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CSCE 735
HW4

Problem 1:

```
test, p = 8, n = 6000000, type = 0
[Proc: 0] number of processes = 8, initial local list size = 6000000, hypercube quicksort time = 0.880034
[Proc: 0] Congratulations. The list has been sorted correctly.
test for problem 1 part 1
[Proc: 0] number of processes = 2, initial local list size = 4, hypercube quicksort time = 0.001581
[Proc: 0] Congratulations. The list has been sorted correctly.
test for problem 1 part 2
[Proc: 0] number of processes = 4, initial local list size = 4, hypercube quicksort time = 0.002583
[Proc: 0] Congratulations. The list has been sorted correctly.
[Proc: 0] number of processes = 8, initial local list size = 4, hypercube quicksort time = 0.008809
[Proc: 0] Congratulations. The list has been sorted correctly.
[Proc: 0] number of processes = 16, initial local list size = 4, hypercube quicksort time = 0.011675
[Proc: 0] Congratulations. The list has been sorted correctly.
[Proc: 0] number of processes = 16, initial local list size = 20480000, hypercube quicksort time = 3.145442
[Proc: 0] Congratulations. The list has been sorted correctly.
```

Problem 2:

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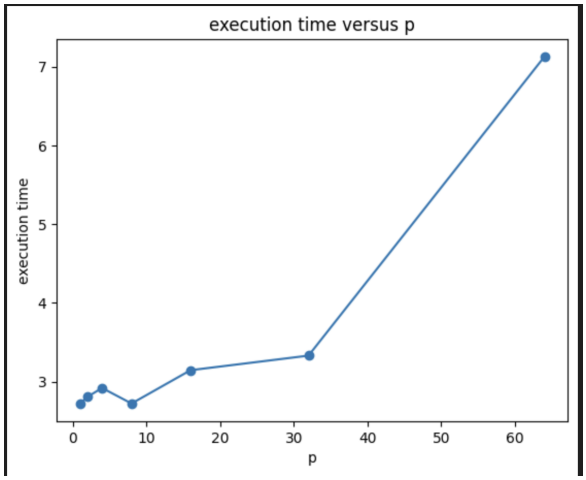
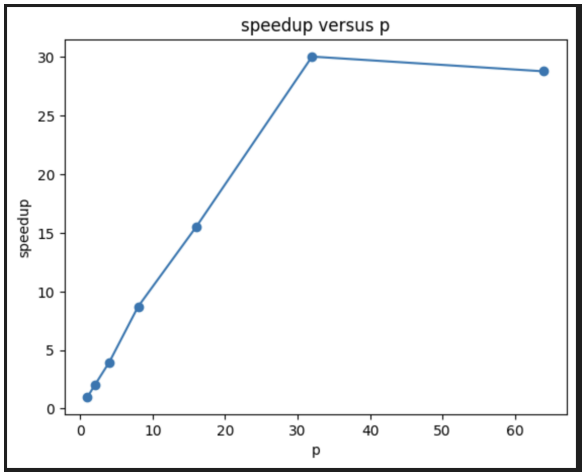
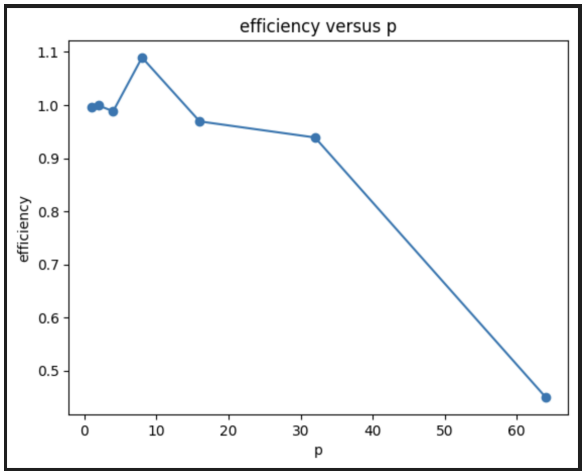
test for problem 2 n*p, p = 1,2,4,8,16,32,64
p = 1, 1 process
[Proc: 0] number of processes = 1, initial local list size = 20480000, hypercube quicksort time = 2.711604
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 2, 1 process
[Proc: 0] number of processes = 1, initial local list size = 40960000, hypercube quicksort time = 5.602847
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 4, 1 process
[Proc: 0] number of processes = 1, initial local list size = 81920000, hypercube quicksort time = 11.538948
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 8, 1 process
[Proc: 0] number of processes = 1, initial local list size = 163840000, hypercube quicksort time = 23.717465
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 16, 1 process
[Proc: 0] number of processes = 1, initial local list size = 327680000, hypercube quicksort time = 48.760719
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 32, 1 process
[Proc: 0] number of processes = 1, initial local list size = 655360000, hypercube quicksort time = 100.046121
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 64, 1 process
[Proc: 0] number of processes = 1, initial local list size = 1310720000, hypercube quicksort time = 205.239792
[Proc: 0] Congratulations. The list has been sorted correctly.


test for problem 2 n*p, p = 1,2,4,8,16,32,64
p = 1, 1 process
[Proc: 0] number of processes = 1, initial local list size = 20480000, hypercube quicksort time = 2.719506
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 2, 2 process
[Proc: 0] number of processes = 2, initial local list size = 20480000, hypercube quicksort time = 2.803989
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 4, 4 process
[Proc: 0] number of processes = 4, initial local list size = 20480000, hypercube quicksort time = 2.918722
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 8, 8 process
[Proc: 0] number of processes = 1, initial local list size = 20480000, hypercube quicksort time = 2.720758
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 16, 16 process
[Proc: 0] number of processes = 16, initial local list size = 20480000, hypercube quicksort time = 3.144092
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 32, 32 process
[Proc: 0] number of processes = 32, initial local list size = 20480000, hypercube quicksort time = 3.329597
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 64, 64 process
[Proc: 0] number of processes = 64, initial local list size = 20480000, hypercube quicksort time = 7.129324
[Proc: 0] Congratulations. The list has been sorted correctly.
```

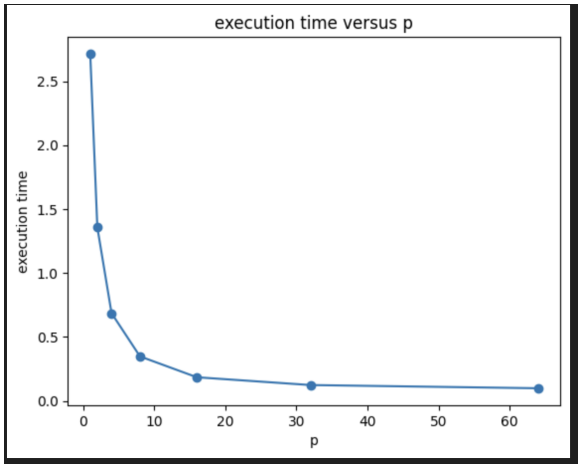


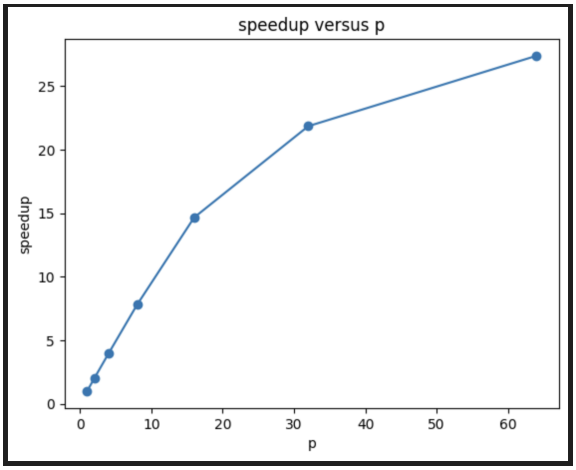


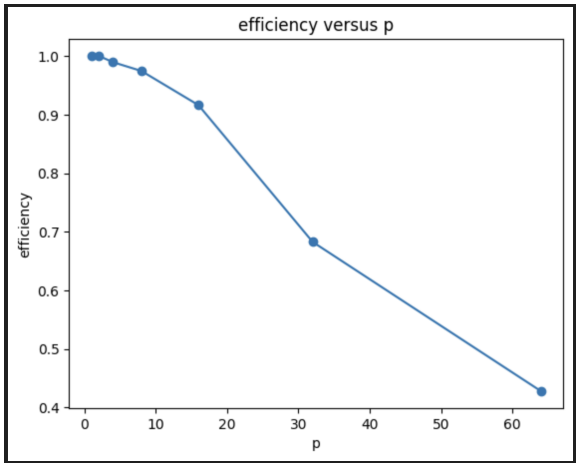


Problem 3:

```
test for problem 3 n/p, p = 1,2,4,8,16,32,64
p = 1, 1 process
[Proc: 0] number of processes = 1, initial local list size = 20480000, hypercube quicksort time = 2.715068
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 2, 2 process
[Proc: 0] number of processes = 2, initial local list size = 10240000, hypercube quicksort time = 1.356943
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 4, 4 process
[Proc: 0] number of processes = 4, initial local list size = 5120000, hypercube quicksort time = 0.685925
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 8, 8 process
[Proc: 0] number of processes = 8, initial local list size = 2560000, hypercube quicksort time = 0.348264
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 16, 16 process
[Proc: 0] number of processes = 16, initial local list size = 1280000, hypercube quicksort time = 0.185223
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 32, 32 process
[Proc: 0] number of processes = 32, initial local list size = 640000, hypercube quicksort time = 0.124290
[Proc: 0] Congratulations. The list has been sorted correctly.
p = 64, 64 process
[Proc: 0] number of processes = 64, initial local list size = 320000, hypercube quicksort time = 0.099148
[Proc: 0] Congratulations. The list has been sorted correctly.
```







Problem 4:

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test, p = 8, n = 6000000, type = 0
[Proc: 0] number of processes = 8, initial local list size = 6000000, hypercube quicksort time = 0.876582
[Proc: 0] Congratulations. The list has been sorted correctly.
test for problem 1 part 1
[Proc: 0] number of processes = 2, initial local list size = 4, hypercube quicksort time = 0.001963
[Proc: 0] Congratulations. The list has been sorted correctly.
test for problem 1 part 2
[Proc: 0] number of processes = 4, initial local list size = 4, hypercube quicksort time = 0.002701
[Proc: 0] Congratulations. The list has been sorted correctly.
[Proc: 0] number of processes = 8, initial local list size = 4, hypercube quicksort time = 0.007402
[Proc: 0] Congratulations. The list has been sorted correctly.
[Proc: 0] number of processes = 16, initial local list size = 4, hypercube quicksort time = 0.011324
[Proc: 0] Congratulations. The list has been sorted correctly.
[Proc: 0] number of processes = 16, initial local list size = 20480000, hypercube quicksort time = 3.135165
[Proc: 0] Congratulations. The list has been sorted correctly.
```