Fast Learner Assignment

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Branch: BE-CSE **Section/Group:** 22BCS_NTPP-602-A

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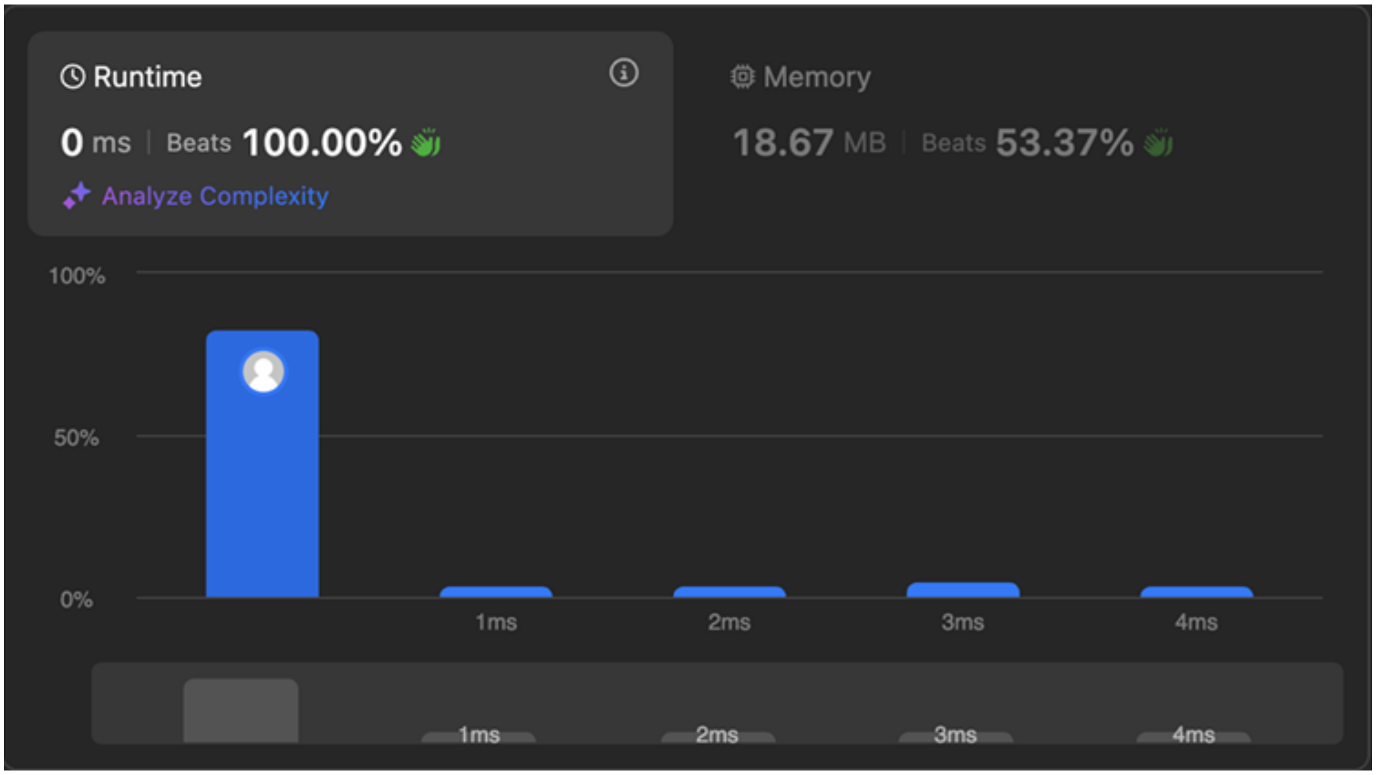
Subject Name: AP LAB - II **Subject Code:** 22CSP-351

1. **Aim:** Given an m x n integer matrix, if an element is 0, set its entire row and column to 0.

