

The program takes as input a string of integers ordered in a strictly increasing way and does an iterative binary search to find the position of a given integer in the list.

```
In [1]: import re
```

The function 'test_list' verifies that the list 'lst' has length ≥ 2 and that its elements are ordered in a strictly increasing way:

```
In [2]: def test_list(lst):
var = True
if len(lst) < 2:
    var = False
else:
    i = 0
    last = len(lst) - 1
    while i < last and var == True:
        if lst[i] < lst[i+1]:
            i += 1
        else:
            var = False
    return var
```

The 'binary_search' function does an iterative binary search to find the position of the integer 'number' in the sorted list 'lst':

```
In [3]: def binary_search(lst, number):
var = False
first = 0
last = len(lst) - 1
while first <= last and var == False:
    i = (first + last) // 2
    if lst[i] == number:
        var = True
        return 'The integer {} was found at position {} of the list.'.format(number, i)
    elif lst[i] > number:
        last = i - 1
    elif lst[i] < number:
        first = i + 1
if var == False:
    return 'The integer {} was not found in the list'.format(number)
```

The 'main' function takes as input a string containing integers and a given integer, and returns the position of the given integer in the list:

```
In [4]: def main():
var = False
while var == False:
    input_string = input("Enter a list of strictly increasing integers (at least two integers): ")

    # Finds the integers in the input string and puts them in a list:
    input_list = [int(s) for s in re.findall(r'\d+', input_string)]

    # Checks with 'test_list' that the list is suitable:
    var = test_list(input_list)

    # Finds with 'binary_search' the position of the given number in the list, and prints the result:
    number = int(input("Enter the number to be found in the list: "))
    print('')
    print(binary_search(input_list, number), '\n')
```

```
In [5]: if __name__ == '__main__':
main()
```

The integer 67 was found at position 2 of the list.

```
In [ ]:
```