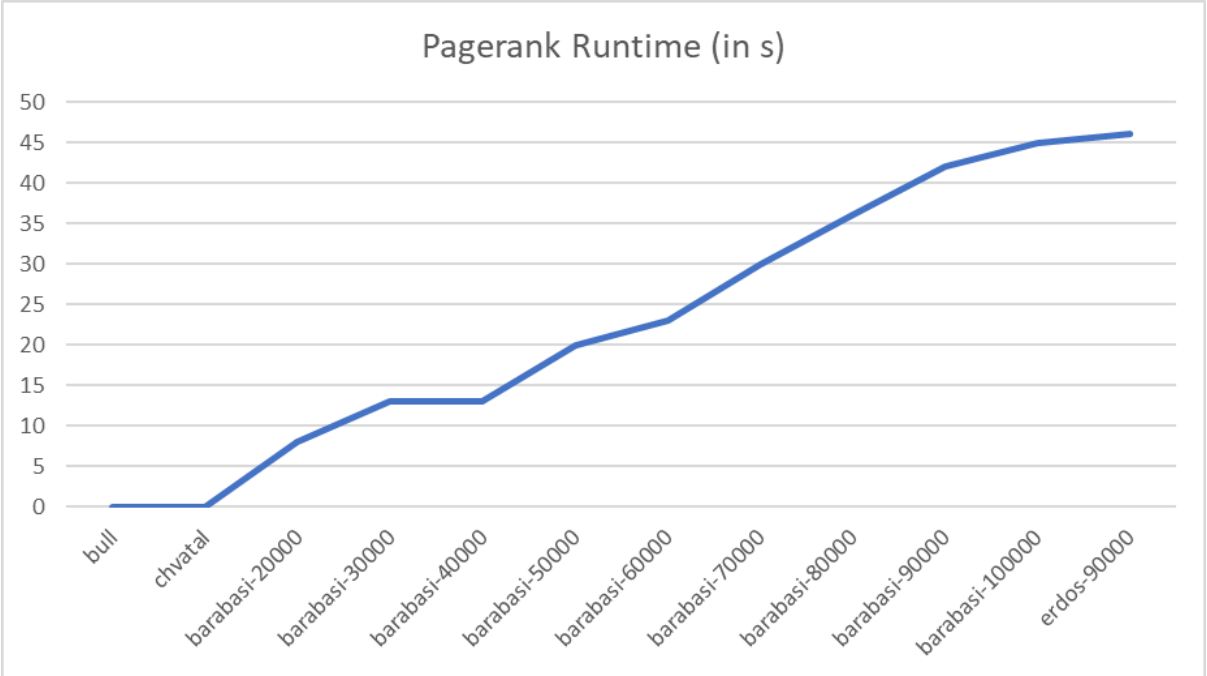
Assignment-3

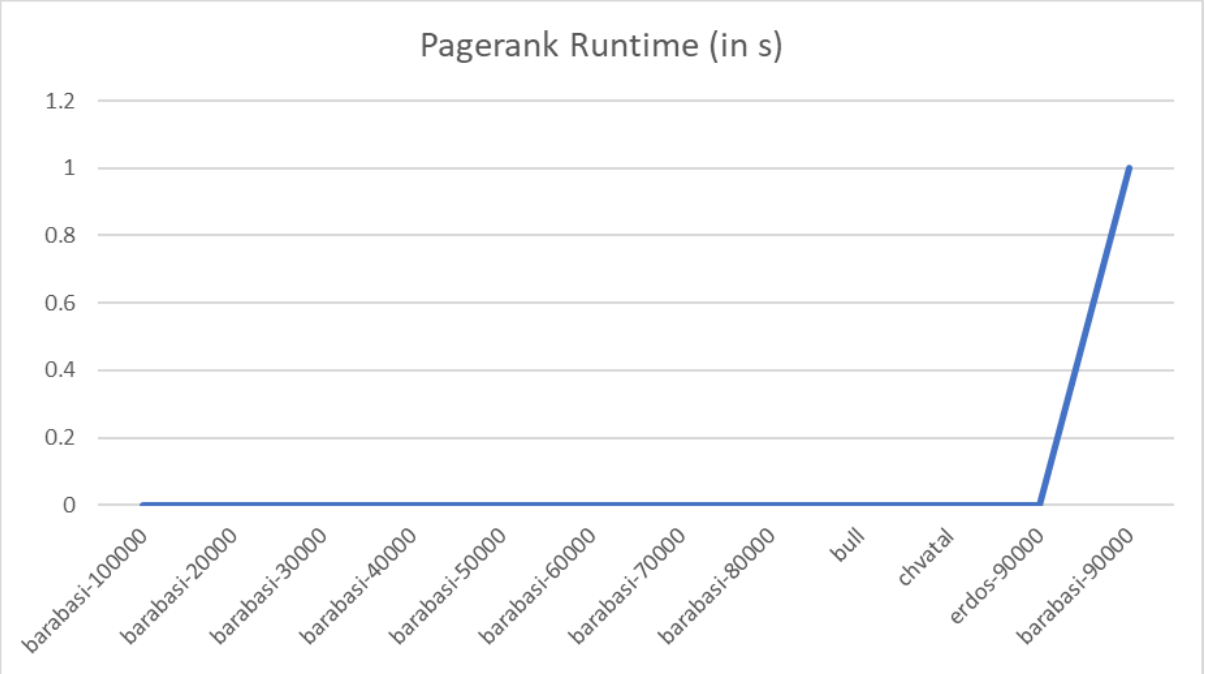
Part 1: (Mapreduce C++ library)

