ASSIGNMENT No.2

NAME-: MORE PANKAJ SAMPAT

CLASS-: TE COMP

R**oll No-**: 054

CRN-: 20110054

SUB-: COMPUTATIONAL STATISTICS

COURSE-: AIML Honour Course

Problem Statement-: Plot the Normal Distribution for class test result of a particular subject. Identify the Skewness and Kurtosis

```
from scipy.stats import skew, kurtosis
import matplotlib.pyplot as plt
import scipy.stats as stats
import pandas as pd
import numpy as np
```

```
from google.colab import files
uploaded = files.upload()

```

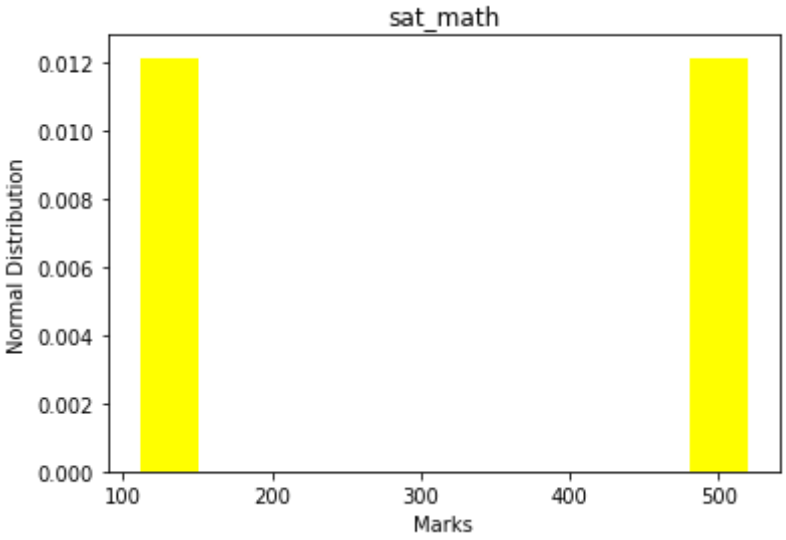
Choose Files No file chosen Upload widget is only available when the cell has been executed in the current browser session. Please rerun this cell to enable.
Saving student.csv to student.csv

```
import pandas as pd
import io

df = pd.read_csv(io.BytesIO(uploaded['student.csv']))
x = df['sat_math']
x =x.to_numpy()[:15]
x.sort()
```

```
mean= np.mean(x)
sd = np.std(x,ddof =1)
median = np.median(x)
fit = stats.norm.pdf(x,mean,sd)
```

```
plt.hist(x, density = True, color ="yellow",ec ="white")
plt.plot(x, fit,"go:")
plt.title("sat_math")
plt.xlabel("Marks")
plt.ylabel("Normal Distribution")
plt.show()
```



Skewness

Definition :

Skewness measures the shift of the distribution from the normal bell curve

Positive skew value denotes right shift whereas negative skew value denotes left shift.

```
def skewness(x,mean,sd):
    return np.sum((x-mean)**3)/((len(x)-1)*(sd**3))
```

```
skewness(x,mean,sd)
```

```
nan
```

Kurtosis

Definition :

Kurtosis define how thick the tail- ends of distribution, which gives the probability of finding extremes.

It is the fourth central movement.

```
def kurtosis(x,mean,sd):
    return np.sum((x-mean)**4)/((len(x)-1)*(sd**4))
```

```
kurtosis(x,mean,sd)
```

```
nan
```