

# Assignment-1

## Anjali vishwakarma-MT2310

```
In [1]: pip install pandas
```

```
Requirement already satisfied: pandas in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (2.2.3)
Requirement already satisfied: numpy>=1.26.0 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from pandas) (2.1.2)
Requirement already satisfied: python-dateutil>=2.8.2 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from pandas) (2.9.0.post0)
Requirement already satisfied: pytz>=2020.1 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from pandas) (2024.2)
Requirement already satisfied: tzdata>=2022.7 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from pandas) (2024.2)
Requirement already satisfied: six>=1.5 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from python-dateutil>=2.8.2->pandas) (1.16.0)
Note: you may need to restart the kernel to use updated packages.
```

```
[notice] A new release of pip is available: 24.1.1 -> 24.2
[notice] To update, run: python.exe -m pip install --upgrade pip
```

```
In [2]: pip install seaborn
```

```
Requirement already satisfied: seaborn in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (0.13.2)
Note: you may need to restart the kernel to use updated packages.
```

```
Requirement already satisfied: numpy!=1.24.0,>=1.20 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from seaborn) (2.1.2)
Requirement already satisfied: pandas>=1.2 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from seaborn) (2.2.3)
Requirement already satisfied: matplotlib!=3.6.1,>=3.4 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from seaborn) (3.9.2)
Requirement already satisfied: contourpy>=1.0.1 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from matplotlib!=3.6.1,>=3.4->seaborn) (1.3.0)
Requirement already satisfied: cycler>=0.10 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from matplotlib!=3.6.1,>=3.4->seaborn) (0.12.1)
Requirement already satisfied: fonttools>=4.22.0 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from matplotlib!=3.6.1,>=3.4->seaborn) (4.54.1)
Requirement already satisfied: kiwisolver>=1.3.1 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from matplotlib!=3.6.1,>=3.4->seaborn) (1.4.7)
Requirement already satisfied: packaging>=20.0 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from matplotlib!=3.6.1,>=3.4->seaborn) (24.1)
Requirement already satisfied: pillow>=8 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from matplotlib!=3.6.1,>=3.4->seaborn) (11.0.0)
Requirement already satisfied: pyparsing>=2.3.1 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from matplotlib!=3.6.1,>=3.4->seaborn) (3.2.0)
Requirement already satisfied: python-dateutil>=2.7 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from matplotlib!=3.6.1,>=3.4->seaborn) (2.9.0.post0)
Requirement already satisfied: pytz>=2020.1 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from pandas>=1.2->seaborn) (2024.2)
Requirement already satisfied: tzdata>=2022.7 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from pandas>=1.2->seaborn) (2024.2)
Requirement already satisfied: six>=1.5 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from python-dateutil>=2.7->matplotlib!=3.6.1,>=3.4->seaborn) (1.16.0)

[notice] A new release of pip is available: 24.1.1 -> 24.2
[notice] To update, run: python.exe -m pip install --upgrade pip
```

```
In [3]: pip install scipy
```

```
Requirement already satisfied: scipy in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (1.14.1)
Requirement already satisfied: numpy<2.3,>=1.23.5 in c:\users\nano\appdata\local\programs\python\python312\lib\site-packages (from scipy) (2.1.2)
Note: you may need to restart the kernel to use updated packages.
```

```
[notice] A new release of pip is available: 24.1.1 -> 24.2
[notice] To update, run: python.exe -m pip install --upgrade pip
```

```
In [4]: #import python Libraries
import numpy as np
import pandas as pd
```

```
In [13]: df = pd.read_csv(r"C:\Users\nano\OneDrive\Desktop\train.csv", encoding='ISO-8859-1')
```

```
In [14]: # r"C:\Users\nano\OneDrive\Desktop\train.csv", encoding='ISO-8859-1'
```

```
In [15]: df.columns.values
```

```
Out[15]: array(['Station', 'Station Code', 'Line',
       'Distance From Previous of the Line',
       'Time taken From Previous of the Line', 'About', 'Platforms',
       'Tracks', 'Year of Opening ', 'Nearby attractions',
       'Number of Passengers ', 'Previous names'], dtype=object)
```

```
In [16]: df.dtypes
```

```
Out[16]: Station          object
Station Code      object
Line             object
Distance From Previous of the Line    object
Time taken From Previous of the Line   object
About            object
Platforms        float64
Tracks           float64
Year of Opening   float64
Nearby attractions  object
Number of Passengers  object
Previous names    object
dtype: object
```

```
In [17]: df.shape
```

```
Out[17]: (202, 12)
```

```
In [18]: df.shape[0]
```

```
Out[18]: 202
```

```
In [19]: df.shape[1]
```

```
Out[19]: 12
```

