

In [1]:

```
import warnings
warnings.filterwarnings("ignore")
```

In [2]:

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

In [3]:

```
df = pd.read_csv('/content/Sales_Data.csv')
df.isnull().sum()
```

Out[3]:

```
Month      0
Qty        2
dtype: int64
```

In [4]:

```
df['Qty'] = df['Qty'].fillna(df['Qty'].median())
df.head(3)
```

Out[4]:

	Month	Qty
0	Jan-21	25.0
1	Feb-21	25.0
2	Mar-21	33.0

In [7]:

```
from statsmodels.tsa.stattools import adfuller
```

In [9]:

```
dickey_fuller = adfuller(df.Qty)
```

In [12]:

```
dickey_fuller
```

Out[12]:

```
(-0.8862357763239632,
 0.7924713736741625,
 2,
 10,
 {'1%': -4.331573, '5%': -3.23295, '10%': -2.7487},
 60.99456520022677)
```

In [15]:

```
print('Dickey Fuller Test Statistic =', dickey_fuller[0])
print('p-value =', dickey_fuller[1])
print('Lags =', dickey_fuller[2])
print('No. of observations used =', dickey_fuller[3])
```

```
Dickey Fuller Test Statistic = -0.8862357763239632
p-value = 0.7924713736741625
Lags = 2
No. of observations used = 10
```

no. of observations used = 10

Since, $p\text{-value} > 0.5$, Hence we fail to reject Null Hypothesis. Therefore, Sales is not stationary

Dickey-Fuller Hypothesis:

- **H0: Not Stationary**
- **H1: Stationary**

In []: