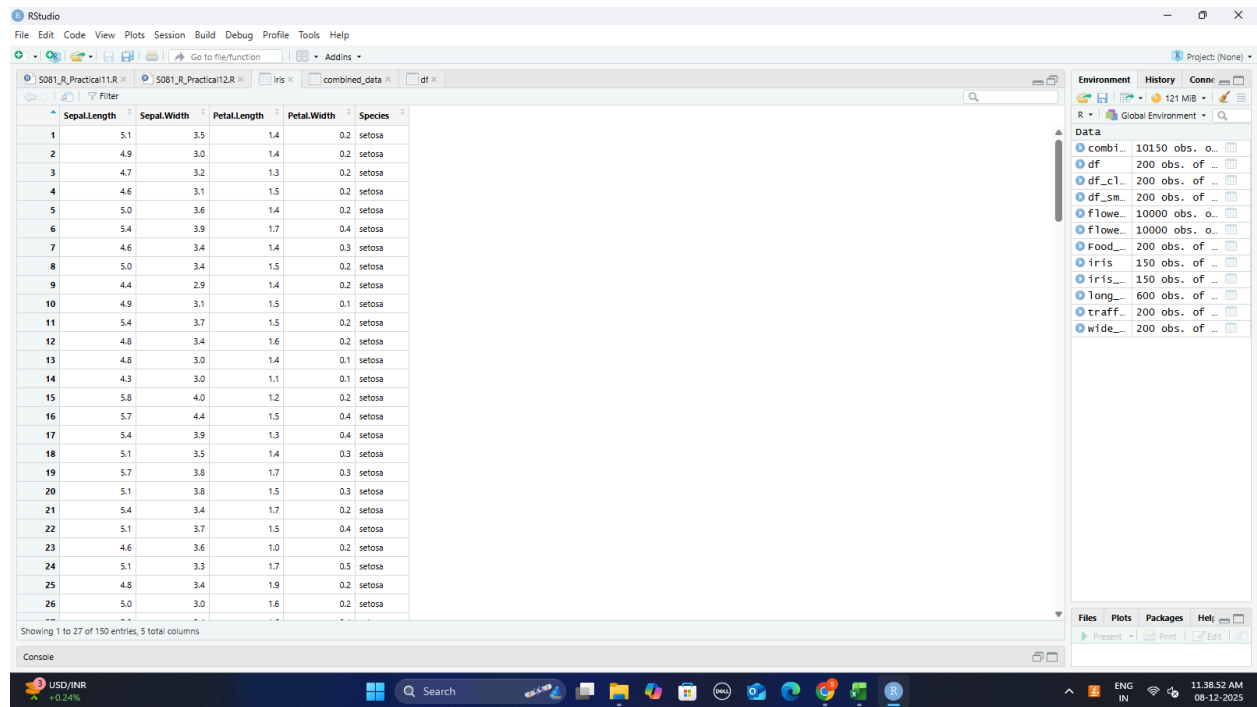


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12. Combining datasets vertically (concatenation) using `rbind()` (R).
Write code to Combining datasets vertically (concatenation) using `rbind()` in R studio.

