**Square Root of an Integer**

The square root of an integer is a value that, when multiplied by itself, gives the original integer. In mathematical terms, for a non-negative integer x, the square root y is a value such that **y × y = x**

1. **Problem solving:**

**Edge Cases:**

If x is 0 or 1, return x because the square root of 0 or 1 is the same as the input.

**Binary Search:**

Initialize two pointers, left and right, for binary search. left starts at 0, and right starts at x because the square root can't be greater than x.

**Binary Search Loop:**

Implement a binary search loop that continues until left is greater than right.

Inside the loop, calculate the middle value (mid).

Check if the square of mid is equal to x. If true, return mid as it is the exact square root.

If the square of mid is less than x, update left to mid + 1. If it's greater, update right to mid - 1.

**Return Result:**

After the binary search loop, return the right pointer. This pointer contains the rounded-down square root.

1. **Flow chart**

**start**

**If true, return x**

**left = 0, right = x**

**Calculate mid point**

**End**

**While left <= right**

**If mid \* mid == x**

**If mid \* mid < x**

**Else**

**Check if x is 0or 1**

**Update left = mid + 1**

**Update right = mid - 1**

**Return mid**

**Return right**

**End**

**End**

1. **Output** 