

In [25]:

```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [26]:

```
# Reading the CSV file and creating a data frame
car_specs_df = pd.read_csv('Car_specifications.csv')

# Reading the Excel file and creating a data frame
car_prices_df = pd.read_csv('Car_Prices.csv')
```

In [27]:

```
# Displaying the data frame car_specs_df
car_specs_df
```

Out[27]:

	Company Name	Model Name	Fuel Type	Body Style	Car Length
0	Audi	A3	Petrol	Sedan	4.31
1	BMW	3 Series	Diesel	Sedan	4.71
2	Chevrolet	Spark	Petrol	Hatchback	3.63
3	Datsun	redi-GO	Petrol	Hatchback	3.43
4	Ford	EcoSport	Petrol	SUV	4.33
5	Honda	City	Petrol	Sedan	4.44
6	Hyundai	i20	Petrol	Hatchback	3.99
7	Jaguar	XF	Diesel	Sedan	4.96
8	Kia	Seltos	Petrol	SUV	4.37
9	Lexus	ES	Petrol	Sedan	4.98
10	Mahindra	Thar	Diesel	SUV	3.92
11	Mercedes-Benz	S-Class	Diesel	Sedan	5.25
12	Nissan	Kicks	Petrol	SUV	4.38
13	Renault	Kwid	Petrol	Hatchback	3.68
14	Skoda	Octavia	Petrol	Sedan	4.67
15	Tata	Altroz	Petrol	Hatchback	3.99
16	Toyota	Fortuner	Diesel	SUV	4.79
17	Volkswagen	Vento	Petrol	Sedan	4.41
18	Volvo	S60	Diesel	Sedan	4.76

In [28]:

```
# Displaying the data frames car_prices_df
car_prices_df
```

Out[28]:

	Company Name	Model Name	On road pricing	Loan amount	Monthly EMI	Interest Rate	Monthly Principal	Monthly Interest
0	Audi	A3	45000	36000	500	4.75%	420	80
1	BMW	3 Series	60000	48000	700	5%	600	100

2	Chevrolet Nissan	Spark Model Name	30000 On road pricing	24000 Loan amount	350 Monthly EMI	4.5% Interest Rate	300 Monthly Principal	Monthly Interest 50
3								
4	Ford	EcoSport	35000	28000	400	5%	350	50
5	Honda	City	38000	30400	450	4.5%	380	70
6	Hyundai	i20	45000	36000	500	5%	450	50
7	Jaguar	XF	32000	25600	350	4.75%	300	50
8	Kia	Seltos	42000	33600	500	5.5%	420	80
9	Lexus	ES	28000	22400	350	4.5%	280	70
10	Mahindra	Thar	32000	25600	350	5%	320	30
11	Mercedes- Benz	S-Class	36000	28800	400	5.5%	360	40
12	Nissan	Kicks	45000	36000	500	4.75%	450	50
13	Renault	Kwid	28000	22400	350	4.5%	280	70
14	Skoda	Octavia	26000	20800	300	5%	260	40
15	Tata	Altroz	32000	25600	350	4.75%	300	50
16	Toyota	Fortuner	32000	25600	350	5%	320	30
17	Volkswagen	Vento	40000	32000	450	4.5%	400	50
18	Volvo	S60	45000	36000	500	5%	450	50
19	Mazda	CX-9	42000	33600	500	4.75%	420	80

In [29]:

