Assignment-9:

Degree n cpu\_time gpu\_time speed\_up

1 1000000000 0.189937 2.21818 0.0856274

10 1000000000 0.479447 2.54552 0.188349

100 1000000000 6.59422 3.31869 1.98699

1000 1000000000 309.833 9.72782 31.8502

This was the following table generated for the polynomial program.

From the results for degree 1,10 the cpu works better than gpu because the over head of taking the data from cpu to gpu is lot higher and retrieving the results back to cpu takes time because of this data transfer cpu is better than GPU.

For degree =100 and 1000 the GPU performs better than CPU for degree=100 and 1000 the gpu performs 2 times faster than cpu and 31 times faster than cpu for degree=1000.So, when degree is high it is always better to go with gpu implementation than cpu given that the algorithm is massively parallelizable because the number of cores and threads are higher in gpu and the problem can be solved very fastly when compared with cpu.