

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

SUBJECT:Data Analysis with R

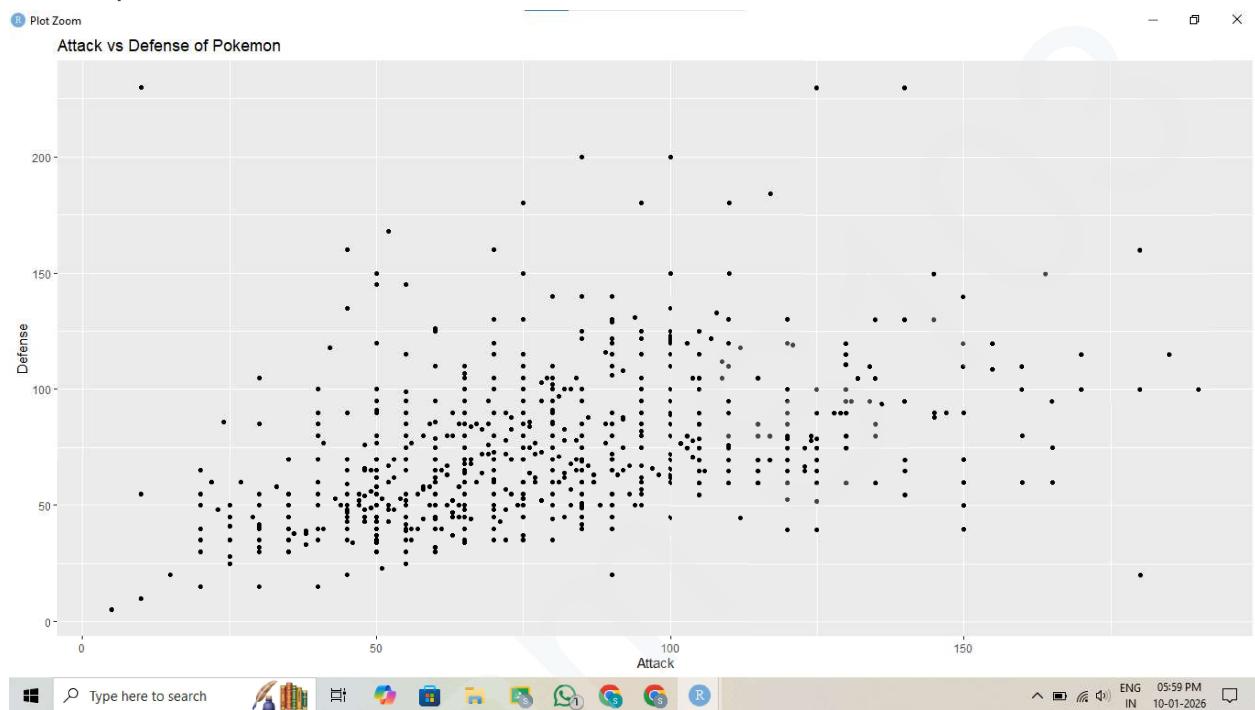
Aim: 10 Creating graphical reports using ,ggplot2 (R).

11 Generating histograms and box plots using ggplot2 (R).

12 Generating correlation matrices using cor() (R).

10th Output :

