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.