**4.3 Performance and Stress Testing Definition:**

Performance and stress testing is the process of determining the responsiveness and stability of the PrimeNumbers function under different workloads i.e. given different inputs that require a lot of little computation/processing power.

**Participants:**

This test will be performed by Mpinane Mohale

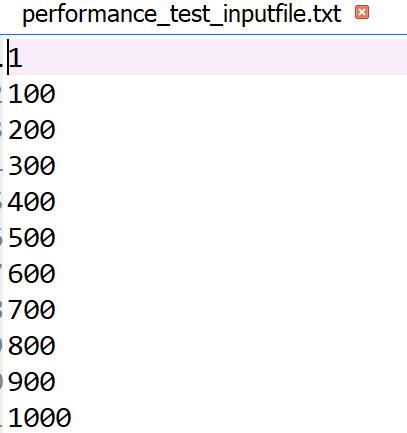
**Methodology:**

Describe how Performance & Stress testing will be conducted. Who will write the test scripts for the testing, what would be sequence of events of Performance & Stress Testing, and how will the testing activity take place?

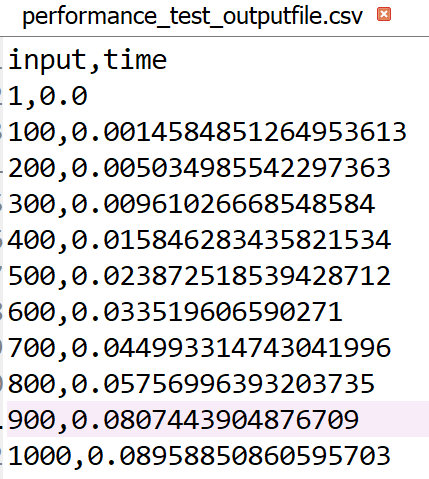
The test scripts for this test will be written by Mpinane Mohale.

The test script reads in an input file with the name “performance\_test\_inputfile.txt”.

The input file consists of rows of possible values of X (the input argument for the PrimeNumbers function). The values must be inputted in a linear ascending order. An example of the file is in the figure below



Once the file has been read in, the PrimeNumbers function is tested using each row in the file and an output file with the name performance\_test\_outputfile.csv is generated. An example of the outputfile is in the figure below

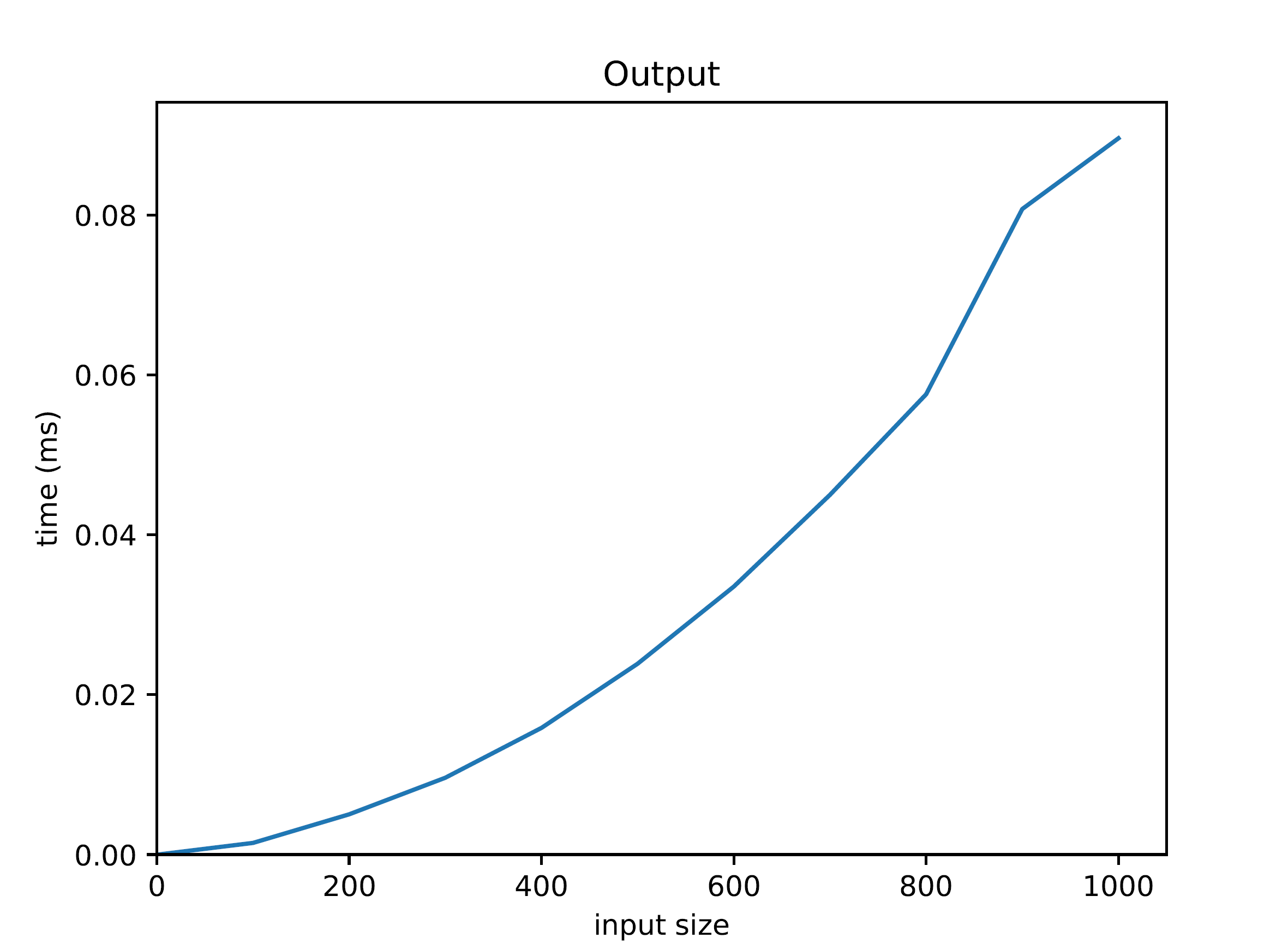


This output file will be used as input to the graphGenerator.py script which will draw a graph to show the performance of the PrimeNumbers function.

A theoretical analysis of the PrimeNumbers algorithm wad performed to asses it’s performance as seen below.

<< Put theoretical analysis here>>

From our theoretical analysis of the PrimeNumber we expect the function to follow a nlog(n)-line pattern. The result of the graphGenerator.py is a pdf with a figure that looks like the figure below



Note:

To run the graphGenerator script:

You need to have installed matplotlib.

To install matplotlib run this in the terminal:

python -mpip install -U pip

python -mpip install -U matplotlib

Then to run the script:

python graphGenerator.py performance\_test\_outputfile.csv PerformaceGraph