01-12-2025.