

Statistical Programming Assignment 1

Code for given question.

```
print("DATA 51100- Fall 2022")
print("Sai Kumar Murarishetti")
print("Programming Assignment #1")

# function
def main():
    while True:
        # enter a number
        number = int(input("Enter a number: "))

        # Check if the entered number is negative, if so, exit the loop
        if number < 0:
            break

        # Initialize variables for mean (xn), variance (sn) and (i)
        xn = 1
        sn = 0
        i = 2

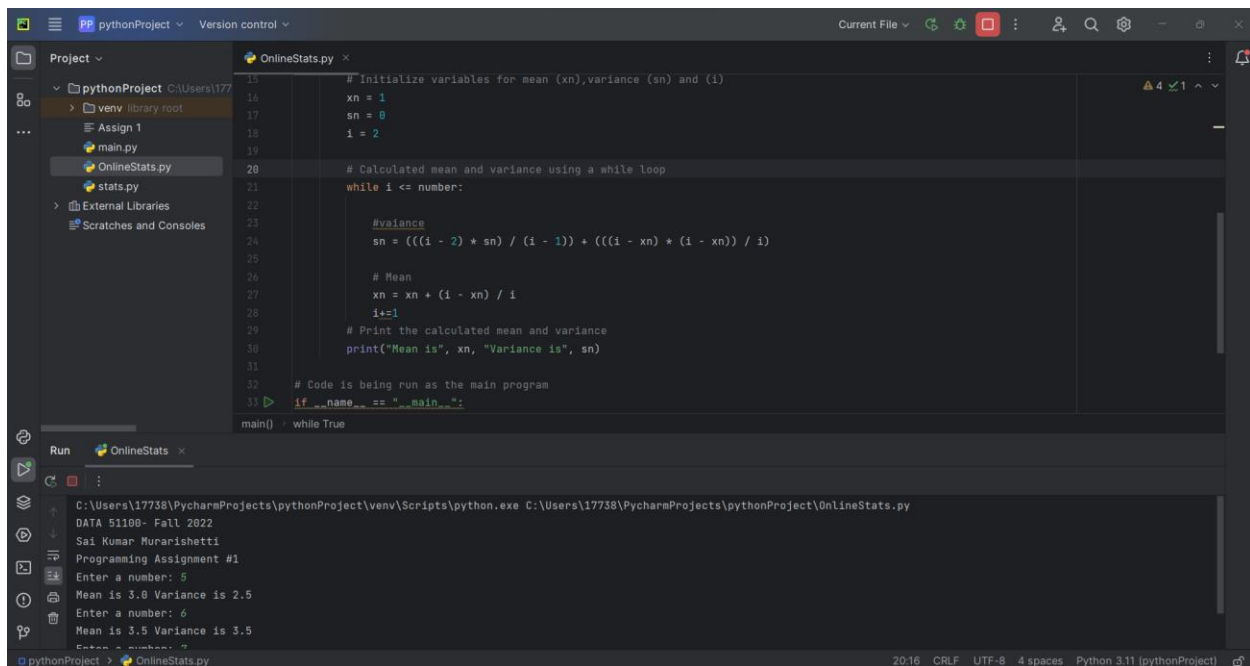
        # Calculated mean and variance using a while loop
        while i <= number:

            #vaiance
            sn = (((i - 2) * sn) / (i - 1)) + (((i - xn) * (i - xn)) / i)

            # Mean
            xn = xn + (i - xn) / i
            i+=1

        # Print the calculated mean and variance
        print("Mean is", xn, "Variance is", sn)

# Code is being run as the main program
if __name__ == "__main__":
    # Calling the main function if the code is executed
    main()
```



