//bankers algorithm

#include <stdio.h>

#include <conio.h>

int main() {

int k=0,a=0,b=0,instance[5],availability[5],allocated[10][5],need[10][5],MAX[10][5],process,P[10],no\_of\_resources, cnt=0,i, j,op[90];

printf("\n Enter the number of resources : ");

scanf("%d", &no\_of\_resources);

printf("\n enter the max instances of each resources\n");

for (i=0;i<no\_of\_resources;i++) {

availability[i]=0;

printf("%c= ",(i+97));

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

}

printf("\n Enter the number of processes : ");

scanf("%d", &process);

printf("\n Enter the allocation matrix \n ");

for (i=0;i<no\_of\_resources;i++)

printf(" %c",(i+97));

printf("\n");

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

P[i]=i;

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

for (j=0;j<no\_of\_resources;j++) {

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

availability[j]+=allocated[i][j];

}

}

printf("\nEnter the MAX matrix \n ");

for (i=0;i<no\_of\_resources;i++) {

printf(" %c",(i+97));

availability[i]=instance[i]-availability[i];

}

printf("\n");

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

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

for (j=0;j<no\_of\_resources;j++)

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

}

printf("\n");

A: a=-1;

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

cnt=0;

b=P[i];

for (j=0;j<no\_of\_resources;j++) {

need[b][j] = MAX[b][j]-allocated[b][j];

if(need[b][j]<=availability[j])

cnt++;

}

if(cnt==no\_of\_resources) {

op[k++]=P[i];

for (j=0;j<no\_of\_resources;j++)

availability[j]+=allocated[b][j];

} else

P[++a]=P[i];

}

if(a!=-1) {

process=a+1;

goto A;

}

printf("\t <");

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

printf(" P[%d] ",op[i]);

printf(">");

getch();

}

Output