Benchmark ID	Time(in s)
barabasi-100000	45
barabasi-20000	8
barabasi-30000	13
barabasi-40000	13
barabasi-50000	20
barabasi-60000	23
barabasi-70000	30
barabasi-80000	36
barabasi-90000	42
bull	0
chvatal	0
erdos-90000	46



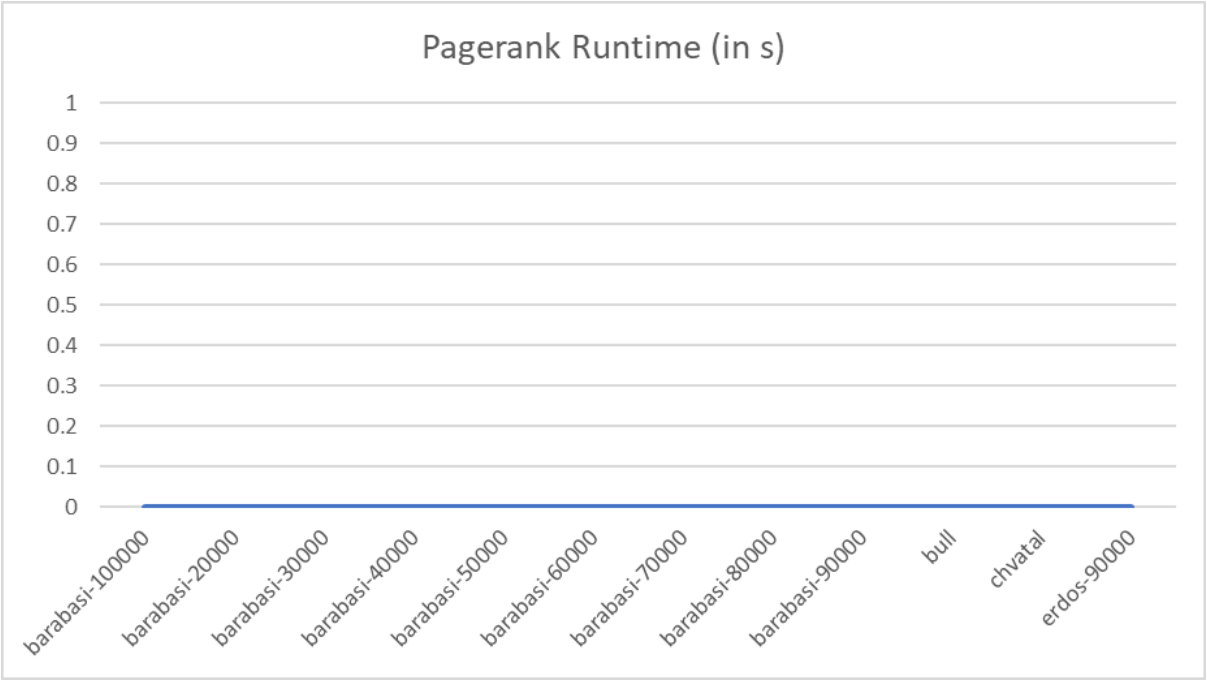
Part 2: MPI

Benchmark ID	Time(in s)
barabasi-100000	0
barabasi-20000	0
barabasi-30000	0
barabasi-40000	0
barabasi-50000	0
barabasi-60000	0
barabasi-70000	0
barabasi-80000	0
barabasi-90000	1
bull	0
chvatal	0
erdos-90000	0



Part 3: Mapreduce MPI library

Benchmark ID	Time(in s)
barabasi-100000	0
barabasi-20000	0
barabasi-30000	0
barabasi-40000	0
barabasi-50000	0
barabasi-60000	0
barabasi-70000	0
barabasi-80000	0
barabasi-90000	0
bull	0
chvatal	0
erdos-90000	0



Observations-
Mapreduce MPI library seems to have been the most efficient in terms of runtime, followed by the implementation of own MapReduce library using

MPI, followed by the Mapreduce C++ library implementation. Also, as expected, the time taken to compute the PageRank value increases (especially in the case of the first implementation- MapReduce C++ library) as the number of links increases. In the case of the first implementation, erdos-90000 took the most time. The second implementation could compute every dataset in 0s except for barabasi-90000, while the third implementation took 0s to compute the datasets.