



COMP9020

Foundations of Computer Science

Lecture 10 Preview: Recursion

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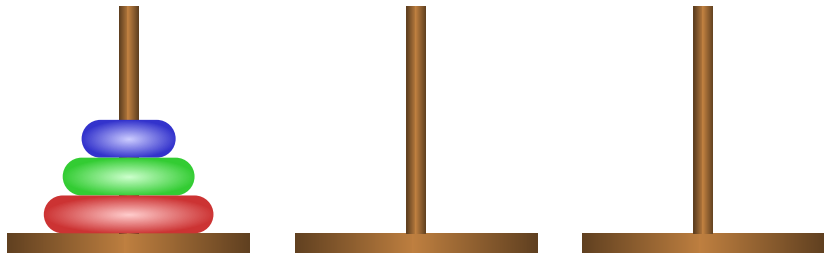
Course admin: Nicholas Tandiono

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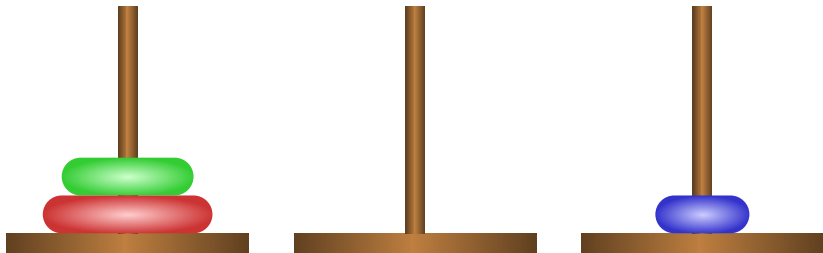
Puzzle: Towers of Hanoi

- There are 3 towers (pegs)
- n disks of decreasing size placed on the first tower
- You need to move all disks from the first tower to the last tower
- Larger disks cannot be placed on top of smaller disks
- The third tower can be used to temporarily hold disks

