```c
#include <stdio.h>
#include<stdbool.h>
int main()
{
int n,m=3,i,j,k,count=0;
bool flag=false,flag1=true;
printf("Enter the Number of Processes\n");
scanf("%d",&n);
int available[3]={10,5,7};
int allocation[n][m];
int max[n][m];
int need[n][m];
int safeSequence[n];
for(i=0;i<n;i++)
{
printf("Enter Allocation of Resources A of P%d\n",i+1);
scanf("%d",&allocation[i][0]);
printf("Enter Maximum need of Resources A of P%d\n",i+1);
scanf("%d",&max[i][0]);
printf("Enter Allocation of Resources B of P%d\n",i+1);
scanf("%d",&allocation[i][1]);
printf("Enter Maximum need of Resources B of P%d\n",i+1);
scanf("%d",&max[i][1]);
printf("Enter Allocation of Resources C of P%d\n",i+1);
scanf("%d",&allocation[i][2]);
printf("Enter Maximum need of Resources C of P%d\n",i+1);
scanf("%d",&max[i][2]);
}
for(i=0;i<m;i++)
{
for(j=0;j<n;j++)
{
available[i]=available[i]-allocation[j][i];
}
}
for(i=0;i<n;i++)
{
for(j=0;j<m;j++)
{
need[i][j]=max[i][j]-allocation[i][j];
}
}
```

```c
//safety algorithm
int work[m];
bool finish[n];
for(i=0;i<m;i++)
{
work[i] = available[i];
}
for(i=0;i<n;i++)
{
finish[i]=false;
}
for(i=0;i<n;i++)
{
for(j=0;j<n;j++)
{
if(finish[j]==false)
{
for(k=0;k<m;k++)
{
if(need[j][k]>work[k])
{
flag1=false;
break;
}
else
flag1=true;
}
if(flag1==true)
{
for(k=0;k<m;k++)
{
work[k]=work[k]+allocation[j][k];
}
finish[j]=true;
safeSequence[count]=j;
count++;
}}}}
for(i=0;i<n;i++)
{
if(finish[i]==true)
flag=true;
else
flag=false;
}
if(flag==true)
{
printf("SYSTEM IN SAFE STATE\n");
printf("Safe Sequence is \n");
for(i=0;i<n;i++)
printf("P%d -> ",safeSequence[i]+1);
printf("\n");
}
else
printf("SYSTEM NOT IN SAFE STATE\n");
}
```

```
nikhil@DESKTOP-IDDFFIR:~$ nano bankers.c
nikhil@DESKTOP-IDDFFIR:~$ gcc bankers.c
nikhil@DESKTOP-IDDFFIR:~$ ./a.out
Enter the Number of Processes
1
Enter allocation of Resources A of P1
7
Enter maximum need of Resources A of P1
2
Enter allocation of Resources B of P1
8
Enter maximum need of Resources B of P1
2
Enter allocation of Resources C of P1
7
Enter maximum need of Resources C of P1
4
SYSTEM IN SAFE STATE
Safe Sequence is
P1 ->
nikhil@DESKTOP-IDDFFIR:~$
```