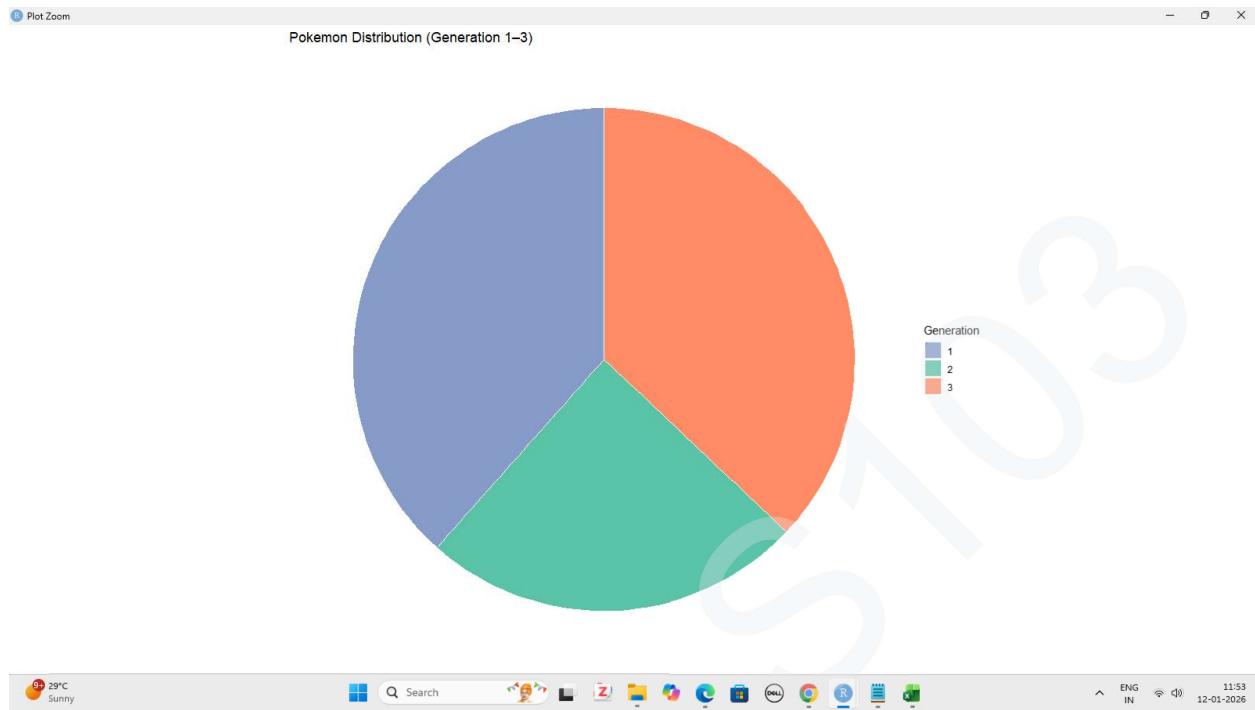
Scatter plot



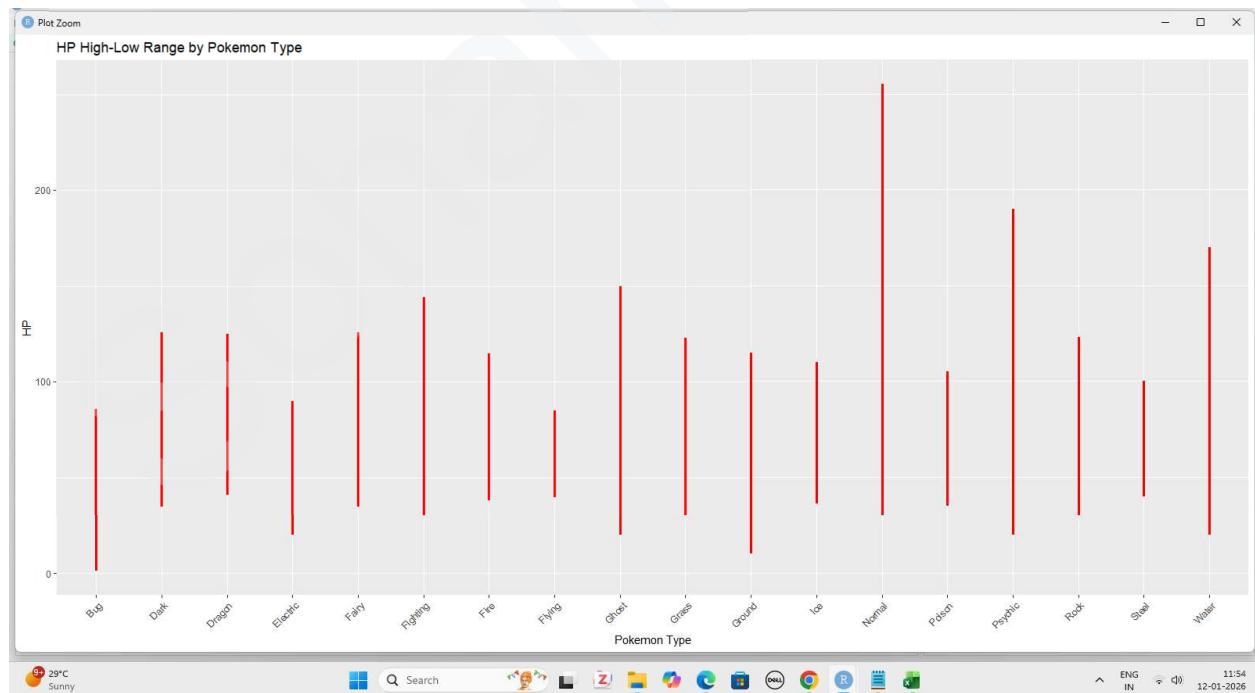
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Pie Charts