In [20]: df.head(5)

Out[20]:

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	Churchgate	CCG	Western	0 KM	0 min	The Fort area built by the British had three m...	4.0	4.0	1867.0	Marine Drive,Nariman Point,Flora Fountain	NaN	NaN
1	Marine Lines	MEL	Western	1 KM	3 min	Marine Lines (station code: MEL) is a railway ...	4.0	4.0	1867.0	Marine Drive,Girgaum Chowpatty Beach,Taraporew...	NaN	NaN
2	Charni Road	CYR	Western	1 KM	2 min	Charni Road (formerly Churney Road, station co...	4.0	4.0	1867.0	Girgaum Chowpatty Beach,Taraporewala Aquarium,...	NaN	NaN
3	Grant Road	GTR	Western	1 KM	3 min	Grant Road (/gra?nt/; station code: GTR), form...	4.0	4.0	NaN	Taraporewala Aquarium,Girgaum Chowpatty Beach,...	NaN	NaN
4	Mumbai Central	MMCT	Western	1 KM	2 min	Mumbai Central (formerly Bombay Central, stati...	9.0	9.0	1930.0	Haji Ali Dargah,Mahalakshmi Temple,Nehru Plane...	NaN	Bellasis Road (Suburban station) Bombay Centra...

In [21]: df.tail(5)

Out[21]:

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
197	Neral	NRL	Neral-Matheran	0 KM	0 min	Neral Junction is a railway station on the Cen...	2.0	2.0	NaN	Matheran Hill Railway,Louisa Point,Charlotte Lake	NaN	NaN
198	Jumapatti	JTT	Neral-Matheran	5 KM	46 min	Jummapatti railway station is a railway statio...	NaN	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN
199	Waterpipe	WTP	Neral-Matheran	6 KM	46 min	Water Pipe railway station is a railway statio...	NaN	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN
200	Aman Lodge	AMNA	Neral-Matheran	7 KM	50 min	Aman Lodge railway station is a railway statio...	NaN	NaN	NaN	Louisa Point,Echo Point,Panorama Point	NaN	NaN
201	Matheran	MAE	Neral-Matheran	2 KM	18 min	Matheran Railway Station is the upper terminus...	NaN	NaN	1907.0	Charlotte Lake,Louisa Point,Panorama Point	NaN	NaN

In [23]:

`df.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 202 entries, 0 to 201
Data columns (total 12 columns):
 #   Column           Non-Null Count  Dtype  
---  --  
 0   Station          202 non-null    object  
 1   Station Code     202 non-null    object  
 2   Line             202 non-null    object  
 3   Distance From Previous of the Line 202 non-null    object  
 4   Time taken From Previous of the Line 202 non-null    object  
 5   About            202 non-null    object  
 6   Platforms        197 non-null    float64 
 7   Tracks           193 non-null    float64 
 8   Year of Opening 83 non-null    float64 
 9   Nearby attractions 202 non-null    object  
 10  Number of Passengers 21 non-null    object  
 11  Previous names   11 non-null    object  
dtypes: float64(3), object(9)
memory usage: 19.1+ KB
```

```
In [26]: df.Platforms.count()
```

```
Out[26]: np.int64(197)
```

```
In [27]: df.Platforms.value_counts()
```

```
Out[27]: Platforms
2.0    70
4.0    49
3.0    27
8.0    12
6.0    11
7.0     9
1.0     5
5.0     5
10.0    4
15.0    3
9.0     2
Name: count, dtype: int64
```

