BANKER'S ALGORITHMS PROGRAMMING ASSIGNMENT – 2

OPERATING SYSTEMS
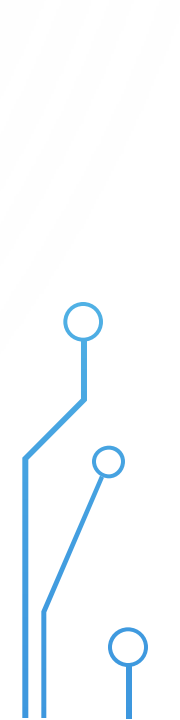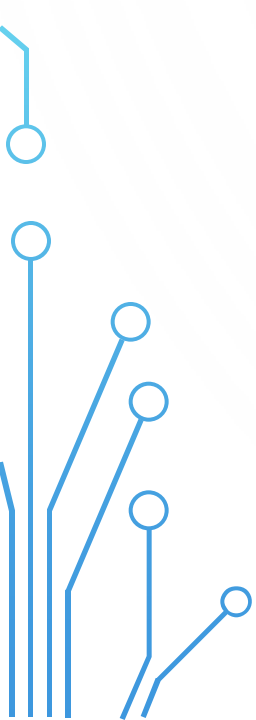
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WHAT IS BANKER'S ALGORITHM?

It is sometimes referred to as the **detection algorithm,** is a resource allocation and deadlock avoidance algorithm that tests for safety by simulating the allocation of predetermined maximum possible amounts of all resources, and then makes an "s-state" check to test for possible deadlock conditions for all other pending activities, before deciding whether allocation should be allowed to continue

SOURCE CODE

```java
if (method.equalsIgnoreCase("I")) {
    System.out.print("Enter the file name (with .txt. extension) : ");
    s.nextLine();
    String file = s.nextLine();
    try {
        BufferedReader br = new BufferedReader(new FileReader("C:/Users/Prince/Desktop/" + file));
        String line = br.readLine();
        int count = 0;

        while (line != null) {

            if (count < numProcess) {
                String[] lines = line.split(" ");
                for (int j = 0; j < lines.length; j++) {
                    int value = Integer.parseInt(lines[j]);
                    claim[count][j] = value;
                }

            } else if (count <= numProcess * 2) {

                if (!line.equals("")) {
                    String[] lines = line.split(" ");

                    for (int j = 0; j < lines.length; j++) {
                        int value = Integer.parseInt(lines[j]);
                        allocate[count - numProcess - 1][j] = value;
                    }
                }

            } else {

                if (!line.equals("")) {
                    String[] lines = line.split(" ");

                    for (int j = 0; j < lines.length; j++) {
                        int value = Integer.parseInt(lines[j]);
                        maxResource[j] = value;
                    }
                }
```

CONSOLE RESULT

```
Banker's Algorithm
==================================
Enter Resource Size: 3
Enter Process Size: 5
Enter I to get input data from a file or press any key for random data : I
Enter the file name (with .txt. extension) : banker.txt
|
Resources :   R0 = 10   R1 = 5   R2 = 7
Processes :   P0 P1 P2 P3 P4

Claim Matrix:

        R0 R1 R2
P0       7  5  3
P1       3  2  2
P2       9  0  2
P3       2  2  2
P4       4  3  3


Allocation Matrix:

        R0 R1 R2
P0       0  1  0
P1       2  0  0
P2       3  0  2
P3       2  1  1
P4       0  0  2

Needed Matrix:

        R0 R1 R2
P0       7  4  3
P1       1  2  2
P2       6  0  0
P3       0  1  1
P4       4  3  1

Avaialble Vector:

R0 = 10 R1 = 5 R2 = 7

The resourse allocation has been completed
The Safe-state order: (P1, P3, P0, P2, P4)
```

THANK YOU