Lab 6

Assigned: Tuesday, November 8, 2016
Due: Tuesday, November 15, 2016

Purpose

To study the Banker's algorithm for process deadlock avoidance.

Assignment

Write a program to implement the Banker's algorithm including the safety algorithm and the resource-request algorithm. The program inputs data from `lab5Data.txt` file that looks like this:

```
number of processes
5
number of resources
3
allocations matrix
0 1 0
2 0 0
3 0 2
2 1 1
0 0 2
maximum matrix
7 5 3
3 2 2
9 0 2
2 2 2
4 3 3
resource availability
5 4 3
request matrix
2 0 1
1 1 1
2 0 0
1 0 1
2 2 0
```

Design

You need two modules:

1. `Banker`: The banker implements the safety algorithm and the resource-request algorithm outlined on pages 331-331 of the textbook.
2. Driver (contains the `main` method/function): The driver reads from the input data file and initializes the `available`, `max`, `allocation` arrays, and calculates the `need` array. It then processes each process's `request` in the order given in the data file.

Output

Your program should produce the following outputs:

1. the resource `request` array each time a customer makes a request
2. a message indicating if a customer's request has been granted
3. the `allocation` array and `available` array after a customer's request has been granted

What to Submit

Submit on Blackboard your well-documented source program (`.java` or `.c` files) and a text file containing the output produced by your program.