   Source Code:

```
class Solution
{ public: void
setZeroes(vector
<vector>&matrix)
{
int m =
matrix.size(), n =
matrix[0].size();
bool
firstRowHasZero
= false,
firstColHasZero =
false; for (int i =
0; i < m; i++) { if
(matrix[i][0] == 0)
firstColHasZero =
true; } for (int j =
0; j < n; j++) { if
(matrix[0][j] == 0)
firstRowHasZero
= true; } for (int i
= 1; i < m; i++)
{ for (int j = 1; j <
n; j++) { if
(matrix[i][j] == 0)
{ matrix[i][0] = 0;
matrix[0][j] = 0; } }
} for (int i = 1; i <
m; i++) { for (int j
= 1; j < n; j++) { if
(matrix[i][0] == 0
|| matrix[0][j] ==
0) { matrix[i][j] =
0; } } } if
(firstColHasZero)
{ for (int i = 0; i <
m; i++) matrix[i]
[0] = 0; } if
(firstRowHasZero
) { for (int j = 0; j
< n; j++) matrix[0]
[j] = 0; } } };
```

2. Screenshots of outputs:

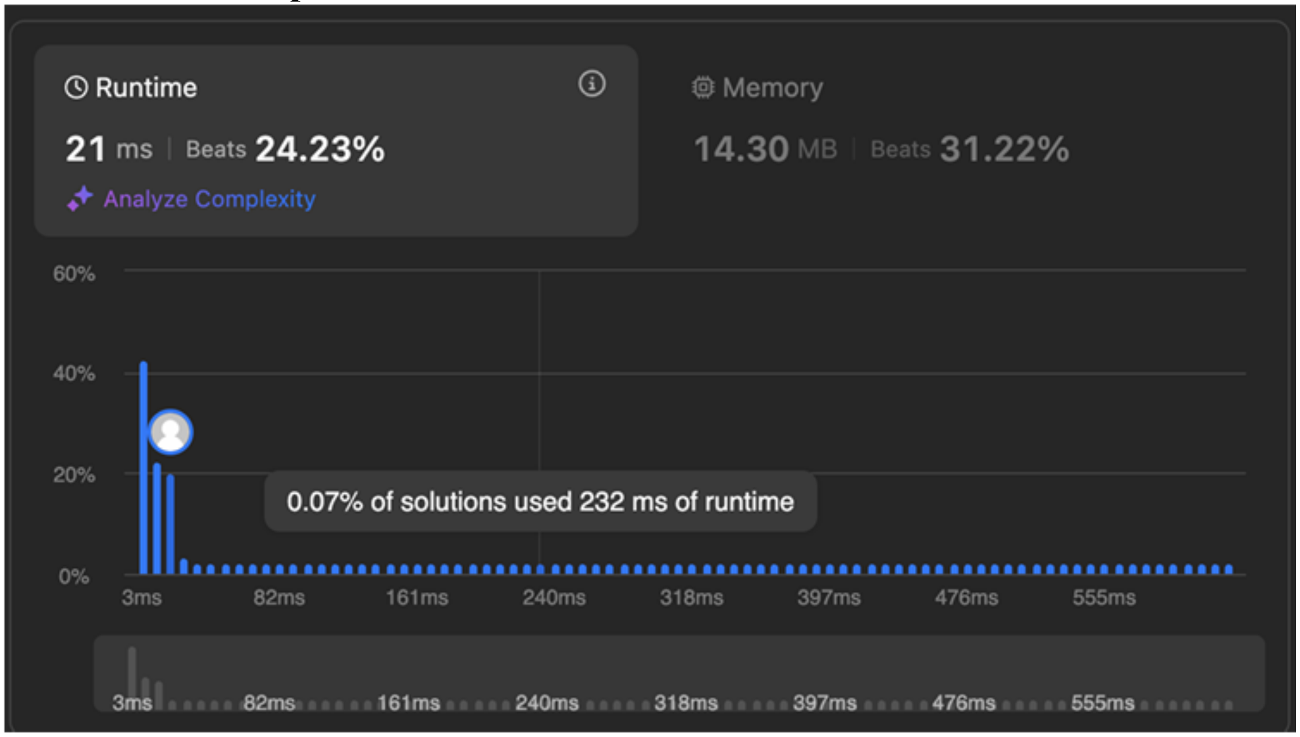


2. Aim: Given a string s, find the length of the longest substring without duplicate characters.

Source Code:

```
  class Solution
 {
 public: int lengthOfLongestSubstring(string s)
 {
 unordered_set seen;
  int left = 0, maxLength = 0;
  for (int right = 0; right < s.length(); right++)
 {
 while (seen.find(s[right]) != seen.end())
  {
 seen.erase(s[left]); left++; }
 seen.insert(s[right]);
 maxLength = max(maxLength, right - left + 1);
 }
 return maxLength; } };
```