```
In [28]: df.isnull()
```

Out[28]:

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	False	False	False	False	False	False	False	False	False	False	True	True
1	False	False	False	False	False	False	False	False	False	False	True	True
2	False	False	False	False	False	False	False	False	False	False	True	True
3	False	False	False	False	False	False	False	False	True	False	True	True
4	False	False	False	False	False	False	False	False	False	False	True	False
...	...	...	...	...	...	...	...	...	...	...	...	...
197	False	False	False	False	False	False	False	False	True	False	True	True
198	False	False	False	False	False	False	True	True	True	False	True	True
199	False	False	False	False	False	False	True	True	True	False	True	True
200	False	False	False	False	False	False	True	True	True	False	True	True
201	False	False	False	False	False	False	False	True	False	False	True	True

202 rows × 12 columns

In [29]:

`df.notnull()`

Out[29]:

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	True	True	True	True	True	True	True	True	True	True	False	False
1	True	True	True	True	True	True	True	True	True	True	False	False
2	True	True	True	True	True	True	True	True	True	True	False	False
3	True	True	True	True	True	True	True	True	False	True	False	False
4	True	True	True	True	True	True	True	True	True	True	False	True
...	...	...	...	...	...	...	...	...	...	...	...	...
197	True	True	True	True	True	True	True	True	False	True	False	False
198	True	True	True	True	True	True	False	False	False	True	False	False
199	True	True	True	True	True	True	False	False	False	True	False	False
200	True	True	True	True	True	True	False	False	False	True	False	False
201	True	True	True	True	True	True	False	False	True	True	False	False

202 rows × 12 columns

In [30]: `df[df.notnull()]`

Out[30]:

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	Churchgate	CCG	Western	0 KM	0 min	The Fort area built by the British had three m...	4.0	4.0	1867.0	Marine Drive,Nariman Point,Flora Fountain	NaN	NaN
1	Marine Lines	MEL	Western	1 KM	3 min	Marine Lines (station code: MEL) is a railway ...	4.0	4.0	1867.0	Marine Drive,Girgaum Chowpatty Beach,Taraporew...	NaN	NaN
2	Charni Road	CYR	Western	1 KM	2 min	Charni Road (formerly Churney Road, station co...	4.0	4.0	1867.0	Girgaum Chowpatty Beach,Taraporewala Aquarium,...	NaN	NaN
3	Grant Road	GTR	Western	1 KM	3 min	Grant Road (/gra?nt/; station code: GTR), form...	4.0	4.0	NaN	Taraporewala Aquarium,Girgaum Chowpatty Beach,...	NaN	NaN
4	Mumbai Central	MMCT	Western	1 KM	2 min	Mumbai Central (formerly Bombay Central, stati...	9.0	9.0	1930.0	Haji Ali Dargah,Mahalakshmi Temple,Nehru Plane...	NaN	Bellasis Road (Suburban station) Bombay Centra...
...	...	...	...	...	...	...	...	...	...	...	...	...
197	Neral	NRL	Neral-Matheran	0 KM	0 min	Neral Junction is a railway station on the Cen...	2.0	2.0	NaN	Matheran Hill Railway,Louisa Point,Charlotte Lake	NaN	NaN
198	Jumapatti	JTT	Neral-Matheran	5 KM	46 min	Jummapatti railway station is a railway statio...	NaN	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN
199	Waterpipe	WTP	Neral-Matheran	6 KM	46 min	Water Pipe railway station is a railway statio...	NaN	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
200	Aman Lodge	AMNA	Neral-Matheran	7 KM	50 min	Aman Lodge railway station is a railway statio...	NaN	NaN	NaN	Louisa Point,Echo Point,Panorama Point	NaN	NaN
201	Matheran	MAE	Neral-Matheran	2 KM	18 min	Matheran Railway Station is the upper terminus...	NaN	NaN	1907.0	Charlotte Lake,Louisa Point,Panorama Point	NaN	NaN

202 rows × 12 columns

In [31]: `df[df.isnull()]`

Out[31]:

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
...	...	...	...	...	...	...	...	...	...	...	...	...
197	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
198	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
199	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
200	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
201	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

202 rows × 12 columns

In [32]: `df.describe()`

```
Out[32]:
```

	Platforms	Tracks	Year of Opening
<b>count</b>	197.000000	193.000000	83.000000
<b>mean</b>	3.934010	4.792746	1914.542169
<b>std</b>	2.505242	2.717334	52.801354
<b>min</b>	1.000000	1.000000	1853.000000
<b>25%</b>	2.000000	3.000000	1867.500000
<b>50%</b>	3.000000	4.000000	1893.000000
<b>75%</b>	4.000000	6.000000	1966.000000
<b>max</b>	15.000000	13.000000	2018.000000

```
In [35]: df.sum(numeric_only=True)
```

```
Out[35]: Platforms      775.0
Tracks        925.0
Year of Opening 158907.0
dtype: float64
```

```
In [36]: df.mean(numeric_only=True)
```

```
Out[36]: Platforms      3.934010
Tracks        4.792746
Year of Opening 1914.542169
dtype: float64
```

