Just guess the number. Binary search refers to an algorithm where we divide a half -sorted list to check the middle element. Something like that must show the resolution:

Welcome to the Binary Search Game! I'm thinking of a number between 1 and 1000. Enter your guess: 500 Higher! Try again. Enter your guess: 750 Lower! Try again. Enter your guess: 650 Higher! Try again. Enter your guess: 690 Higher! Try again. Enter your guess: 725 Higher! Try again. Enter your guess: 235 Higher! Try again. Enter your guess: 735 Higher! Try again. Enter your guess: 742 Lower! Try again. Enter your guess: 739 Lower! Try again. Enter your guess: 737 Congratulations! You guessed the correct number: 737 THE FLAG : picoCTF{g00d_gu355_ee8225d0}

~Z4que