

**WELCOME TO
ROOTS OF REASON:
THE ALGORiTHM
ESCAPE**

START



INTRODUCTION



The room is dimly lit, with faint lines of binary code glowing on the walls. A low hum fills the air as the voice of the dungeon echoes, booming through the chamber. "Welcome, adventurer. You have entered the Algorithm Escape, where only intellect and logic will lead you to freedom. This dungeon is built upon three great algorithms: the Binary Tree, the Binary Search Tree, and the Heap. Solve their secrets, or remain trapped within these walls forever."



As the voice fades, three glowing doors materialize before the adventurer, each marked with a symbol—a tree, a magnifying glass, and a crown. The voice returns: "Choose wisely, for each trial will test your understanding of order, balance, and priority. The roots of reason will guide you. Time is running out—your escape begins now." The timer begins its countdown, and the adventurer must choose their first path through the cryptic labyrinth.

OBJECTIVES

01

Gain a solid understanding of heap data structures, including min-heaps and max-heaps. Learn how to efficiently insert elements and maintain the heap property.

02

Learn and practice in-order, pre-order, and post-order traversals through interactive challenges.

03

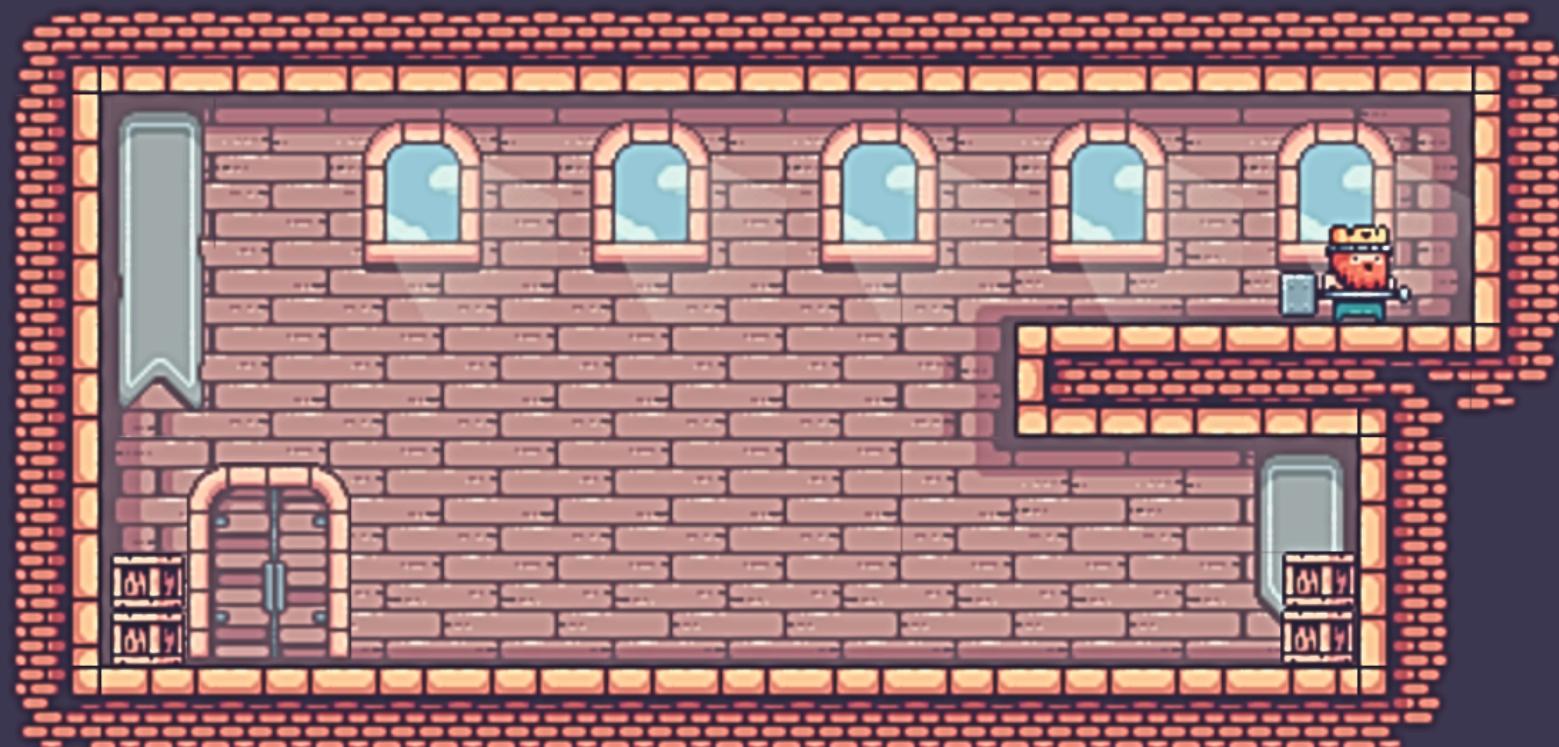
Build critical thinking skills and gain confidence in using these data structures to solve complex problems.