```
In [39]: df.corr(numeric_only=True)
```

```
Out[39]:
```

	Platforms	Tracks	Year of Opening
<b>Platforms</b>	1.000000	0.864724	-0.369114
<b>Tracks</b>	0.864724	1.000000	-0.300378
<b>Year of Opening</b>	-0.369114	-0.300378	1.000000

```
In [41]: df.cov(numeric_only=True)
```

```
Out[41]:
```

	Platforms	Tracks	Year of Opening
Platforms	6.276235	5.926706	-58.554351
Tracks	5.926706	7.383905	-45.441734
Year of Opening	-58.554351	-45.441734	2787.982956

```
In [42]: df.Platforms.mean()
```

```
Out[42]: np.float64(3.934010152284264)
```

```
In [43]: df.Tracks.sum()
```

```
Out[43]: np.float64(925.0)
```

```
In [44]: df.fillna(0)
```

Out[44]:

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	Churchgate	CCG	Western	0 KM	0 min	The Fort area built by the British had three m...	4.0	4.0	1867.0	Marine Drive,Nariman Point,Flora Fountain	0	0
1	Marine Lines	MEL	Western	1 KM	3 min	Marine Lines (station code: MEL) is a railway ...	4.0	4.0	1867.0	Marine Drive,Girgaum Chowpatty Beach,Taraporew...	0	0
2	Charni Road	CYR	Western	1 KM	2 min	Charni Road (formerly Churney Road, station co...	4.0	4.0	1867.0	Girgaum Chowpatty Beach,Taraporewala Aquarium,...	0	0
3	Grant Road	GTR	Western	1 KM	3 min	Grant Road (/gra?nt/; station code: GTR), form...	4.0	4.0	0.0	Taraporewala Aquarium,Girgaum Chowpatty Beach,...	0	0
4	Mumbai Central	MMCT	Western	1 KM	2 min	Mumbai Central (formerly Bombay Central, stati...	9.0	9.0	1930.0	Haji Ali Dargah,Mahalakshmi Temple,Nehru Plane...	0	Bellasis Road (Suburban station) Bombay Centra...
...	...	...	...	...	...	...	...	...	...	...	...	...
197	Neral	NRL	Neral-Matheran	0 KM	0 min	Neral Junction is a railway station on the Cen...	2.0	2.0	0.0	Matheran Hill Railway,Louisa Point,Charlotte Lake	0	0
198	Jumapatti	JTT	Neral-Matheran	5 KM	46 min	Jummapatti railway station is a railway statio...	0.0	0.0	0.0	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	0	0
199	Waterpipe	WTP	Neral-Matheran	6 KM	46 min	Water Pipe railway station is a railway statio...	0.0	0.0	0.0	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	0	0

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
200	Aman Lodge	AMNA	Neral-Matheran	7 KM	50 min	Aman Lodge railway station is a railway statio...	0.0	0.0	0.0	Louisa Point,Echo Point,Panorama Point	0	0
201	Matheran	MAE	Neral-Matheran	2 KM	18 min	Matheran Railway Station is the upper terminus...	0.0	0.0	1907.0	Charlotte Lake,Louisa Point,Panorama Point	0	0

202 rows × 12 columns

In [45]: `df.isnull()`

Out[45]:

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	False	False	False	False	False	False	False	False	False	False	True	True
1	False	False	False	False	False	False	False	False	False	False	True	True
2	False	False	False	False	False	False	False	False	False	False	True	True
3	False	False	False	False	False	False	False	False	True	False	True	True
4	False	False	False	False	False	False	False	False	False	False	True	False
...	...	...	...	...	...	...	...	...	...	...	...	...
197	False	False	False	False	False	False	False	False	True	False	True	True
198	False	False	False	False	False	False	True	True	True	False	True	True
199	False	False	False	False	False	False	True	True	True	False	True	True
200	False	False	False	False	False	False	True	True	True	False	True	True
201	False	False	False	False	False	False	True	True	False	False	True	True

202 rows × 12 columns

In [46]:

df.info()

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 202 entries, 0 to 201
Data columns (total 12 columns):
 #   Column           Non-Null Count  Dtype  
 ---  --  
 0   Station          202 non-null    object  
 1   Station Code     202 non-null    object  
 2   Line             202 non-null    object  
 3   Distance From Previous of the Line 202 non-null    object  
 4   Time taken From Previous of the Line 202 non-null    object  
 5   About            202 non-null    object  
 6   Platforms        197 non-null    float64 
 7   Tracks           193 non-null    float64 
 8   Year of Opening 83 non-null     float64 
 9   Nearby attractions 202 non-null    object  
 10  Number of Passengers 21 non-null    object  
 11  Previous names   11 non-null     object  
dtypes: float64(3), object(9)
memory usage: 19.1+ KB
```

