

## Week 10: Stack

**Aim:** Using a helper stick (peg), shift all rings from peg A to peg B using peg C.  
**All rings are initially placed in ascending order, smallest being on top.**  
**No bigger ring can be placed over a smaller ring.**

**Program:**

```
#include <cmath>
#include <cstdio>
#include <vector>
#include <iostream>
#include <algorithm>
using namespace std;

void towerOfHanoi(int n , char A, char B , char C)
{
    if(n == 0)
        return;
    towerOfHanoi(n-1,A,C,B);
    cout<<"Move disk "<< n <<" from rod "<<A<<" to rod "<<C<<endl;
    towerOfHanoi(n-1 ,B,A,C);
}

int main() {
    /* Enter your code here. Read input from STDIN. Print output to STDOUT */
    int n;
    cin>>n;
    towerOfHanoi(n, 'A', 'B', 'C');
    return 0;
}
```

**Input & Output:**

Testcase 0

Testcase 1

**Congratulations, you passed the sample test case.**  
Click the **Submit Code** button to run your code against all the test cases.

**Input (stdin)**

```
3
```

**Your Output (stdout)**

```
Move disk 1 from rod A to rod C
Move disk 2 from rod A to rod B
Move disk 1 from rod C to rod B
Move disk 3 from rod A to rod C
Move disk 1 from rod B to rod A
Move disk 2 from rod B to rod C
Move disk 1 from rod A to rod C
```

**Expected Output**

```
Move disk 1 from rod A to rod C
Move disk 2 from rod A to rod B
Move disk 1 from rod C to rod B
Move disk 3 from rod A to rod C
Move disk 1 from rod B to rod A
Move disk 2 from rod B to rod C
Move disk 1 from rod A to rod C
```

**Conclusion: From the above Program I learned to Solve the famous Tower of Hanoi Problem**