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 :