

**Ex no 3. a. Read N numbers from the console and create a list. Develop a program to print mean, variance and standard deviation with suitable messages.**

```
# Mean, Variance and Standard Deviation
```

```
import math
```

```
n = int(input("Enter the number of elements: "))
```

```
numbers = []
```

```
for i in range(n):
```

```
    num = float(input("Enter number: "))
```

```
    numbers.append(num)
```

```
print("List:", numbers)
```

```
# Mean
```

```
mean = sum(numbers) / n
```

```
# Variance
```

```
variance = sum((x - mean) ** 2 for x in numbers) / n
```

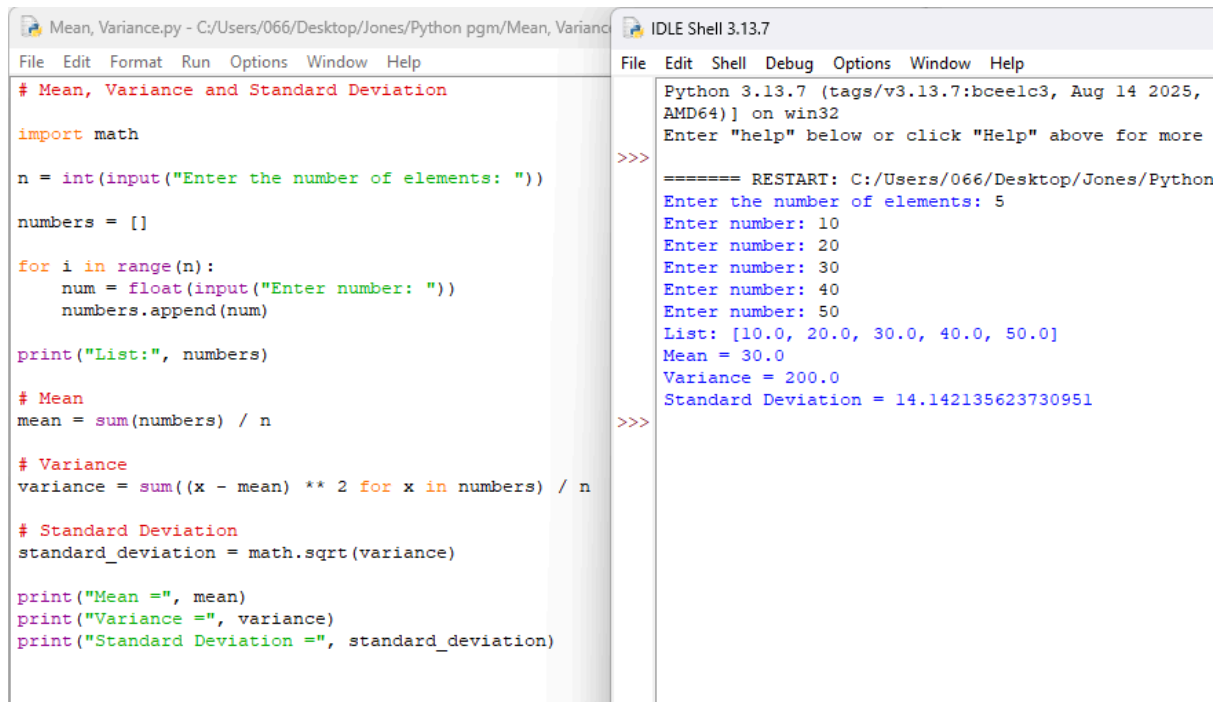
```
# Standard Deviation
```

```
standard_deviation = math.sqrt(variance)
```

```
print("Mean =", mean)
```

```
print("Variance =", variance)
```

```
print("Standard Deviation =", standard_deviation)
```



The image shows a screenshot of a Python IDE with two windows. The left window, titled 'Mean, Variance.py', contains the following Python code:

```
# Mean, Variance and Standard Deviation

import math

n = int(input("Enter the number of elements: "))

numbers = []

for i in range(n):
    num = float(input("Enter number: "))
    numbers.append(num)

print("List:", numbers)

# Mean
mean = sum(numbers) / n

# Variance
variance = sum((x - mean) ** 2 for x in numbers) / n

# Standard Deviation
standard_deviation = math.sqrt(variance)

print("Mean =", mean)
print("Variance =", variance)
print("Standard Deviation =", standard_deviation)
```

The right window, titled 'IDLE Shell 3.13.7', shows the output of the script after it has been executed. The output is as follows:

```
Python 3.13.7 (tags/v3.13.7:bceelc3, Aug 14 2025,
AMD64) on win32
Enter "help" below or click "Help" above for more

>>> ===== RESTART: C:/Users/066/Desktop/Jones/Python
Enter the number of elements: 5
Enter number: 10
Enter number: 20
Enter number: 30
Enter number: 40
Enter number: 50
List: [10.0, 20.0, 30.0, 40.0, 50.0]
Mean = 30.0
Variance = 200.0
Standard Deviation = 14.142135623730951

>>>
```

**Output**

## Simple explanation



### 1. Create an empty list

```
</> Python  
numbers = []
```

### 2. Read N numbers and add them to the list

```
</> Python  
for i in range(n):  
    num = float(input("Enter number: "))  
    numbers.append(num)
```

### 3. Mean — average of all numbers:

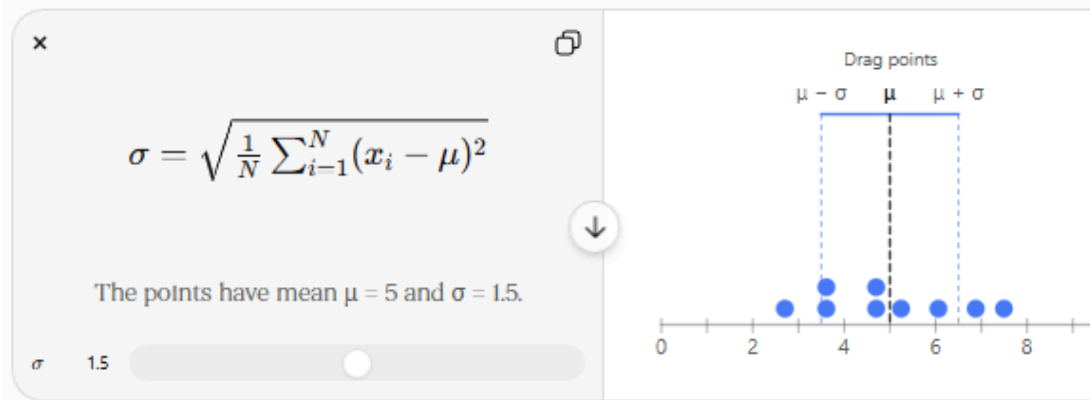
```
</> Python  
mean = sum(numbers) / n
```

### 4. Variance — measures how far the numbers are spread from the mean:

```
</> Python  
variance = sum((x - mean) ** 2 for x in numbers) / n
```

### 5. Standard deviation — square root of variance:

```
</> Python  
standard_deviation = math.sqrt(variance)
```



## Simple Explanation