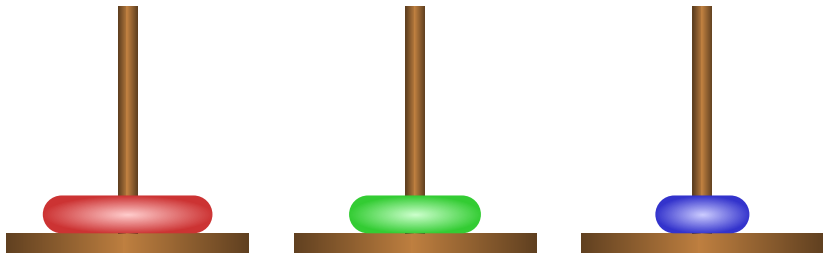
Puzzle: Towers of Hanoi



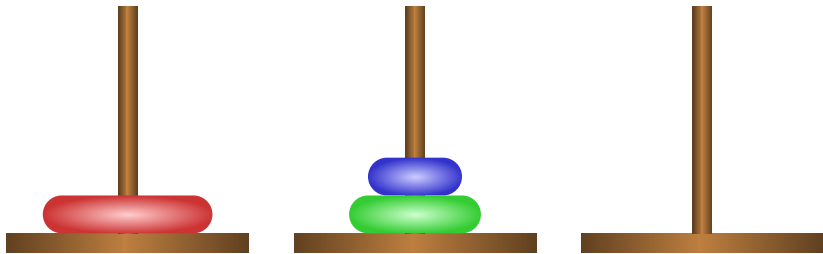
Puzzle: Towers of Hanoi



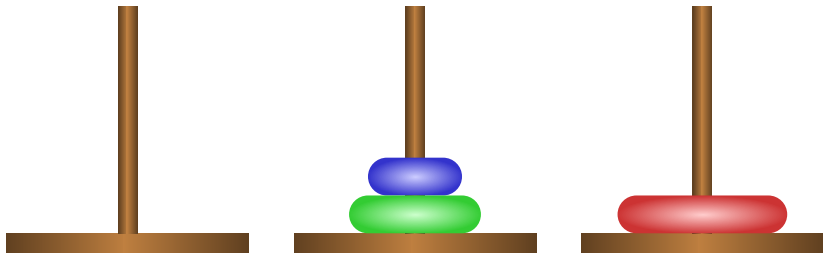
Puzzle: Towers of Hanoi



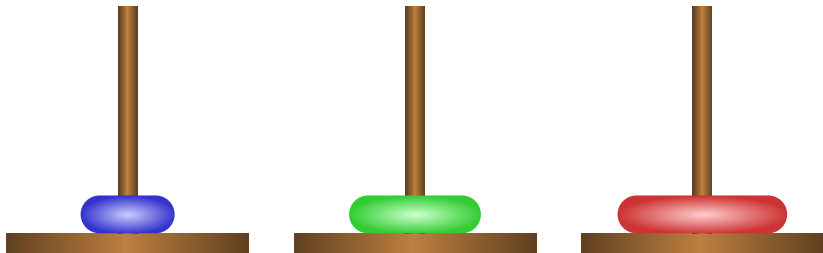
Puzzle: Towers of Hanoi



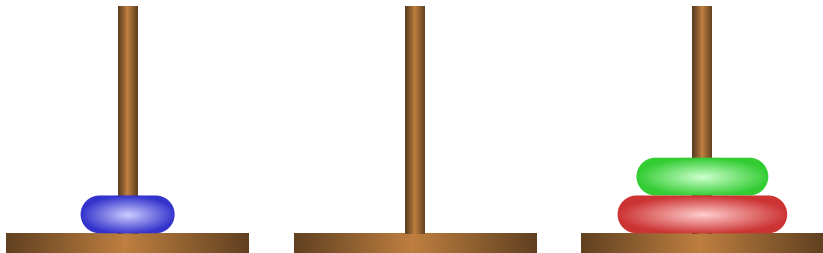
Puzzle: Towers of Hanoi



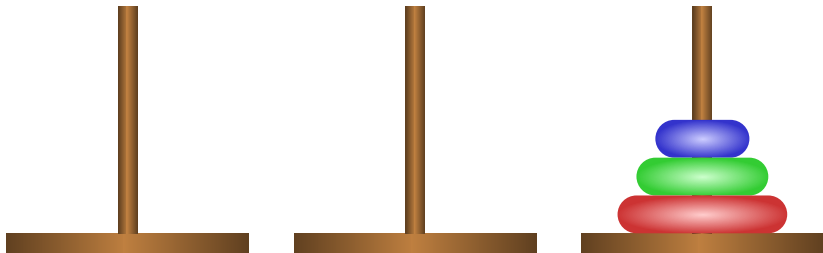
Puzzle: Towers of Hanoi



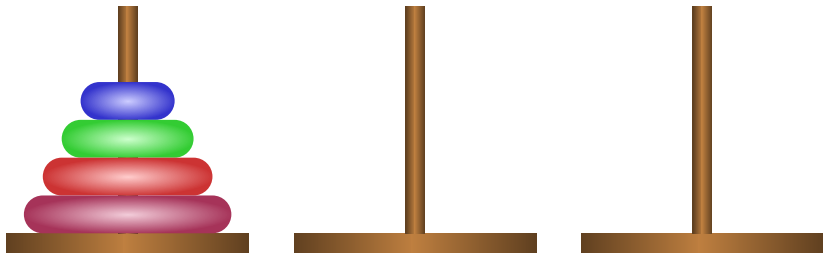
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Questions

- Describe a general solution for n disks
- How many moves does it take?

Challenge Problem

<https://webcms3.cse.unsw.edu.au/COMP9020/24T1/resources/94682>

Group Challenge

- Find the optimal solution for 10 disks.
- Hint: Try to find the optimal solution for 3 and 4 disks first!