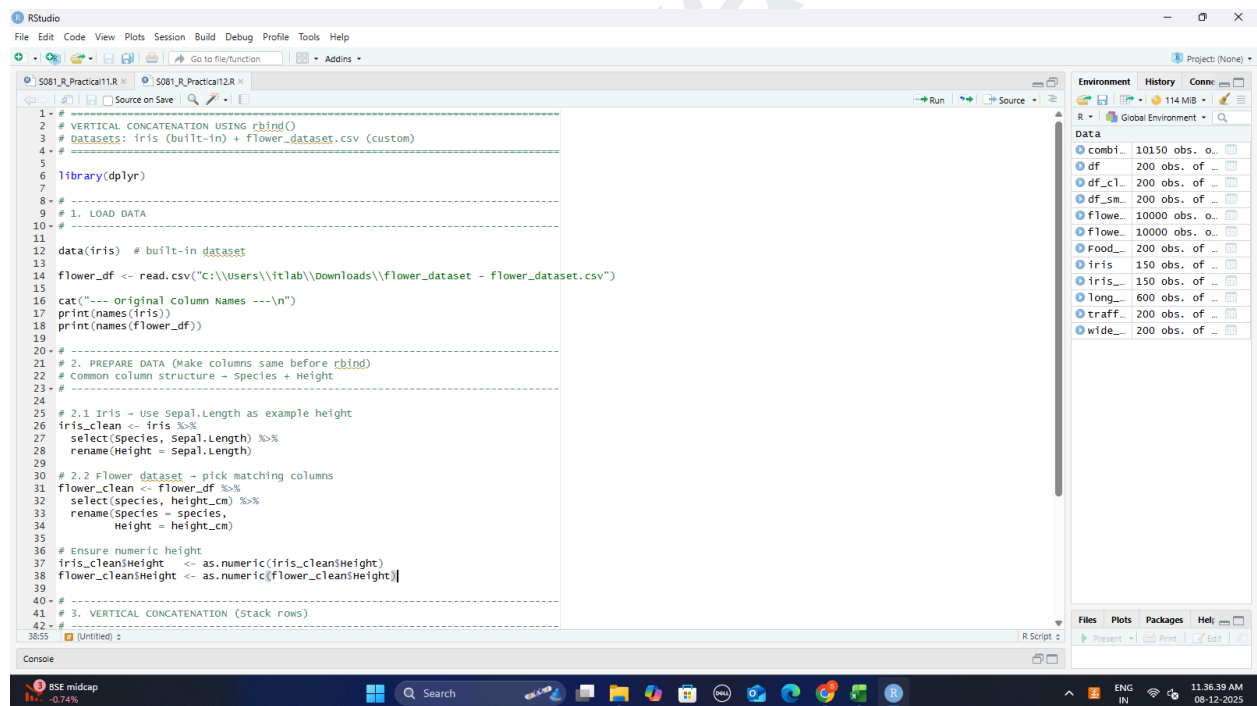


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The image shows the RStudio interface with a data frame loaded. The data frame has 26 rows and 11 columns. The columns are: order_id, distance_km, delivery_time_min, traffic_level, route_length_km, delivery_mode, weather, order_time, restaurant_zone, customer_zone, and RecordID. The data represents delivery orders with various attributes like distance, time, traffic level, and location. The interface includes a menu bar at the top, a toolbar with icons for file operations, a console at the bottom, and a sidebar on the right showing the Environment pane with a list of objects and their sizes. The status bar at the bottom indicates the current file is 'USD/INR' and the date is '08-12-2025'.