In [47]: `df[df.isnull()]`

Out[47]:

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
1	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
2	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
3	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
...	...	...	...	...	...	...	...	...	...	...	...	...
197	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
198	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
199	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
200	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
201	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

202 rows × 12 columns

In [48]:

```
df1=df.drop(['Tracks'],axis=1)
df1
```

Out[48]:

	Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	Churchgate	CCG	Western	0 KM	0 min	The Fort area built by the British had three m...	4.0	1867.0	Marine Drive,Nariman Point,Flora Fountain	NaN	NaN
1	Marine Lines	MEL	Western	1 KM	3 min	Marine Lines (station code: MEL) is a railway ...	4.0	1867.0	Marine Drive,Girgaum Chowpatty Beach,Taraporew...	NaN	NaN
2	Charni Road	CYR	Western	1 KM	2 min	Charni Road (formerly Churney Road, station co...	4.0	1867.0	Girgaum Chowpatty Beach,Taraporewala Aquarium,...	NaN	NaN
3	Grant Road	GTR	Western	1 KM	3 min	Grant Road (/gra?nt/; station code: GTR), form...	4.0	NaN	Taraporewala Aquarium,Girgaum Chowpatty Beach,...	NaN	NaN
4	Mumbai Central	MMCT	Western	1 KM	2 min	Mumbai Central (formerly Bombay Central, stati...	9.0	1930.0	Haji Ali Dargah,Mahalakshmi Temple,Nehru Plane...	NaN	Bellasis Road (Suburban station) Bombay Centra...
...	...	...	...	...	...	...	...	...	...	...	...
197	Neral	NRL	Neral-Matheran	0 KM	0 min	Neral Junction is a railway station on the Cen...	2.0	NaN	Matheran Hill Railway,Louisa Point,Charlotte Lake	NaN	NaN
198	Jumapatti	JTT	Neral-Matheran	5 KM	46 min	Jummapatti railway station is a railway statio...	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN
199	Waterpipe	WTP	Neral-Matheran	6 KM	46 min	Water Pipe railway station is a railway statio...	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN
200	Aman Lodge	AMNA	Neral-Matheran	7 KM	50 min	Aman Lodge railway station is a railway statio...	NaN	NaN	Louisa Point,Echo Point,Panorama Point	NaN	NaN

Station	Station Code	Line	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Year of Opening	Nearby attractions	Number of Passengers	Previous names
201	Matheran	MAE	Neral-Matheran	2 KM	18 min Matheran Railway Station is the upper terminus...	NaN	1907.0	Charlotte Lake,Louisa Point,Panorama Point	NaN	NaN

202 rows × 11 columns

```
In [49]: df1.drop(['Station','Line'],axis=1)
```

Out[49]:

	Station Code	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	CCG	0 KM	0 min	The Fort area built by the British had three m...	4.0	1867.0	Marine Drive,Nariman Point,Flora Fountain	NaN	NaN
1	MEL	1 KM	3 min	Marine Lines (station code: MEL) is a railway ...	4.0	1867.0	Marine Drive,Girgaum Chowpatty Beach,Taraporew...	NaN	NaN
2	CYR	1 KM	2 min	Charni Road (formerly Churney Road, station co...	4.0	1867.0	Girgaum Chowpatty Beach,Taraporewala Aquarium,...	NaN	NaN
3	GTR	1 KM	3 min	Grant Road (/gra?nt/; station code: GTR), form...	4.0	NaN	Taraporewala Aquarium,Girgaum Chowpatty Beach,...	NaN	NaN
4	MMCT	1 KM	2 min	Mumbai Central (formerly Bombay Central, stati...	9.0	1930.0	Haji Ali Dargah,Mahalakshmi Temple,Nehru Plane...	NaN	Bellasis Road (Suburban station) Bombay Centra...
...	...	...	...	...	...	...	...	...	...
197	NRL	0 KM	0 min	Neral Junction is a railway station on the Cen...	2.0	NaN	Matheran Hill Railway,Louisa Point,Charlotte Lake	NaN	NaN
198	JTT	5 KM	46 min	Jummapatti railway station is a railway statio...	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN
199	WTP	6 KM	46 min	Water Pipe railway station is a railway statio...	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN
200	AMNA	7 KM	50 min	Aman Lodge railway station is a railway statio...	NaN	NaN	Louisa Point,Echo Point,Panorama Point	NaN	NaN
201	MAE	2 KM	18 min	Matheran Railway Station is the upper terminus...	NaN	1907.0	Charlotte Lake,Louisa Point,Panorama Point	NaN	NaN

