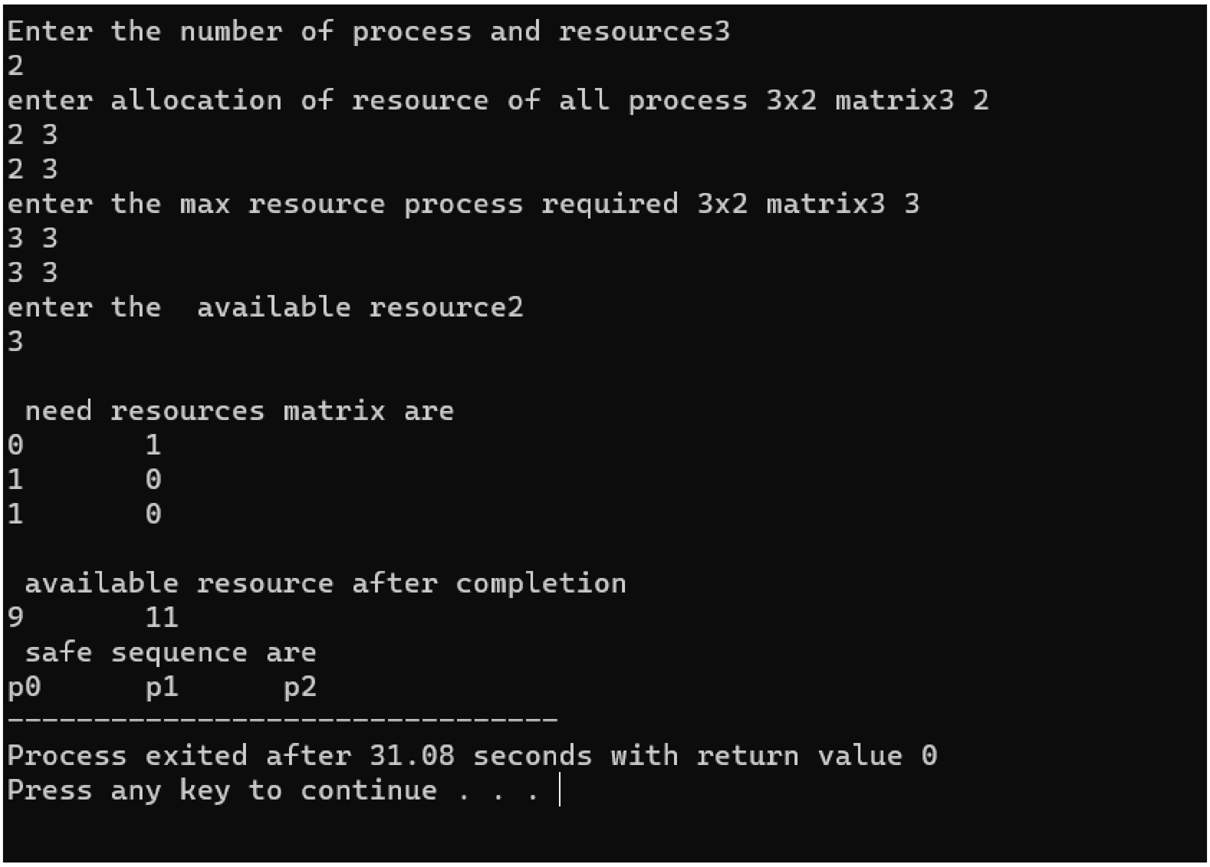
EXP 17

```
#include<stdio.h>
int main() {
  int p, c, count = 0, i, j, alc[5][3], max[5][3], need[5][3], safe[5], available[3], done[5], terminate = 0;
  printf("Enter the number of process and resources");
  scanf("%d %d", & p, & c);
  printf("enter allocation of resource of all process %dx%d matrix", p, c);
  for (i = 0; i < p; i++) {
    for (j = 0; j < c; j++) {
      scanf("%d", & alc[i][j]);
    }
  }
  printf("enter the max resource process required %dx%d matrix", p, c);
  for (i = 0; i < p; i++) {
    for (j = 0; j < c; j++) {
      scanf("%d", & max[i][j]);
    }
  }
  printf("enter the  available resource");
  for (i = 0; i < c; i++)
    scanf("%d", & available[i]);

  printf("\n need resources matrix are\n");
  for (i = 0; i < p; i++) {
    for (j = 0; j < c; j++) {
      need[i][j] = max[i][j] - alc[i][j];
      printf("%d\t", need[i][j]);
    }
    printf("\n");
  }
  for (i = 0; i < p; i++) {
    done[i] = 0;
  }
  while (count < p) {
    for (i = 0; i < p; i++) {
      if (done[i] == 0) {
        for (j = 0; j < c; j++) {
          if (need[i][j] > available[j])
            break;
        }
        if (j == c) {
          safe[count] = i;
          done[i] = 1;
          for (j = 0; j < c; j++) {
            available[j] += alc[i][j];
          }
          count++;
```

```
     terminate = 0;
    } else {
     terminate++;
    }
   }
  }
  if (terminate == (p - 1)) {
   printf("safe sequence does not exist");
   break;
  }

 }
 if (terminate != (p - 1)) {
  printf("\n available resource after completion\n");
  for (i = 0; i < c; i++) {
   printf("%d\t", available[i]);
  }
  printf("\n safe sequence are\n");
  for (i = 0; i < p; i++) {
   printf("p%d\t", safe[i]);
  }
 }
 return 0;
}
```



```
Enter the number of process and resources3
2
enter allocation of resource of all process 3x2 matrix3 2
2 3
2 3
enter the max resource process required 3x2 matrix3 3
3 3
3 3
enter the  available resource2
3

 need resources matrix are
0       1
1       0
1       0

 available resource after completion
9       11
 safe sequence are
p0      p1      p2
--------------------------------
Process exited after 31.08 seconds with return value 0
Press any key to continue . . .
```