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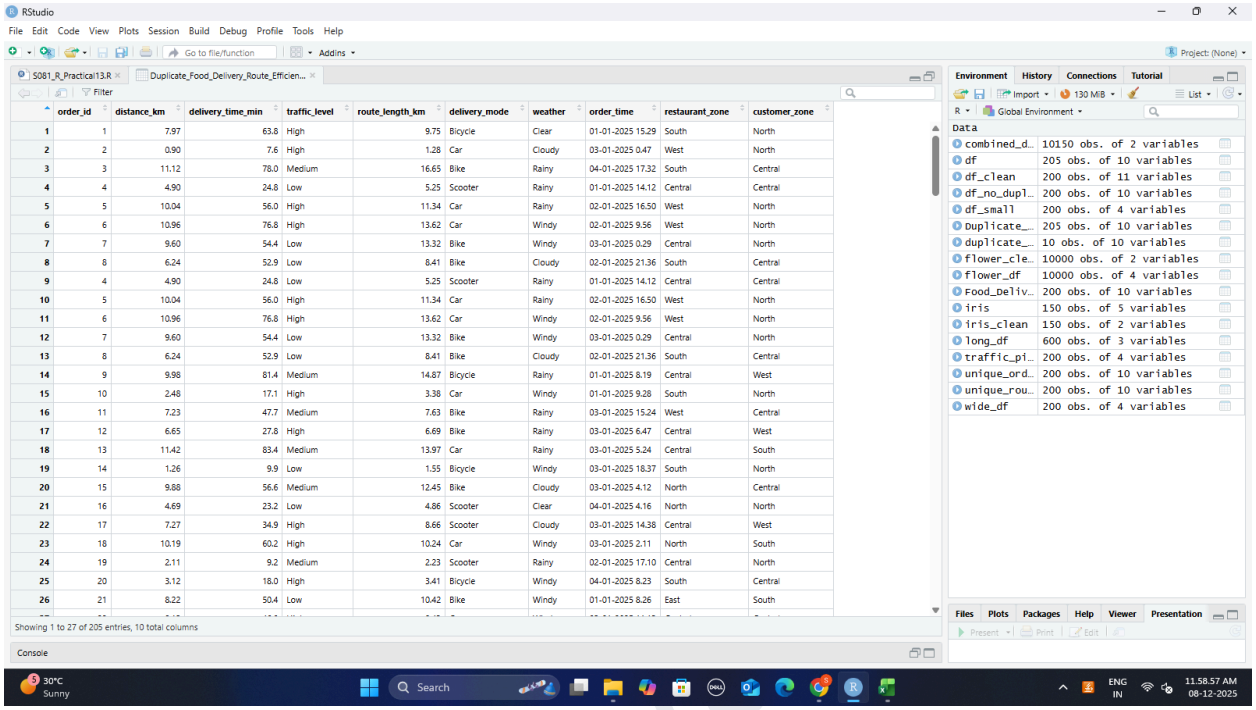
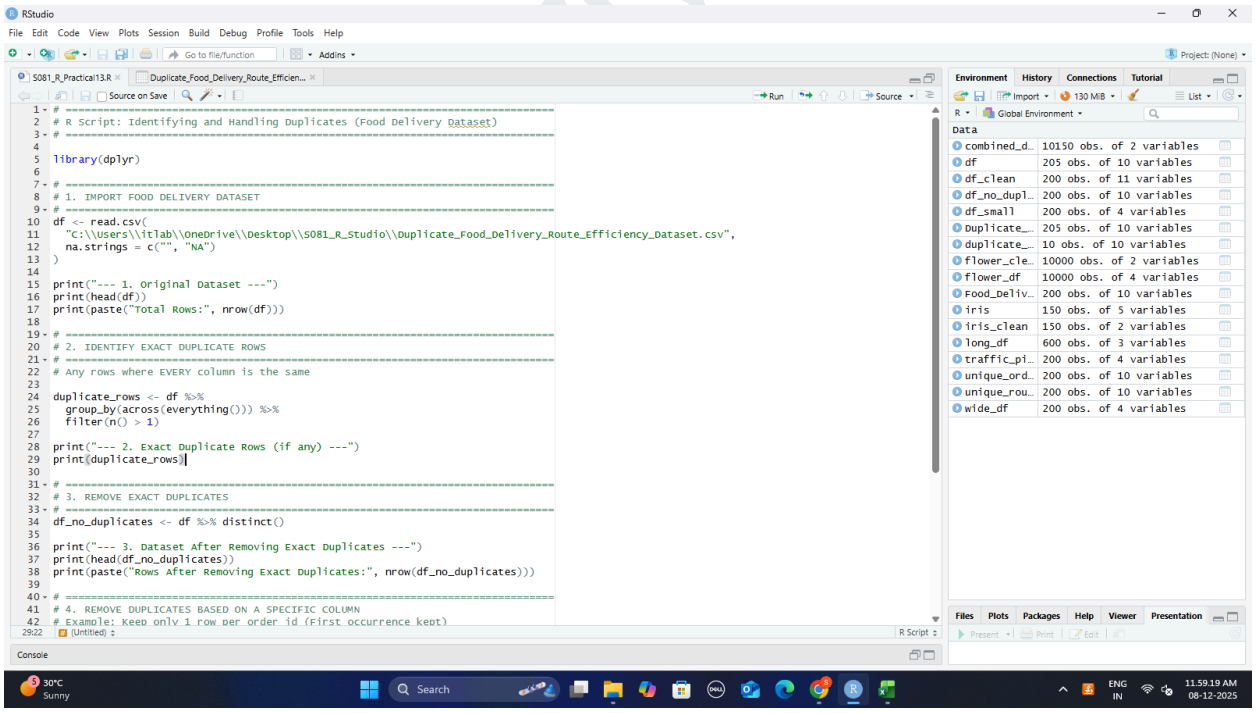
13. Identifying and handling duplicates using distinct() (R studio).



order_id	distance_km	delivery_time_min	traffic_level	route_length_km	delivery_mode	weather	order_time	restaurant_zone	customer_zone
1	7.97	63.8	High	9.75	Bicycle	Clear	01-01-2025 15.29	South	North
2	0.90	7.6	High	1.28	Car	Cloudy	03-01-2025 0.47	West	North
3	11.12	78.0	Medium	16.65	Bike	Rainy	04-01-2025 17.32	South	Central
4	4.90	24.8	Low	5.25	Scooter	Rainy	01-01-2025 14.12	Central	Central
5	10.04	56.0	High	11.34	Car	Rainy	02-01-2025 16.50	West	North
6	10.96	76.8	High	13.62	Car	Windy	02-01-2025 9.56	West	North
7	9.60	54.4	Low	13.32	Bike	Windy	03-01-2025 0.29	Central	North
8	6.24	52.9	Low	8.41	Bike	Cloudy	02-01-2025 21.36	South	Central
9	4.90	24.8	Low	5.25	Scooter	Rainy	01-01-2025 14.12	Central	Central
10	10.04	56.0	High	11.34	Car	Rainy	02-01-2025 16.50	West	North
11	10.96	76.8	High	13.62	Car	Windy	02-01-2025 9.56	West	North
12	9.60	54.4	Low	13.32	Bike	Windy	03-01-2025 0.29	Central	North
13	6.24	52.9	Low	8.41	Bike	Cloudy	02-01-2025 21.36	South	Central
14	9.98	81.4	Medium	14.87	Bicycle	Rainy	01-01-2025 8.19	Central	West
15	2.48	17.1	High	3.38	Car	Windy	01-01-2025 9.28	South	North
16	7.23	47.7	Medium	7.63	Bike	Rainy	03-01-2025 15.24	West	Central
17	6.65	27.8	High	6.69	Bike	Rainy	03-01-2025 6.47	Central	West
18	11.42	83.4	Medium	13.97	Car	Rainy	03-01-2025 5.24	Central	South
19	1.26	9.9	Low	1.55	Bicycle	Windy	03-01-2025 18.37	South	North
20	9.88	56.6	Medium	12.45	Bike	Cloudy	03-01-2025 4.12	North	Central
21	4.69	23.2	Low	4.86	Scooter	Clear	04-01-2025 4.16	North	North
22	7.27	34.9	High	8.66	Scooter	Cloudy	03-01-2025 14.38	Central	West
23	10.19	60.2	High	10.24	Car	Windy	03-01-2025 2.11	North	South
24	2.11	9.2	Medium	2.23	Scooter	Rainy	02-01-2025 17.10	Central	North
25	3.12	18.0	High	3.41	Bicycle	Windy	04-01-2025 8.23	South	Central