Screenshots of outputs:


Runtime

21 ms | Beats 24.23%

Analyze Complexity

Memory

14.30 MB | Beats 31.22%

0.07% of solutions used 232 ms of runtime

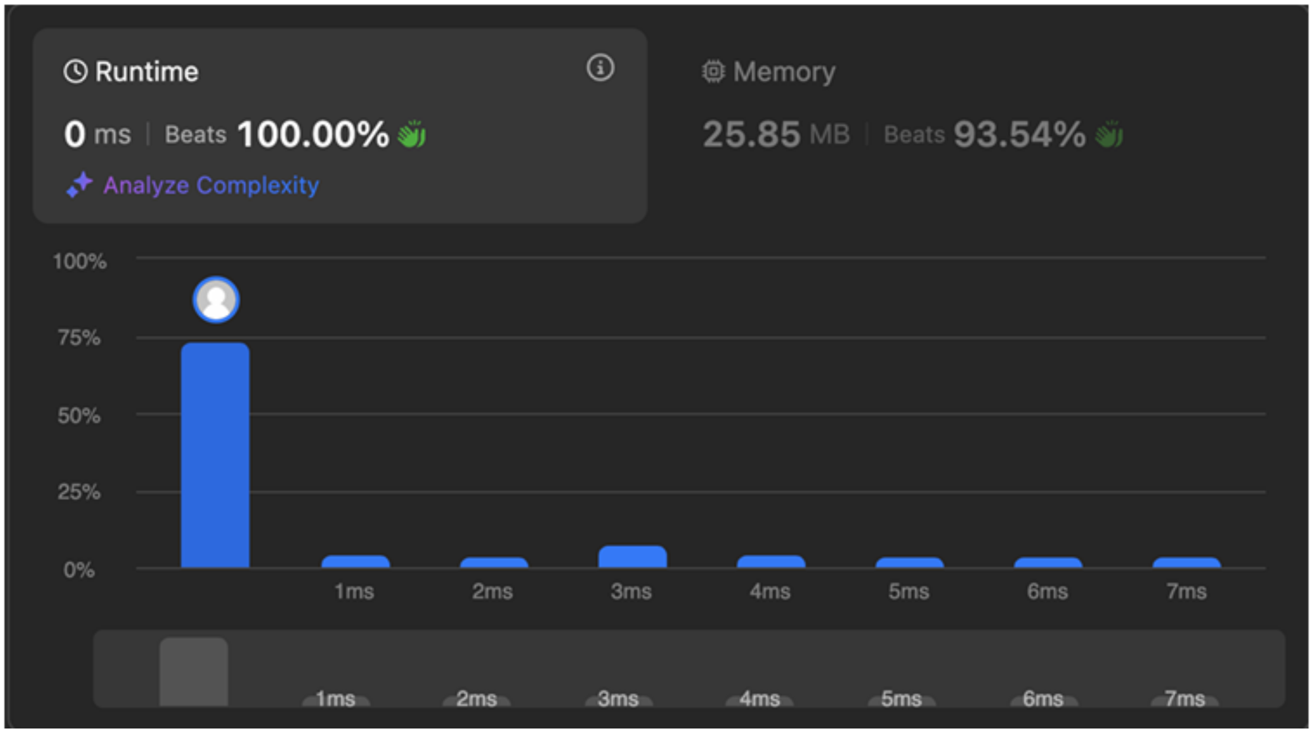
Aim: Given n non-negative integers representing an elevation map, compute how much water it can trap after raining.

Source Code:

```
class Solution {
public: int trap(vector& height)
{

 if (height.empty()) return 0; int left = 0, right = height.size() - 1;
 int leftMax = 0, rightMax = 0;
int water = 0; while (left < right)
{ if (height[left] < height[right])
{ if (height[left] >= leftMax)
{ leftMax = height[left]; }
 else { water += leftMax - height[left]; }
 left++; } else {
 if (height[right] >= rightMax) { rightMax = height[right]; }
else {
water += rightMax - height[right];
 }
right--;
 } }
return water; } };
```

3. **Screenshots of Outputs:**



Runtime

0 ms | Beats 100.00%

Memory

25.85 MB | Beats 93.54%