

Machine Problem 1 (Towers of Hanoi)

You are tasked to implement the **Towers of Hanoi game** in Python using **stacks implemented with linked lists**. The Towers of Hanoi is a classic puzzle where the goal is to move all disks from **Tower A to Tower C**, following a set of rules.

Requirements

1. You must use Stacks and must be implemented using a linked list.
2. The program must:
 - Ask the user for the number of disks (3 to 10 disks).
 - Represent each tower (A, B, C) as a stack.
 - Display the disks using * characters, where:
 - Disk of size 1 = ***
 - Disk of size 2 = *****
 - Disk of size 3 = *********
 - and so on ...(The middle * must always align with the tower |.)
3. **Rules of the game:**
 - Only one disk may be moved at a time.
 - A disk can only be moved if it is the top disk of a tower.
 - No larger disk may be placed on top of a smaller disk.
4. **User interaction:**
 - The player enters moves in the format A C (move top disk from Tower A to Tower C).
 - The program must validate moves and display an error message for invalid moves.
 - Typing x exits the game immediately.
5. The game ends when **all disks are successfully moved to Tower C** or when the user **types x**.

Sample Output:

```
Enter number of disks: 3

Game Start! Move all disks from A to C.
Type 'X' anytime to exit.

***      |      |
*****   |      |
*****   |      |
A         B         C
```

```
Enter move (e.g., A C): A C

|         |         |
*****   |         |
*****   |         |
A         B         C
```

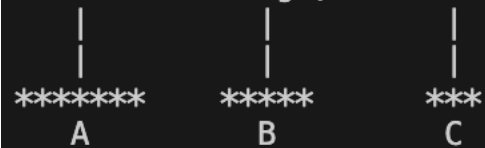
```
Enter move (e.g., A C): A C

|         |         |
*****   |         |
*****   |         |
A         B         C

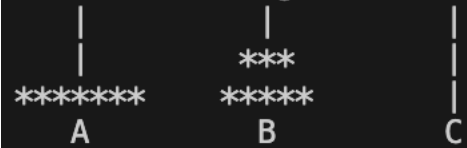
Enter move (e.g., A C): A C
Invalid move: Cannot place larger disk on smaller one!
```

*You cannot place a larger disk on top of a smaller one (refer to rules of the game).

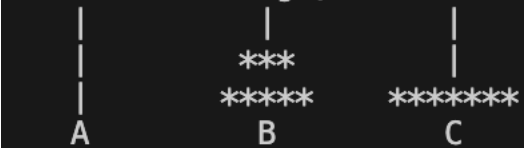
5



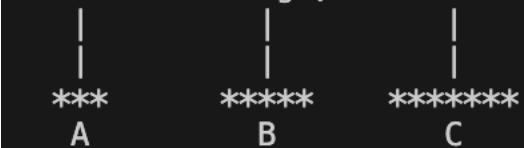
Enter move (e.g., A C): C B



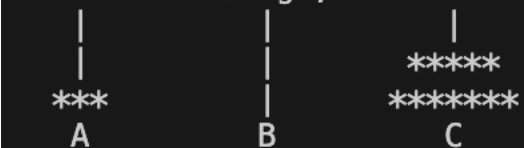
Enter move (e.g., A C): A C



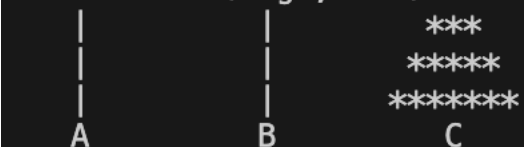
Enter move (e.g., A C): B A



Enter move (e.g., A C): B C



Enter move (e.g., A C): A C



Congratulations! You solved the Towers of Hanoi!