26	8.22	50.4	Low	10.42	Bike	Windy	01-01-2025 8.26	East	South

Showing 1 to 27 of 205 entries, 10 total columns



```r
# ================================================================
# R Script: Identifying and Handling Duplicates (Food Delivery Dataset)
# ================================================================

library(dplyr)

# ================================================================
# 1. IMPORT FOOD DELIVERY DATASET
# ================================================================
df <- read.csv(
  "C:\\Users\\itlab\\OneDrive\\Desktop\\S081_R_Studio\\Duplicate_Food_Delivery_Route_Efficiency_Dataset.csv",
  na.strings = c("", "NA")
)

print("--- 1. Original Dataset ---")
print(head(df))
print(paste("Total Rows:", nrow(df)))

# ================================================================
# 2. IDENTIFY EXACT DUPLICATE ROWS
# ================================================================
# Any rows where EVERY column is the same

duplicate_rows <- df %>%
  group_by(across(everything())) %>%
  filter(n() > 1)

print("--- 2. Exact Duplicate Rows (if any) ---")
print(duplicate_rows)

# ================================================================
# 3. REMOVE EXACT DUPLICATES
# ================================================================
df_no_duplicates <- df %>% distinct()

print("--- 3. Dataset After Removing Exact Duplicates ---")
print(head(df_no_duplicates))
print(paste("Rows After Removing Exact Duplicates:", nrow(df_no_duplicates)))

# ================================================================
# 4. REMOVE DUPLICATES BASED ON A SPECIFIC COLUMN
# Example: Keep only 1 row per order_id (First occurrence kept)
```

Name :- Priya Gupta

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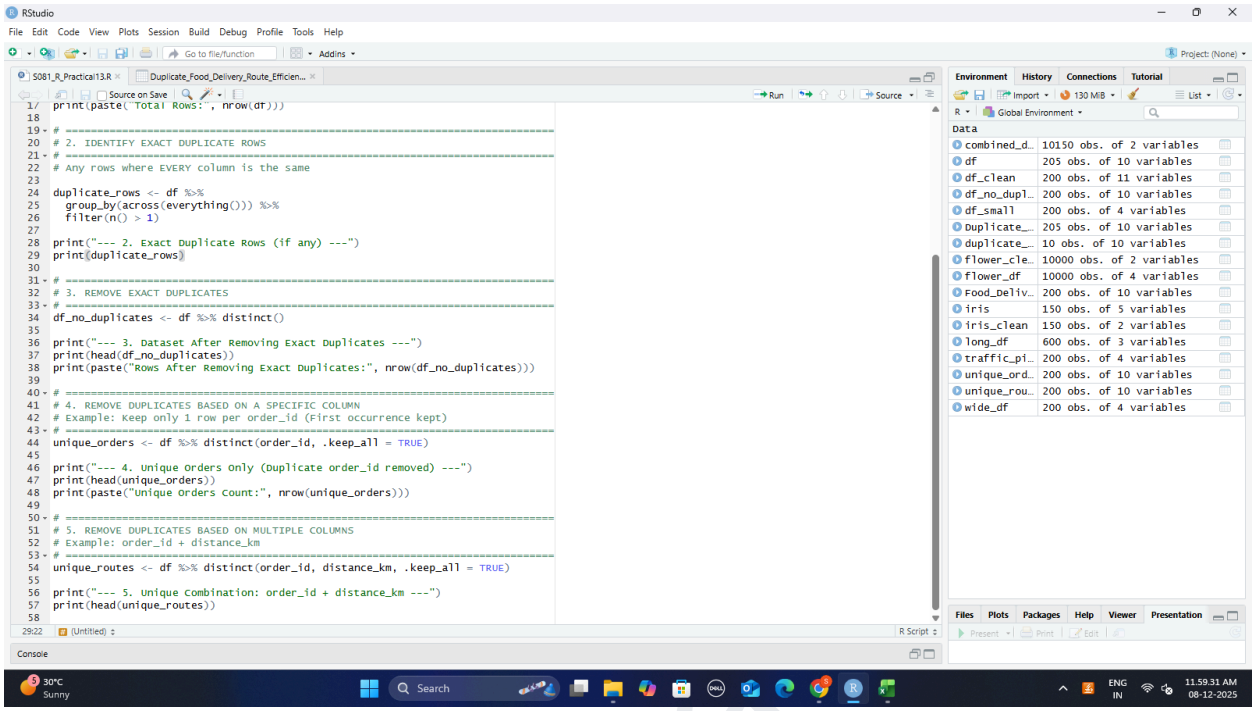
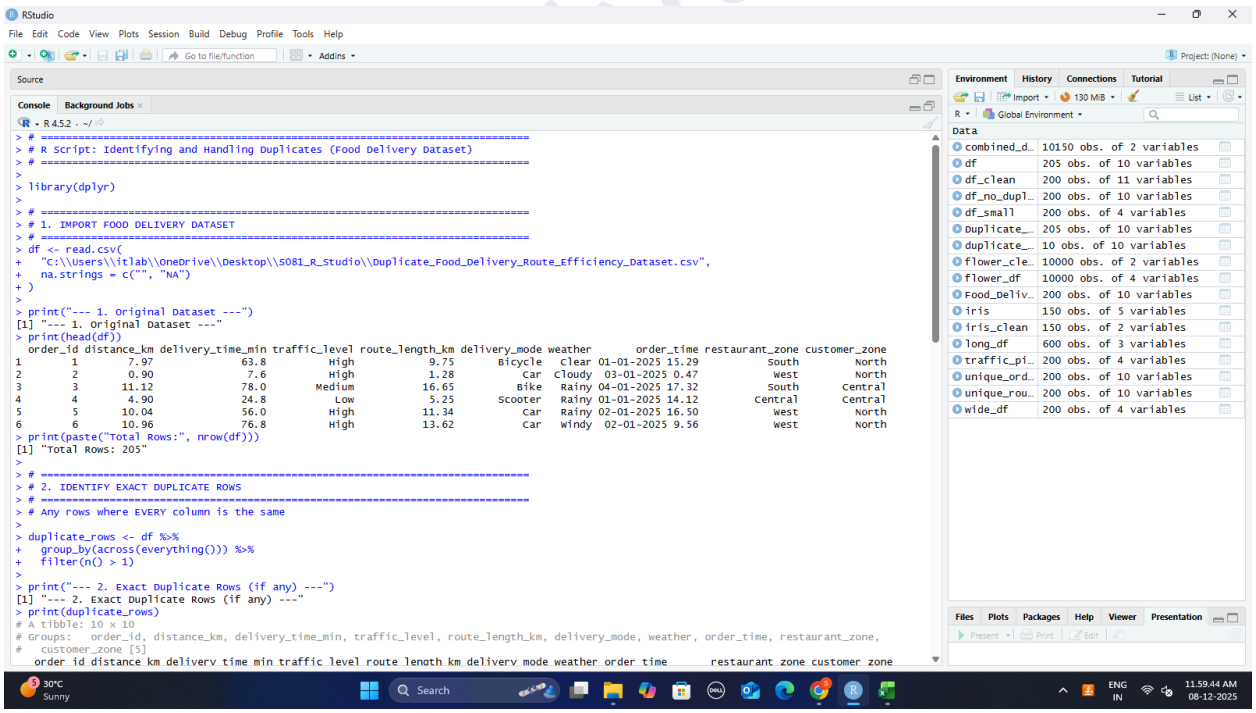


```
print(paste("Total Rows:", nrow(df)))