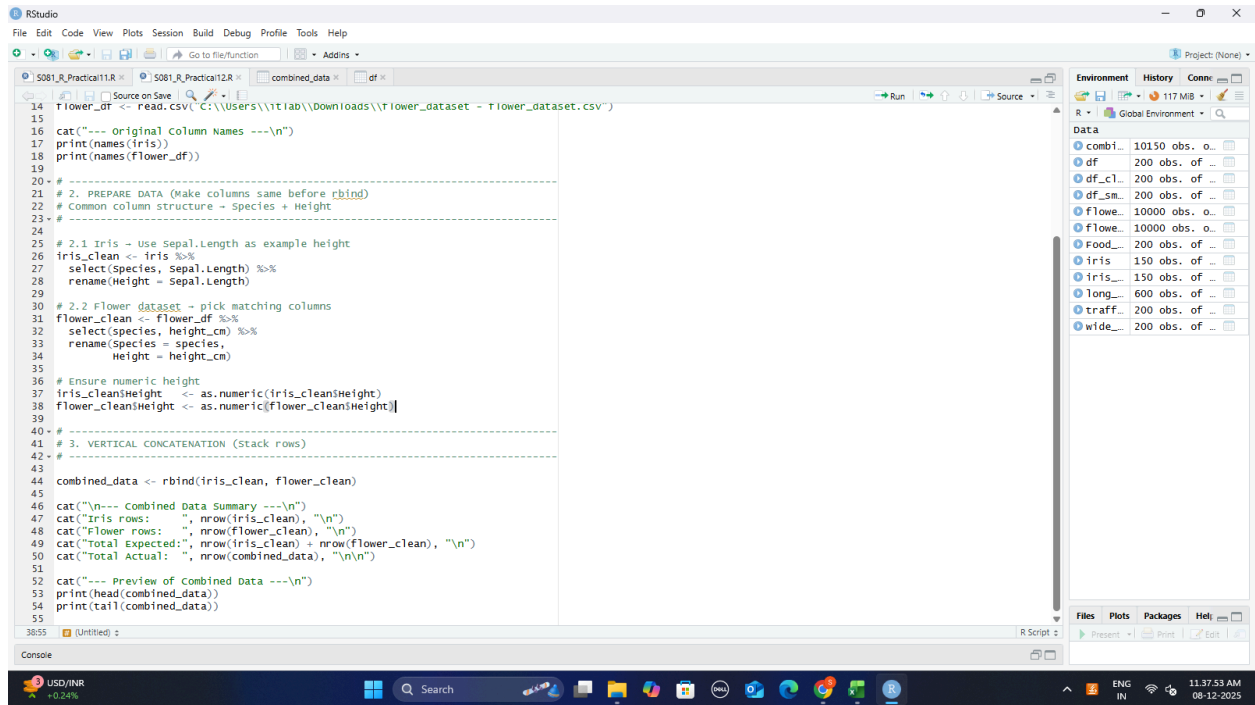


```
1 # -----  
2 # VERTICAL CONCATENATION USING rbind()  
3 # Datasets: iris (built-in) + flower_dataset.csv (custom)  
4 # -----  
5 library(dplyr)  
6  
7  
8 # -----  
9 # 1. LOAD DATA  
10 # -----  
11  
12 data(iris) # built-in dataset  
13  
14 flower_df <- read.csv("C:\\users\\itlab\\downloads\\flower_dataset - flower_dataset.csv")  
15  
16 cat("--- original column Names ---\n")  
17 print(names(iris))  
18 print(names(flower_df))  
19  
20 # -----  
21 # 2. PREPARE DATA (Make columns same before rbind)  
22 # Common column structure - Species + Height  
23 # -----  
24  
25 # 2.1 Iris - Use Sepal.Length as example height  
26 iris_clean <- iris %>%  
27   select(Species, Sepal.Length) %>%  
28   rename(Height = Sepal.Length)  
29  
30 # 2.2 Flower dataset - pick matching columns  
31 flower_clean <- flower_df %>%  
32   select(species, height_cm) %>%  
33   rename(species = species,  
34         height = height_cm)  
35  
36 # Ensure numeric height  
37 iris_clean$height <- as.numeric(iris_clean$height)  
38 flower_clean$height <- as.numeric(flower_clean$height)  
39  
40 # -----  
41 # 3. VERTICAL CONCATENATION (Stack rows)  
42 # -----  
43  
44 # -----
```

