

String

Key Points about String

- **Immutable:** Once created, String content cannot be changed
 - **Reference type:** Stored in heap memory
 - **Special pool:** String literals stored in String pool (part of heap)
 - **Final class:** Cannot be extended
 - **Thread-safe:** Due to immutability
-

String Methods with Examples

Input String: `"abcdE"`

1. charAt(int index)

- **Definition:** Returns the character at specified index position
 - **Example:** `s1.charAt(2)`
 - **Output:** `'c'`
-

2. substring(int beginIndex)

- **Definition:** Returns substring from beginIndex to end of string
 - **Example:** `s1.substring(2)`
 - **Output:** `"cdE"`
-

3. substring(int beginIndex, int endIndex)

- **Definition:** Returns substring from beginIndex to endIndex-1 (endIndex excluded)
 - **Example:** `s1.substring(1, 4)`
 - **Output:** `"bcd"`
-

4. length()

- **Definition:** Returns total number of characters in string
 - **Example:** `s1.length()`
 - **Output:** `5`
-

5. toUpperCase()

- **Definition:** Converts all characters to uppercase
- **Example:** `s1.toUpperCase()`
- **Output:** `"ABCDE"`

6. contains(CharSequence sequence)

- **Definition:** Checks if string contains specified sequence of characters
- **Example:** `s1.contains("cd")`
- **Output:** `true`
- **Example:** `s1.contains("xy")`
- **Output:** `false`

Note: String class has both instance methods (like above) and static methods (like `valueOf()`, `format()`)

*** String:**

```
String s1 = "abcdE";
```

String methods:

- length()
- charAt(index)
- toUpperCase()
- ...

Examples:

```
Sop(s1); //abcdE
Sop(s1.length()); //5
Sop(s1.charAt(2)); //c
Sop(s1.substring(2)); //cdE
Sop(s1.substring(1, 4)); //bcd
```

Binary Search Algorithm:

```

n = 27
start = 1, end = 11;
while (start <= end) {
    long mid = start + (end - start) / 2;
    if (mid * mid == n)
        return true;
}

```

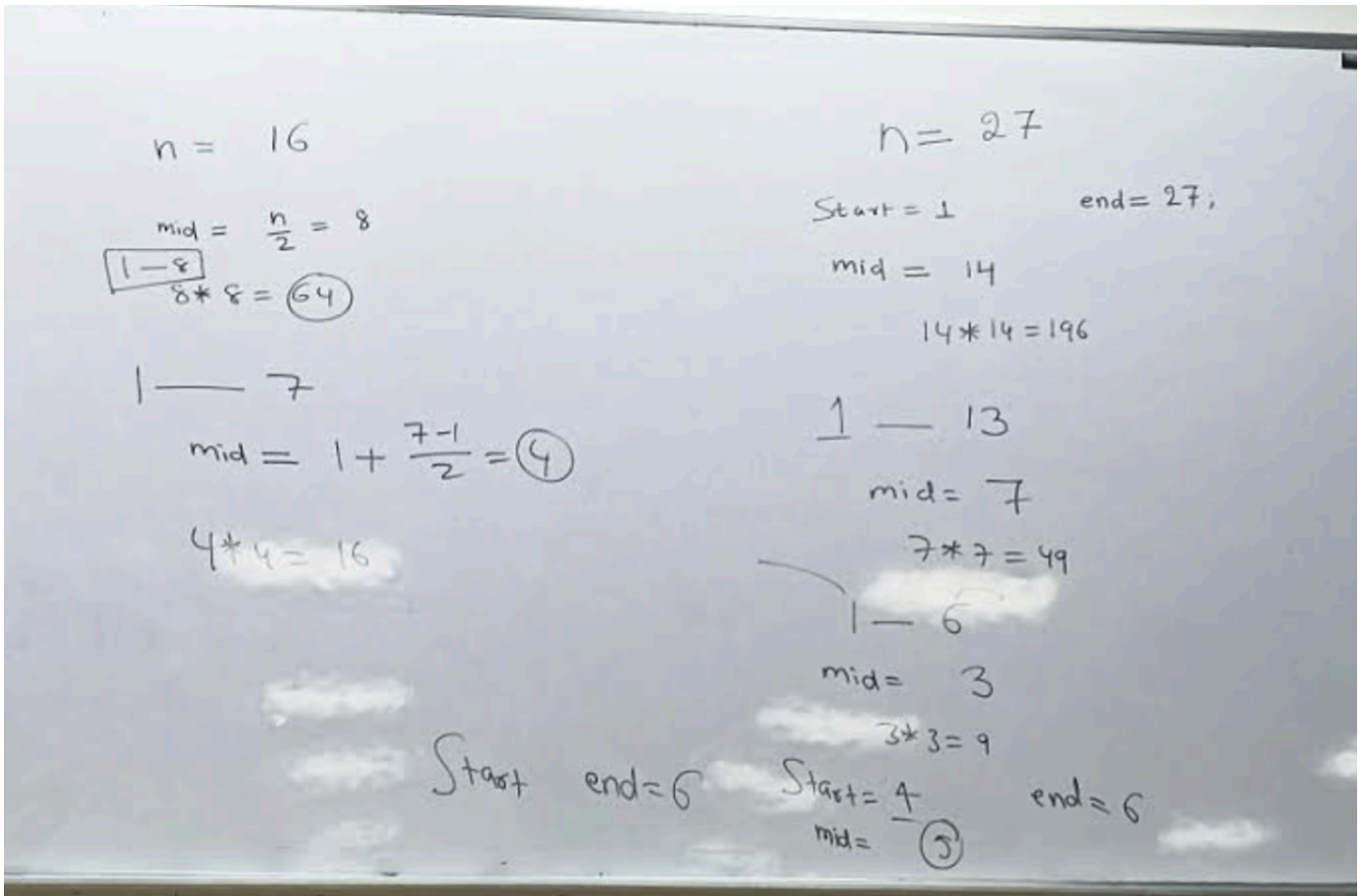
Examples:

```

Sop(s1.contains("cd")); //true
Sop(s1.contains("c")); //true
char p = 'd';
Sop(s1.contains(p)); //true

```

Leetcode code Explanation



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Sqrt(x) - LeetCode Valid Perfect Square - LeetCode avinash-01 - LeetCode Profile

leetcode.com/problems/valid-perfect-square/description/

Problem List < > < >

367. Valid Perfect Square

Easy Topics Companies Solved

Given a positive integer num, return true if num is a perfect square or false otherwise.

A perfect square is an integer that is the square of an integer. In other words, it is the product of some integer with itself.

You must not use any built-in library function, such as sqrt.

Example 1:

Input: num = 16
Output: true
Explanation: We return true because $4 * 4 = 16$ and 4 is an integer.

Example 2:

Input: num = 14
Output: false
Explanation: We return false because $3.742 * 3.742 = 14$ and 3.742 is not an integer.

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Code

```

1 class Solution {
2     public boolean isPerfectSquare(long x) {
3         long start = 1;
4         long end = x;
5
6         while (start <= end) {
7             long mid = start + (end - start) / 2;
8
9             if (mid * mid == x)
10                return true;
11             else if (mid * mid > x)
12                end = mid - 1;
13             else
14                start = mid + 1;
15         }
16         return false;
17     }
18 }

```

Saved Ln 4, Col 20

Testcase > Test Result

Accepted Runtime: 0 ms

Case 1 Case 2 Case 3

Input

The screenshot shows a web browser window with the Brave browser. The address bar shows the URL `leetcode.com/problems/sqrtx/`. The page displays the problem "69. Sqrt(x)" with a "Solved" status. The problem description states: "Given a non-negative integer x , return the square root of x rounded down to the nearest integer. The returned integer should be non-negative as well. You must not use any built-in exponent function or operator." Examples are provided for $x=4$ and $x=8$. A Java solution is shown in the code editor, implementing a binary search algorithm. The test results show "Accepted" with a runtime of 0 ms and three test cases passed.

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leetcode.com/problems/sqrtx/

Problem List < > Solved

69. Sqrt(x)

Easy Topics Companies Hint

Given a non-negative integer x , return the square root of x rounded down to the nearest integer. The returned integer should be non-negative as well.

You must not use any built-in exponent function or operator.

- For example, do not use `pow(x, 0.5)` in c++ or `x ** 0.5` in python.

Example 1:

Input: $x = 4$
Output: 2
Explanation: The square root of 4 is 2, so we return 2.

Example 2:

Input: $x = 8$
Output: 2
Explanation: The square root of 8 is 2.82842..., and since we round it down to the nearest integer, 2 is returned.

9.4K 392 175 Online

Code

```
Java Auto
1 class Solution {
2     public int mySqrt(int x) {
3         long start = 1;
4         long end = x;
5
6         while (start <= end) {
7             long mid = start + (end - start) / 2;
8
9             if (mid * mid == x)
10                return (int)mid;
11            else if (mid * mid > x)
12                end = mid - 1;
13            else
14                start = mid + 1;
15        }
16        return (int)(start - 1);
17    }
18 }
19
```

Saved Ln 17, Col 6

Testcase Test Result

Accepted Runtime: 0 ms

Case 1 Case 2 Case 3

Input