

## CS401 Lab 7

**This lab is to be completed individually.**

This lab is for you to understand Queue data structure implementation.

**What to do?**

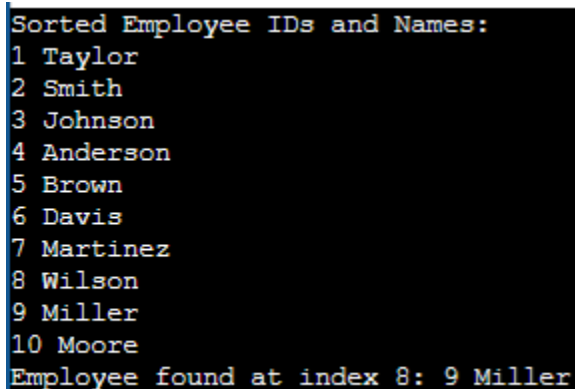
### **Part1**

1. Read input from "emp.txt" having each line as "ID" and "NAME"(Ex: 1 Taylor) separated with a space. Create Your own file that has IDs and "NAMES" or You can reuse the same file that you have used for LAB-4
2. Sort employee items by ID using the Selection Sort method
3. Implement Search employee function using Binary Search

Note: the code structure for this part should be like:

```
class Sorting {  
void SelectionSort(T array[], int low, int high);  
void binarySearch (T array[], int low, int high);  
public static void main(...); //put your test code here  
}
```

**Sample Output:**



```
Sorted Employee IDs and Names:  
1 Taylor  
2 Smith  
3 Johnson  
4 Anderson  
5 Brown  
6 Davis  
7 Martinez  
8 Wilson  
9 Miller  
10 Moore  
Employee found at index 8: 9 Miller
```

## Part2

Infix to postfix evaluation: Using the Stack class developed in the previous lab, evaluate the following expression. Note that you have to first change these infix expressions to postfix expressions. Once you have a postfix expression, evaluate it using the Stack class to get the result.

Sample input/output data for you to test your program:

1.  $1+9*3$

Outputs: • Postfix:  $193 * +$  • Evaluation: 28

2.  $9 + 6 - 3 * 2 + 5$

Outputs: • Postfix:  $96+32*-5+$  • Evaluation: 14

3.  $5 + 2 - 8 / 2 + 6 - 7 + 6 * 3$

Outputs: • Postfix:  $52+82/-6+7-63*+$  • Evaluation: 20

Print postfix and evaluation of all the above three inputs. Put the code of this part in a different class.

## Part3

Write a program to find out if string given is a palindrome. Take input from user and check whether it is a palindrome. Put the code of this part in a different class.

Make sure that your code is well documented i.e., in-line comments with a simple README would be ideal. For instance, every function and complex portion of code should have comments that describe what it does.

### What to turn in?

1. Source code(.java files)
2. Your program's outputs in a PDF file
3. JAR file.
4. README file to demonstrate how your program works. Include a command to determine how to run the JAR file.