1. Consider a system with 4 processes and 3 resources with the given resource matrices.

Claim matrix Allocation matrix

3 2 2 1 0 0

6 1 3 6 1 2

3 1 4 2 1 1

4 2 2 0 0 2

The resource vector is [9,3,6]. Write a C program to determine if the system is in safe or unsafe state.

PROGRAM

#include<stdio.h>

#define f 5

int safe(int a[][f],int n[][f],int av[])

{

int k,l=0,i=0,j,z=1;

int y[5][5],d[5][5];

while(i<4){

for(j=0;j<3;j++){

if(n[i][j]>av[j]){

z=z\*0;

}

else{

z=z\*1;

}

}

if(z==1){

for(k=0;k<3;k++){

av[k]=av[k]+a[i][k];

}

}

else{

z=1;

for(k=0;k<3;k++){

y[i][k]=n[i][k];

d[i][k]=a[i][j];

} l=l+1;

}

i=i+1;

}

if(l!=0){

safe(d,y,av);

}

else{

printf(" System is safe");

}

}

main()

{

printf("allocation");

int a[10][5],n[10][5],av[3],i,j;

for(i=0;i<4;i++){

scanf("%d %d %d",&a[i][0],&a[i][1],&a[i][2]);

}

printf("need");

for(i=0;i<4;i++){

scanf("%d %d %d",&n[i][0],&n[i][1],&n[i][2]);

}

printf("Enter the available value ");

scanf("%d %d %d",&av[0],&av[1],&av[2]);

safe(a,n,av);

}

OUTPUT:-