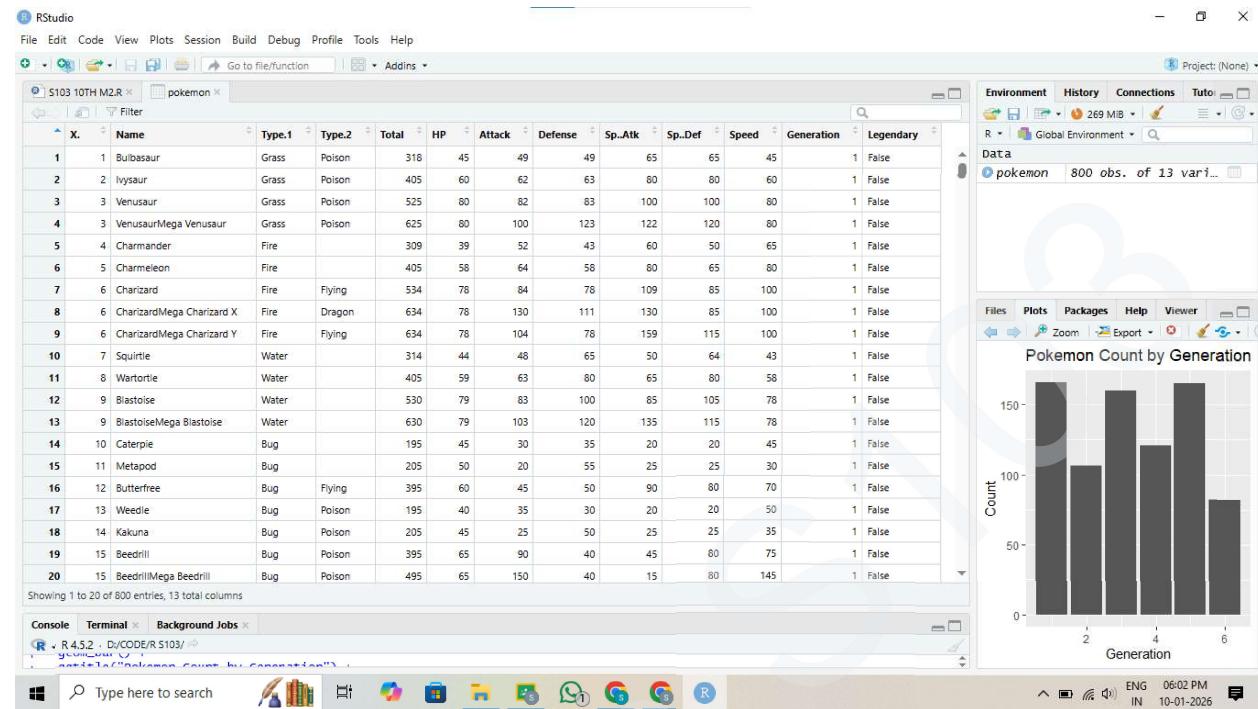
High-Low Charts



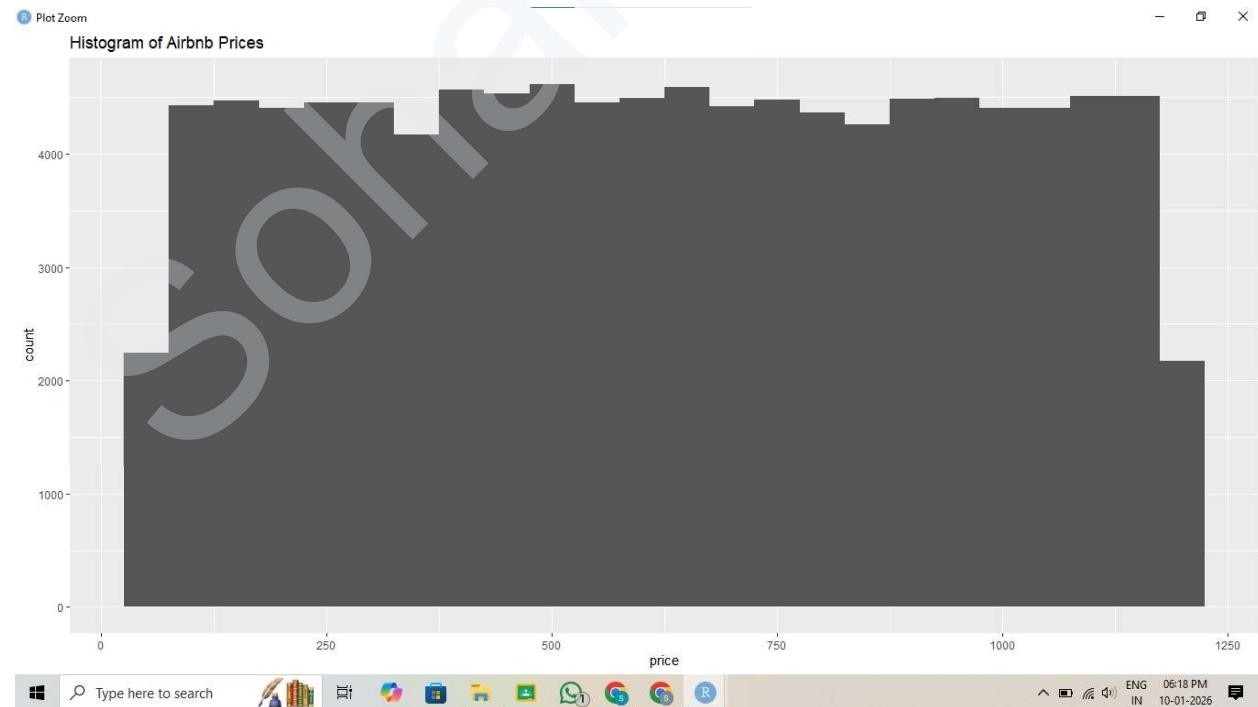
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Dataset



11TH OUTPUT: Histogram

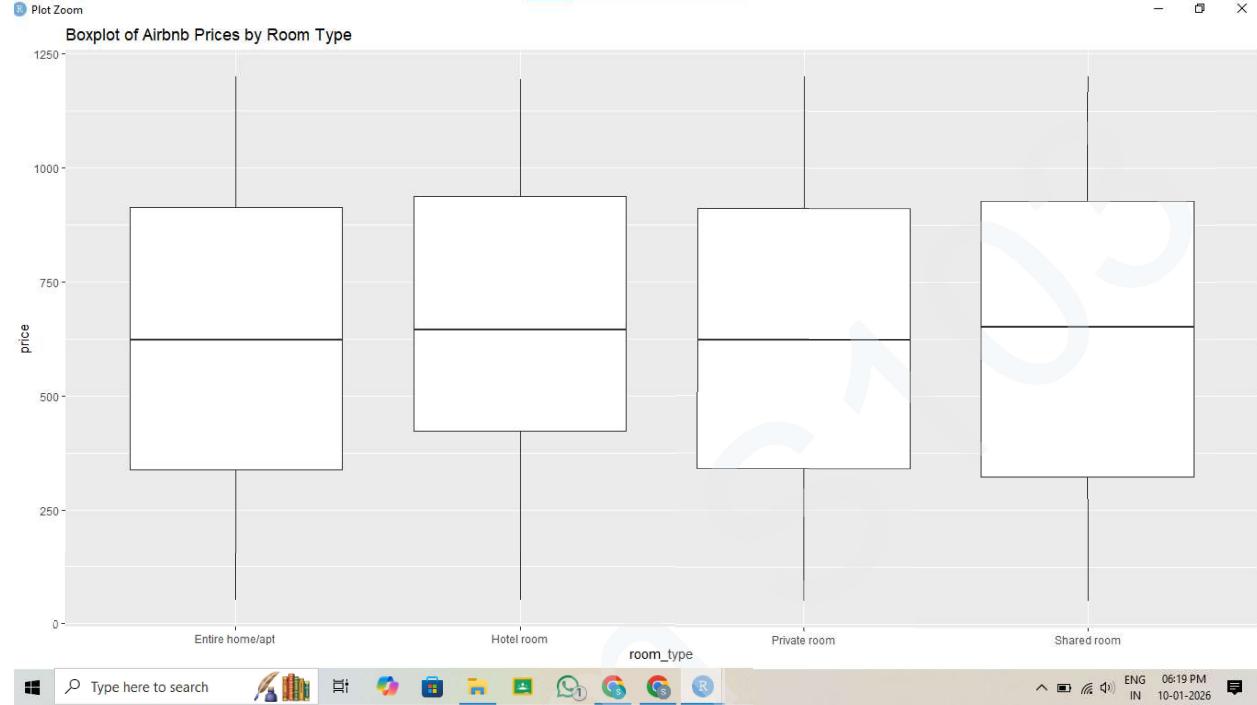


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Boxplot



12th output:Dataset

The screenshot shows the RStudio interface with a dataset grid. The grid has 21 rows and 16 columns. The columns are labeled: Make, Model, Year, Engine.Fuel.Type, Engine.HP, Engine.Cylinders, Transmission.Type, Driven_Wheels, Number.of.Doors, Market.Category, Vehicle.Size, Veh, and additional columns 1 through 9. The data includes entries for BMW, Audi, and other car models from 2011 to 2013, detailing engine specifications, transmission, drive type, doors, market category, vehicle size, and other unlabelled variables.

	Make	Model	Year	Engine.Fuel.Type	Engine.HP	Engine.Cylinders	Transmission.Type	Driven_Wheels	Number.of.Doors	Market.Category	Vehicle.Size	Veh	1	2	3	4	5	6	7
1	BMW	1 Series M	2011	premium unleaded (required)	335	6	MANUAL	rear wheel drive	2	Factory Tuner,Luxury,High-Performance	Compact	C							
2	BMW	1 Series	2011	premium unleaded (required)	300	6	MANUAL	rear wheel drive	2	Luxury,Performance	Compact	C							
3	BMW	1 Series	2011	premium unleaded (required)	300	6	MANUAL	rear wheel drive	2	Luxury,High-Performance	Compact	C							
4	BMW	1 Series	2011	premium unleaded (required)	230	6	MANUAL	rear wheel drive	2	Luxury,Performance	Compact	C							
5	BMW	1 Series	2011	premium unleaded (required)	230	6	MANUAL	rear wheel drive	2	Luxury	Compact	C							
6	BMW	1 Series	2012	premium unleaded (required)	230	6	MANUAL	rear wheel drive	2	Luxury,Performance	Compact	C							
