

CAR RESALE VALUE PREDICTION

| | |
|-----------------------|--------------------------------|
| <u>Team id</u> | <u>PNT2022TMID51364</u> |
| <u>Date</u> | <u>4 November 2022</u> |

Reading and Understanding Data

```
df = pd.read_csv('ibm_car_details2.csv')
df.head()
```

| | name | year | selling_price | km_driven | fuel | seller_type | transmission | owner | mileage | engine | max_power | torque | seats |
|---|------------------------------|------|---------------|-----------|--------|-------------|--------------|--------------|------------|---------|------------|--------------------------|-------|
| 0 | Maruti Swift Dzire VDI | 2014 | 450000 | 145500 | Diesel | Individual | Manual | First Owner | 23.4 kmpl | 1248 CC | 74 bhp | 190Nm@ 2000rpm | 5.0 |
| 1 | Skoda Rapid 1.5 TDI Ambition | 2014 | 370000 | 120000 | Diesel | Individual | Manual | Second Owner | 21.14 kmpl | 1498 CC | 103.52 bhp | 250Nm@ 1500-2500rpm | 5.0 |
| 2 | Honda City 2017-2020 EXi | 2006 | 158000 | 140000 | Petrol | Individual | Manual | Third Owner | 17.7 kmpl | 1497 CC | 78 bhp | 12.7@ 2,700(kgm@ rpm) | 5.0 |
| 3 | Hyundai i20 Sportz Diesel | 2010 | 225000 | 127000 | Diesel | Individual | Manual | First Owner | 23.0 kmpl | 1396 CC | 90 bhp | 22.4 kgm at 1750-2750rpm | 5.0 |
| 4 | Maruti Swift VXi BSIII | 2007 | 130000 | 120000 | Petrol | Individual | Manual | First Owner | 16.1 kmpl | 1298 CC | 88.2 bhp | 11.5@ 4,500(kgm@ rpm) | 5.0 |

```
df.shape
```

```
(8128, 13)
```

```
df.info
```

```
<bound method DataFrame.info of
0      Maruti Swift Dzire VDI      2014      450000      145500      Diesel
1      Skoda Rapid 1.5 TDI Ambition  2014      370000      120000      Diesel
2      Honda City 2017-2020 EXi    2006      158000      140000      Petrol
3      Hyundai i20 Sportz Diesel    2010      225000      127000      Diesel
4      Maruti Swift VXi BSIII      2007      130000      120000      Petrol
...
8123     Hyundai i20 Magna          2013      320000      110000      Petrol
8124     Hyundai Verna CRDi SX      2007      135000      119000      Diesel
8125     Maruti Swift Dzire ZDi     2009      382000      120000      Diesel
8126           Tata Indigo CR4      2013      290000       25000      Diesel
8127           Tata Indigo CR4      2013      290000       25000      Diesel

      seller_type transmission      owner      mileage      engine \
0      Individual      Manual      First Owner      23.4 kmpl      1248 CC
1      Individual      Manual      Second Owner      21.14 kmpl      1498 CC
2      Individual      Manual      Third Owner      17.7 kmpl      1497 CC
3      Individual      Manual      First Owner      23.0 kmpl      1396 CC
4      Individual      Manual      First Owner      16.1 kmpl      1298 CC
...
8123 Individual      Manual      First Owner      18.5 kmpl      1197 CC
8124 Individual      Manual      Fourth & Above Owner      16.8 kmpl      1493 CC
8125 Individual      Manual      First Owner      19.3 kmpl      1248 CC
8126 Individual      Manual      First Owner      23.57 kmpl      1396 CC
8127 Individual      Manual      First Owner      23.57 kmpl      1396 CC
```

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```

max_power torque seats
0      74 bhp      190Nm@ 2000rpm      5.0
1    103.52 bhp      250Nm@ 1500-2500rpm      5.0
2      78 bhp      12.7@ 2,700(kgm@ rpm)      5.0
3      90 bhp      22.4 kgm at 1750-2750rpm      5.0
4     88.2 bhp      11.5@ 4,500(kgm@ rpm)      5.0
...
8123   82.85 bhp      113.7Nm@ 4000rpm      5.0
8124   110 bhp      24@ 1,900-2,750(kgm@ rpm)      5.0
8125   73.9 bhp      190Nm@ 2000rpm      5.0
8126    70 bhp      140Nm@ 1800-3000rpm      5.0
8127    70 bhp      140Nm@ 1800-3000rpm      5.0

```

[8128 rows x 13 columns]>

df.describe

```

<bound method NDFrame.describe of
0      Maruti Swift Dzire VDI 2014      450000      145500 Diesel
1      Skoda Rapid 1.5 TDI Ambition 2014      370000      120000 Diesel
2      Honda City 2017-2020 EXi 2006      158000      140000 Petrol
3      Hyundai i20 Sportz Diesel 2010      225000      127000 Diesel
4      Maruti Swift VXi BSIII 2007      130000      120000 Petrol
...
8123   Hyundai i20 Magna 2013      320000      110000 Petrol
8124   Hyundai Verna CRDi SX 2007      135000      119000 Diesel
8125   Maruti Swift Dzire ZDi 2009      382000      120000 Diesel
8126   Tata Indigo CR4 2013      290000      25000 Diesel
8127   Tata Indigo CR4 2013      290000      25000 Diesel

seller_type transmission owner mileage engine \
0      Individual Manual First Owner 23.4 kmpl 1248 CC
1      Individual Manual Second Owner 21.14 kmpl 1498 CC
2      Individual Manual Third Owner 17.7 kmpl 1497 CC
3      Individual Manual First Owner 23.0 kmpl 1396 CC
4      Individual Manual First Owner 16.1 kmpl 1298 CC
...
8123 Individual Manual First Owner 18.5 kmpl 1197 CC
8124 Individual Manual Fourth & Above Owner 16.8 kmpl 1493 CC
8125 Individual Manual First Owner 19.3 kmpl 1248 CC
8126 Individual Manual First Owner 23.57 kmpl 1396 CC
8127 Individual Manual First Owner 23.57 kmpl 1396 CC

```

```

max_power torque seats
0      74 bhp      190Nm@ 2000rpm      5.0
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8127    70 bhp      140Nm@ 1800-3000rpm      5.0

```

[8128 rows x 13 columns]>

df.isna().sum()

CAR RESALE VALUE PREDICTION

| | |
|---------------|-----|
| name | 0 |
| year | 0 |
| selling_price | 0 |
| km_driven | 0 |
| fuel | 0 |
| seller_type | 0 |
| transmission | 0 |
| owner | 0 |
| mileage | 221 |
| engine | 221 |
| max_power | 215 |
| torque | 222 |
| seats | 221 |

dtype: int64