

Analyse the given dataset (refer to the link in whatsapp group description) and perform basic analysis using numpy and pandas

```
In [1]: import pandas as pd  
import numpy as np
```

```
In [2]: data=pd.read_csv("Ren.csv")
```

```
In [3]: np.shape(data)
```

```
Out[3]: (1549, 11)
```

```
In [4]: np.size(data)
```

```
Out[4]: 17039
```

```
In [5]: np.arange(10)
```

```
Out[5]: array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```

```
In [6]: data.head(20)
```

```
Out[6]:
```

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	pr
0	1.0	lounge	51.0	882.0	25000.0	1.0	44.907242	8.611559868	89
1	2.0	pop	51.0	1186.0	32500.0	1.0	45.666359	12.24188995	88
2	3.0	sport	74.0	4658.0	142228.0	1.0	45.503300	11.41784	42
3	4.0	lounge	51.0	2739.0	160000.0	1.0	40.633171	17.63460922	60
4	5.0	pop	73.0	3074.0	106880.0	1.0	41.903221	12.49565029	57
5	6.0	pop	74.0	3623.0	70225.0	1.0	45.000702	7.68227005	79
6	7.0	lounge	51.0	731.0	11600.0	1.0	44.907242	8.611559868	107
7	8.0	lounge	51.0	1521.0	49076.0	1.0	41.903221	12.49565029	97
8	9.0	sport	73.0	4049.0	76000.0	1.0	45.548000	11.54946995	56
9	10.0	sport	51.0	3653.0	89000.0	1.0	45.438301	10.99170017	60
10	11.0	pop	51.0	790.0	43286.0	1.0	40.871429	14.43896008	89
11	12.0	lounge	51.0	366.0	17500.0	1.0	45.069679	7.704919815	109
12	13.0	lounge	51.0	456.0	18450.0	1.0	45.426571	11.78812981	97
13	14.0	pop	51.0	3835.0	120000.0	1.0	40.531590	17.43615913	48
14	15.0	lounge	51.0	1035.0	40500.0	1.0	40.911362	14.21119976	93

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	pr
15	16.0	lounge	51.0	1096.0	28200.0	1.0	45.697208	9.845970154	9!
16	17.0	lounge	73.0	4200.0	110000.0	1.0	41.082352	14.25424957	5!
17	18.0	pop	51.0	2223.0	96848.0	1.0	43.782372	11.25498962	7!
18	19.0	lounge	51.0	2861.0	31000.0	1.0	45.069679	7.704919815	7!
19	20.0	lounge	51.0	425.0	20030.0	1.0	45.354389	11.86925983	10!

In [7]:

data.tail()

Out[7]:

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	price	Unnamed: 9
1544	NaN	NaN	NaN	NaN	NaN	NaN	NaN	length	5	
1545	NaN	NaN	NaN	NaN	NaN	NaN	NaN	concat	lonprice	
1546	NaN	NaN	NaN	NaN	NaN	NaN	NaN	Null values	NO	
1547	NaN	NaN	NaN	NaN	NaN	NaN	NaN	find	1	
1548	NaN	NaN	NaN	NaN	NaN	NaN	NaN	search	1	

In [8]:

data.columns

Out[8]:

Index(['ID', 'model', 'engine_power', 'age_in_days', 'km', 'previous_owners', 'lat', 'lon', 'price', 'Unnamed: 9', 'Unnamed: 10'], dtype='object')

In [9]:

data.index

Out[9]:

RangeIndex(start=0, stop=1549, step=1)

In [10]:

data.fillna(10)

Out[10]:

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon
0	1.0	lounge	51.0	882.0	25000.0	1.0	44.907242	8.611559868
1	2.0	pop	51.0	1186.0	32500.0	1.0	45.666359	12.24188995
2	3.0	sport	74.0	4658.0	142228.0	1.0	45.503300	11.41784
3	4.0	lounge	51.0	2739.0	160000.0	1.0	40.633171	17.63460922
4	5.0	pop	73.0	3074.0	106880.0	1.0	41.903221	12.49565029
...
1544	10.0	10	10.0	10.0	10.0	10.0	10.000000	length
1545	10.0	10	10.0	10.0	10.0	10.0	10.000000	concat

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon
1546	10.0	10	10.0	10.0	10.0	10.0	10.000000	Null values
1547	10.0	10	10.0	10.0	10.0	10.0	10.000000	find
1548	10.0	10	10.0	10.0	10.0	10.0	10.000000	search

1549 rows × 11 columns

In [11]:

pd.isna(data)

Out[11]:

	ID	model	engine_power	age_in_days	km	previous_owners	lat	lon	price	Unnamed: 0
0	False	False	False	False	False	False	False	False	False	True
1	False	False	False	False	False	False	False	False	False	True
2	False	False	False	False	False	False	False	False	False	True
3	False	False	False	False	False	False	False	False	False	True
4	False	False	False	False	False	False	False	False	False	True
...
1544	True	True	True	True	True	True	True	False	False	True
1545	True	True	True	True	True	True	True	False	False	True
1546	True	True	True	True	True	True	True	False	False	True
1547	True	True	True	True	True	True	True	False	False	True
1548	True	True	True	True	True	True	True	False	False	True

1549 rows × 11 columns



In [12]:

data.dropna(axis=1)

Out[12]:

	lon	price
0	8.611559868	8900
1	12.24188995	8800
2	11.41784	4200
3	17.63460922	6000
4	12.49565029	5700
...
1544	length	5
1545	concat	lonprice
1546	Null values	NO
1547	find	1

	lon	price
1548	search	1

1549 rows × 2 columns

Second Data - 2015

In [13]:

```
d=pd.read_csv("2015.csv")
```

In [14]:

```
np.shape(d)
```

Out[14]: (158, 12)

In [15]:

```
np.size(d)
```

Out[15]: 1896

In [16]:

```
d.head(10)
```

Out[16]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom
0	Switzerland	Western Europe	1	7.587	0.03411	1.39651	1.34951	0.94143	0.66557
1	Iceland	Western Europe	2	7.561	0.04884	1.30232	1.40223	0.94784	0.62877
2	Denmark	Western Europe	3	7.527	0.03328	1.32548	1.36058	0.87464	0.64938
3	Norway	Western Europe	4	7.522	0.03880	1.45900	1.33095	0.88521	0.66973
4	Canada	North America	5	7.427	0.03553	1.32629	1.32261	0.90563	0.63297
5	Finland	Western Europe	6	7.406	0.03140	1.29025	1.31826	0.88911	0.64169
6	Netherlands	Western Europe	7	7.378	0.02799	1.32944	1.28017	0.89284	0.61576
7	Sweden	Western Europe	8	7.364	0.03157	1.33171	1.28907	0.91087	0.65980
8	New Zealand	Australia and New Zealand	9	7.286	0.03371	1.25018	1.31967	0.90837	0.63938
9	Australia	Australia and New Zealand	10	7.284	0.04083	1.33358	1.30923	0.93156	0.65124

In [17]:

d.tail(15)

Out[17]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Fre
143	Niger	Sub-Saharan Africa	144	3.845	0.03602	0.06940	0.77265	0.29707	0
144	Cambodia	Southeastern Asia	145	3.819	0.05069	0.46038	0.62736	0.61114	0
145	Tanzania	Sub-Saharan Africa	146	3.781	0.05061	0.28520	1.00268	0.38215	0
146	Madagascar	Sub-Saharan Africa	147	3.681	0.03633	0.20824	0.66801	0.46721	0
147	Central African Republic	Sub-Saharan Africa	148	3.678	0.06112	0.07850	0.00000	0.06699	0
148	Chad	Sub-Saharan Africa	149	3.667	0.03830	0.34193	0.76062	0.15010	0
149	Guinea	Sub-Saharan Africa	150	3.656	0.03590	0.17417	0.46475	0.24009	0
150	Ivory Coast	Sub-Saharan Africa	151	3.655	0.05141	0.46534	0.77115	0.15185	0
151	Burkina Faso	Sub-Saharan Africa	152	3.587	0.04324	0.25812	0.85188	0.27125	0
152	Afghanistan	Southern Asia	153	3.575	0.03084	0.31982	0.30285	0.30335	0
153	Rwanda	Sub-Saharan Africa	154	3.465	0.03464	0.22208	0.77370	0.42864	0
154	Benin	Sub-Saharan Africa	155	3.340	0.03656	0.28665	0.35386	0.31910	0
155	Syria	Middle East and Northern Africa	156	3.006	0.05015	0.66320	0.47489	0.72193	0
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22396	0
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28443	0

In [18]:

d.index

Out[18]: RangeIndex(start=0, stop=158, step=1)

In [19]:

d.columns

Out[19]: Index(['Country', 'Region', 'Happiness Rank', 'Happiness Score', 'Standard Error', 'Economy (GDP per Capita)', 'Family',

```
'Health (Life Expectancy)', 'Freedom', 'Trust (Government Corruption)',  
'Generosity', 'Dystopia Residual'],  
dtype='object')
```

In [20]:

pd.isna(d)

Out[20]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom (Index)
0			False	False	False	False	False	False	False
1			False	False	False	False	False	False	False
2			False	False	False	False	False	False	False
3			False	False	False	False	False	False	False
4			False	False	False	False	False	False	False
...
153			False	False	False	False	False	False	False
154			False	False	False	False	False	False	False
155			False	False	False	False	False	False	False
156			False	False	False	False	False	False	False
157			False	False	False	False	False	False	False

158 rows × 12 columns



In [21]:

d.fillna(15)

Out[21]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom (Index)
0	Switzerland	Western Europe	1	7.587	0.03411	1.39651	1.34951	0.94143	0.6659
1	Iceland	Western Europe	2	7.561	0.04884	1.30232	1.40223	0.94784	0.6287
2	Denmark	Western Europe	3	7.527	0.03328	1.32548	1.36058	0.87464	0.6493
3	Norway	Western Europe	4	7.522	0.03880	1.45900	1.33095	0.88521	0.6697
4	Canada	North America	5	7.427	0.03553	1.32629	1.32261	0.90563	0.6329
...
153	Rwanda	Sub-Saharan Africa	154	3.465	0.03464	0.22208	0.77370	0.42864	0.5920
154	Benin	Sub-Saharan Africa	155	3.340	0.03656	0.28665	0.35386	0.31910	0.4845

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedo
155	Syria	Middle East and Northern Africa	156	3.006	0.05015	0.66320	0.47489	0.72193	0.1568
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22396	0.1185
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28443	0.3645

158 rows × 12 columns

In [22]:

d.dropna(axis=0)

Out[22]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedo
0	Switzerland	Western Europe	1	7.587	0.03411	1.39651	1.34951	0.94143	0.6655
1	Iceland	Western Europe	2	7.561	0.04884	1.30232	1.40223	0.94784	0.6287
2	Denmark	Western Europe	3	7.527	0.03328	1.32548	1.36058	0.87464	0.6493
3	Norway	Western Europe	4	7.522	0.03880	1.45900	1.33095	0.88521	0.6697
4	Canada	North America	5	7.427	0.03553	1.32629	1.32261	0.90563	0.6329
...
153	Rwanda	Sub-Saharan Africa	154	3.465	0.03464	0.22208	0.77370	0.42864	0.5920
154	Benin	Sub-Saharan Africa	155	3.340	0.03656	0.28665	0.35386	0.31910	0.4845
155	Syria	Middle East and Northern Africa	156	3.006	0.05015	0.66320	0.47489	0.72193	0.1568
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22396	0.1185
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28443	0.3645

158 rows × 12 columns

```
In [23]: d.dropna(0)
```

Out[23]:

	Country	Region	Happiness Rank	Happiness Score	Standard Error	Economy (GDP per Capita)	Family	Health (Life Expectancy)	Freedom
0	Switzerland	Western Europe	1	7.587	0.03411	1.39651	1.34951	0.94143	0.6659
1	Iceland	Western Europe	2	7.561	0.04884	1.30232	1.40223	0.94784	0.6287
2	Denmark	Western Europe	3	7.527	0.03328	1.32548	1.36058	0.87464	0.6493
3	Norway	Western Europe	4	7.522	0.03880	1.45900	1.33095	0.88521	0.6697
4	Canada	North America	5	7.427	0.03553	1.32629	1.32261	0.90563	0.6329
...
153	Rwanda	Sub-Saharan Africa	154	3.465	0.03464	0.22208	0.77370	0.42864	0.5920
154	Benin	Sub-Saharan Africa	155	3.340	0.03656	0.28665	0.35386	0.31910	0.4845
155	Syria	Middle East and Northern Africa	156	3.006	0.05015	0.66320	0.47489	0.72193	0.1568
156	Burundi	Sub-Saharan Africa	157	2.905	0.08658	0.01530	0.41587	0.22396	0.1185
157	Togo	Sub-Saharan Africa	158	2.839	0.06727	0.20868	0.13995	0.28443	0.3645

158 rows × 12 columns



```
In [ ]:
```