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**Roll No:**

**FA11-CIIT-DDP-BCS-201**

**Section:**

**C**

**Submitted To:**

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***Code:***

#include<stdio.h>

#include<conio.h>

#include<stdlib.h>

void main()

{

int allocation[10][5],max[10][5],need[10][5],available[3],flag[10],sq[10];

int n,r,i,j,k,count,count1=0;

printf("\n Input the number of processes running ( <10 )..");

scanf("%d",&n);

for(i=0;i<10;i++)

flag[i]=0;

printf("\n Input the number of resources ( <5 )..");

scanf("%d",&r);

printf("\n Input the allocation matrix for the processes in row major order..\n");

for(i=0;i<n;i++)

{

printf("\n Process %d\n",i);

for(j=0;j<r;j++)

{

printf("\n Resource %d\n",j);

scanf("%d",&allocation[i][j]);

}

}

printf("\n Input the no. of resources that a process can maximum have..\n");

for(i=0;i<n;i++)

{

printf("\n Process %d\n",i);

for(j=0;j<r;j++)

{

printf("\n Resource %d\n",j);

scanf("%d",&max[i][j]);

}

}

printf("\n Input the no. of available instances of each resource..\n");

for(i=0;i<r;i++)

{

printf("\n Resource %d : ",i);

scanf("%d",&available[i]);

}

printf("\n The need matrix is as follows : \n");

for(i=0;i<n;i++)

{

for(j=0;j<r;j++)

{

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

printf("\t %d",need[i][j]);

}

printf("\n");

}

do{

for(k=0;k<n;k++)

{

for(i=0;i<n;i++)

{

if(flag[i]==0)

{

count=0;

for(j=0;j<r;j++)

{

if(available[j]>=need[i][j])

count++;

}

if(count==r)

{

count1++;

flag[i]=1;

sq[count1-1]=i;

for(j=0;j<r;j++)

{

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

}

break;

}

}

}

}

if(count1!=n)

{

printf("\n---------------IT'S AN UNSAFE STATE---------------");

break;

}

}while(count1!=n);

if(count1==n)

{

printf("\n \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*IT'S A SAFE STATE\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*");

printf("\n The safe sequence is....\n");

for(i=0;i<n;i++)

printf("\t P%d",sq[i]);

printf("\n");

printf("\n The available matrix is now : ");

for(i=0;i<r;i++)

printf("\t %d",available[i]);

}

getch();

}

***Output:***