ARE YOU READY?

Let's get started

GUIDELINES OF THE CRYPT



Welcome, adventurer! The initial numbers in the binary tree are: 5, 3, 2, 4, 7, 6, 8

Solve the challenges in each room to escape!

[Start the Game](#)

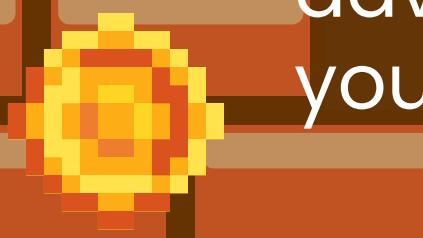


Welcome, adventurer! The initial numbers in the binary tree are: 5, 3, 2, 4, 7, 6, 8

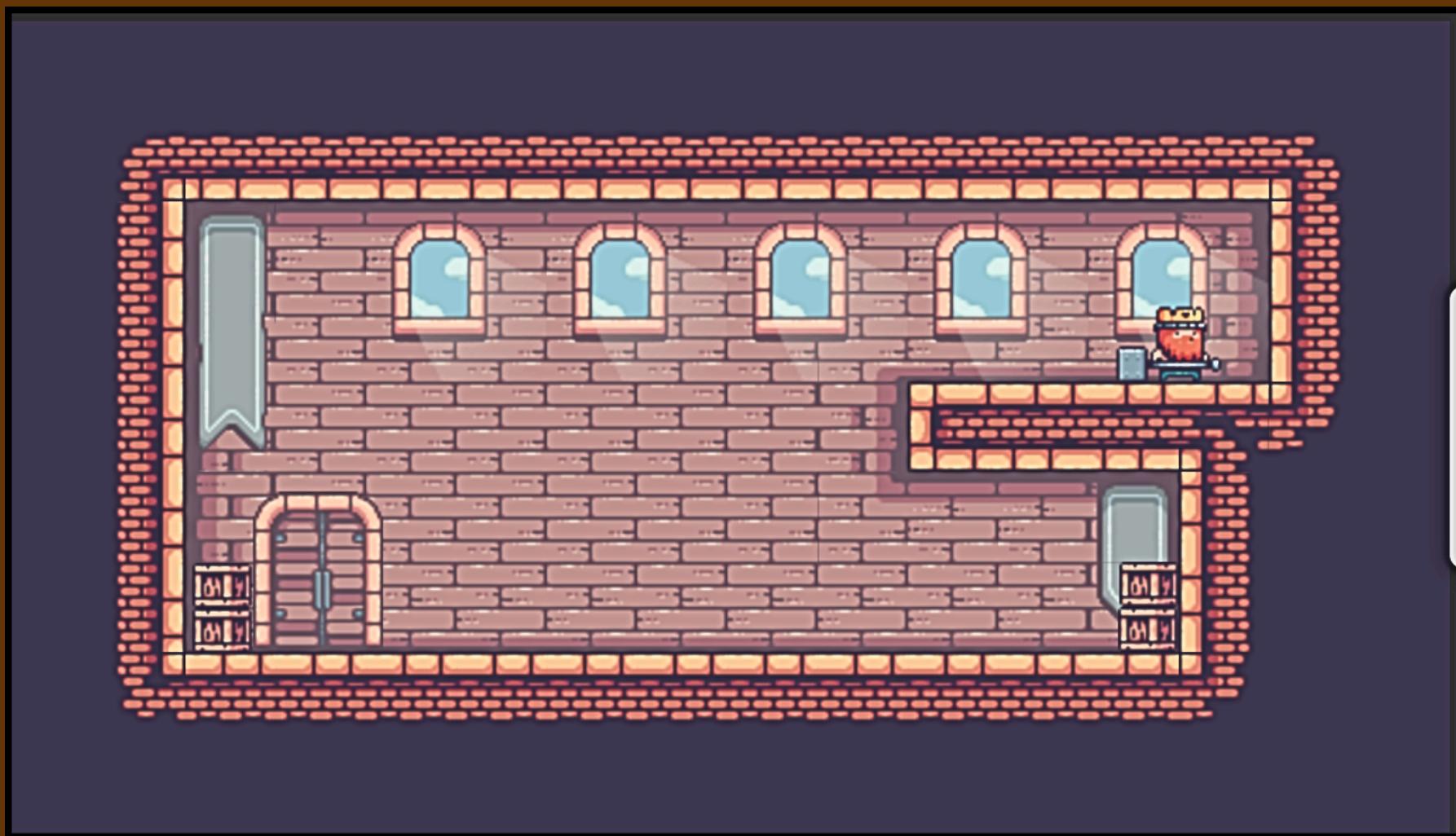
Solve the challenges in each room to escape!

