


Assignment 3 - Tower of Hanoi

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K-9

In [1]:

```
def Hanoi(n, A, B, C):  
    count = 1  
    if n==1 :  
        print("Move disk ", n, " from " , A, " to ", C)  
        return count  
    else :  
        count += Hanoi(n-1, A, C, B)  
        print("Move disk ", n, " from " , A, " to ", C)  
        count += Hanoi(n-1, B, A, C)  
        return count
```

In [2]:

```
Hanoi(3, 'A', 'B', 'C')
```

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

Out[2]:

7

In [3]:

```
Hanoi(4, "Tower 1", "Tower 2", "Tower 3")
```

```
Move disk 1 from Tower 1 to Tower 2
Move disk 2 from Tower 1 to Tower 3
Move disk 1 from Tower 2 to Tower 3
Move disk 3 from Tower 1 to Tower 2
Move disk 1 from Tower 3 to Tower 1
Move disk 2 from Tower 3 to Tower 2
Move disk 1 from Tower 1 to Tower 2
Move disk 4 from Tower 1 to Tower 3
Move disk 1 from Tower 2 to Tower 3
Move disk 2 from Tower 2 to Tower 1
Move disk 1 from Tower 3 to Tower 1
Move disk 3 from Tower 2 to Tower 3
Move disk 1 from Tower 1 to Tower 2
Move disk 2 from Tower 1 to Tower 3
Move disk 1 from Tower 2 to Tower 3
```

Out[3]:

15

In [4]:

```
n = int(input("Enter number of rings : "))
Hanoi(n, 'A', 'B', 'C')
```

```
Enter number of rings : 5
Move disk 1 from A to C
Move disk 2 from A to B
Move disk 1 from C to B
Move disk 3 from A to C
Move disk 1 from B to A
Move disk 2 from B to C
Move disk 1 from A to C
Move disk 4 from A to B
Move disk 1 from C to B
Move disk 2 from C to A
Move disk 1 from B to A
Move disk 3 from C to B
Move disk 1 from A to C
Move disk 2 from A to B
Move disk 1 from C to B
Move disk 5 from A to C
Move disk 1 from B to A
Move disk 2 from B to C
Move disk 1 from A to C
Move disk 3 from B to A
Move disk 1 from C to B
Move disk 2 from C to A
Move disk 1 from B to A
Move disk 4 from B to C
Move disk 1 from A to C
Move disk 2 from A to B
Move disk 1 from C to B
Move disk 3 from A to C
Move disk 1 from B to A
Move disk 2 from B to C
Move disk 1 from A to C
```

Out[4]:

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In [5]:

```
n = int(input("Enter number of rings : "))  
Hanoi(n, 'A', 'B', 'C')
```

Enter number of rings : 6

Move disk 1 from A to B
Move disk 2 from A to C
Move disk 1 from B to C
Move disk 3 from A to B
Move disk 1 from C to A
Move disk 2 from C to B
Move disk 1 from A to B
Move disk 4 from A to C
Move disk 1 from B to C
Move disk 2 from B to A
Move disk 1 from C to A
Move disk 3 from B to C
Move disk 1 from A to B
Move disk 2 from A to C
Move disk 1 from B to C
Move disk 5 from A to B
Move disk 1 from C to A
Move disk 2 from C to B
Move disk 1 from A to B
Move disk 3 from C to A
Move disk 1 from B to C
Move disk 2 from B to A
Move disk 1 from C to A
Move disk 4 from C to B
Move disk 1 from A to B
Move disk 2 from A to C
Move disk 1 from B to C
Move disk 3 from A to B
Move disk 1 from C to A
Move disk 2 from C to B
Move disk 1 from A to B
Move disk 6 from A to C
Move disk 1 from B to C
Move disk 2 from B to A
Move disk 1 from C to A
Move disk 3 from B to C
Move disk 1 from A to B
Move disk 2 from A to C
Move disk 1 from B to C
Move disk 4 from B to A
Move disk 1 from C to A
Move disk 2 from C to B
Move disk 1 from A to B
Move disk 3 from C to A
Move disk 1 from B to C
Move disk 2 from B to A
Move disk 1 from C to A
Move disk 5 from B to C
Move disk 1 from A to B
Move disk 2 from A to C
Move disk 1 from B to C
Move disk 3 from A to B
Move disk 1 from C to A
Move disk 2 from C to B
Move disk 1 from A to B
Move disk 4 from A to C
Move disk 1 from B to C
Move disk 2 from B to A
Move disk 1 from C to A
Move disk 3 from B to C

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

Out[5]:

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In []: