

Sorting Algorithms

1. Selection sort

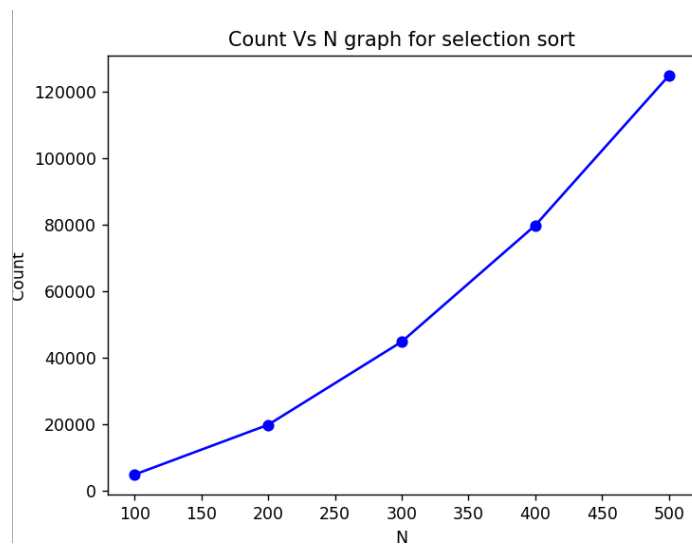
```
PS C:\Users\adith\Documents\bmsce\2nd year\4th sem\DAA\DAA_prat
_11_07_23.cpp -o sort_11_07_23 } ; if ($?) { .\sort_11_07_23 }
Cpp program for sorting
enter the number of elements: 10
enter the elements: 4 6 7 3 2 4 1 6 9 8
select choice:
1. selection_sort
2. Bubble_sort
3. merge_sort
4. quick_sort
Enter choice: 1
count: 45
Elapsed time: 0.000444 s
sorted array:
1 2 3 4 4 6 6 7 8 9
```

Code output

Count vs N vs N^2 data

N	Count	Count/n	Count/n ²
10	45	4.5	0.45
100	4950	49.5	0.495
1000	499500	499.5	0.4995
10000	49995000	4999.5	0.49995

N	Count
100	4950
200	19900
300	44850
400	79800
500	124750



2. Bubble sort

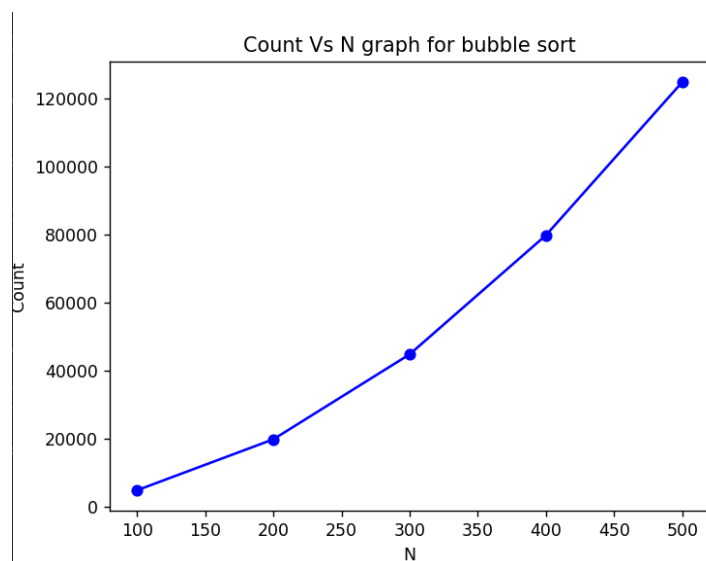
```
PS C:\Users\adith\Documents\bmsce\2nd year\4th sem\DAA\DAA_prat
_11_07_23.cpp -o sort_11_07_23 } ; if ($?) { .\sort_11_07_23 }
Cpp program for sorting
enter the number of elements: 10
enter the elements: 5 4 8 7 9 3 2 1 4 5
select choice:
1. selection_sort
2. Bubble_sort
3. merge_sort
4. quick_sort
Enter choice: 2
count: 45
Elapsed time: 0.0004101 s
sorted array:
1 2 3 4 4 5 5 7 8 9
```

Code output

Count vs N vs N^2 data

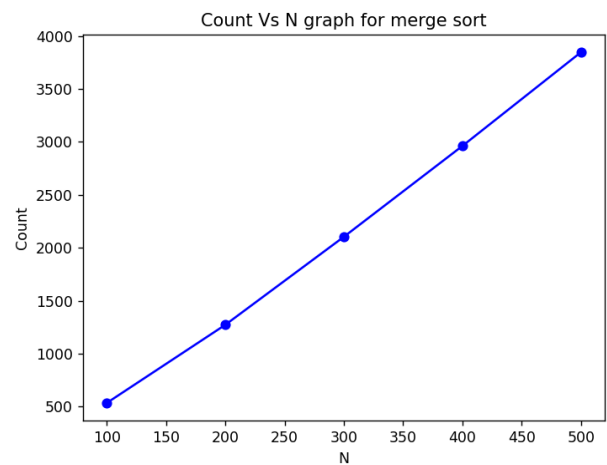
N	Count	Count/n	Count/n ²
10	45	4.5	0.45
100	4950	49.5	0.495
1000	499500	499.5	0.4995
10000	49995000	4999.5	0.49995

N	Count
100	4950
200	19900
300	44850
400	79800
500	124750



3. Mergesort

N	Count
100	535
200	1273
300	2104
400	2962
500	3847



```
Cpp program for sorting
enter the number of elements: 100
enter the elements: select choice:
1. selection_sort
2. Bubble_sort
3. merge_sort
4. quick_sort
Enter choice: 3
count: 545
Elapsed time: 0.0003507 s
```

4. Quick sort

```
Cpp program for sorting
enter the number of elements: 100
enter the elements: select choice:
1. selection_sort
2. Bubble_sort
3. merge_sort
4. quick_sort
Enter choice: 4
count: 167
Elapsed time: 6.4e-06 s
sorted array:
```

N	Count
100	167
200	370
300	557
400	763
500	989

