#include<conio.h>

#include<stdio.h>

int main()

{

int n; //n number of process

int r; // number of resources

int i,j,k,cnt,cntt;

int avail[10],p[10];

int need[10][10],alloc[10][10],max[10][10];

printf("\nEnter number of process :");

scanf("%d",&n);

printf("\n Enter resources available : ");

scanf("%d",&r);

printf("\nEnter insatnces for resources :\n");

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

{ printf("R%d ",i+1);

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

}

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

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

{

printf("p%d",i+1); p[i]=0;

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

{

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

}

}

printf("\n Enter MAX matrix \n");

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

{

printf("p%d",i+1);

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

{

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

}

}

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

{

printf("\np%d\t",i+1) ;

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

{

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

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

}

}

k=0; cntt=0;

printf("\n\n");

while(k<15)

{

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

{ cnt=0;

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

{

if(p[i]==1) break;

if(need[i][j]<=avail[j])

{

cnt++;

}

if(cnt==r)

{

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

{

avail[j]+=alloc[i][j];

}

printf("p%d\t",i+1); p[i]=1; cntt++;

}

}

} k++;

}

if(cntt<n-1)

{

printf("\n deadlock ");

}

getch();

}