Our Solution(s) Run Code

Solution 1

```cpp
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#include <vector>
using namespace std;

// O(n) time | O(n) space
int waterArea(vector<int> heights) {
  vector<int> maxes(heights.size(), 0);
  int leftMax = 0;
  for (int i = 0; i < heights.size(); i++) {
    int height = heights[i];
    maxes[i] = leftMax;
    leftMax = max(leftMax, height);
  }
  int rightMax = 0;
  for (int i = heights.size() - 1; i >= 0; i--) {
    int height = heights[i];
    int minHeight = min(rightMax, maxes[i]);
    if (height < minHeight) {
      maxes[i] = minHeight - height;
    } else {
      maxes[i] = 0;
    }
    rightMax = max(rightMax, height);
  }
  int total = 0;
  for (int i = 0; i < heights.size(); i++) {
    total += maxes[i];
  }
  return total;
}

```

Your Solutions Run Code

Solution 1 Solution 2 Solution 3

```cpp
#include <vector>
using namespace std;

int waterArea(vector<int> heights) {
  // Write your code here.
  return -1;
}

```

Our Tests

Custom Output Submit Code

```
vector<int> vector1{2, 3, 4, 5, 1, 8, 9, 10, 6, 7, 1, 1, 8, 2};
vector<int> vector2{2, 3, 4, 5, 10, 8, 9, 10, 6, 7, 1, 1, 8, 2};
vector<int> vector3{2, 100, 4, 5, 10, 1, 1, 10, 1, 8, 1, 1, 8, 100};
vector<int> vector4{2, 100, 4, 5, 10, 1, 1, 10, 1, 8, 1, 1, 8, 8};

class Program4ast : public TestSuite {
public:
  void Run() {

    RunTest("Test Case 1", [](){ assertEqual(vector1) == 8}, 1);

    RunTest("Test Case 2", [](){ assertEqual(vector2) == 8}, 2);

    RunTest("Test Case 3", [](){ assertEqual(vector3) == 8}, 3);

```

Run or submit code when you're ready.