

```

#include <stdio.h>
void towers (int, char,char,char);
int main()
{
    int num;
    printf("Enter the number of disks:");
    scanf("%d",&num);
    printf("the sequence of moves involved in the tower of hanoi are:");
    towers(num,'A','C','B');
    return 0;
}

void towers(int num,char a,char b,char c)
{
    if (num==1)
    {
        printf("\n Move disk 1 from peg %c to peg %c",a,b);
        return;
    }
    towers (num-1, a,b,c);
    printf("\n Move disk %d from peg %c to peg %c",num,a,b);
    towers(num-1,c,b,a);
}

```

```
> clang-7 -pthread -lm -o main main.c
```

```
> ./main
```

```
Enter the number of disks:5
```

```
the sequence of moves involved in the tower of hanoi are:
```

```
Move disk 1 from peg A to peg C
```

```
Move disk 2 from peg A to peg C
```

```
Move disk 1 from peg B to peg C
```

```
Move disk 3 from peg A to peg C
```

```
Move disk 1 from peg B to peg C
```

```
Move disk 2 from peg B to peg C
```

```
Move disk 1 from peg A to peg C
```

```
Move disk 4 from peg A to peg C
```

```
Move disk 1 from peg B to peg C
```

```
Move disk 2 from peg B to peg C
```

```
Move disk 1 from peg A to peg C
```

```
Move disk 3 from peg B to peg C
```

```
Move disk 1 from peg A to peg C
```

```
Move disk 2 from peg A to peg C
```

```
Move disk 1 from peg B to peg C
```

```
Move disk 5 from peg A to peg C
```

```
Move disk 1 from peg B to peg C
```

```
Move disk 2 from peg B to peg C
```

```
Move disk 1 from peg A to peg C
```

```
Move disk 3 from peg B to peg C
```

```
Move disk 1 from peg A to peg C
```

```
Move disk 2 from peg A to peg C
```

```
Move disk 1 from peg B to peg C
```

```
Move disk 4 from peg B to peg C
```

```
Move disk 1 from peg A to peg C
```

```
Move disk 2 from peg A to peg C
```

```
Move disk 1 from peg B to peg C
```

```
Move disk 3 from peg A to peg C
```

```
Move disk 1 from peg B to peg C
```

```
Move disk 2 from peg B to peg C
```

```
Move disk 1 from peg A to peg C> |
```

```
1  #include <stdio.h>
2  int gcd(int m,int n)
3  {
4      if (n==0)
5          return m;
6      if (m<n)
7          return gcd(n,m);
8      return gcd(n,m%n);
9  }
10 int main()
11 {
12     int m,n,res;
13     printf("Enter m and n\n");
14     scanf("%d%d",&m,&n);
15     res= gcd(m,n);
16     printf("GCD of %d and %d is %d",m,n,res);
17 }
```

```
> clang-7 -pthread -lm -o main main.c
> ./main
Enter m and n
8 4
GCD of 8 and 4 is 4> |
```

Q x

```

1  #include<stdio.h>
2  #include<stdlib.h>
3  int count=0;
4  void towers(char a,char b,char c,int num)
5  {
6      count++;
7      if(num==1)
8      {
9
10         printf("move disk 1  from peg %c to peg %c\n",a,b);
11     }
12     else
13     {
14
15         towers(a,c,b,num-1);
16         printf("move disk %d from peg %c to peg %c\n",num,a,b);
17
18         towers(c,b,a,num-1);
19     }
20 }
21 int gcd(int a,int b){
22     if(a==0)
23         return b;
24     else if(b==0)
25         return a;
26     return gcd(b,a%b);
27 }
28 int main()
29 {
30     int n,ch;
31     printf("\n1.tower of hanoi\n2.gcd");
32     printf("enter your choice\n");
33     scanf("%d",&ch);
34
35     if(ch==1)
36     {
37         printf("enter the no of pegs\n");
38         scanf("%d",&n);
39
40
41         towers('a','c','b',n);
42         printf("count = %d\n",count);
43
44

```

```
38     scanf("%d",&n);
39
40
41     towers('a','c','b',n);
42     printf("count = %d\n",count);
43
44
45 }
46 else if(ch==2)
47 {
48     int m,n,res;
49
50     printf("Enter two Numbers\n");
51     scanf("%d %d",&m,&n);
52     res=gcd(m,n);
53
54     printf("GCD of the two numbers %d and %d is %d",m,n,res);
55 }
56 return 0;
57 }
```



```
> clang-7 -pthread -lm -o main main.c
> ./main
```

```
1.tower of hanoi
2.gcd enter your choice
```

```
1
```

```
enter the no of pegs
```

```
4
```

```
move disk 1 from peg a to peg b
```

```
move disk 2 from peg a to peg c
```

```
move disk 1 from peg b to peg c
```

```
move disk 3 from peg a to peg b
```

```
move disk 1 from peg c to peg a
```

```
move disk 2 from peg c to peg b
```

```
move disk 1 from peg a to peg b
```

```
move disk 4 from peg a to peg c
```

```
move disk 1 from peg b to peg c
```

```
move disk 2 from peg b to peg a
```

```
move disk 1 from peg c to peg a
```

```
move disk 3 from peg b to peg c
```

```
move disk 1 from peg a to peg b
```

```
move disk 2 from peg a to peg c
```

```
move disk 1 from peg b to peg c
```

```
count = 15
```

```
> █
```

```
> clang-7 -pthread -lm -o main main.c
> ./main
```

```
1.tower of hanoi
2.gcd
enter your choice
2
```

```
Enter two Numbers
```

```
14 28
```

```
GCD of the two numbers 14 and 28 is 14> |
```