7	BMW	1 Series	2012	premium unleaded (required)	300	6	MANUAL	rear wheel drive	2	Luxury,Performance	Compact	C							
8	BMW	1 Series	2012	premium unleaded (required)	300	6	MANUAL	rear wheel drive	2	Luxury,High-Performance	Compact	C							
9	BMW	1 Series	2012	premium unleaded (required)	230	6	MANUAL	rear wheel drive	2	Luxury	Compact	C							
10	BMW	1 Series	2013	premium unleaded (required)	230	6	MANUAL	rear wheel drive	2	Luxury	Compact	C							
11	BMW	1 Series	2013	premium unleaded (required)	300	6	MANUAL	rear wheel drive	2	Luxury,High-Performance	Compact	C							
12	BMW	1 Series	2013	premium unleaded (required)	230	6	MANUAL	rear wheel drive	2	Luxury,Performance	Compact	C							
13	BMW	1 Series	2013	premium unleaded (required)	300	6	MANUAL	rear wheel drive	2	Luxury,Performance	Compact	C							
14	BMW	1 Series	2013	premium unleaded (required)	230	6	MANUAL	rear wheel drive	2	Luxury	Compact	C							
15	BMW	1 Series	2013	premium unleaded (required)	230	6	MANUAL	rear wheel drive	2	Luxury,Performance	Compact	C							
16	BMW	1 Series	2013	premium unleaded (required)	320	6	MANUAL	rear wheel drive	2	Luxury,High-Performance	Compact	C							
17	BMW	1 Series	2013	premium unleaded (required)	320	6	MANUAL	rear wheel drive	2	Luxury,High-Performance	Compact	C							
18	Audi	100	1992	regular unleaded	172	6	MANUAL	front wheel drive	4	Luxury	Midsized	S							
19	Audi	100	1992	regular unleaded	172	6	MANUAL	front wheel drive	4	Luxury	Midsized	S							
20	Audi	100	1992	regular unleaded	172	6	AUTOMATIC	all wheel drive	4	Luxury	Midsized	S							
21	Audi	100	1992	regular unleaded	172	6	MANUAL	front wheel drive	4	Luxury	Midsized	S							

