HW1 REPORT

ME5470: Introduction to Parallel Scientific Computing

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Q1.a

```
ai21btech11001@edison18:~/ME5470/iithme5470-classroom-hw1-ME5470_HW1$du -sh array_004000_asc.out
321M    array_004000_asc.out
ai21btech11001@edison18:~/ME5470/iithme5470-classroom-hw1-ME5470_HW1$du -sh array_004000_bin.out
62M     array_004000_bin.out
```

For the format_flag = 0, the size is 321MB

For the format_flag = 1, the size is 62MB

Q1.b

The estimated size is supposed to be 8*4000*4000bytes, which is 128MB

However, while storing in the disk, the size for an ASCII file is 321MB, which is greater than the memory size, but for a binary format file, it is 62MB, which is less than the memory size. So, we should prefer saving large data in binary format.

Q2

```
ai21btech11001@edison18:~/ME5470/HW0$./a.out
Given n: 3
vec_000003_000001.in: Yes: -6.000000
vec_000003_000002.in: Yes: -6.000000
vec_000003_000003.in: Yes: -1.000000
vec_000003_000004.in: Not an eigenvector
ai21btech11001@edison18:~/ME5470/HW0$./a.out
Given n: 5
vec_000005_000001.in: Yes: 0.268098
vec_000005_000002.in: Not an eigenvector
vec_000005_000003.in: Yes: 0.986875
vec_000005_000004.in: Yes: 1.399039
ai21btech11001@edison18:~/ME5470/HW0$./a.out
Given n: 50
vec_000050_000001.in: Not an eigenvector
vec_000050_000002.in: Yes: 0.479628
vec_000050_000003.in: Yes: 1.337887
vec_000050_000004.in: Not an eigenvector
ai21btech11001@edison18:~/ME5470/HW0$./a.out
Given n: 80
vec_000080_000001.in: Yes: 0.333018
vec_000080_000002.in: Yes: 0.493142
vec_000080_000003.in: Yes: 0.939275
vec_000080_000004.in: Not an eigenvector
```

Here are the corresponding eigenvalues to the given eigenvectors.