**Week: 7**

**AIM:** Simulate Algorithm for Deadlock Detection

#include <stdio.h>

#include<conio.h>

void main()

{

int request[10][10],allocation[10][10],available[10];

int np,nr,i,j,count=0,flag[10],p=0;

clrscr();

printf("DEADLOCK DETECTION\n");

printf("enter no. of processes\n");

scanf("%d",&np);

printf("enter the no.of resources\n");

scanf("%d",&nr);

printf("enter the request matrix\n");

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

{

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

{

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

}

flag[i]=0;

}

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

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

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

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

printf("enter the available matrix\n");

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

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

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

{

count=0;

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

{

if(allocation[i][j]==0)

count++;

}

if(count==nr)

flag[i]=1;

}

while(p<= np)

{

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

{

if(flag[i]==0)

{

count=0;

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

{

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

count++;

}

if(count==nr)

{

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

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

flag[i]=1;

}

}

}

p++;

}

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

{

if(flag[i]==0)

printf("p[%d] leads to deadlock state\n",i);

else

printf("p[%d] doesnot create deadlock\n",i);

}

getch();

}

**Output:**

DEADLOCK DETECTION

enter no. of processes

5

enter the no.of resources

3

enter the request matrix

0 0 0

2 0 2

0 0 0

1 0 0

0 0 2

enter the allocation matrix

0 1 0

2 0 0

3 0 3

2 1 1

0 0 2

enter the available matrix

0 0 0

p[0] doesnot create deadlock

p[1] doesnot create deadlock

p[2] doesnot create deadlock

p[3] doesnot create deadlock

p[4] doesnot create deadlock

**suppose the requested matrix is different:**

DEADLOCK DETECTION

enter no. of processes

5

enter the no.of resources

3

enter the request matrix

0 0 0

2 0 2

0 0 1

1 0 0

0 0 2

enter the allocation matrix

0 1 0

2 0 0

3 0 3

2 1 1

0 0 2

enter the available matrix

0 0 0

p[0] doesnot create deadlock

p[1] leads to deadlock state

p[2] leads to deadlock state

p[3] leads to deadlock state

p[4] leads to deadlock state