# ================================================================
# 2. IDENTIFY EXACT DUPLICATE ROWS
# ================================================================
# Any rows where EVERY column is the same

duplicate_rows <- df %>%
  group_by(across(everything())) %>%
  filter(n() > 1)

print("--- 2. Exact Duplicate Rows (if any) ---")
print(duplicate_rows)

# ================================================================
# 3. REMOVE EXACT DUPLICATES
# ================================================================
df_no_duplicates <- df %>% distinct()

print("--- 3. Dataset After Removing Exact Duplicates ---")
print(head(df_no_duplicates))
print(paste("Rows After Removing Exact Duplicates:", nrow(df_no_duplicates)))

# ================================================================
# 4. REMOVE DUPLICATES BASED ON A SPECIFIC COLUMN
# Example: Keep only 1 row per order_id (First occurrence kept)
# ================================================================
unique_orders <- df %>% distinct(order_id, .keep_all = TRUE)

print("--- 4. Unique Orders Only (Duplicate order_id removed) ---")
print(head(unique_orders))
print(paste("Unique Orders Count:", nrow(unique_orders)))

# ================================================================
# 5. REMOVE DUPLICATES BASED ON MULTIPLE COLUMNS
# Example: order_id + distance_km
# ================================================================
unique_routes <- df %>% distinct(order_id, distance_km, .keep_all = TRUE)

print("--- 5. Unique Combination: order_id + distance_km ---")
print(head(unique_routes))
```



```
> # ================================================================
> # R Script: Identifying and Handling Duplicates (Food Delivery Dataset)
> # ================================================================
>
> library(dplyr)
>
> # ================================================================
> # 1. IMPORT FOOD DELIVERY DATASET
> # ================================================================
> df <- read.csv(
+   "C:\\Users\\itlab\\OneDrive\\Desktop\\S081_R_Studio\\Duplicate_Food_Delivery_Route_Efficiency_Dataset.csv",
+   na.strings = c("", "NA")
+ )
>
> print("--- 1. Original Dataset ---")
[1] "--- 1. Original Dataset ---"
> print(head(df))
  order_id distance_km delivery_time_min traffic_level route_length_km delivery_mode weather       order_time restaurant_zone customer_zone
1        1        7.97              63.8           High           9.75       Bicycle   Clear 01-01-2025 15.29           South         North
2        2        0.90               7.6           High           1.28           Car  Cloudy  03-01-2025 0.47            West         North
3        3       11.12              78.0         Medium          16.65          Bike   Rainy 04-01-2025 17.32           South       Central
4        4        4.90              24.8            Low           5.25       Scooter   Rainy 01-01-2025 14.12         Central       Central
5        5       10.04              56.0           High          11.34           Car   Rainy 02-01-2025 16.50            West         North
6        6       10.96              76.8           High          13.62           Car   Windy  02-01-2025 9.56            West         North
> print(paste("Total Rows:", nrow(df)))
[1] "Total Rows: 205"
>
> # ================================================================
> # 2. IDENTIFY EXACT DUPLICATE ROWS
> # ================================================================
> # Any rows where EVERY column is the same
>
> duplicate_rows <- df %>%
+   group_by(across(everything())) %>%
+   filter(n() > 1)
>
> print("--- 2. Exact Duplicate Rows (if any) ---")
[1] "--- 2. Exact Duplicate Rows (if any) ---"
> print(duplicate_rows)
# A tibble: 10 x 10
# Groups:   order_id, distance_km, delivery_time_min, traffic_level, route_length_km, delivery_mode, weather, order_time, restaurant_zone,
#   customer_zone [5]
   order_id distance_km delivery_time_min traffic_level route_length_km delivery_mode weather order_time       restaurant_zone customer_zone
```

Name :- Priya Gupta

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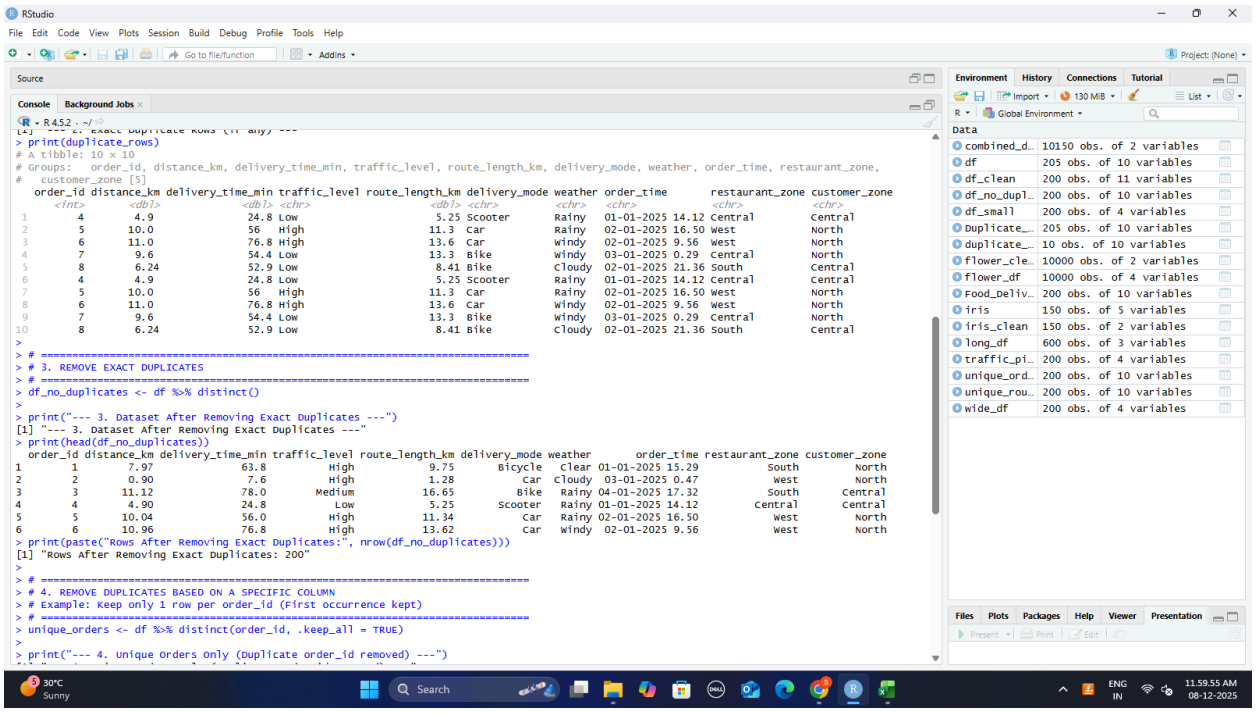
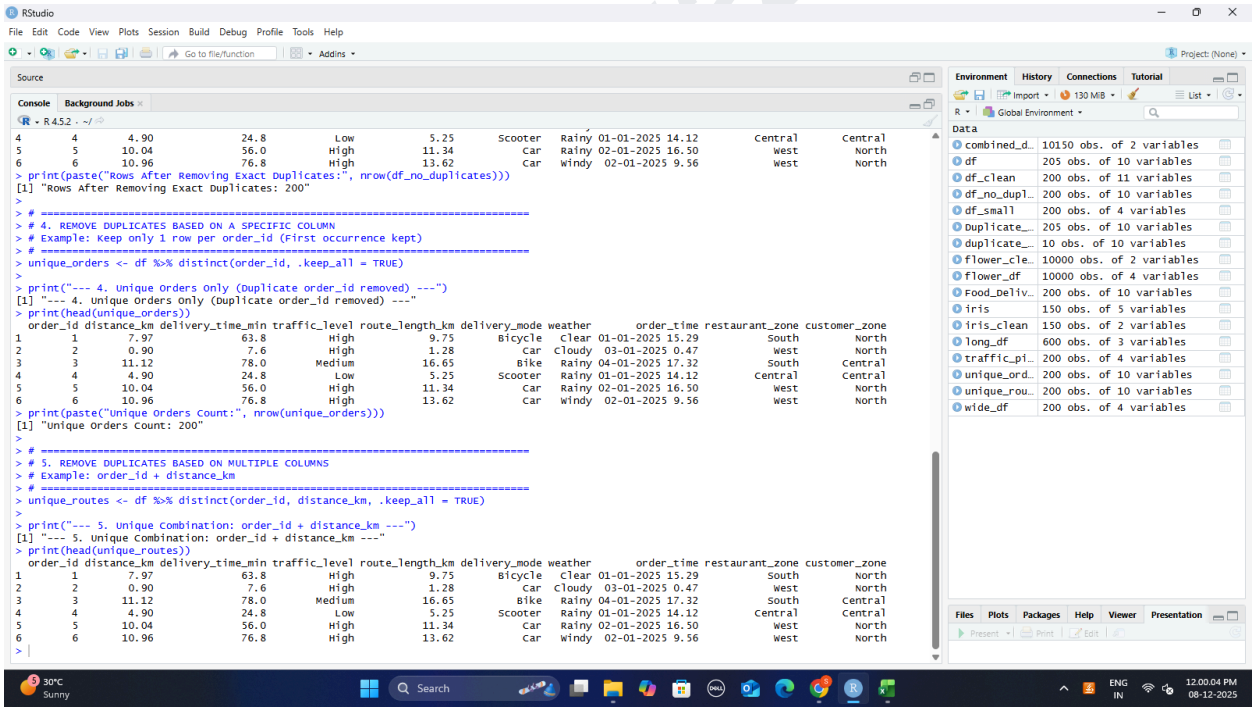


```
> print(duplicate_rows)
# A tibble: 10 x 10
# Groups:   order_id, distance_km, delivery_time_min, traffic_level, route_length_km, delivery_mode, weather, order_time, restaurant_zone,
#   customer_zone [5]
   order_id distance_km delivery_time_min traffic_level route_length_km delivery_mode weather order_time       restaurant_zone customer_zone
      <int>       <dbl>             <dbl> <chr>                 <dbl> <chr>         <chr>   <chr>            <chr>           <chr>
 1        4        4.9               24.8 Low                    5.25 Scooter       Rainy   01-01-2025 14.12 Central         Central
 2        5       10.0               56   High                  11.3  Car           Rainy   02-01-2025 16.50 West            North
 3        6       11.0               76.8 High                  13.6  Car           Windy   02-01-2025 9.56  West            North
 4        7        9.6               54.4 Low                   13.3  Bike          Windy   03-01-2025 0.29  Central         North
 5        8        6.24              52.9 Low                    8.41 Bike          Cloudy  02-01-2025 21.36 South           Central
 6        4        4.9               24.8 Low                    5.25 Scooter       Rainy   01-01-2025 14.12 Central         Central
 7        5       10.0               56   High                  11.3  Car           Rainy   02-01-2025 16.50 West            North
 8        6       11.0               76.8 High                  13.6  Car           Windy   02-01-2025 9.56  West            North
 9        7        9.6               54.4 Low                   13.3  Bike          Windy   03-01-2025 0.29  Central         North
10        8        6.24              52.9 Low                    8.41 Bike          Cloudy  02-01-2025 21.36 South           Central
>
> # ============================================================================
> # 3. REMOVE EXACT DUPLICATES
> # ============================================================================
> df_no_duplicates <- df %>% distinct()
>
> print("--- 3. Dataset After Removing Exact Duplicates ---")
[1] "--- 3. Dataset After Removing Exact Duplicates ---"
> print(head(df_no_duplicates))
  order_id distance_km delivery_time_min traffic_level route_length_km delivery_mode weather       order_time restaurant_zone customer_zone
1        1        7.97              63.8          High            9.75       Bicycle   Clear 01-01-2025 15.29           South         North
2        2        0.90               7.6          High            1.28           Car  Cloudy  03-01-2025 0.47            West         North
3        3       11.12              78.0        Medium           16.65          Bike   Rainy 04-01-2025 17.32           South       Central
4        4        4.90              24.8           Low            5.25       Scooter   Rainy 01-01-2025 14.12         Central       Central
5        5       10.04              56.0          High           11.34           Car   Rainy 02-01-2025 16.50            West         North
6        6       10.96              76.8          High           13.62           Car   Windy  02-01-2025 9.56            West         North
> print(paste("Rows After Removing Exact Duplicates:", nrow(df_no_duplicates)))
[1] "Rows After Removing Exact Duplicates: 200"
>
> # ============================================================================
> # 4. REMOVE DUPLICATES BASED ON A SPECIFIC COLUMN
> # Example: Keep only 1 row per order_id (First occurrence kept)
> # ============================================================================
> unique_orders <- df %>% distinct(order_id, .keep_all = TRUE)
>
> print("--- 4. Unique Orders Only (Duplicate order_id removed) ---")
```



```
4        4        4.90              24.8           Low            5.25       Scooter   Rainy 01-01-2025 14.12         Central       Central
5        5       10.04              56.0          High           11.34           Car   Rainy 02-01-2025 16.50            West         North
6        6       10.96              76.8          High           13.62           Car   Windy  02-01-2025 9.56            West         North
> print(paste("Rows After Removing Exact Duplicates:", nrow(df_no_duplicates)))
[1] "Rows After Removing Exact Duplicates: 200"
>
> # ============================================================================
> # 4. REMOVE DUPLICATES BASED ON A SPECIFIC COLUMN
> # Example: Keep only 1 row per order_id (First occurrence kept)
> # ============================================================================
> unique_orders <- df %>% distinct(order_id, .keep_all = TRUE)
>
> print("--- 4. Unique Orders Only (Duplicate order_id removed) ---")
[1] "--- 4. Unique Orders Only (Duplicate order_id removed) ---"
> print(head(unique_orders))
  order_id distance_km delivery_time_min traffic_level route_length_km delivery_mode weather       order_time restaurant_zone customer_zone
1        1        7.97              63.8          High            9.75       Bicycle   Clear 01-01-2025 15.29           South         North
2        2        0.90               7.6          High            1.28           Car  Cloudy  03-01-2025 0.47            West         North
3        3       11.12              78.0        Medium           16.65          Bike   Rainy 04-01-2025 17.32           South       Central
4        4        4.90              24.8           Low            5.25       Scooter   Rainy 01-01-2025 14.12         Central       Central