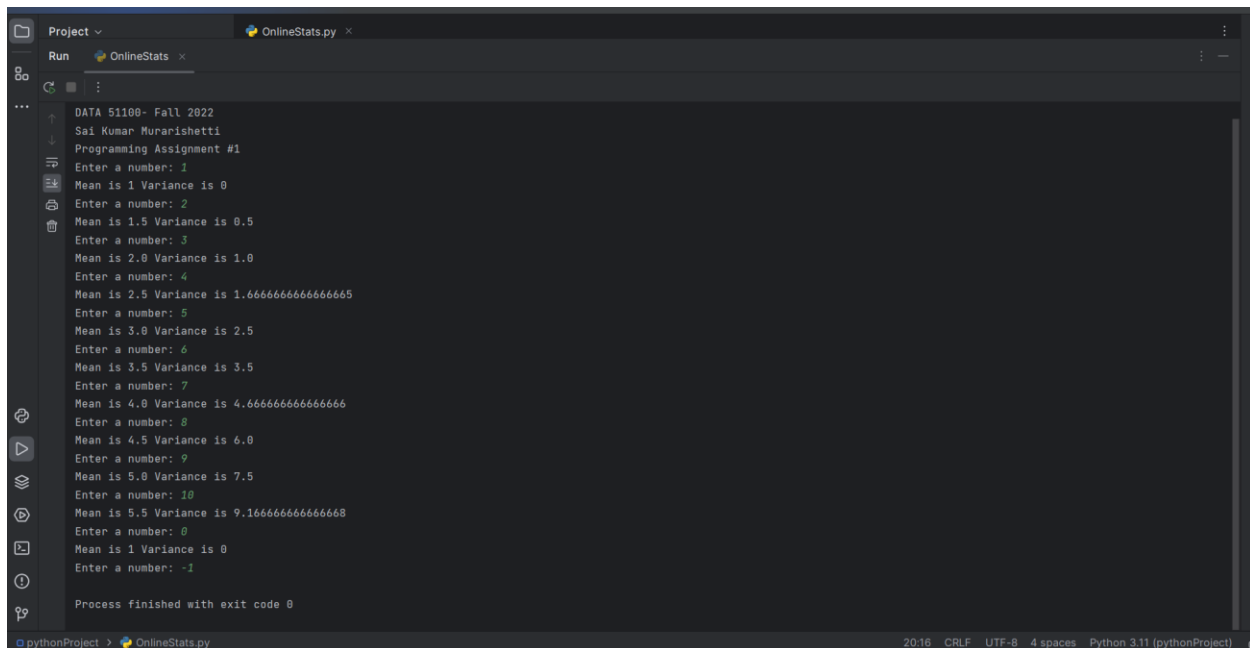
The screenshot shows the PyCharm IDE with the file `OnlineStats.py` open. The code calculates the mean and variance of a list of numbers using a while loop. The Run console shows the output of the program, which prompts the user to enter a number and displays the calculated mean and variance for each input.

```
15 # Initialize variables for mean (xn), variance (sn) and (i)
16 xn = 1
17 sn = 0
18 i = 2
19
20 # Calculated mean and variance using a while loop
21 while i <= number:
22
23     #variance
24     sn = (((i - 2) * sn) / (i - 1)) + (((i - xn) * (i - xn)) / i)
25
26     # Mean
27     xn = xn + (i - xn) / i
28     i+=1
29
30 # Print the calculated mean and variance
31 print("Mean is", xn, "Variance is", sn)
32
33 # Code is being run as the main program
34 if __name__ == "__main__":
35     main()
36 while True
```

Run console output:

```
C:\Users\17738\PycharmProjects\pythonProject\venv\Scripts\python.exe C:\Users\17738\PycharmProjects\pythonProject\onLineStats.py
DATA 51100- Fall 2022
Sai Kumar Murarishetti
Programming Assignment #1
Enter a number: 5
Mean is 3.0 Variance is 2.5
Enter a number: 6
Mean is 3.5 Variance is 3.5
Enter a number: 7
```

Output of the code:



The screenshot shows the PyCharm IDE with the file `OnlineStats.py` open. The Run console shows the output of the program, which prompts the user to enter a number and displays the calculated mean and variance for each input.

```
DATA 51100- Fall 2022
Sai Kumar Murarishetti
Programming Assignment #1
Enter a number: 1
Mean is 1 Variance is 0
Enter a number: 2
Mean is 1.5 Variance is 0.5
Enter a number: 3
Mean is 2.0 Variance is 1.0
Enter a number: 4
Mean is 2.5 Variance is 1.6666666666666665
Enter a number: 5
Mean is 3.0 Variance is 2.5
Enter a number: 6
Mean is 3.5 Variance is 3.5
Enter a number: 7
Mean is 4.0 Variance is 4.666666666666666
Enter a number: 8
Mean is 4.5 Variance is 6.0
Enter a number: 9
Mean is 5.0 Variance is 7.5
Enter a number: 10
Mean is 5.5 Variance is 9.166666666666666
Enter a number: 0
Mean is 1 Variance is 0
Enter a number: -1
Process finished with exit code 0
```