Comp 182 Spring 2019 Project 2

Group Project: no more than four students per group

Problem: Determine the amount of customer delay when there are n check-out lines.
Requirements: You must submit the following Java classes to Canvas as specified in this document.

```
public class Person{//corresponds to a customer
int arrivalTime;
int departureTime;
int processing Time;
}

public class Event{//corresponds to either an arrival or departure

        String type; //can be "arrival" or "departure"

        int time;//if "arrival", this will be the arrival time of a job; if "departure",
        //this will be the departure time of a job

        int param; if "arrival", this will be the processing time of a job; if
        //"departure", this will be the checkout line that had a departure event
}

public class PersonQueue{

        int totalTime; //the sum of all processing times in this queue

        //can use any structure
        //because this is a queue, you will need enqueue(), dequeue(), isEmpty()
}

public class EventPQueue{

        //because this is a priority queue, you will need enqueue(), dequeue(), isEmpty()

}

public class Store{

        PersonQueue[] mypq;
        EventPQueue myeq;

        int numberOfQueues;//optional
        int totalDelay;//optional

        // will probably need an add method that adds a Person to the PersonQueue with the
        //least number of people

        //will probably need a remove method that removes a person from a PersonQueue who
        //has finished the checkout process

}

public class Driver{

        //contains the main method

        //allows the user to provide the following parameters (a)number of check out
        //lines, (b) number of persons/customers, (c) min and max time between person
        //arrivals, (d) min and //max processing time for a person

        //during run time, the time between arrivals and processing times will be randomly
        //selected within the user defined ranges
}
```

You may add methods and additional fields as you see fit.

Sample Output:

```
Welcome to Job Simulator

How many queues do you want to simulate?
> 2
How many customers do you want to simulate?
> 5
What is the minimum time between job arrivals?
> 2
What is the maximum time between job arrivals?
> 5
What is the minimum processing time for a job?
> 6
What is the maximum processing time for a job?
> 8

Time    Activity
0       Customer Arrives (processing time 7) – Customer Joins Queue 1
2       Customer Arrives (processing time 8) – Customer Joins Queue 2
5       Customer Arrives (processing time 8) – Customer Joins Queue 1
7       Customer Departs Queue 1
9       Customer Arrives (processing time 8) – Customer Joins Queue 1
10      Customer Departs Queue 2
12      Customer Arrives (processing time 6) – Customer Joins Queue 2
15      Customer Departs Queue 1
18      Customer Departs Queue 2
23      Customer Departs Queue 1

Total Delay: 8
```