202 rows × 9 columns

```
In [52]: del df['Line']
```

```
In [53]: df
```

Out[53]:

	Station	Station Code	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
0	Churchgate	CCG	0 KM	0 min	The Fort area built by the British had three m...	4.0	4.0	1867.0	Marine Drive,Nariman Point,Flora Fountain	NaN	NaN
1	Marine Lines	MEL	1 KM	3 min	Marine Lines (station code: MEL) is a railway ...	4.0	4.0	1867.0	Marine Drive,Girgaum Chowpatty Beach,Taraporew...	NaN	NaN
2	Charni Road	CYR	1 KM	2 min	Charni Road (formerly Churney Road, station co...	4.0	4.0	1867.0	Girgaum Chowpatty Beach,Taraporewala Aquarium,...	NaN	NaN
3	Grant Road	GTR	1 KM	3 min	Grant Road (/gra?nt/; station code: GTR), form...	4.0	4.0	NaN	Taraporewala Aquarium,Girgaum Chowpatty Beach,...	NaN	NaN
4	Mumbai Central	MMCT	1 KM	2 min	Mumbai Central (formerly Bombay Central, stati...	9.0	9.0	1930.0	Haji Ali Dargah,Mahalakshmi Temple,Nehru Plane...	NaN	Bellasis Road (Suburban station) Bombay Centra...
...	...	...	...	...	...	...	...	...	...	...	...
197	Neral	NRL	0 KM	0 min	Neral Junction is a railway station on the Cen...	2.0	2.0	NaN	Matheran Hill Railway,Louisa Point,Charlotte Lake	NaN	NaN
198	Jumapatti	JTT	5 KM	46 min	Jummapatti railway station is a railway statio...	NaN	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN
199	Waterpipe	WTP	6 KM	46 min	Water Pipe railway station is a railway statio...	NaN	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN
200	Aman Lodge	AMNA	7 KM	50 min	Aman Lodge railway station is a railway statio...	NaN	NaN	NaN	Louisa Point,Echo Point,Panorama Point	NaN	NaN

Station	Station Code	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names
201	Matheran	MAE	2 KM	18 min Matheran Railway Station is the upper terminus...	NaN	NaN	1907.0	Charlotte Lake,Louisa Point,Panorama Point	NaN	NaN

202 rows × 11 columns

In [54]: df.T

Out[54]:

	0	1	2	3	4	5	6	7	8
<b>Station</b>	Churchgate	Marine Lines	Charni Road	Grant Road	Mumbai Central	Mahalakshmi	Lower Parel	Prabhadevi	Dadar
<b>Station Code</b>	CCG	MEL	CYR	GTR	MMCT	MX	PL	PBHD	D/DR/DDR
<b>Distance From Previous of the Line</b>	0 KM	1 KM	1 KM	1 KM	1 KM	1 KM	2 KM	1 KM	1 KM
<b>Time taken From Previous of the Line</b>	0 min	3 min	2 min	3 min	2 min	3 min	3 min	3 min	2 min
<b>About</b>	The Fort area built by the British had three m...	Marine Lines (station code: MEL) is a railway ...	Charni Road (formerly Churney Road, station co...	Grant Road (/gra?nt/; station code: GTR), form...	Mumbai Central (formerly Bombay Central, stati...	Mahalaxmi (Pronunciation: [m??a?l?k?mi?]; stat...	Lower Parel (Pronunciation: [p????], [p??e?l?]; ...	Prabhadevi railway station is a Railway statio...	Dadar railway station is one of the major inte...
<b>Platforms</b>	4.0	4.0	4.0	4.0	9.0	3.0	3.0	2.0	15.0
<b>Tracks</b>	4.0	4.0	4.0	4.0	9.0	3.0	5.0	7.0	13.0
<b>Year of Opening</b>	1867.0	1867.0	1867.0	Nan	1930.0	1867.0	1867.0	1867.0	1868.0
<b>Nearby attractions</b>	Marine Drive,Nariman Point,Flora Fountain	Marine Drive,Girgaum Chowpatty Beach,Taraporewala Beach	Girgaum Chowpatty Beach,Taraporewala Aquarium,...	Taraporewala Aquarium,Girgaum Chowpatty Beach,...	Haji Ali Dargah,Mahalakshmi Temple,Nehru Plane...	Mahalakshmi Temple,Haji Ali Dargah,Nehru Scien...	High Street Phoenix Mall,Kamala Mills Compound...	Siddhivinayak Temple,Shivaji Park,Worli Sea Face	Shivaji Park,Siddhivinayak Temple,Dadar Flower...
<b>Number of Passengers</b>	Nan	Nan	Nan	Nan	Nan	Nan	Nan	15.6 million (Annually)	211,888 (Daily)
<b>Previous names</b>	Nan	Nan	Nan	Nan	Bellasis Road (Suburban station) Bombay Centra...	Nan	Nan	Elphistone Road	Nan