5        5       10.04              56.0          High           11.34           Car   Rainy 02-01-2025 16.50            West         North
6        6       10.96              76.8          High           13.62           Car   Windy  02-01-2025 9.56            West         North
> print(paste("Unique Orders Count:", nrow(unique_orders)))
[1] "Unique Orders Count: 200"
>
> # ============================================================================
> # 5. REMOVE DUPLICATES BASED ON MULTIPLE COLUMNS
> # Example: order_id + distance_km
> # ============================================================================
> unique_routes <- df %>% distinct(order_id, distance_km, .keep_all = TRUE)
>
> print("--- 5. Unique Combination: order_id + distance_km ---")
[1] "--- 5. Unique Combination: order_id + distance_km ---"
> print(head(unique_routes))
  order_id distance_km delivery_time_min traffic_level route_length_km delivery_mode weather       order_time restaurant_zone customer_zone
1        1        7.97              63.8          High            9.75       Bicycle   Clear 01-01-2025 15.29           South         North
2        2        0.90               7.6          High            1.28           Car  Cloudy  03-01-2025 0.47            West         North
3        3       11.12              78.0        Medium           16.65          Bike   Rainy 04-01-2025 17.32           South       Central
4        4        4.90              24.8           Low            5.25       Scooter   Rainy 01-01-2025 14.12         Central       Central
5        5       10.04              56.0          High           11.34           Car   Rainy 02-01-2025 16.50            West         North
6        6       10.96              76.8          High           13.62           Car   Windy  02-01-2025 9.56            West         North
>
```

Name :- Priya Gupta

Roll no. :- S081

Sheth L.U.J. & Sir M.V. College

Name :- Priya Gupta
Roll no. :- S081