

## **CS401 Lab 6**

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

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

### **What to do?**

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 30 IDs and "NAMES") or You can reuse the same file that you have used for LAB-4

Implement 2 types of design for Queue data structure using Array:

1. Fixed front
2. Floating front

Methods to implement:

1. `public bool enqueue(Employee e);`
2. `public Employee dequeue();`

Employee objects can be obtained by reading the "emp.txt"() file as given in LAB-4.

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.

### **Program input**

A single .txt file named "emp.txt" (As given in Lab 4).

### **Program output**

For each queue types, fixed front and floating front:

1. Read the first 10 Employee objects from "emp.txt" and store them into your queue.
2. Print elements stored in queue
3. Dequeue thrice
4. Print elements stored in the queue once again.

## Sample Output

```
Problems Javadoc Declaration Console X Properties
<terminated> QueueArray [Java Application] /Library/Java/JavaVirtualMachines/jdk-21.jdk/
Elements stored in Fixed Front Queue:
Employee{name='John', id=1}
Employee{name='Alice', id=2}
Employee{name='Bob', id=3}
Employee{name='Emily', id=4}
Employee{name='Michael', id=5}
Employee{name='Sophia', id=6}
Employee{name='William', id=7}
Employee{name='Emma', id=8}
Employee{name='James', id=9}
Employee{name='Olivia', id=10}

Elements stored in Floating Front Queue:
Employee{name='John', id=1}
Employee{name='Alice', id=2}
Employee{name='Bob', id=3}
Employee{name='Emily', id=4}
Employee{name='Michael', id=5}
Employee{name='Sophia', id=6}
Employee{name='William', id=7}
Employee{name='Emma', id=8}
Employee{name='James', id=9}
Employee{name='Olivia', id=10}

Elements stored in Fixed Front Queue after dequeuing thrice:
Employee{name='Emily', id=4}
Employee{name='Michael', id=5}
Employee{name='Sophia', id=6}
Employee{name='William', id=7}
Employee{name='Emma', id=8}
Employee{name='James', id=9}
Employee{name='Olivia', id=10}

Elements stored in Floating Front Queue after dequeuing thrice:
Employee{name='Emily', id=4}
Employee{name='Michael', id=5}
Employee{name='Sophia', id=6}
Employee{name='William', id=7}
Employee{name='Emma', id=8}
Employee{name='James', id=9}
Employee{name='Olivia', id=10}
```

## 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.