

Roll no-ME25MTECH02004

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HW01-Scientific computing

Question_1(a):

comments:-I have found the size of both the file ascii as well as binary file .Size of ascii file is 319.9562 MB and Size of binary file is 122.0703 MB. This size is on disk.

Question_1(b):

Size on the memory is $8*(n)^2 = 8*(4000)^2 = 128,000,000 \text{ Byte} = 122.0703 \text{ MB}$


For ascii file size on the disk is more than the size in the memory

For binary file size on the disk is equal to size in the memory.

hence files should be stored in binary format on the disk.

```
-rw-rw-r--. 1 me25mtech02004 me25mtech02004 128000000 Jan 18 12:06 array_004000_bin.out
me25mtech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1$ls
a.out          array000004bin.out  array_004000asc.out_ array_004000_bin.out  inputfiles  me5470_hw1.pdf
array000004 asc.out array_004000 asc.out array004000 asc.out  ass1q1.c      input.in  README.md
me25mtech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1$rm array_004000asc.out_
me25mtech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1$rm array004000 asc.out_
rm: cannot remove `array004000': No such file or directory
rm: cannot remove `asc.out': No such file or directory
me25mtech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1$ls -l array_004000_asc.out array_004000_bin.out
-rw-rw-r--. 1 me25mtech02004 me25mtech02004 335498395 Jan 18 12:06 array_004000_asc.out
-rw-rw-r--. 1 me25mtech02004 me25mtech02004 128000000 Jan 18 12:06 array_004000_bin.out
me25mtech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1$
```

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Question2: Output of question 2 is shown below:

```
me2mintech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1/inputfiles$./a.out
vec_000003_000001.in: Not a eigen vector
vec_000003_000002.in: Not a eigen vector
vec_000003_000003.in: is a eigenector: 4.000000
vec_000003_000004.in: is a eigenector: 4.000000
me2mintech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1/inputfiles$vi input.in
me2mintech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1/inputfiles$./a.out
vec_000005_000001.in: is a eigenector: 0.936830
vec_000005_000002.in: is a eigenector: 0.936830
vec_000005_000003.in: is a eigenector: 0.936830
vec_000005_000004.in: is a eigenector: 0.936830
me2mintech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1/inputfiles$vi input.in
me2mintech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1/inputfiles$./a.out
vec_000050_000001.in: is a eigenector: -nan
vec_000050_000002.in: is a eigenector: -nan
vec_000050_000003.in: is a eigenector: -nan
vec_000050_000004.in: is a eigenector: -nan
me2mintech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1/inputfiles$vi input.in
me2mintech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1/inputfiles$./a.out
vec_000080_000001.in: is a eigenector: -nan
vec_000080_000002.in: is a eigenector: -nan
vec_000080_000003.in: is a eigenector: -nan
vec_000080_000004.in: is a eigenector: -nan
me2mintech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1/inputfiles$ls
a.out  mat_000003.in  mat_000000.in  vec_000003_000003.in  vec_000005_000002.in  vec_000050_000001.in  vec_000050_000004.in  vec_000080_000003.in
ass1q2.c  mat_000005.in  vec_000003_000001.in  vec_000003_000004.in  vec_000005_000003.in  vec_000050_000002.in  vec_000080_000001.in  vec_000080_000004.in
input.in  mat_000050.in  vec_000003_000002.in  vec_000005_000001.in  vec_000005_000004.in  vec_000050_000003.in  vec_000080_000002.in
me2mintech02004@edison9:~/ass1/iithme5470-classroom-hw1-ME5470_HW1/inputfiles$
```

