U18CO018
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DWDM TUTORIAL-1

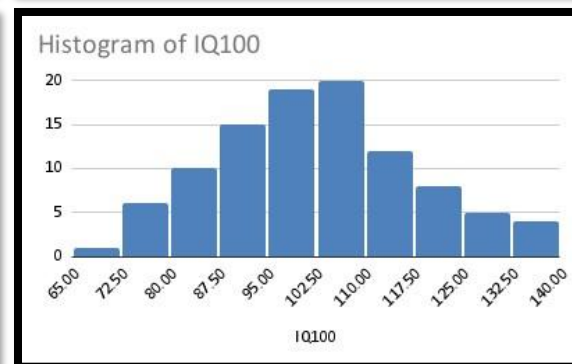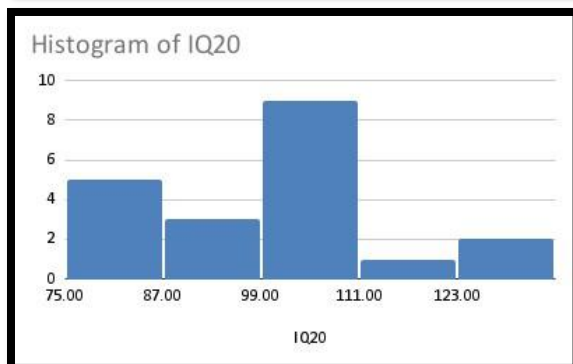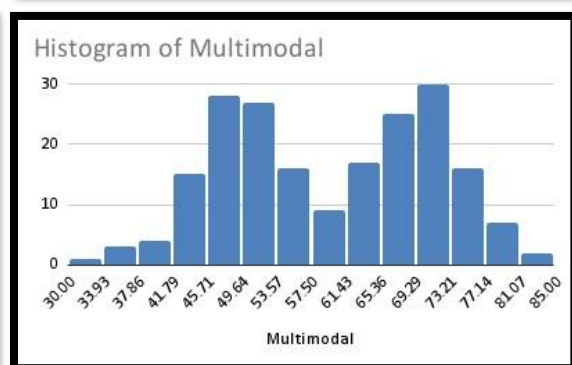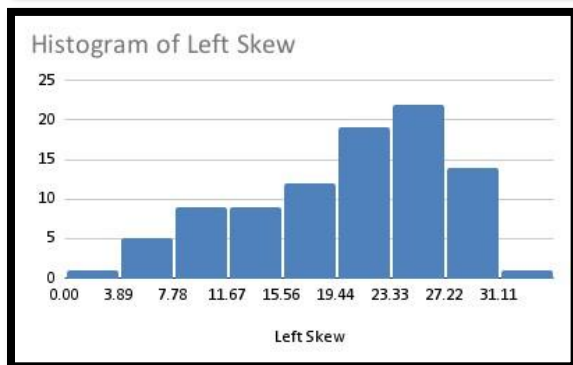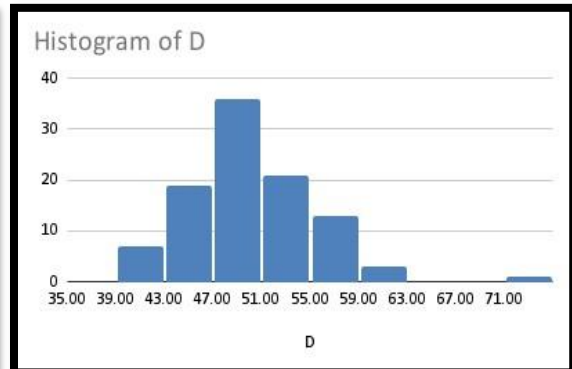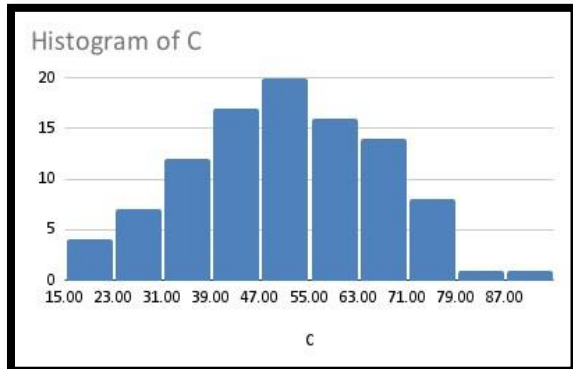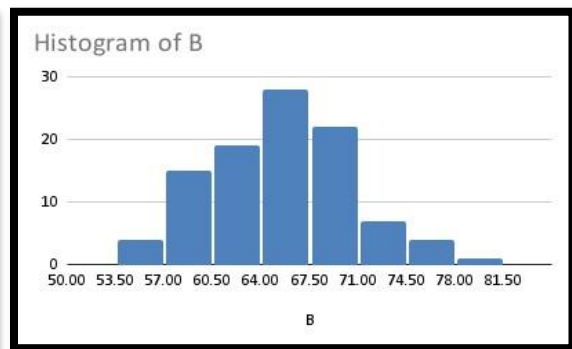1. Generate the histograms for the frequency of values in the dataset uploaded to the classroom and study statistical characteristics like Mean, Mode, Median, Variance of any sample (Histograms can be generated in Excel/Python/Orange, etc).

2. Perform skewness analysis for the data and decide the suitable missing value replacement for the ratio scale and interval scale numerical data attributes.

3. Perform Missing value replacement by Mean, Mode, Median on the A attributes. Intentionally remove two values from that attribute and find the value of the X and Y for given data using mean value replacement (perform the operation on first 12 records).

4. Perform Noise identification, Outlier detection using histogram and try to remove the outliers and check the statistical characteristics again.

1)

Histogram of A

Histogram of B

Histogram of C

Histogram of D

Histogram of Left Skew

Histogram of Multimodal

Histogram of IQ20

Histogram of IQ100
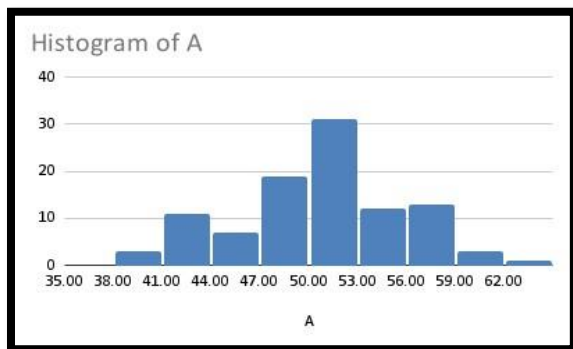
Mean	20.1076087		Mean	59.7345756		Mean	102.1324009		Mean	102.925179
Mode	23.1		Mode	#N/A		Mode	#N/A		Mode	#N/A
Median	21.5		Median	60.6020407		Median	105.6084021		Median	101.426575
Variance	49.6659854		Variance	132.553093		Variance	241.8311821		Variance	231.757566

2)
DWDM-TUT-1.py

```python
import pandas as pd import
math from copy import
deepcopy
from pyod.models.hbos import HBOS

print("Imports loaded")

fname = "Histograms.csv"

df = pd.read_csv(fname)

# skewness analysis
print(f"Skewness\n{df.skew()}") print("")
# kurtosis analysis
print(f"Kurtosis\n{df.kurt()}")
```

A			B			C			D	
Mean	50.6321332		Mean	65.5445133		Mean	50.85133371		Mean	50.2115392
Mode	#N/A		Mode	#N/A		Mode	#N/A		Mode	#N/A
Median	50.6737108		Median	65.8987969		Median	51.65488244		Median	49.7266847
Variance	25.635211		Variance	25.8619987		Variance	235.387254		Variance	27.3395164
Left Skew			**Multimodal**			**IQ20**			**IQ100**	

cmd: python DWDM-TUT-1.py

```
Imports loaded
Skewness
A              -0.060298
B               0.166426
C              -0.036257
D               0.662782
Left Skew      -0.615309
Multimodal     -0.043677
IQ20            0.274567
IQ100           0.249707
dtype: float64

Kurtosis
A              -0.292248
B               0.063429
C              -0.304000
D               1.711042
Left Skew      -0.499210
Multimodal     -1.164263
IQ20           -0.297661
IQ100          -0.278870
dtype: float64
```

3)

4)