Exercise Variance and Standard Deviation

Variance

- Variance measures the dispersion of a set of data points around their mean value.
- It is the mean of the squares of the individual deviations.
- Variance gives results in the original units squared.

Calculating Variance

```
# importing statistics to handle statistical operations
import statistics

# initializing list
li = [1.5, 2.5, 2.5, 3.5, 3.5, 3.5]

# using variance to calculate variance of data
print("The variance of data is : ", end="")
print(statistics.variance(li))
```

```
Output:
The variance of data is : 0.6666666666666666
```

Standard deviation

- Standard deviation is the most common used measure of variability.
- It is the square-root of the variance.
- For Normally distributed data, approximately 95% of the values lie within 2 s.d. of the mean.
- Standard deviation gives results in the original units.

Calculating Standard Deviation

```
# importing Statistics module
import statistics

# creating a simple data - set
sample = [1, 2, 3, 4, 5]

# Prints standard deviation
# xbar is set to default value of 1
print("Standard Deviation of sample is % s "
      % (statistics.stdev(sample)))
```

```
Output:
```

```
Standard Deviation of sample is 1.5811388300841898
```