8mdhnojss

April 8, 2024

```
[1]: # Aim: To perform finding Stastical mean, median, mode, standard deviation,␣
     ↪Variance using Numpy and Scipy
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```
[2]: # Name: Mandar K Satpute
     # Class: 3rd year
     # Sec: B
     # Roll No. : 54
```

```
[3]: import numpy as np
     from scipy import stats
```

```
[4]: x=np.array([1,2,3,4,5,6,7,2,6,2,1,4,2,2,6])
```

```
[5]: x
```

```
[5]: array([1, 2, 3, 4, 5, 6, 7, 2, 6, 2, 1, 4, 2, 2, 6])
```

```
[6]: print(np.mean(x))
```

```
3.533333333333333
```

```
[7]: print(np.median(x))
```

```
3.0
```

```
[8]: print(stats.mode(x))
```

```
ModeResult(mode=2, count=5)
```

```
[9]: from scipy import stats
```

```
[10]: print(stats.mode(x))
```

```
ModeResult(mode=2, count=5)
```

```
[11]: print(np.std(x))
```

```
1.9618585292749546
```

```
[12]: print(np.var(x))
```

3.8488888888888884

```
[13]: import numpy as np
      x=np.array([1,100,200,300,4000,5000])
      y=np.array([2,4,6,8,10])
```

```
[14]: print(np.std(x))
```

2072.711623024829

```
[15]: print(np.std(y))
```
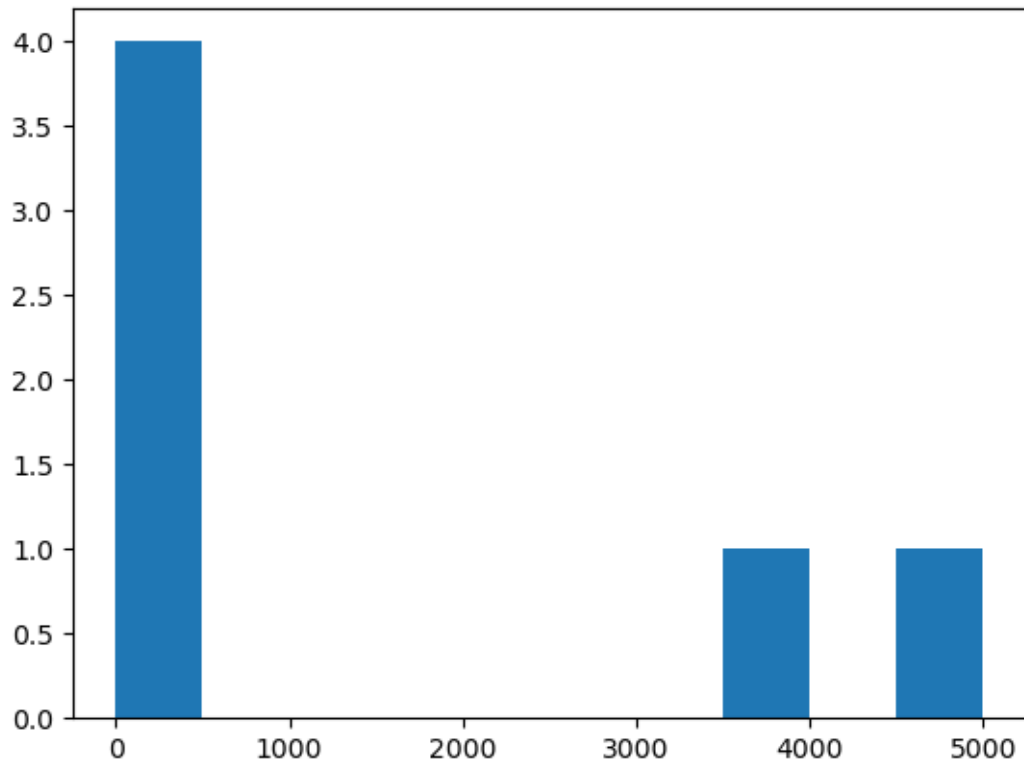
2.8284271247461903

```
[16]: print(np.var(x))
```
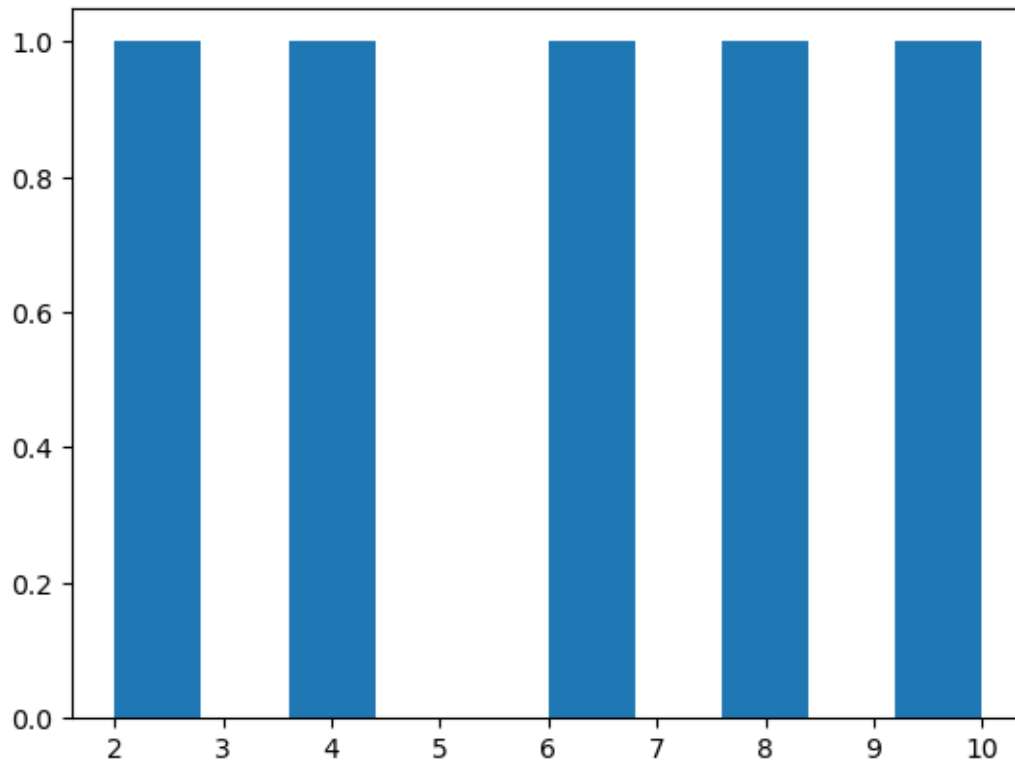
4296133.472222221

```
[17]: print(np.var(y))
```

8.0

```
[18]: from matplotlib import pyplot as plt
      plt.hist(x)
      plt.show()
```

```
[19]: from matplotlib import pyplot as plt
      plt.hist(y)
      plt.show()
```

```
[20]:  from statsmodels.stats.weightstats import ztest as ztest
       #enter IQ levels for 20 patients
       data = [88, 92, 94, 94, 96, 97, 97, 97, 99, 99,
        105, 109, 109, 109, 110, 112, 112, 113, 114, 115]
       #perform one sample z-test
       ztest(data)
       (1.5976240527147705, 0.1101266701438426)
```

[20]: (1.5976240527147705, 0.1101266701438426)