

Program :

```
#include<stdio.h>

int required[100], allocate[100], need[100];

void main()
{
    int n;
    int max=12, allocateCount =0;

    printf("enter the number of processes:\n");
    scanf("%d" ,&n);

    printf("enter the required resource for each process:\n");
    for(int i=0; i<n; i++)
    {
        printf("requirement for process %d:" , i+1);
        scanf("%d" ,&required[i]);
    }

    printf("\nEnter the allocated resouce for each process:\n");
    for(int i=0; i<n; i++)
    {
        printf("allocated for process %d:" , i+1);
        scanf("%d" ,&allocate[i]);
        allocateCount += allocate[i];
        need[i] = required[i] - allocate[i];
    }

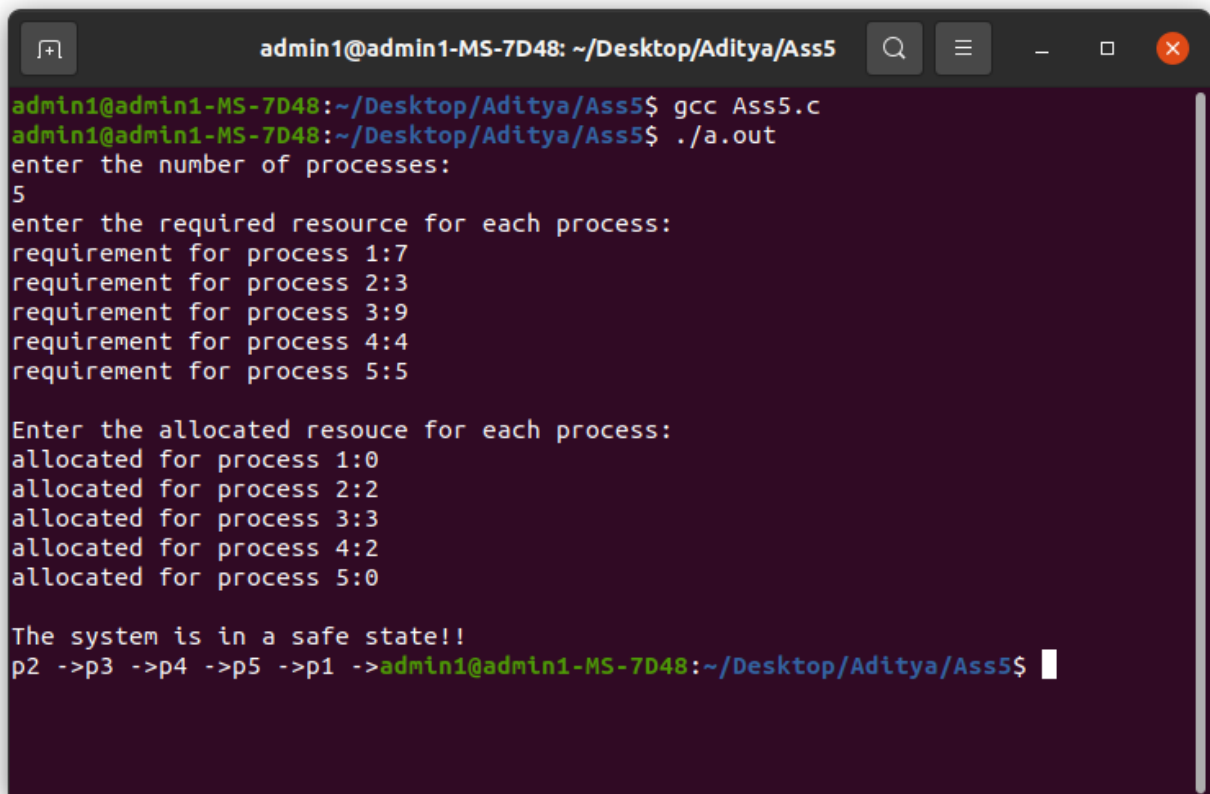
    int available = max- allocateCount;
    int count = n, sequence=0;
    int ans[n], ind=0;
    for(int i=0; i<n; i++)
    {
        for(int j=0; j<n; j++)
        {
            if(need[j]!=0)
            {
                if(need[j]>available)
                {
                    continue;
                }
                else
                {
                    ans[ind++] = j+1;
                    sequence++;
                    count--;
                    available+= need[j];
                    need[j]=0;
                }
            }
        }
    }

    if(sequence<n)
    {
        printf("\nThe system is in a unsafe state!!\n");
    }
    else
    {

```

```
printf("\nThe system is in a safe state!!\n");
for(int i=0; i<n; i++)
{
    printf("p%d ->" , ans[i]);
}
}
}
```

Output :



```
admin1@admin1-MS-7D48: ~/Desktop/Aditya/Ass5
admin1@admin1-MS-7D48:~/Desktop/Aditya/Ass5$ gcc Ass5.c
admin1@admin1-MS-7D48:~/Desktop/Aditya/Ass5$ ./a.out
enter the number of processes:
5
enter the required resource for each process:
requirement for process 1:7
requirement for process 2:3
requirement for process 3:9
requirement for process 4:4
requirement for process 5:5

Enter the allocated resource for each process:
allocated for process 1:0
allocated for process 2:2
allocated for process 3:3
allocated for process 4:2
allocated for process 5:0

The system is in a safe state!!
p2 ->p3 ->p4 ->p5 ->p1 ->admin1@admin1-MS-7D48:~/Desktop/Aditya/Ass5$
```