```
# Merging the two data frames on the basis of 'Model Name' column
merged_df = pd.merge(car_specs_df, car_prices_df, on='Model Name')
merged_df
```

Out[29]:

	Company Name_x	Model Name	Fuel Type	Body Style	Car Length	Company Name_y	On road pricing	Loan amount	Monthly EMI	Interest Rate	Monthly Principal	Monthly Interest
0	Audi	A3	Petrol	Sedan	4.31	Audi	45000	36000	500	4.75%	420	80
1	BMW	3 Series	Diesel	Sedan	4.71	BMW	60000	48000	700	5%	600	100
2	Chevrolet	Spark	Petrol	Hatchback	3.63	Chevrolet	30000	24000	350	4.5%	300	50
3	Datsun	redi-GO	Petrol	Hatchback	3.43	Datsun	40000	32000	450	4.75%	400	50
4	Ford	EcoSport	Petrol	SUV	4.33	Ford	35000	28000	400	5%	350	50
5	Honda	City	Petrol	Sedan	4.44	Honda	38000	30400	450	4.5%	380	70
6	Hyundai	i20	Petrol	Hatchback	3.99	Hyundai	45000	36000	500	5%	450	50
7	Jaguar	XF	Diesel	Sedan	4.96	Jaguar	32000	25600	350	4.75%	300	50
8	Kia	Seltos	Petrol	SUV	4.37	Kia	42000	33600	500	5.5%	420	80
9	Lexus	ES	Petrol	Sedan	4.98	Lexus	28000	22400	350	4.5%	280	70
10	Mahindra	Thar	Diesel	SUV	3.92	Mahindra	32000	25600	350	5%	320	30
11	Mercedes- Benz	S-Class	Diesel	Sedan	5.25	Mercedes- Benz	36000	28800	400	5.5%	360	40
12	Nissan	Kicks	Petrol	SUV	4.38	Nissan	45000	36000	500	4.75%	450	50
13	Renault	Kwid	Petrol	Hatchback	3.68	Renault	28000	22400	350	4.5%	280	70
14	Skoda	Octavia	Petrol	Sedan	4.67	Skoda	26000	20800	300	5%	260	40
15	Tata	Altroz	Petrol	Hatchback	3.99	Tata	32000	25600	350	4.75%	300	50
16	Toyota	Fortuner	Diesel	SUV	4.79	Toyota	32000	25600	350	5%	320	30
17	Volkswagen	Vento	Petrol	Sedan	4.41	Volkswagen	40000	32000	450	4.5%	400	50
18	Volvo	S60	Diesel	Sedan	4.76	Volvo	45000	36000	500	5%	450	50

In [30]:

```
# Filling the 'NA' or missing values with 0
merged_df.fillna(0, inplace=True)
```

In [31]:

```
# Result after filling 'NA' vaues with 0
merged_df
```

Out[31]:

	Company Name_x	Model Name	Fuel Type	Body Style	Car Length	Company Name_y	On road pricing	Loan amount	Monthly EMI	Interest Rate	Monthly Principal	Monthly Interest
0	Audi	A3	Petrol	Sedan	4.31	Audi	45000	36000	500	4.75%	420	80
1	BMW	3 Series	Diesel	Sedan	4.71	BMW	60000	48000	700	5%	600	100
2	Chevrolet	Spark	Petrol	Hatchback	3.63	Chevrolet	30000	24000	350	4.5%	300	50
3	Datsun	redi-GO	Petrol	Hatchback	3.43	Datsun	40000	32000	450	4.75%	400	50
4	Ford	EcoSport	Petrol	SUV	4.33	Ford	35000	28000	400	5%	350	50
5	Honda	City	Petrol	Sedan	4.44	Honda	38000	30400	450	4.5%	380	70
6	Hyundai	i20	Petrol	Hatchback	3.99	Hyundai	45000	36000	500	5%	450	50
7	Jaguar	XF	Diesel	Sedan	4.96	Jaguar	32000	25600	350	4.75%	300	50
8	Kia	Seltos	Petrol	SUV	4.37	Kia	42000	33600	500	5.5%	420	80
9	Lexus	ES	Petrol	Sedan	4.98	Lexus	28000	22400	350	4.5%	280	70
10	Mahindra	Thar	Diesel	SUV	3.92	Mahindra	32000	25600	350	5%	320	30
11	Mercedes-Benz	S-Class	Diesel	Sedan	5.25	Mercedes-Benz	36000	28800	400	5.5%	360	40
12	Nissan	Kicks	Petrol	SUV	4.38	Nissan	45000	36000	500	4.75%	450	50
13	Renault	Kwid	Petrol	Hatchback	3.68	Renault	28000	22400	350	4.5%	280	70
14	Skoda	Octavia	Petrol	Sedan	4.67	Skoda	26000	20800	300	5%	260	40
15	Tata	Altroz	Petrol	Hatchback	3.99	Tata	32000	25600	350	4.75%	300	50
16	Toyota	Fortuner	Diesel	SUV	4.79	Toyota	32000	25600	350	5%	320	30
17	Volkswagen	Vento	Petrol	Sedan	4.41	Volkswagen	40000	32000	450	4.5%	400	50
18	Volvo	S60	Diesel	Sedan	4.76	Volvo	45000	36000	500	5%	450	50

In [32]:

```
# Iterating over the merged data frame and adding GST value in 'On road pricing' column
for index, row in merged_df.iterrows():
    on_road_price = row['On road pricing']
    gst_value = on_road_price * 0.18
    merged_df.at[index, 'On road pricing'] = on_road_price + gst_value
```

In [33]:

```
# Result after updating
merged_df
```

Out[33]:

	Company Name_x	Model Name	Fuel Type	Body Style	Car Length	Company Name_y	On road pricing	Loan amount	Monthly EMI	Interest Rate	Monthly Principal	Monthly Interest
0	Audi	A3	Petrol	Sedan	4.31	Audi	53100	36000	500	4.75%	420	80
1	BMW	3 Series	Diesel	Sedan	4.71	BMW	70800	48000	700	5%	600	100
2	Chevrolet	Spark	Petrol	Hatchback	3.63	Chevrolet	35400	24000	350	4.5%	300	50

3	Datsun	redji-GO	Petrol	Hatchback	3.43	Datsun	47200	32000	450	4.75%	400	50
4	Company	Model	Fuel	Body	Car	Company	On road	Loan	Monthly	Interest	Monthly	Monthly
	Name	Name	Type	Style	Length	Name	pricing	amount	EMI	Rate	Principal	Interest
5	Honda	City	Petrol	Sedan	4.44	Honda	44840	30400	450	4.5%	380	70
6	Hyundai	i20	Petrol	Hatchback	3.99	Hyundai	53100	36000	500	5%	450	50
7	Jaguar	XF	Diesel	Sedan	4.96	Jaguar	37760	25600	350	4.75%	300	50
8	Kia	Seltos	Petrol	SUV	4.37	Kia	49560	33600	500	5.5%	420	80
9	Lexus	ES	Petrol	Sedan	4.98	Lexus	33040	22400	350	4.5%	280	70
10	Mahindra	Thar	Diesel	SUV	3.92	Mahindra	37760	25600	350	5%	320	30
11	Mercedes-Benz	S-Class	Diesel	Sedan	5.25	Mercedes-Benz	42480	28800	400	5.5%	360	40
12	Nissan	Kicks	Petrol	SUV	4.38	Nissan	53100	36000	500	4.75%	450	50
13	Renault	Kwid	Petrol	Hatchback	3.68	Renault	33040	22400	350	4.5%	280	70
14	Skoda	Octavia	Petrol	Sedan	4.67	Skoda	30680	20800	300	5%	260	40
15	Tata	Altroz	Petrol	Hatchback	3.99	Tata	37760	25600	350	4.75%	300	50
16	Toyota	Fortuner	Diesel	SUV	4.79	Toyota	37760	25600	350	5%	320	30
17	Volkswagen	Vento	Petrol	Sedan	4.41	Volkswagen	47200	32000	450	4.5%	400	50
18	Volvo	S60	Diesel	Sedan	4.76	Volvo	53100	36000	500	5%	450	50

In []: