PROGRAM7:

(i)BANKER ALGORITHM

```
#include <stdio.h>
void
main()
{
int process, resource, i, j, instance, k = 0;
int count1 = 0, count2 = 0;
printf("Enter number of processes\n");
scanf("%d", &process);
printf("Enter number of resources\n");
scanf("%d", &resource);
int avail[resource], max[process][resource], allot[process][resource],
need[process][resource],
completed[process];
for (i = 0; i < process; i++)
completed[i] = 0;
printf("Enter the no. of available instances\n");
for (i = 0; i < resource; i++)
{
scanf("%d", &instance);
avail[i] = instance;
}
printf("Enter max no. of instances of resource that a process needs\n");
for (i = 0; i < process; i++)
{
printf("For P[%d]\n", i);
for (j = 0; j < resource; j++)
{
scanf("%d", &instance);
max[i][j] = instance;
}
```

```
}
printf("Enter the no. of instances already alloted to process of a resource\n");
for (i = 0; i < process; i++)
{
printf("For P[%d]\n", i);
for (j = 0; j < resource; j++)
{
//printf("\t");
scanf("%d", &instance);
allot[i][j] = instance;
need[i][j] = max[i][j] - allot[i][j];
}

}
printf("\nSafe sequence\n");
while (count1 != process)
{
count2 = count1;
for (i = 0; i < process; i++)
{
for (j = 0; j < resource; j++)
{
if (need[i][j] <= avail[j])
{
k++;
}
}
if (k == resource && completed[i] == 0)
{
printf("P[%d]\t", i);
completed[i] = 1;
for (j = 0; j < resource; j++)
{
avail[j] = avail[j] + allot[i][j];
}
```

```
count1++;
}
k = 0;
}
if (count1 == count2)
{
printf("No safe sequence exists\n");
break;
}
```