11 rows × 202 columns

```
In [55]: df.transpose()
```

Out[55]:

	0	1	2	3	4	5	6	7	8
<b>Station</b>	Churchgate	Marine Lines	Charni Road	Grant Road	Mumbai Central	Mahalakshmi	Lower Parel	Prabhadevi	Dadar
<b>Station Code</b>	CCG	MEL	CYR	GTR	MMCT	MX	PL	PBHD	D/DR/DDR
<b>Distance From Previous of the Line</b>	0 KM	1 KM	1 KM	1 KM	1 KM	1 KM	2 KM	1 KM	1 KM
<b>Time taken From Previous of the Line</b>	0 min	3 min	2 min	3 min	2 min	3 min	3 min	3 min	2 min
<b>About</b>	The Fort area built by the British had three m...	Marine Lines (station code: MEL) is a railway ...	Charni Road (formerly Churney Road, station co...	Grant Road (/gra?nt/; station code: GTR), form...	Mumbai Central (formerly Bombay Central, stati...	Mahalaxmi (Pronunciation: [m??a?l?k?mi?]; stat...	Lower Parel (Pronunciation: [p????], [p??e?l?]; ...	Prabhadevi railway station is a Railway statio...	Dadar railway station is one of the major inte...
<b>Platforms</b>	4.0	4.0	4.0	4.0	9.0	3.0	3.0	2.0	15.0
<b>Tracks</b>	4.0	4.0	4.0	4.0	9.0	3.0	5.0	7.0	13.0
<b>Year of Opening</b>	1867.0	1867.0	1867.0	NaN	1930.0	1867.0	1867.0	1867.0	1868.0
<b>Nearby attractions</b>	Marine Drive,Nariman Point,Flora Fountain	Marine Drive,Girgaum Chowpatty Beach,Taraporewala Beach	Girgaum Chowpatty Beach,Taraporewala Aquarium,...	Taraporewala Aquarium,Girgaum Chowpatty Beach,...	Dargah,Mahalakshmi Temple,Nehru Plane...	Haji Ali Temple,Haji Ali Dargah,Nehru Scien...	High Street Phoenix Mall,Kamala Mills Compound...	Siddhivinayak Temple,Shivaji Park,Worli Sea Face	Shivaji Park,Siddhivinayak Temple,Dadar Flower...
<b>Number of Passengers</b>	NaN	NaN	NaN	NaN	NaN	NaN	NaN	15.6 million (Annually)	211,888 (Daily)
<b>Previous names</b>	NaN	NaN	NaN	NaN	Bellasis Road (Suburban station) Bombay Centra...	NaN	NaN	Elphistone Road	NaN

11 rows × 202 columns

```
In [56]: df['new']=12  
df
```

Out[56]:

	Station	Station Code	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names	new
0	Churchgate	CCG	0 KM	0 min	The Fort area built by the British had three m...	4.0	4.0	1867.0	Marine Drive,Nariman Point,Flora Fountain	NaN	NaN	12
1	Marine Lines	MEL	1 KM	3 min	Marine Lines (station code: MEL) is a railway ...	4.0	4.0	1867.0	Marine Drive,Girgaum Chowpatty Beach,Taraporew...	NaN	NaN	12
2	Charni Road	CYR	1 KM	2 min	Charni Road (formerly Churney Road, station co...	4.0	4.0	1867.0	Girgaum Chowpatty Beach,Taraporewala Aquarium,...	NaN	NaN	12
3	Grant Road	GTR	1 KM	3 min	Grant Road (/gra?nt/; station code: GTR), form...	4.0	4.0	NaN	Taraporewala Aquarium,Girgaum Chowpatty Beach,...	NaN	NaN	12
4	Mumbai Central	MMCT	1 KM	2 min	Mumbai Central (formerly Bombay Central, stati...	9.0	9.0	1930.0	Haji Ali Dargah,Mahalakshmi Temple,Nehru Plane...	NaN	Bellas Road (Suburban station) Bombay Centra...	12
...	...	...	...	...	...	...	...	...	...	...	...	...
197	Neral	NRL	0 KM	0 min	Neral Junction is a railway station on the Cen...	2.0	2.0	NaN	Matheran Hill Railway,Louisa Point,Charlotte Lake	NaN	NaN	12
198	Jumapatti	JTT	5 KM	46 min	Jummapatti railway station is a railway statio...	NaN	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN	12
199	Waterpipe	WTP	6 KM	46 min	Water Pipe railway station is a railway statio...	NaN	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN	12
200	Aman Lodge	AMNA	7 KM	50 min	Aman Lodge railway station is a railway statio...	NaN	NaN	NaN	Louisa Point,Echo Point,Panorama Point	NaN	NaN	12

	Station	Station Code	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names	new
201	Matheran	MAE	2 KM	18 min	Matheran Railway Station is the upper terminus...	NaN	NaN	1907.0	Charlotte Lake,Louisa Point,Panorama Point	NaN	NaN	12

202 rows × 12 columns

```
In [58]: df['new'] = [3.0, 1.3, 2.2, 0.8, 1.1] * (len(df) // 5) + [3.0, 1.3, 2.2, 0.8, 1.1][:len(df) % 5]
df
```

Out[58]:

	Station	Station Code	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names	new
0	Churchgate	CCG	0 KM	0 min	The Fort area built by the British had three m...	4.0	4.0	1867.0	Marine Drive,Nariman Point,Flora Fountain	NaN	NaN	3.0
1	Marine Lines	MEL	1 KM	3 min	Marine Lines (station code: MEL) is a railway ...	4.0	4.0	1867.0	Marine Drive,Girgaum Chowpatty Beach,Taraporew...	NaN	NaN	1.3
2	Charni Road	CYR	1 KM	2 min	Charni Road (formerly Churney Road, station co...	4.0	4.0	1867.0	Girgaum Chowpatty Beach,Taraporewala Aquarium,...	NaN	NaN	2.2
3	Grant Road	GTR	1 KM	3 min	Grant Road (/gra?nt/; station code: GTR), form...	4.0	4.0	NaN	Taraporewala Aquarium,Girgaum Chowpatty Beach,...	NaN	NaN	0.8
4	Mumbai Central	MMCT	1 KM	2 min	Mumbai Central (formerly Bombay Central, stati...	9.0	9.0	1930.0	Haji Ali Dargah,Mahalakshmi Temple,Nehru Plane...	NaN	Bellas Road (Suburban station) Bombay Centra...	1.1
...	...	...	...	...	...	...	...	...	...	...	...	...
197	Neral	NRL	0 KM	0 min	Neral Junction is a railway station on the Cen...	2.0	2.0	NaN	Matheran Hill Railway,Louisa Point,Charlotte Lake	NaN	NaN	2.2
198	Jumapatti	JTT	5 KM	46 min	Jummapatti railway station is a railway statio...	NaN	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN	0.8
199	Waterpipe	WTP	6 KM	46 min	Water Pipe railway station is a railway statio...	NaN	NaN	NaN	Manas Mandir,Tungareshwar Wildlife Sanctuary,M...	NaN	NaN	1.1
200	Aman Lodge	AMNA	7 KM	50 min	Aman Lodge railway station is a railway statio...	NaN	NaN	NaN	Louisa Point,Echo Point,Panorama Point	NaN	NaN	3.0

	Station	Station Code	Distance From Previous of the Line	Time taken From Previous of the Line	About	Platforms	Tracks	Year of Opening	Nearby attractions	Number of Passengers	Previous names	new
201	Matheran	MAE	2 KM	18 min	Matheran Railway Station is the upper terminus...	NaN	NaN	1907.0	Charlotte Lake,Louisa Point,Panorama Point	NaN	NaN	1.3

202 rows × 12 columns

In [ ]: