CSC220.01 Duc Ta

Edreece Afridi 920159263

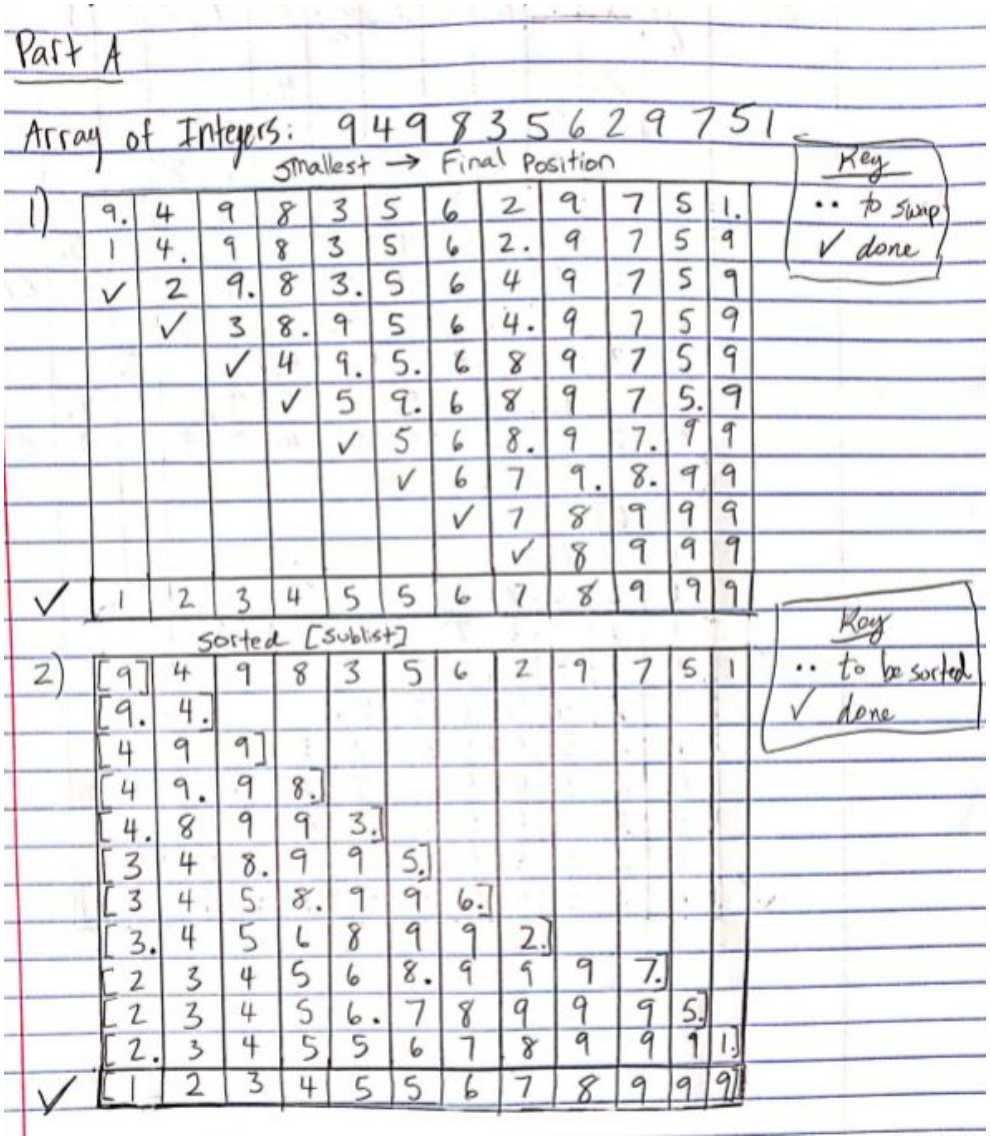
Kayvaun Khoshkhou 920357344

Assignment Number: 4

Assignment Due: 7/26/20  at : 11:55 P.M.

Part A

Handwritten Parts:

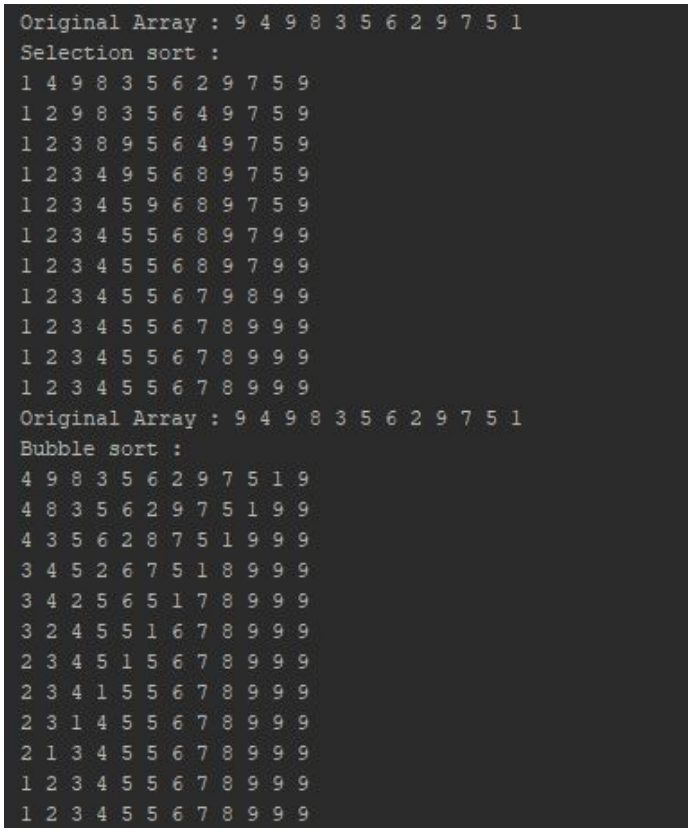


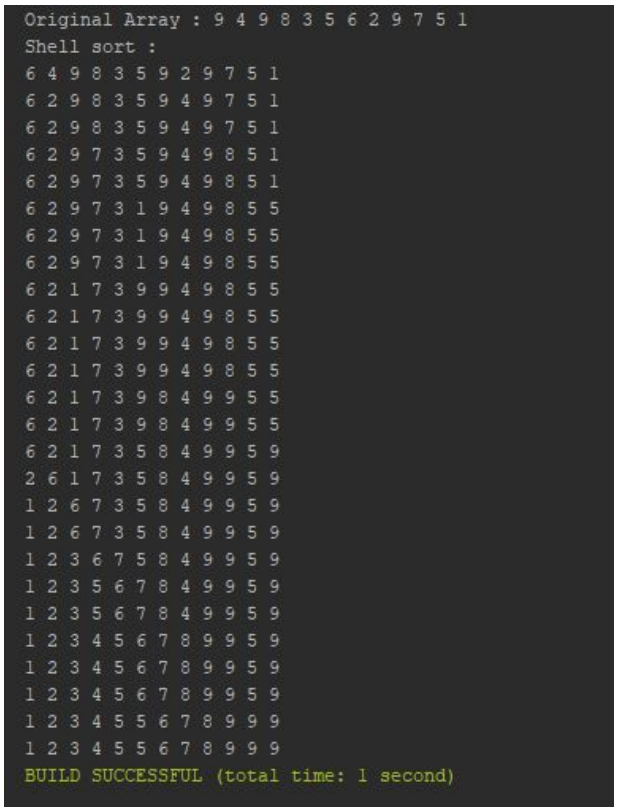
shell sort

3)

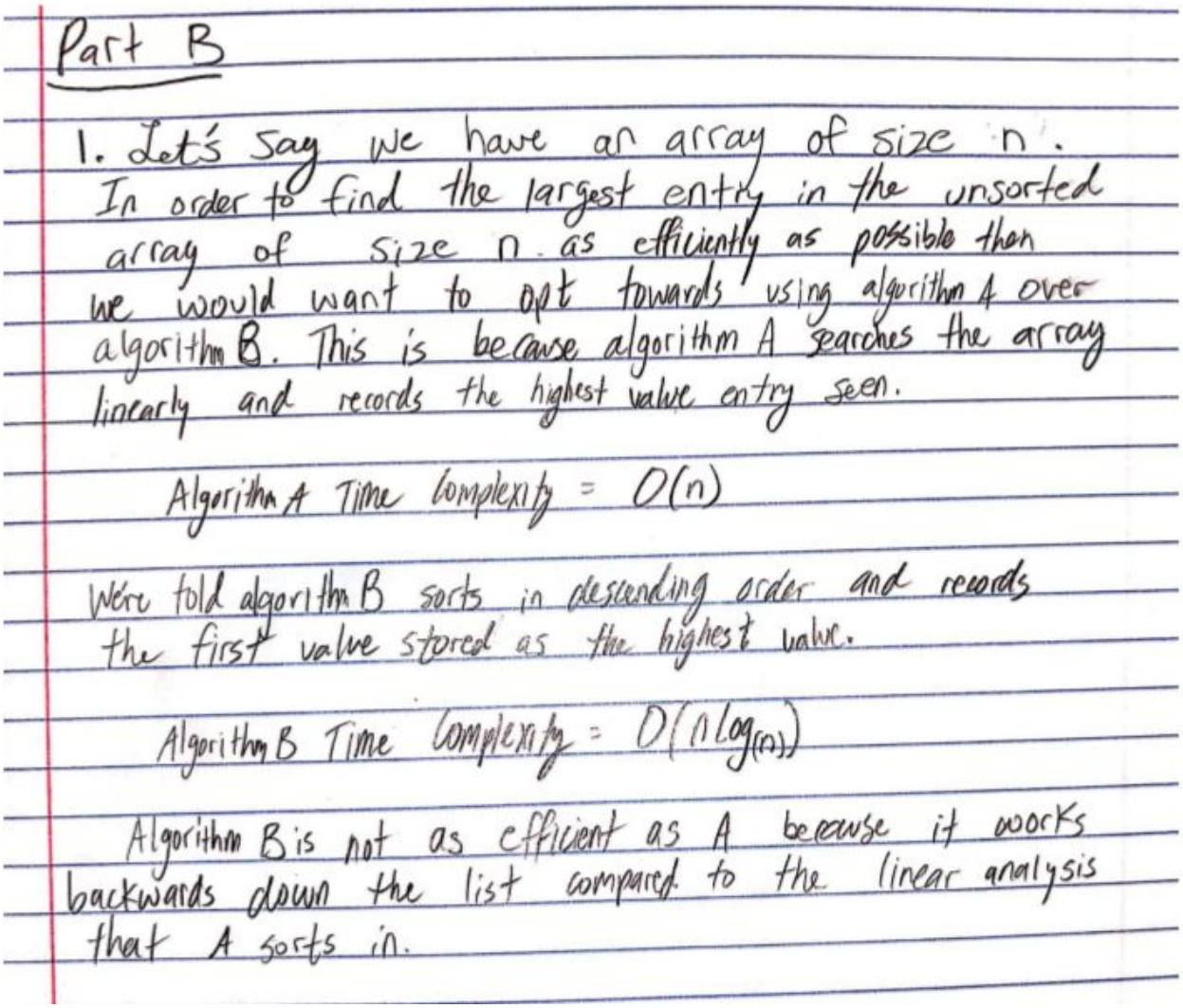
| | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 9. | 4 | 9 | 8 | 3 | 5 | 6. | 2 | 9 | 7 | 5 | 1 | 12/2 = 6 |
| | 6 | | | | | | 9 | | | | | | |
| | | 2. | | | | | | 4. | | | | | |
| | | | 9. | | | | | | 9. | | | | |
| | | | | 7. | | | | | | 8. | | | |
| | | | | | 3. | | | | | | 5. | | |
| | | | | | | 1. | | | | | | 5. | |
| | 6 | 2 | 9 | 7 | 3 | 1 | 9 | 4 | 9 | 8 | 5 | 5 | 6/2 = 3 |
| | 6. | | | 7. | | | 8. | | | 9. | | | |
| | | 2. | | | 3. | | | 4. | | | 5. | | |
| | | | 1. | | | 5. | | | 9. | | | 9. | |
| | 6 | 2 | 1 | 7 | 3 | 5 | 8 | 4 | 9 | 9 | 5 | 9 | 3/2 = 1 |
| | [6] | | | | | | | | | | | | |
| | [2 | 6] | | | | | | | | | | | |
| | [1 | 2 | 6] | | | | | | | | | | |
| | [1 | 2 | 6 | 7] | | | | | | | | | |
| | [1 | 2 | 3 | 6 | 7] | | | | | | | | |
| | [1 | 2 | 3 | 5 | 6 | 7] | | | | | | | |
| | [1 | 2 | 3 | 5 | 6 | 7 | 8] | | | | | | |
| | [1 | 2 | 3 | 4 | 5 | 6 | 7 | 8] | | | | | |
| | [1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9] | | | | |
| | [1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 9] | | | |
| | [1 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 8 | 9 | 9] | | |
| ✓ | [1 | 2 | 3 | 4 | 5 | 5 | 6 | 7 | 8 | 9 | 9 | 9] | |

Code is included in Zip file. Screenshots of output:



Part B




Part C: 1. --- 3 points --- After each of the following statements executes, what are the contents of the queue? Please explain.

```
QueueInterface myQueue = new LinkedQueue<>();
myQueue.enqueue("Jane");       //myQueue = [Jane]
 myQueue.enqueue("Jess");      //myQueue = [Jane, Jess]
 myQueue.enqueue("Jon");      //myQueue = [Jane, Jess, Jon]
```

myQueue.enqueue(myQueue.dequeue());  //myQueue = [Jess, Jon, Jane]

myQueue.enqueue(myQueue.getFront());  // [Jess]  //myQueue = [Jess, Jon, Jane, Jess]

myQueue.enqueue("Jim");  //myQueue = [Jess, Jon, Jane, Jess,  Jim]

String name = myQueue.dequeue();  // name = Jess

myQueue.enqueue(myQueue.getFront());  //myQueue = [Jon, Jim, Jane, Jess,  Jon]

2. --- 3 points --- After each of the following statements executes, what are the contents of the deque? Please explain.

DequeInterface myDeque = new LinkedDeque<>();

myDeque.addToFront("Jim");  //myDeque = [Jim]

myDeque.addToFront("Jess");  //myDeque = [Jess, Jim]

myDeque.addToBack("Jen");  //myDeque = [Jess, Jim, Jen]

myDeque.addToBack("Josh");  //myDeque = [Jess, Jim, Jen, Josh]

String name = myDeque.removeFront();  //name = Jess  //myDeque = [Jim, Jen, Josh]

myDeque.addToBack(name);  //myDeque = [Jim, Jen, Josh, Jess]

myDeque.addToBack(myDeque.getFront());  //myDeque = [Jim, Jen, Josh, Jess, Jim]

myDeque.addToFront(myDeque.removeBack());  //myDeque = [Jim, Jim, Jen, Josh, Jess]

myDeque.addToFront(myDeque.getBack());  //myDeque = [Jess, Jim, Jim, Jen, Josh, Jess]

3. --- 3 points --- After each of the following statements executes, what are the contents of the priority queue? Please explain.

```
PriorityQueueInterface myPriorityQueue = new LinkedPriorityQueue<>();
myPriorityQueue.add("Jim");   //myPriorityQueue = [Jim]
myPriorityQueue.add("Josh");  //myPriorityQueue = [Jim, Josh]
myPriorityQueue.add("Jon");  //myPriorityQueue = [Jim, Jon, Josh]
myPriorityQueue.add("Jane");  //myPriorityQueue = [Jane, Jim, Jon, Josh]
String name = myPriorityQueue.remove();  //name = Jane  ////myPriorityQueue = [Jim, Jon,
Josh]
myPriorityQueue.add(name); //myPriorityQueue = [Jane, Jim, Jon, Josh]
myPriorityQueue.add(myPriorityQueue.peek());  //Jane  //myPriorityQueue = [Jane, Jane, Jim,
Jon, Josh]
myPriorityQueue.add("Jose");   //myPriorityQueue = [Jane, Jane, Jim, Jon, Jose,  Josh]
myPriorityQueue.remove();  //myPriorityQueue = [Jane, Jim, Jon, Jose,  Josh]
```