**4.7 LONGEST SUBSTRING WITHOUT REPEATING CHARACTERS**

**Question:**

Given a string s, find the length of the longest substring without repeating characters.

**AIM**

To implement a Python program that computes the length of the longest substring without repeating characters using the sliding window technique.

**ALGORITHM**

1. Initialize a set seen to store characters in the current window.
2. Use two pointers left and right to define the sliding window.
3. Move right forward and add characters to seen until a duplicate is found.
4. When a duplicate is encountered, remove characters from the left until the duplicate is removed.
5. Track the maximum window size during traversal.
6. Return the maximum length found.

**PROGRAM**

A computer screen shot of a computer code

AI-generated content may be incorrect.

Input:

Enter a string: bifbfbinbi

Output:



**RESULT:**

Thus the program is successfully executed and the output is verified.

**PERFORMANCE ANALYSIS:**

* Time Complexity: O(n), where *n* is the length of the string.
* Space Complexity: O(min(n, m)), where *m* is the size of the character set.