ALGORITHM TEST #1

Andy works in a plumbing company. He needs to calculate the average value of water volume through a pipe every second. He has a sensor that gives readings V, of water volume and this is updated every second. Write an algorithm that allows him to display A, the average water volume.

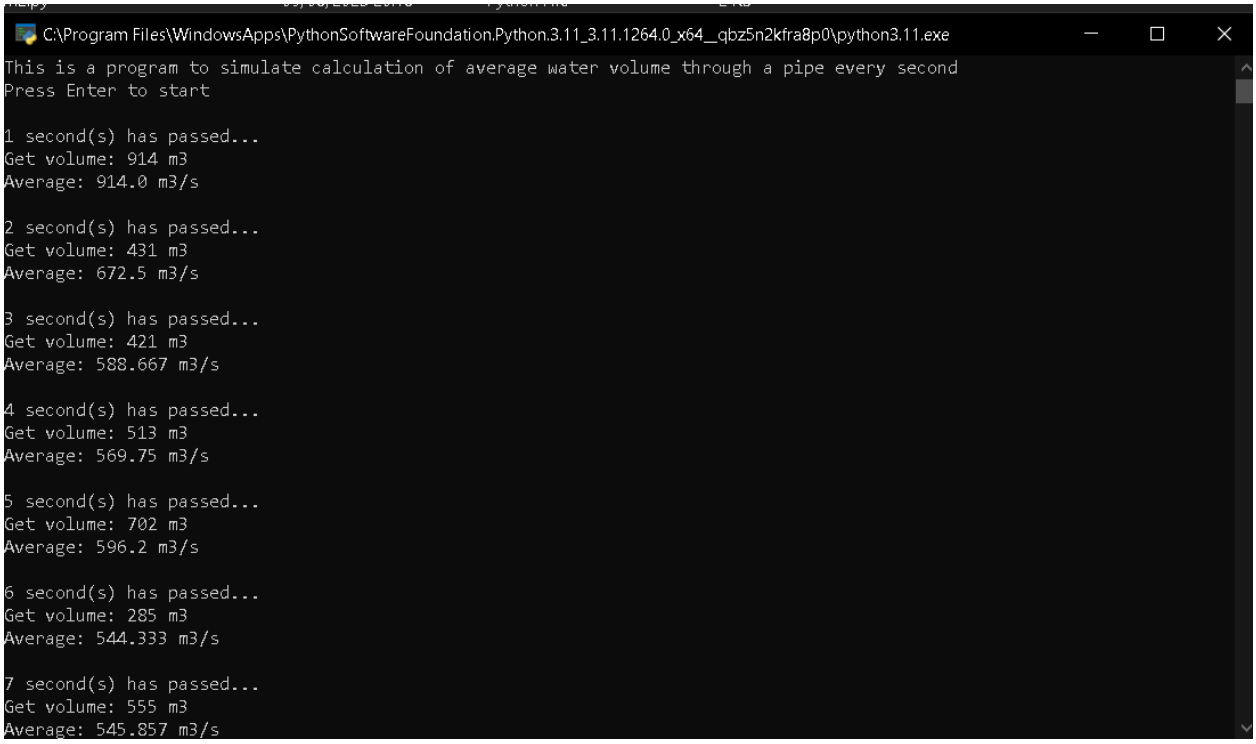
Note: The value of V changes every second, so you need to use a loop to update A or M every second.

ANSWER :
Script below is a program I wrote using Python to simulate the calculation of average water volume through a pipe every second.

```
import random
import time

# Greetings
print("This is a program to simulate the calculation of average water volume
through a pipe every second")
input("Press Enter to start\n")

def get_volume_from_sensor():

    # Assume this is a function that return readings V from the sensor
    return random.randrange(1, 1000)


#Preparing variables
second = 0
total_volume = 0

while True:

    #Delay every loop for 1 second
    time.sleep(1)

    # Get new volume and calculate the average
    volume = get_volume_from_sensor()
    total_volume  += volume
```

```
    second += 1
    average = total_volume / second

    # Represent the results
    print(f"{second} second(s) has passed...")
    print(f"Get volume: {volume} m3")
    print(f"Average: {round(average, 3)} m3/s \n")
```

The program should look like this when executed



After pressing “Enter” key, the program will start to generate a new random value of volume water while assuming it’s a reading from a sensor. The average value is also calculated immediately after the value generated. This process will repeat itself every second.