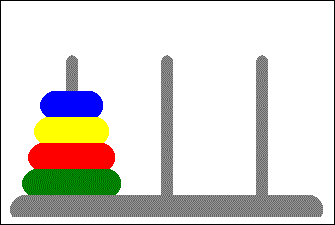


**REPORT**

**TOWERS OF HANOI**



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**Background**

Throughout history mathematics has fulfilled many practical needs such as measuring plots of land, studying astronomy and calculating taxes. But math can also be used for entertainment—mathematical games, riddles, challenges and puzzles are also interwoven throughout history!

**History**

Towers of Hanoi was invented and marketed in 1883 by the French mathematician Edouard Lucas. It is associated with a legend of a Hindu temple i.e. Kashi Vishwanath where the puzzle was supposedly used to increase the mental discipline of young priests. The Tower of Hanoi is also called Tower of Brahma. In the legend the young priests were given 64 gold disks stacked neatly on one of three posts. Each disk rested on a slightly larger disk. The priests' goal was to re-create the stack on a different post by moving disks, one at a time, to another post with the rule that a larger disk could never be placed on top of a smaller disk. Using mathematics, you can calculate that even when the priests found the most efficient way to solve the problem, and moved the disks at a rate of one per second, it would take almost 585 billion years to finish the job. That is more than 40 times the age of the universe!

**Outcome of the project**

We have successfully made the game which follows all the parameters and rules of the towers of Hanoi game and it also provides user with the solution. Additionally, user gets an alert whenever he/she performs a wrong step. At last if user is unable to solve the game then it provides the optimal solution of steps to complete rest of the game and if it solves the game as well it will also provide the minimum step to compare your steps.

**Objectives of the Puzzle**

The objective of the puzzle is to move the entire stack to another rod, obeying the following rules:

1. Only one disk can be moved at a time.
2. Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack i.e. a disk can only be moved if it is the uppermost disk on a stack.
3. No disk can be placed on top of a smaller disk.

**Concrete goals of the project**

1. Our main goal is to take number of disks from the user to show how the concept of tower of Hanoi works.
2. In this project we will show how the disks replace from the first tower to the 3rd tower without placing the larger disks over the smaller disks.
3. The project is done in python language and mostly job is done by using pygame library.