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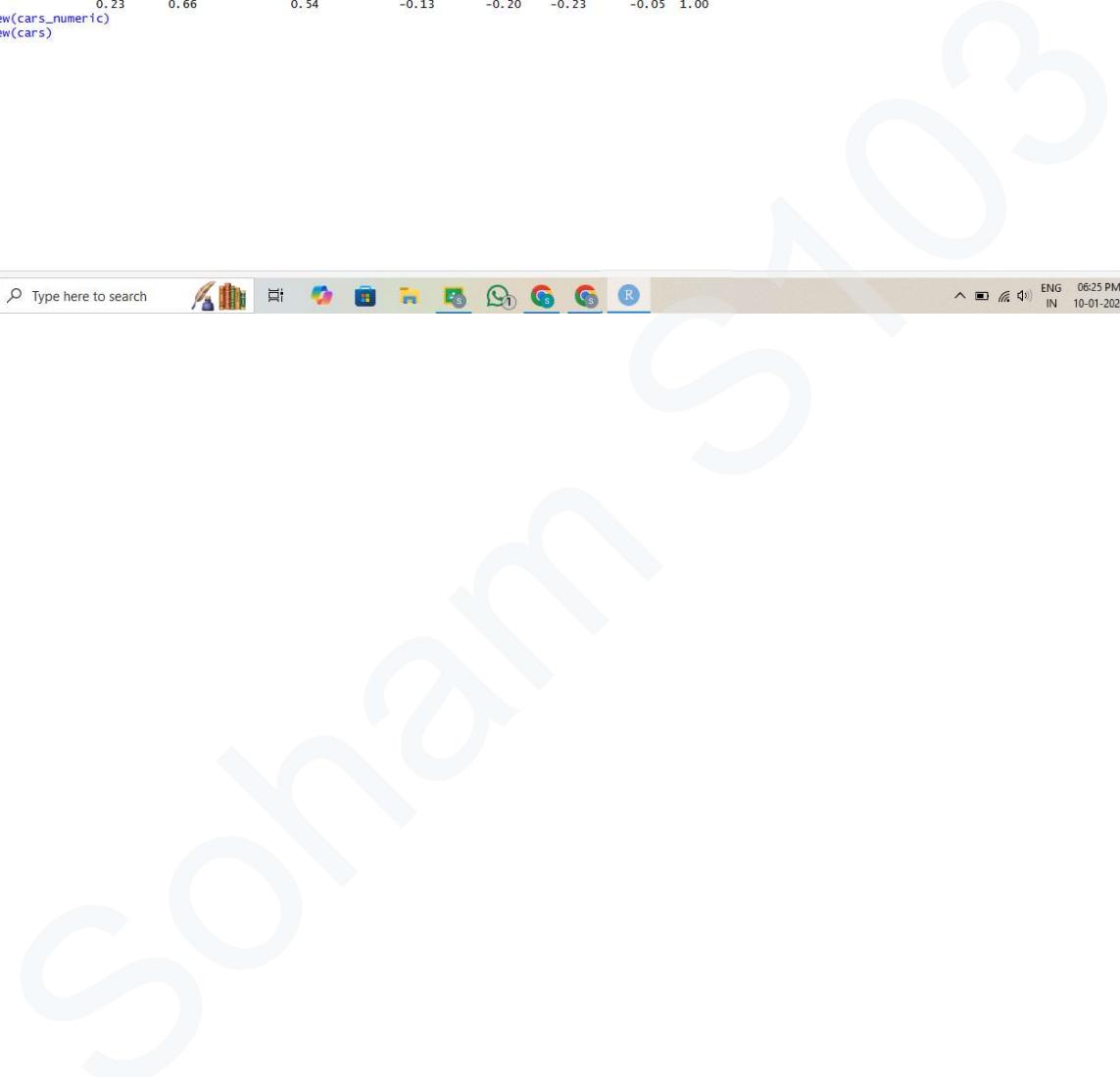
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The screenshot shows the RStudio interface with a data frame titled "mtcars". The data frame contains 32 rows of vehicle data with the following columns: "Vc", "Vehicle.Style", "highway.MPG", "city.mpg", "Popularity", and "MSRP". The data is as follows:

Vc	Vehicle.Style	highway.MPG	city.mpg	Popularity	MSRP
1	Coupe	26	19	3916	46135
2	Convertible	28	19	3916	40650
3	Coupe	28	20	3916	36350
4	Coupe	28	18	3916	29450
5	Convertible	28	18	3916	34500
6	Coupe	28	18	3916	31200
7	Convertible	26	17	3916	44100
8	Coupe	28	20	3916	39300
9	Convertible	28	18	3916	36900
10	Convertible	27	18	3916	37200
11	Coupe	28	20	3916	39600
12	Coupe	28	19	3916	31500
13	Convertible	28	19	3916	44400
14	Convertible	28	19	3916	37200
15	Coupe	28	19	3916	31500
16	Convertible	25	18	3916	48250
17	Coupe	28	20	3916	43550
18	Sedan	24	17	3105	2000
19	Sedan	24	17	3105	2000
20	Wagon	20	16	3105	2000
21	Sedan	24	17	3105	2000

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Console Terminal × Background Jobs ×

R - R 4.5.2 - D:/CODE/R/S103/ ↻

```
> # Load dataset
> cars <- read.csv("data.csv", stringsAsFactors = FALSE)
> # Select numeric columns
> cars_numeric <- cars[, sapply(cars, is.numeric)]
> # Generate correlation matrix
> cor_matrix <- cor(cars_numeric, use = "complete.obs")
> # Display matrix
> round(cor_matrix, 2)
```

	Year	Engine.HP	Engine.Cylinders	Number.of.Doors	highway.MPG	city.mpg	Popularity	MSRP
Year	1.00	0.35	-0.03	0.26	0.28	0.23	0.07	0.23
Engine.HP	0.35	1.00	0.78	-0.10	-0.41	-0.47	0.04	0.66
Engine.Cylinders	-0.03	0.78	1.00	-0.14	-0.62	-0.64	0.05	0.54
Number.of.Doors	0.26	-0.10	-0.14	1.00	0.12	0.14	-0.05	-0.13
highway.MPG	0.28	-0.41	-0.62	0.12	1.00	0.85	-0.03	-0.20
city.mpg	0.23	-0.47	-0.64	0.14	0.85	1.00	-0.01	-0.23
Popularity	0.07	0.04	0.05	-0.05	-0.03	-0.01	1.00	-0.05
MSRP	0.23	0.66	0.54	-0.13	-0.20	-0.23	-0.05	1.00

```
> view(cars_numeric)
> view(cars)
> |
```