

Untitled1.cpp Untitled2.cpp

```
1 #include <stdio.h>
2 #include <conio.h>
3 int main()
4 {
5     int Max[10][10], need[10][10], alloc[10][10], avail[10], completed[10], safeSequence[10];
6     int p, r, i, j, process, count;
7     count = 0;
8     printf("Enter the no of processes : ");
9     scanf("%d", &p);
10    for(i = 0; i < p; i++)
11        completed[i] = 0;
12    printf("Enter the no of resources : ");
13    scanf("%d", &r);
14    printf("Enter the Max Matrix for each process : \n");
15    for(i = 0; i < p; i++)
16    {
17        printf("For process %d : ", i + 1);
18        for(j = 0; j < r; j++)
19            scanf("%d", &Max[i][j]);
20    }
21    printf("Enter the allocation for each process : \n");
22    for(i = 0; i < p; i++)
23    {
24        printf("For process %d : ", i + 1);
25        for(j = 0; j < r; j++)
26            scanf("%d", &alloc[i][j]);
27    }
28    printf("Enter the Available Resources : ");
29    for(i = 0; i < r; i++)
30        scanf("%d", &avail[i]);
31    for(i = 0; i < p; i++)
32        for(j = 0; j < r; j++)
```

Compiler Resources Compile Log Find Results Close

Compilation results...

```
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- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sruthi\OneDrive\Documents\Untitled2.exe
- Output Size: 131.1123046875 KiB
- Elapsed Time: 0.36s
```

C:\Users\sruthi\OneDrive\Documents\Untitled2.cpp - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

TDM-GCC 4.9.2 64-bit Release

(globals)

Project Classes Debug Untitled1.cpp Untitled2.cpp

```
29 |     for(i = 0; i < r; i++)
30 |         scanf("%d", &avail[i]);
31 |     for(i = 0; i < p; i++)
32 |         for(j = 0; j < r; j++)
33 |             need[i][j] = Max[i][j] - alloc[i][j];
34 | do
35 | {
36 |     printf("\nMax matrix:\tAllocation matrix:\n");
37 |     for(i = 0; i < p; i++)
38 |     {
39 |         for(j = 0; j < r; j++)
40 |             printf("%d ", Max[i][j]);
41 |         printf("\t\t");
42 |         for(j = 0; j < r; j++)
43 |             printf("%d ", alloc[i][j]);
44 |         printf("\n");
45 |     }
46 |     process = -1;
47 |     for(i = 0; i < p; i++)
48 |     {
49 |         if(completed[i] == 0)
50 |         {
51 |             process = i;
52 |             for(j = 0; j < r; j++)
53 |             {
54 |                 if(avail[j] < need[i][j])
55 |                 {
56 |                     process = -1;
57 |                     break;
58 |                 }
59 |             }
60 |         }
61 |     }
62 | }
63 | }
64 | }
```

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\sruthi\OneDrive\Documents\Untitled2.exe
- Output Size: 204875 KiB

File Edit Search View Project Execute Tools AStyle Window Help

Untitled1.cpp Untitled2.cpp

```
56     process = -1;
57 }
58 }
59 }
60 }
61 if(process != -1)
62 break;
63 }
64 if(process != -1)
65 {
66     printf("\nProcess %d runs to completion!", process + 1);
67     safeSequence[count] = process + 1;
68     count++;
69     for(j = 0; j < r; j++)
70     {
71         avail[j] += alloc[process][j];
72         alloc[process][j] = 0;
73         Max[process][j] = 0;
74         completed[process] = 1;
75     }
76 }
77 }while(count != p && process != -1);
78 if(count == p)
79 {
80     printf("\nThe system is in a safe state!!\n");
81     printf("Safe Sequence : < ");
82     for( i = 0; i < p; i++)
83         printf("%d ", safeSequence[i]);
84     printf(">\n");
85 }
86 else
87     printf("\nThe system is in an unsafe state!!");
```

Compiler Resources Compilation results...

- Errors: 0
- Warnings: 0

Output Filename: C:\Users\sru... 123046875 KiB

C:\Users\sruthi\OneDrive\Documents\Untitled2.cpp - [Executing] - Dev-C++ 5.11

File Edit Search View Project Execute Tools AStyle Window Help

(globals)

project Classes Debug Untitled1.cpp Untitled2.cpp

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```

58 }
59 }
60 }
61 if(process != -1)
62 break;
63 }
64 if(process != -1)
65 {
66 printf("\nProcess %d runs to completion!", process + 1);
67 safeSequence[count] = process + 1;
68 count++;
69 for(j = 0; j < r; j++)
70 {
71 avail[j] += alloc[process][j];
72 alloc[process][j] = 0;
73 Max[process][j] = 0;
74 completed[process] = 1;
75 }
76 }
77 }while(count != p && process != -1);
78 if(count == p)
79 {
80 printf("\nThe system is in a safe state!!\n");
81 printf("Safe Sequence : < ");
82 for(i = 0; i < p; i++)
83 printf("%d ", safeSequence[i]);
84 printf(">\n");
85 }
86 else
87 printf("\nThe system is in an unsafe state!!");
88 getch();
89

Compiler Resources Compile Log Debug Find Results Close

Compilation results...

- Errors: 0
- Warnings: 0
Name: C:\Users\sruthi\OneDrive\Documents\Untitled2.exe

```
C:\Users\sruthi\OneDrive\Documents\Untitled2.exe
Enter the no of processes : 3
Enter the no of resources : 3
Enter the Max Matrix for each process :
For process 1 : 2 2 4
For process 2 : 2 1 3
For process 3 : 3 4 1
Enter the allocation for each process :
For process 1 : 1 2 1
For process 2 : 2 0 1
For process 3 : 2 2 1
Enter the Available Resources : 0 1 2

Max matrix:      Allocation matrix:
2 2 4           1 2 1
2 1 3           2 0 1
3 4 1           2 2 1

Process 2 runs to completion!
Max matrix:      Allocation matrix:
2 2 4           1 2 1
0 0 0           0 0 0
3 4 1           2 2 1

Process 1 runs to completion!
Max matrix:      Allocation matrix:
0 0 0           0 0 0
0 0 0           0 0 0
3 4 1           2 2 1

Process 3 runs to completion!
The system is in a safe state!!
Safe Sequence : < 2 1 3 >
```