[Start the Game](#)

Begin your journey by starting the game. The doors of the dungeon creak open as your adventure begins. The challenges ahead await your skill and cunning!



GUIDELINES OF THE CRYPT



Please TURN ON Caps Lock and click Continue to proceed.

[Continue](#)

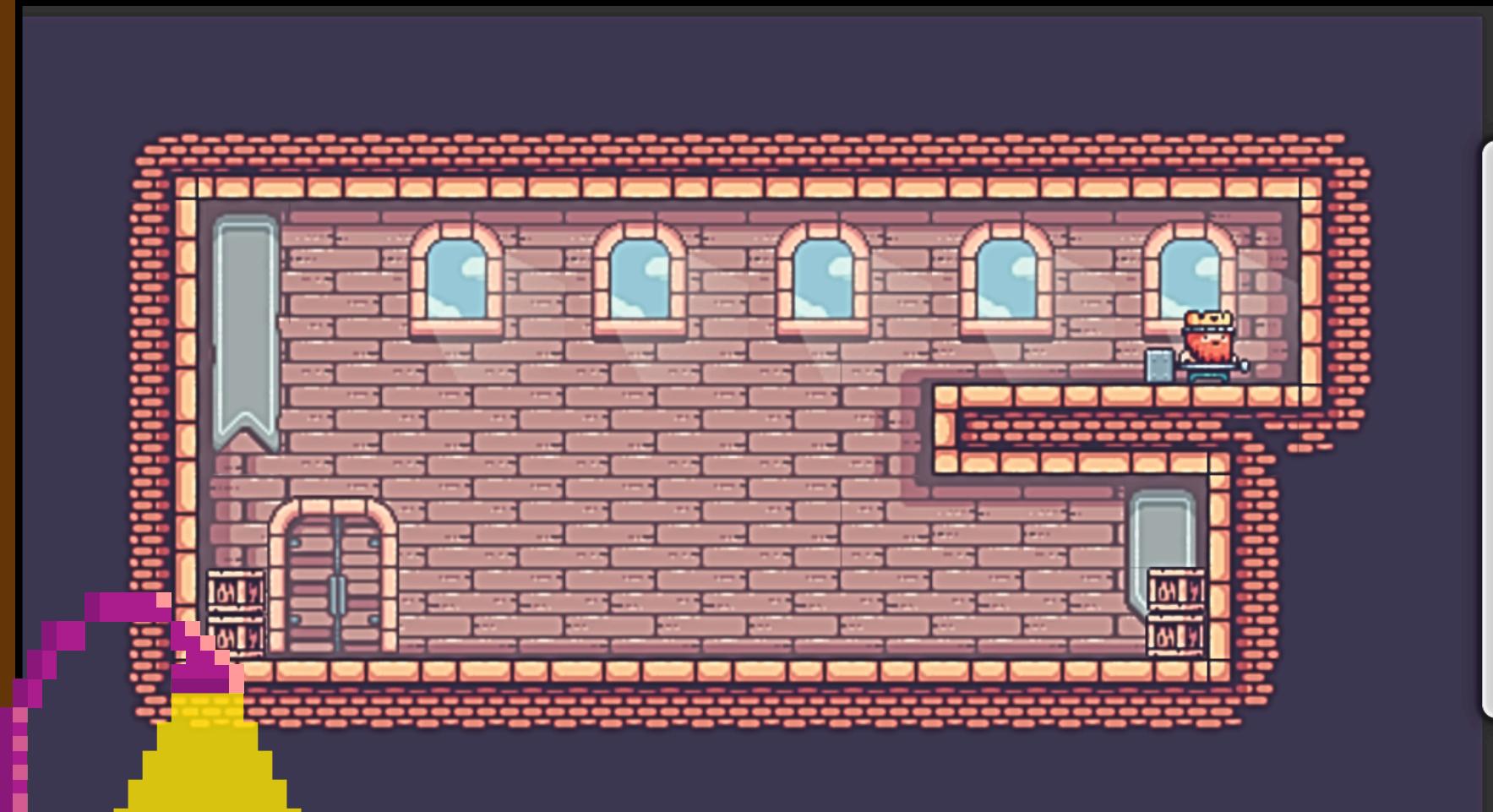
Please TURN ON Caps Lock and click Continue to proceed.

[Continue](#)

Before answering any question, turn on CAPS LOCK on your keyboard. This is a magical command that activates the ancient puzzles guarding your escape.



GUIDELINES OF THE CRYPT



Each room will present you with questions. You will have four possible answers, but only one is correct. Click on what you think is the right choice. Choose wisely!

Current numbers in the binary tree: 5, 3, 2, 4, 7, 6, 8

What is the inorder traversal of the binary tree?

2, 3, 4, 6, 7,
8

2, 3, 5, 6,
8

2, 3, 4, 5, 7,
8

2, 3, 4, 5,
7, 8

Current numbers in the binary tree: 5, 3, 2, 4, 7, 6, 8

What is the inorder traversal of the binary tree?

2, 3, 4, 6, 7,
8

2, 3, 5, 6, 7,
8

2, 3, 4, 5, 7,
8

2, 3, 4, 5, 6,
7, 8

GUIDELINES OF THE CRYPT

localhost:49795 says

Incorrect! Hint: Visit left subtree, root, and right subtree.

OK

Current numbers in the binary tree: 5, 3, 2, 4, 7, 6, 8

What is the inorder traversal of the binary tree?

2, 3, 4, 6, 7,
8

2, 3, 5, 6, 7,
8

2, 3, 4, 5, 7,
8

2, 3, 4,
7,

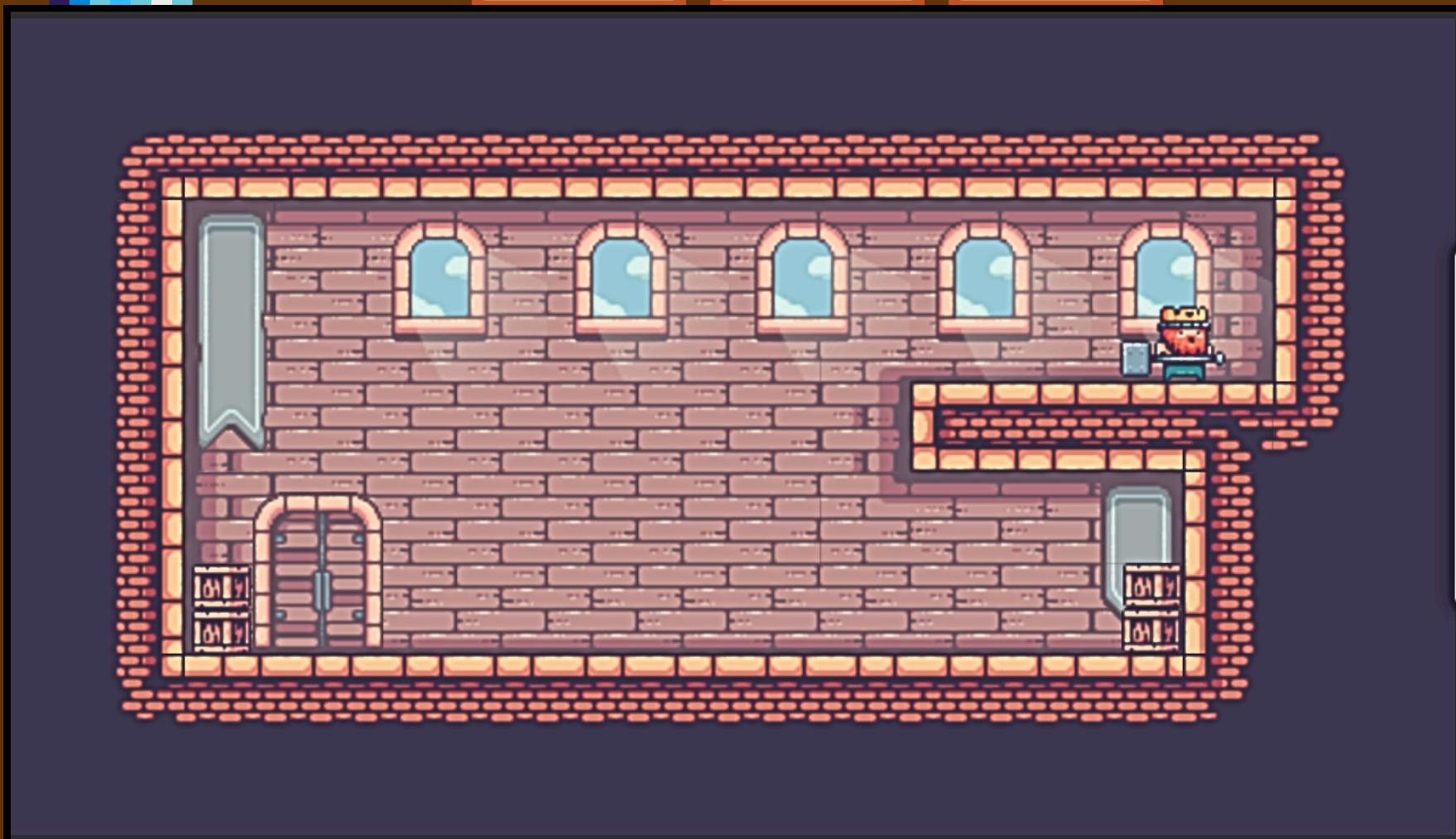
localhost:49795 says

Incorrect! Hint: Visit left subtree, root, and right subtree.

OK

If your answer is incorrect, fear not. A hint will appear to help guide you toward the right choice. Use the hint wisely to solve the question!

GUIDELINES OF THE CAVERN



Please TURN OFF Caps Lock and Control character to enter next room. TURN ON Caps Lock again and click Continue to proceed.

[Continue](#)

Please TURN OFF Caps Lock and Control character to enter next room. TURN ON Caps Lock again and click Continue to proceed.

[Continue](#)

Once you've answered all the questions correctly, turn off CAPS LOCK. This signals the dungeon's mechanisms to release the next challenge, unlocking the way forward.

GUIDELINES OF THE CRYPT



Please TURN OFF Caps Lock and Control character to enter next room. TURN ON Caps Lock again and click Continue to proceed.

[Continue](#)



Please TURN OFF Caps Lock and Control character to enter next room. TURN ON Caps Lock again and click Continue to proceed.

[Continue](#)

After answering all the questions and deactivating CAPS LOCK, you'll be able to move your character to escape the first chamber. The door will open, but your journey is far from over!



GUIDELINES OF THE CRYPT

With each room you escape, a new challenge will appear.

Repeat the process:

- Turn on CAPS LOCK.
- Answer the next question.
- If incorrect, use the **hint provided**.
- Turn off CAPS LOCK.
- Move your character to **escape** to the next room.

GUIDELINES OF THE CRYPT





Current numbers in the binary tree: 2, 3, 5, 6, 7, 8, 10

What is the inorder traversal of the binary search tree after inserting 9?

2, 3, 5, 6, 7, 8, 9, 10 2, 3, 5, 6, 7, 9, 8, 10

2, 3, 5, 6, 7, 8, 10 2, 3, 5, 6, 9, 7, 8, 10



2ND CHAMBER

GUIDELINES OF THE CRYPT



Current heap state:

What does the heap look like after heapifying the array [10, 4, 7, 2, 1]?

1, 2, 4, 7, 10 10, 4, 7, 2, 1

7, 4, 2, 10, 1 10, 4, 2, 7, 1



3RD CHAMBER



Well done, brave soul! You've escaped the dungeon with skill and brilliance! You can now freely traverse the dungeon!



Keep answering questions and navigating the rooms until you reach the final door. The dungeon will test your knowledge, so stay sharp!

Once you've escaped the final room, you'll have successfully completed your journey through the dungeon!