Jump Search

Jump Search is a searching algorithm for sorted arrays. The basic idea is to check fewer elements by jumping ahead by fixed steps or skipping some elements in place of searching all elements. This type of searching algorithm is also applied on sorted lists only. Your task is to complete the Jump Search method. This method searches the array against a value.

By considering the worst case scenario, you have to skip n/p elements and if in case the last value is greater than the target value we are searching for; after that, we are required to perform p-1 comparisons going on each element one by one from the back.

Then the total number of comparisons, in this case, will be ((n/p) + p-1). The solution of the equation ((n/p) + p-1) will be minimum when p = √n leading the optimum skipping size to be p = √n.

This method takes a python list as input and returns the index position of the element, if found.

Test Case - 1
1 2 3 4 5 6
4
Element is present at index 3

Test Case - 2
11 23 43 51 67 78
4
Element is not present in list.

Test Case - 3
1 20 37 41 52 60
40
Element is not present in list.

Test Case - 4
1 20 37 41 52 60
52
Element is present at index 4

Explanation:
First line in the test case is the list of integers separated by space. Line # 2 represents the target value given by the user.
Last line of each test case is the output line.

Note:

1. Do not accept more than 50 values as elements of the list.
2. Enter the elements in sorted order only.