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COSC 220

Dr. Wang

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Lab 11 writeup

All times go to 6 decimal places (seconds)

Bubble Sort

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\lab_11\lab_11.exe"
Vector Size: 10
Unsorted vector
Sorted Vector

Elapsed time: 0.000000
Process returned 0 (0x0)    execution time : 0.546 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 20
Unsorted vector
Sorted Vector

Elapsed time: 0.000001
Process returned 0 (0x0)    execution time : 0.787 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\lab_11\lab_11.exe"
Vector Size: 30
Unsorted vector
Sorted Vector

Elapsed time: 0.000001
Process returned 0 (0x0)    execution time : 0.818 s
Press any key to continue.
```

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 40

Unsorted vector

Sorted Vector

Elapsed time: 0.000001

Process returned 0 (0x0) execution time : 0.531 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 50

Unsorted vector

Sorted Vector

Elapsed time: 0.000002

Process returned 0 (0x0) execution time : 0.545 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 100

Unsorted vector

Sorted Vector

Elapsed time: 0.000001

Process returned 0 (0x0) execution time : 0.694 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 500

Unsorted vector

Sorted Vector

Elapsed time: 0.000005

Process returned 0 (0x0) execution time : 0.583 s

Press any key to continue.

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 1000
Unsorted vector
Sorted Vector

Elapsed time: 0.000015
Process returned 0 (0x0)    execution time : 0.555 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 5000
Unsorted vector
Sorted Vector

Elapsed time: 0.000289
Process returned 0 (0x0)    execution time : 0.830 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10000
Unsorted vector
Sorted Vector

Elapsed time: 0.001074
Process returned 0 (0x0)    execution time : 5.386 s
Press any key to continue.
```

Removed divided by 1000 and running it 1000 times to cut back on time

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 100000
Unsorted vector
Sorted Vector

Elapsed time: 99.089000
Process returned 0 (0x0)    execution time : 100.026 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 500000
Unsorted vector
Sorted Vector

Elapsed time: 2466.858000
Process returned 0 (0x0)    execution time : 3542.331 s
Press any key to continue.
```

Insertion Sort

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10
Unsorted vector
Sorted Vector

Elapsed time: 0.000000
Process returned 0 (0x0)    execution time : 0.016 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 20
Unsorted vector
Sorted Vector

Elapsed time: 0.000001
Process returned 0 (0x0)    execution time : 0.016 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 30
Unsorted vector
Sorted Vector

Elapsed time: 0.000002
Process returned 0 (0x0)    execution time : 0.017 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"  
Vector Size: 40  
Unsorted vector  
Sorted Vector  
  
Elapsed time: 0.000004  
Process returned 0 (0x0)    execution time : 0.033 s  
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"  
Vector Size: 50  
Unsorted vector  
Sorted Vector  
  
Elapsed time: 0.000006  
Process returned 0 (0x0)    execution time : 0.021 s  
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"  
Vector Size: 100  
Unsorted vector  
Sorted Vector  
  
Elapsed time: 0.000017  
Process returned 0 (0x0)    execution time : 1.147 s  
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"  
Vector Size: 500  
Unsorted vector  
Sorted Vector  
  
Elapsed time: 0.000400  
Process returned 0 (0x0)    execution time : 0.967 s  
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 1000
Unsorted vector
Sorted Vector

Elapsed time: 0.001494
Process returned 0 (0x0)    execution time : 41.364 s
Press any key to continue.
```

Stopped doing 1000 trials at this point

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 5000
Unsorted vector
Sorted Vector

Elapsed time: 0.036000
Process returned 0 (0x0)    execution time : 0.577 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10000
Unsorted vector
Sorted Vector

Elapsed time: 0.156000
Process returned 0 (0x0)    execution time : 0.697 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 100000
Unsorted vector
Sorted Vector

Elapsed time: 15.112000
Process returned 0 (0x0)    execution time : 15.658 s
Press any key to continue.
```



```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 500000
Unsorted vector
Sorted Vector

Elapsed time: 368.042000
Process returned 0 (0x0)    execution time : 368.595 s
Press any key to continue.
```

Merge Sort

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10
Unsorted vector
Sorted Vector

Elapsed time: 0.000027
Process returned 0 (0x0)    execution time : 0.831 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 20
Unsorted vector
Sorted Vector

Elapsed time: 0.000060
Process returned 0 (0x0)    execution time : 0.596 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 30
Unsorted vector
Sorted Vector

Elapsed time: 0.000094
Process returned 0 (0x0)    execution time : 0.627 s
Press any key to continue.
```

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 40
Unsorted vector
Sorted Vector

Elapsed time: 0.000134
Process returned 0 (0x0) execution time : 0.692 s
Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 50
Unsorted vector
Sorted Vector

Elapsed time: 0.000168
Process returned 0 (0x0) execution time : 0.704 s
Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 100
Unsorted vector
Sorted Vector

Elapsed time: 0.000356
Process returned 0 (0x0) execution time : 0.896 s
Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 500
Unsorted vector
Sorted Vector

Elapsed time: 0.001969
Process returned 0 (0x0) execution time : 2.509 s
Press any key to continue.


```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 1000
Unsorted vector
Sorted Vector

Elapsed time: 0.004101
Process returned 0 (0x0)    execution time : 4.663 s
Press any key to continue.
```

Stopped doing 1000 trials

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 5000
Unsorted vector
Sorted Vector

Elapsed time: 0.023000
Process returned 0 (0x0)    execution time : 0.564 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10000
Unsorted vector
Sorted Vector

Elapsed time: 0.051000
Process returned 0 (0x0)    execution time : 0.587 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 100000
Unsorted vector
Sorted Vector

Elapsed time: 0.796000
Process returned 0 (0x0)    execution time : 1.345 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 500000
Unsorted vector
Sorted Vector

Elapsed time: 12.029000
Process returned 0 (0x0)    execution time : 12.887 s
Press any key to continue.
```

QuickSort

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10
Unsorted vector
Sorted Vector

Elapsed time: 0.000001
Process returned 0 (0x0)    execution time : 0.018 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 20
Unsorted vector
Sorted Vector

Elapsed time: 0.000001
Process returned 0 (0x0)    execution time : 0.545 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 30
Unsorted vector
Sorted Vector

Elapsed time: 0.000001
Process returned 0 (0x0)    execution time : 0.694 s
Press any key to continue.
```

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 40

Unsorted vector

Sorted Vector

Elapsed time: 0.000001

Process returned 0 (0x0) execution time : 0.540 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 50

Unsorted vector

Sorted Vector

Elapsed time: 0.000001

Process returned 0 (0x0) execution time : 0.533 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 100

Unsorted vector

Sorted Vector

Elapsed time: 0.000004

Process returned 0 (0x0) execution time : 0.545 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 500

Unsorted vector

Sorted Vector

Elapsed time: 0.000022

Process returned 0 (0x0) execution time : 0.570 s

Press any key to continue.

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 1000
Unsorted vector
Sorted Vector

Elapsed time: 0.000043
Process returned 0 (0x0)    execution time : 0.603 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 5000
Unsorted vector
Sorted Vector

Elapsed time: 0.000287
Process returned 0 (0x0)    execution time : 0.828 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10000
Unsorted vector
Sorted Vector

Elapsed time: 0.000605
Process returned 0 (0x0)    execution time : 1.142 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 100000
Unsorted vector
Sorted Vector

Elapsed time: 0.007597
Process returned 0 (0x0)    execution time : 8.131 s
Press any key to continue.
```

Stopped doing 1000 trials

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 500000
Unsorted vector
Sorted Vector

Elapsed time: 0.081000
Process returned 0 (0x0)    execution time : 0.635 s
Press any key to continue.
```

Note:Quick sort is very very fast

Selection Sort

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10
Unsorted vector
Sorted Vector

Elapsed time: 0.000001
Process returned 0 (0x0)    execution time : 0.810 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 20
Unsorted vector
Sorted Vector

Elapsed time: 0.000006
Process returned 0 (0x0)    execution time : 0.552 s
Press any key to continue.
```


"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 30

Unsorted vector

Sorted Vector

Elapsed time: 0.000009

Process returned 0 (0x0) execution time : 0.547 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 40

Unsorted vector

Sorted Vector

Elapsed time: 0.000015

Process returned 0 (0x0) execution time : 0.558 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 50

Unsorted vector

Sorted Vector

Elapsed time: 0.000024

Process returned 0 (0x0) execution time : 0.561 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 100

Unsorted vector

Sorted Vector

Elapsed time: 0.000095

Process returned 0 (0x0) execution time : 0.641 s

Press any key to continue.


```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 500
Unsorted vector
Sorted Vector

Elapsed time: 0.002229
Process returned 0 (0x0)    execution time : 2.925 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 1000
Unsorted vector
Sorted Vector

Elapsed time: 0.008854
Process returned 0 (0x0)    execution time : 9.402 s
Press any key to continue.
```

Stopped doing 1000 trials

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 5000
Unsorted vector
Sorted Vector

Elapsed time: 0.221000
Process returned 0 (0x0)    execution time : 0.764 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10000
Unsorted vector
Sorted Vector

Elapsed time: 0.877000
Process returned 0 (0x0)    execution time : 1.440 s
Press any key to continue.
```

```
Select "D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 100000
Unsorted vector
Sorted Vector

Elapsed time: 87.683000
Process returned 0 (0x0)    execution time : 88.221 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 500000
Unsorted vector
Sorted Vector

Elapsed time: 2194.073000
Process returned 0 (0x0)    execution time : 2972.081 s
Press any key to continue.
```

Radix Sort

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10
Unsorted vector
Sorted Vector

Elapsed time: 0.000014
Process returned 0 (0x0)    execution time : 0.564 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 20
Unsorted vector
Sorted Vector

Elapsed time: 0.000022
Process returned 0 (0x0)    execution time : 0.559 s
Press any key to continue.
```

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 30

Unsorted vector

Sorted Vector

Elapsed time: 0.000027

Process returned 0 (0x0) execution time : 0.663 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 40

Unsorted vector

Sorted Vector

Elapsed time: 0.000033

Process returned 0 (0x0) execution time : 0.572 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 50

Unsorted vector

Sorted Vector

Elapsed time: 0.000036

Process returned 0 (0x0) execution time : 0.575 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 100

Unsorted vector

Sorted Vector

Elapsed time: 0.000053

Process returned 0 (0x0) execution time : 0.606 s

Press any key to continue.

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 500
Unsorted vector
Sorted Vector

Elapsed time: 0.000137
Process returned 0 (0x0)    execution time : 0.681 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 1000
Unsorted vector
Sorted Vector

Elapsed time: 0.000228
Process returned 0 (0x0)    execution time : 0.773 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 5000
Unsorted vector
Sorted Vector

Elapsed time: 0.000928
Process returned 0 (0x0)    execution time : 1.465 s
Press any key to continue.
```

Stopped doing 1000 trials

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10000
Unsorted vector
Sorted Vector

Elapsed time: 0.002000
Process returned 0 (0x0)    execution time : 0.551 s
Press any key to continue.
```



```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 100000
Unsorted vector
Sorted Vector

Elapsed time: 0.018000
Process returned 0 (0x0)    execution time : 0.568 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 500000
Unsorted vector
Sorted Vector

Elapsed time: 0.088000
Process returned 0 (0x0)    execution time : 0.642 s
Press any key to continue.
```

Heap Sort

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 10
Unsorted vector
Sorted Vector

Elapsed time: 0.000001
Process returned 0 (0x0)    execution time : 0.799 s
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 20
Unsorted vector
Sorted Vector

Elapsed time: 0.000003
Process returned 0 (0x0)    execution time : 0.849 s
Press any key to continue.
```

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 30

Unsorted vector

Sorted Vector

Elapsed time: 0.000004

Process returned 0 (0x0) execution time : 0.544 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 40

Unsorted vector

Sorted Vector

Elapsed time: 0.000004

Process returned 0 (0x0) execution time : 0.546 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 50

Unsorted vector

Sorted Vector

Elapsed time: 0.000006

Process returned 0 (0x0) execution time : 0.542 s

Press any key to continue.

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"

Vector Size: 100

Unsorted vector

Sorted Vector

Elapsed time: 0.000015

Process returned 0 (0x0) execution time : 0.560 s

Press any key to continue.


```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"  
Vector Size: 500  
Unsorted vector  
Sorted Vector  
  
Elapsed time: 0.000104  
Process returned 0 (0x0)    execution time : 0.649 s  
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"  
Vector Size: 1000  
Unsorted vector  
Sorted Vector  
  
Elapsed time: 0.000226  
Process returned 0 (0x0)    execution time : 0.819 s  
Press any key to continue.
```

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"  
Vector Size: 5000  
Unsorted vector  
Sorted Vector  
  
Elapsed time: 0.001347  
Process returned 0 (0x0)    execution time : 1.885 s  
Press any key to continue.
```

Stopped running 1000 trials

```
"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"  
Vector Size: 10000  
Unsorted vector  
Sorted Vector  
  
Elapsed time: 0.003000  
Process returned 0 (0x0)    execution time : 0.553 s  
Press any key to continue.
```

```

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 100000
Unsorted vector
Sorted Vector

Elapsed time: 0.039000
Process returned 0 (0x0)    execution time : 0.588 s
Press any key to continue.

```

```

"D:\Documents\School\Year 3 semester 2\Cosc 220 computer science 2\labs\Lab_11\lab_11.exe"
Vector Size: 500000
Unsorted vector
Sorted Vector

Elapsed time: 0.220000
Process returned 0 (0x0)    execution time : 0.787 s
Press any key to continue.

```

Table of Data measured in seconds (to 6 decimal places)

Size	Bubble	Insertion	Merge	QuickSort	Selection	Radix	Heap
10	0	0	0.000027	0.000001	0.000001	0.000014	0.000001
20	0.000001	0.000001	0.000006	0.000001	0.000006	0.000022	0.000003
30	0.000001	0.000002	0.000094	0.000001	0.000009	0.000027	0.000004
40	0.000001	0.000004	0.000134	0.000001	0.000015	0.000033	0.000004
50	0.000002	0.000006	0.000168	0.000001	0.000024	0.000036	0.000006
100	0.000001	0.000017	0.000356	0.000004	0.000095	0.000053	0.000015
500	0.000005	0.0004	0.001969	0.000022	0.002229	0.000137	0.000104
1000	0.000015	0.001494	0.004101	0.000043	0.008854	0.000228	0.000226
5000	0.000289	0.036	0.023	0.000287	0.221	0.000928	0.001347
10000	0.001074	0.156	0.051	0.000605	0.877	0.002	0.003
100000	99.089	15.112	0.796	0.007597	87.683	0.018	0.039
500000	2466.858	368.042	12.029	0.081	2194.073	0.088	0.22

Algorithm Time Analysis

