Analysis

1. **Configuration of the system**
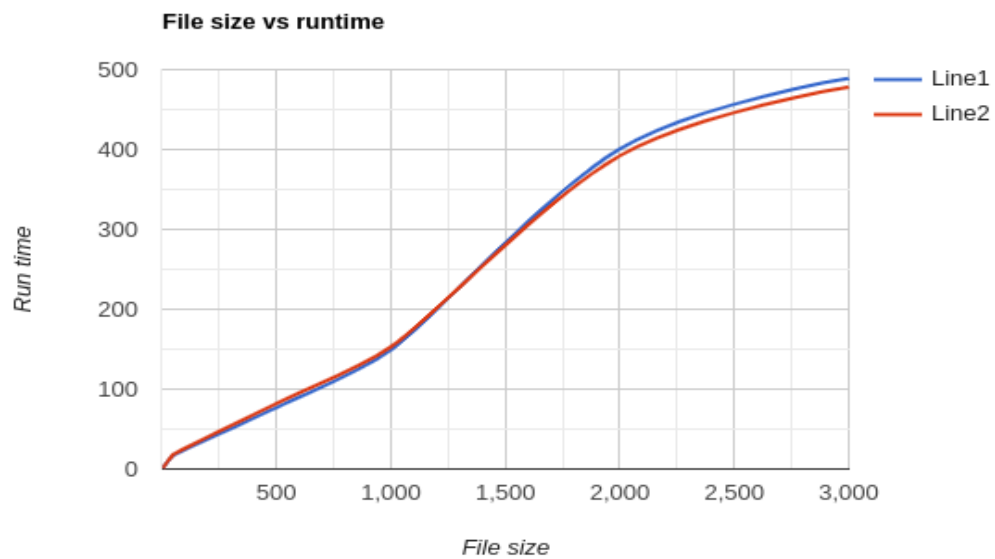
Ram :- 8 GB

2. **Observations and corresponding graphs**

varying file size with 100 mb memory size

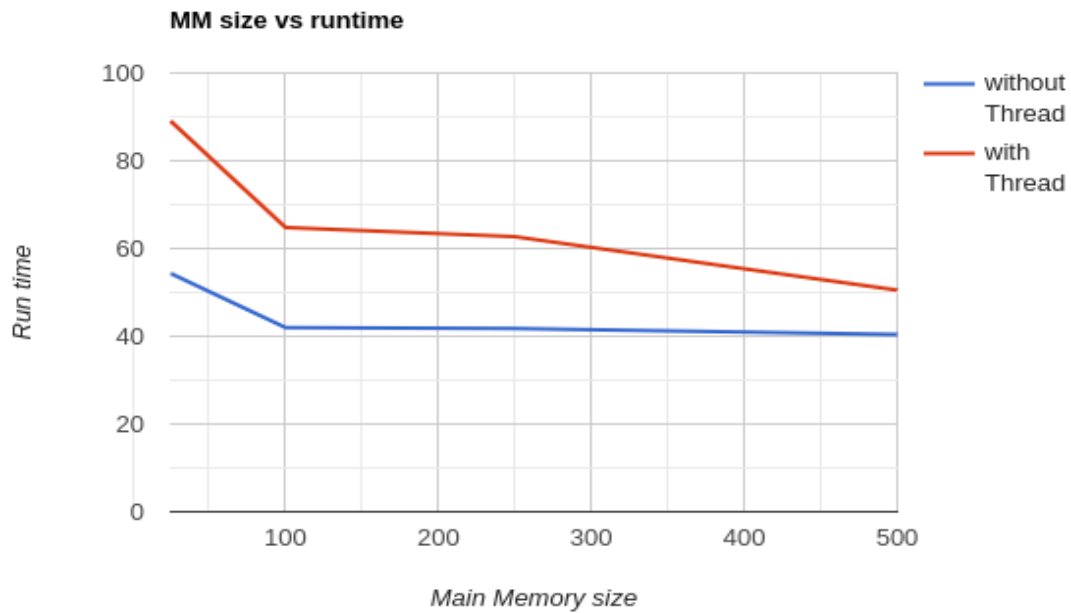| File size(in MB)	Time taken (in s) (without threads)	Time taken (in s) (with threads)
5	1.5	1.28
50	17.16	18.07
500	77	82.04
1000	148.83	152.76
2000	400.76	392.16
3000	489.22	478.25

Graph

Varying memory with 500MB File Size:

Main Memory size(In MB)	Time taken (in s) (without threads)	Time taken (in s) (with threads)
25	109.33	113.78
100	102.65	96.21
250	117.8	121.66
500	132.34	125.01

Graph

MM size vs runtime

Run time (y-axis): 0, 20, 40, 60, 80, 100

Main Memory size (x-axis): 100, 200, 300, 400, 500

Legend: without Thread (blue), with Thread (red)

3. Explanation

From the observations it can be inferred that with fixed memory size on increasing input file size, runtime increases.

When file size is kept constant on increasing main memory size runtime decreases slightly with a low factor.