"Tower of Hanoi" implementation in C++

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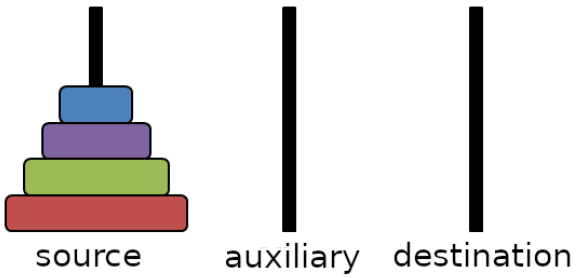
1 Assignment

The Tower of Hanoi is a mathematical game or puzzle. It consists of three rods and a number of disks of different sizes, which can slide onto any rod. The puzzle starts with the disks in a neat stack in ascending order of size on leftmost rod, the smallest at the top, thus making a conical shape. The objective of the puzzle is to move the entire stack to another rod, obeying the following simple rules:

- Only one disk can be moved at a time. list
- Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack or on an empty rod.
- No larger disk may be placed on top of a smaller disk.

My assignment is to implement solution to the "Tower of Hanoi" in C++ with simple graphic animation
I will implement various approaches to the problem and compare their efficinecy.



2 Recursive approach

3 Iterative approach

We will name the rods from left to right: source rod, auxiliary rod, destination rod. From the recursive approach we know that the minimum number of moves we need to perform in order to solve the puzzle is $2^n - 1$. If the number of disks is even, switch auxiliarly rod and destination rod. Then apply following algorithm:

```
for i in range((1 << n) -1)
        if(i%3==0) legal move between auxiliary destination rod
        if(i%3==1) legal movem between source and destination rod
        if(i%3==2) legal move between source auxiliary rod
```

We define legal move between two rods as a move that won't violate the rules

4 One more advanced approach

5 Results

In this section we describe the results.

6 Conclusions

We worked hard, and achieved very little.