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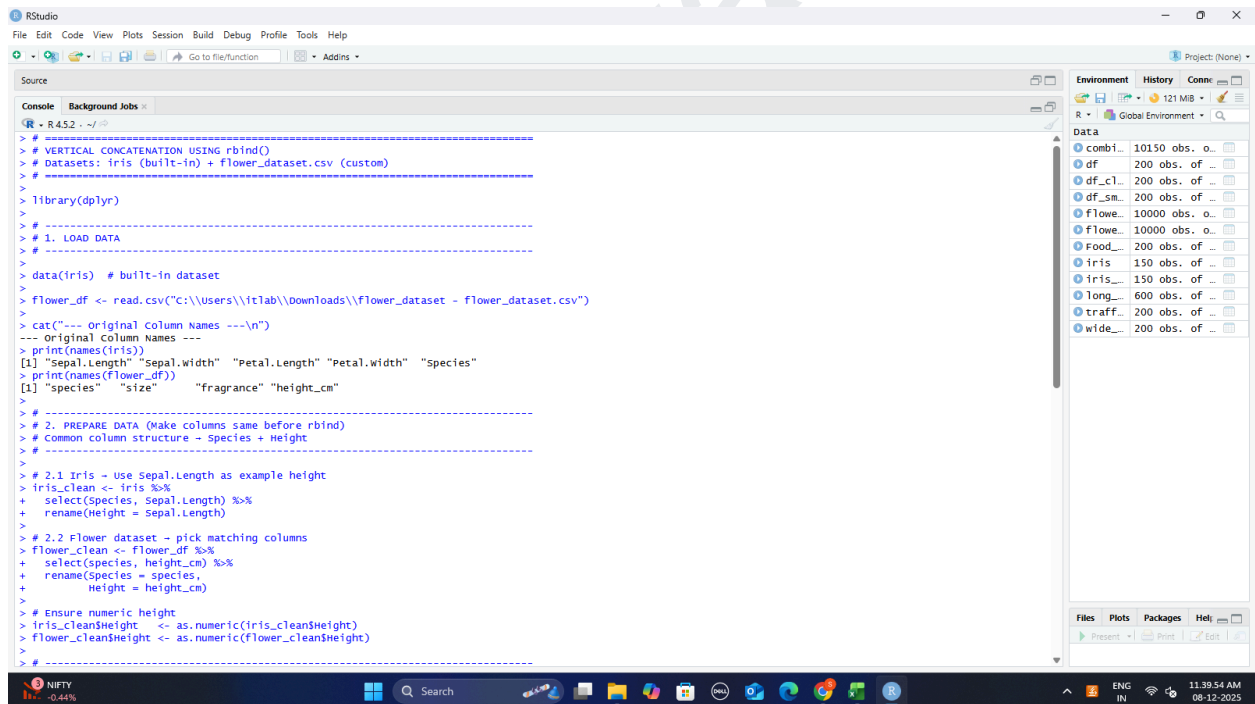
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The screenshot shows the RStudio interface with a script editor containing R code to combine two datasets. The code includes comments for each step, from loading data to creating a combined dataset and printing a summary. The Environment pane on the right shows the objects created: 'combi' (10150 obs.), 'df' (200 obs.), 'df_c1' (200 obs.), 'df_sm' (200 obs.), 'flower' (10000 obs.), 'flower_c1' (200 obs.), 'food' (200 obs.), 'iris' (150 obs.), 'iris_c1' (150 obs.), 'long' (600 obs.), 'traff' (200 obs.), and 'wide' (200 obs.).

```
14 flower_df <- read.csv("C:\\Users\\itlab\\Downloads\\flower_dataset - flower_dataset.csv")
15
16 cat("--- Original Column Names ---\n")
17 print(names(iris))
18 print(names(flower_df))
19
20 # -----
21 # 2. PREPARE DATA (Make columns same before rbind)
22 # Common column structure - Species + Height
23 # -----
24
25 # 2.1 Iris - Use Sepal.Length as example height
26 iris_clean <- iris %>%
27   select(species, Sepal.Length) %>%
28   rename(Height = Sepal.Length)
29
30 # 2.2 Flower dataset - pick matching columns
31 flower_clean <- flower_df %>%
32   select(species, height_cm) %>%
33   rename(species = species,
34          height = height_cm)
35
36 # Ensure numeric height
37 iris_clean$Height <- as.numeric(iris_clean$Height)
38 flower_clean$Height <- as.numeric(flower_clean$Height)
39
40 # -----
41 # 3. VERTICAL CONCATENATION (Stack rows)
42 # -----
43
44 combined_data <- rbind(iris_clean, flower_clean)
45
46 cat("\n--- Combined Data Summary ---\n")
47 cat("Iris rows: ", nrow(iris_clean), "\n")
48 cat("Flower rows: ", nrow(flower_clean), "\n")
49 cat("Total Expected: ", nrow(iris_clean) + nrow(flower_clean), "\n")
50 cat("Total Actual: ", nrow(combined_data), "\n")
51
52 cat("--- Preview of Combined Data ---\n")
53 print(head(combined_data))
54 print(tail(combined_data))
55
```



The screenshot shows the RStudio console with the output of the script. It displays the results of the data loading, cleaning, and combining steps, including the original column names, the cleaned datasets, and the final combined dataset.

```
> # -----
> # VERTICAL CONCATENATION USING rbind()
> # Datasets: iris (built-in) + flower_dataset.csv (custom)
> # -----
>
> library(dplyr)
>
> # 1. LOAD DATA
> # -----
>
> data(iris) # built-in dataset
>
> flower_df <- read.csv("C:\\Users\\itlab\\Downloads\\flower_dataset - flower_dataset.csv")
>
> cat("--- Original Column Names ---\n")
--- Original Column Names ---
> print(names(iris))
[1] "Sepal.Length" "Sepal.Width" "Petal.Length" "Petal.Width" "Species"
> print(names(flower_df))
[1] "species" "size" "fragrance" "height_cm"
>
> # 2. PREPARE DATA (Make columns same before rbind)
> # Common column structure - Species + Height
> # -----
>
> # 2.1 Iris - Use Sepal.Length as example height
> iris_clean <- iris %>%
+   select(species, Sepal.Length) %>%
+   rename(Height = Sepal.Length)
>
> # 2.2 Flower dataset - pick matching columns
> flower_clean <- flower_df %>%
+   select(species, height_cm) %>%
+   rename(species = species,
+          height = height_cm)
>
> # Ensure numeric height
> iris_clean$Height <- as.numeric(iris_clean$Height)
> flower_clean$Height <- as.numeric(flower_clean$Height)
>
> # -----
```

