Lab 6 (26-7-23)

) Write a C program Deadlock avoidance

```
#include<stdio.h>
#include<string.h>
Void main()
{
int alloc[10][10], max[10][10];
int avai[10], work[10], total[10];
int i, j, k, n, need[10][10];
int m;
int count=0, c=0;
char finish[10];
printf("Enter the no of processes and resources:");
scanf("%d %d", &n, &m);
for(i=0; i<=n; i++)
finish[i] = 'n';
printf("Enter the claim matrix :\n");
for(i=0; i<n; i++)
  for(j=0; j<m; j++)
    scanf("%d", &max[i][j])
    printf("Resource vector :");
    for(i=0; i<m; i++)
      scanf("%d", &total[i]
      for(i=0; i<m; i++)
      avail[i]=0;
      for(i=0; i<n; i++)
for(j=0; j<m; j++) avai[j]+= alloc[i][j];
for(i=0; i<m; i++) work[i] = avai[i];
for(j=0; j<m; j++) work[j] = total[j] - work[j];
```

```
for (i = 0; i < n; i++)
    for (j = 0; j < n; j++)
        for (i = 0; i < n; i++)
            for (j = 0; j < m; j++)        need[i][j] = max[i][j]
                                           alloc[i][i] = 0;

for (i = 0; i < n; i++)
{
    c = 0;
    for (j = 0; j < m; j++)
    if [ (need[i][j] <= work[j]) && (finish[i] == 0)
    c++;
    if (c == m)
    {
    printf ("All the resources can be allocated to
      process %d", i+1);
    printf ("\n\n Available resources are: ");
    for (k = 0; k < m; k++)
    {
        work[k] += alloc[i][k];
        printf ("%d", work[k]);
    }
    printf ("\n");
    finish[i] = 1;
    printf ("\n process %d executed ? : %d",
    i+1, finish[i]);
    count++;
}
```

```
if (count != n) goto A;
else
printf ("\n System is in Safe mode");
printf ("\n The given state is Safe state");
getch();
}
```

Output:

Enter the no of process and resource: 4 3

Enter the claim matrix:

3 2 2
6 1 3
3 1 4
4 2 2

Enter the allocation matrix:

1 0 0
6 1 2
2 1 1
0 0 2

Resource vector: 9 3 6

All the resources can be allocated to process 2

Available resources are: 6 2 3

process 2 executed?: Y

All the resources can be allocated to process 3

Available resources are: 8 3 4

process 3 executed?: Y

All the resources can be allocated to process 4

Available resource are 8 3 6

process 4 executed?: Y

All the resources can be allocated to process 1
Available resources are 9 8 6
Process 1 executed ? : Y

System is in Safe mode
The given state is Safe state

10/10

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