

Academic Year: 2023-24 Sem: III Sub: Operating Systems Laboratory SAP ID: 60003220045

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**EXPERIMENT NO. 04**

**Q1)**

**CODE**

import java.util.\*;

class Exp4Q1.java{

public static void main(String[] args) {

int[][] allocation={{1,0,1},{2,1,2},{3,0,0},{1,0,1}};

int[][] max={{2,1,1},{5,4,4},{3,1,1},{1,1,1}};

int[] available={2,1,1};

int[][] need=new int[4][3];

for(int i=0;i<allocation.length;i++){

for(int j=0;j<available.length;j++){

need[i][j]=max[i][j]-allocation[i][j]; }

}

int[] work=available;

boolean[] finish= new boolean[max.length];

for(int i=0;i<work.length;i++){

finish[i]= false; }

int h=0;

int t=0;

System.out.println("Sequence");

while(h<=4){

for(int i=0;i<max.length;i++){

if(finish[i]==false){

if(need[i][0]<=work[0] && need[i][1]<=work[1] && need[i][2]<=work[2]){

for(int j=0;j<work.length;j++){

work[j] = work[j]+allocation[i][j];

}

System.out.print("P"+i+" ");

finish[i]=true;

t++;

}

} }

h++;

}

if(t==max.length){

System.out.println("\nThe process is safe");

}

else{

System.out.println("\nnot safe");

}

} }

***OUTPUT***



**Q2)**

***CODE***

import java.util.\*;

public class Exp4Q2 {

public static void main(String[] args) {

int[][] allocation = { { 0, 1, 1, 0 }, { 1, 2, 3, 1 }, { 1, 3, 6, 5 }, { 0, 6, 3, 2 }, { 0, 0, 1, 4 } };

int[][] max = { { 0, 2, 1, 0 }, { 1, 6, 5, 2 }, { 2, 3, 6, 6 }, { 0, 6, 5, 2 }, { 0, 6, 5, 6 } };

int[] available = { 1, 5, 2, 0 }; int[][] need = new int[5][4];

for (int i = 0; i < allocation.length; i++) {

for (int j = 0; j < available.length; j++) {

need[i][j] = max[i][j] - allocation[i][j];

}

}

int[] work = available;

boolean[] finish = new boolean[max.length];

for (int i = 0; i < max.length; i++) {

finish[i] = false;

}

int h = 0;

int t = 0;

System.out.println("Sequence"); while (h <= 5) {

for (int i = 0; i < max.length; i++) { if (finish[i] == false) {

if (need[i][0] <= work[0] && need[i][1] <= work[1] && need[i][2] <= work[2]

&& need[i][3] <= work[3]) {

for (int j = 0; j < work.length; j++) {

work[j] = work[j] + allocation[i][j];

}

System.out.print("P" + i + " ");

finish[i] = true; t++;

} }

}

h++;

}

if (t == max.length) {

System.out.println("\nThe process is safe");

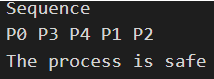
}

else {

System.out.println("\n not safe");

}

}

***OUTPUT***