

**1**You survey households in your area to find the average rent they are paying. Find the standard deviation from the following data:

1550, 1700, 900, 850, 1000, 950.

```
In [2]: from math import sqrt

def standard_deviation(lst):
    """Calculates the standard deviation for a list of numbers."""
    num_items = len(lst)
    mean = sum(lst) / num_items
    differences = [x - mean for x in lst]
    sq_differences = [d ** 2 for d in differences]
    ssd = sum(sq_differences)
    variance = ssd / num_items

    sd = sqrt(variance)
    # You could `return sd` here.

    print('The mean of {} is {}'.format(lst, mean))
    print('The differences are {}'.format(differences))
    print('The sum of squared differences is {}'.format(ssd))
    print('The variance is {}'.format(variance))
    print('The standard deviation is {}'.format(sd))
    print('-----')

s = [1550, 1700, 900, 850, 1000, 950]
standard_deviation(s)
```

This is POPULATION standard deviation.  
The mean of [1550, 1700, 900, 850, 1000, 950] is 1158.3333333333333.  
The differences are [391.66666666666674, 541.6666666666667, -258.33333333333326, -308.33333333333326, -158.33333333333326, -208.33333333333326].  
The sum of squared differences is 677083.3333333334.  
The variance is 112847.22222222223.  
The standard deviation is 335.92740617910624.  
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**2.**Find the variance for the following set of data representing trees in California (heights in feet):3, 21, 98, 203, 17, 9