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

```
R - R 4.5.2 ~ /  
> # Ensure numeric height  
> iris_clean$height <- as.numeric(iris_clean$height)  
> flower_clean$height <- as.numeric(flower_clean$height)  
> # -----  
> # 3. VERTICAL CONCATENATION (stack rows)  
> # -----  
> combined_data <- rbind(iris_clean, flower_clean)  
> cat("\n--- Combined Data Summary ---\n")  
  
--- Combined Data Summary ---  
> cat("Iris rows: ", nrow(iris_clean), "\n")  
Iris rows: 150  
> cat("Flower rows: ", nrow(flower_clean), "\n")  
Flower rows: 10000  
> cat("Total Expected:", nrow(iris_clean) + nrow(flower_clean), "\n")  
Total Expected: 10150  
> cat("Total Actual: ", nrow(combined_data), "\n\n")  
Total Actual: 10150  
  
>  
> cat("--- Preview of Combined Data ---\n")  
--- Preview of Combined Data ---  
> print(head(combined_data))  
Species 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  
> print(tail(combined_data))  
Species Height  
10145 rose 87.69  
10146 hibiscus 109.52  
10147 shoeblack plant 145.23  
10148 hibiscus 126.69  
10149 shoeblack plant 77.62  
10150 rose 88.11  
> view(combined_data)
```

The Environment pane on the right shows the following objects:

- combi_ 10150 obs. of ...
- df 200 obs. of ...
- df_cl_ 200 obs. of ...
- df_sm_ 200 obs. of ...
- flower_ 10000 obs. of ...
- flower_ 10000 obs. of ...
- Food_ 200 obs. of ...
- iris 150 obs. of ...
- iris_ 150 obs. of ...
- long_ 600 obs. of ...
- traff_ 200 obs. of ...
- wide_ 200 obs. of ...

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

```
R - R 4.5.2 ~ /  
> cat("\n--- Combined Data Summary ---\n")  
  
--- Combined Data Summary ---  
> cat("Iris rows: ", nrow(iris_clean), "\n")  
Iris rows: 150  
> cat("Flower rows: ", nrow(flower_clean), "\n")  
Flower rows: 10000  
> cat("Total Expected:", nrow(iris_clean) + nrow(flower_clean), "\n")  
Total Expected: 10150  
> cat("Total Actual: ", nrow(combined_data), "\n\n")  
Total Actual: 10150  
  
>  
> cat("--- Preview of Combined Data ---\n")  
--- Preview of combined Data ---  
> print(head(combined_data))  
Species 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  
> print(tail(combined_data))  
Species Height  
10145 rose 87.69  
10146 hibiscus 109.52  
10147 shoeblack plant 145.23  
10148 hibiscus 126.69  
10149 shoeblack plant 77.62  
10150 rose 88.11  
> view(combined_data)  
> view(df)  
> view(wide_df)  
> view(traffic_pivot)  
> view(long_df)  
> view(iris_clean)  
> view(Food_Delivery_Route_Efficiency_Dataset)  
> view(iris_clean)  
> view(iris)  
>
```

The Environment pane on the right shows the following objects:

- combi_ 10150 obs. of ...
- df 200 obs. of ...
- df_cl_ 200 obs. of ...
- df_sm_ 200 obs. of ...
- flower_ 10000 obs. of ...
- flower_ 10000 obs. of ...
- Food_ 200 obs. of ...
- iris 150 obs. of ...
- iris_ 150 obs. of ...
- long_ 600 obs. of ...
- traff_ 200 obs. of ...
- wide_ 200 obs. of ...

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