

Problem 1: Finding the Square Root of an Integer

In this problem, we use a modified version of binary search to find the square root of the given integer. The idea is to apply binary search in the range of 0 to given number. The middle element is selected by the average of first and last number and then we compare the middle elements square with the given number. If it is greater we update last to the middle element and if it is lesser we update first to the middle element. We do this until first and last become equal.

Time complexity:

$O(\log(n))$: Since we are using a modified binary search

Space complexity:

$O(1)$: Only 4 values are stored at a time