**AHTISHAM UL HAQ**

**FA21-BBSE-072**

**ST LAB MID**
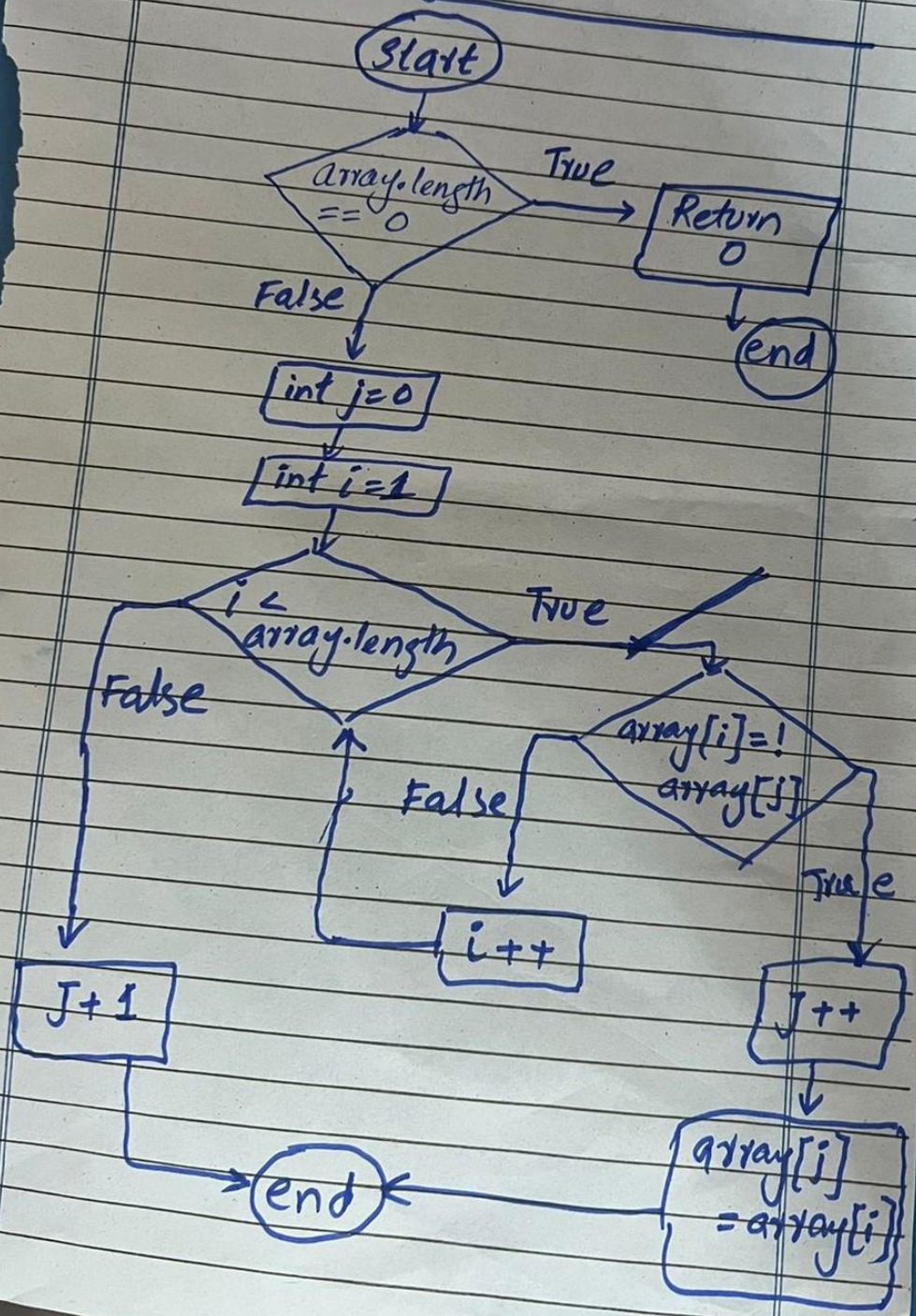
**24th of May, 2024**

**Task 1:**

**Control flow graph:**

Ahtisham-ul-haq
FA21-BSE-072

Algo# 3

```
Start

array.length == 0 ──True──> Return 0 ──> end
         │
       False
         │
      int j=0
         │
      int i=1
         │
  i < array.length ──True──> array[i] =! array[j]
         │                        │
       False                    True ──> j++
         │                        │        │
       J+1                      False    array[i] = array[i]
         │                        │
        end <──── i++ ───────────┘
```

**Task 2:**

**Test cases:**

| Test Case ID | Description | Input | Expected Output Length | Expected Output | Actual Output | Status (Pass/Fail) |
|---|---|---|---|---|---|---|
| TC1 | Empty array | [] | 0 | [] | [] | Pass |
| TC2 | No duplicates | [1, 2, 3, 4, 5] | 5 | [1, 2, 3, 4, 5] | [1, 2, 3, 4, 5] | Pass |
| TC3 | All elements the same | [1, 1, 1, 1] | 1 | [1] | [1] | Pass |
| TC4 | Some duplicates | [1, 1, 2, 2, 3, 4, 4, 5] | 5 | [1, 2, 3, 4, 5] | [1, 2, 3, 4, 5] | Pass |
| TC5 | Unique elements followed by duplicates | [1, 2, 3, 4, 5, 5, 5, 5] | 5 | [1, 2, 3, 4, 5] | [1, 2, 3, 4, 5] | Pass |

**Task 3:**

**Test in Junit (code):**

**Output:**

**Projects**

- RemoveDuplicates
  - Source Packages
    - com.mycompany.removeduplic
      - RemoveDuplicates.java
  - Test Packages
    - \<default package\>
      - RemoveDuplicateTest.java
      - com.mycompany.removeduplic
    - org.junit
  - Dependencies
  - Test Dependencies
  - Java Dependencies
  - Project Files

**Source** | **History**

```java
31          assertArrayEquals(new int[]{1}, Arrays.copyOf(array, newLength));
32      }
33
34  //      @Test
35      public void testSomeDuplicates() {
36          int[] array = {1, 1, 2, 2, 3, 4, 4, 5};
37          int newLength = RemoveDuplicates.removeDuplicates(array);
38          assertEquals(5, newLength);
39          assertArrayEquals(new int[]{1, 2, 3, 4, 5}, Arrays.copyOf(array, newLength));
40      }
41
42  //      @Test
```

**Output - Test (RemoveDuplicateTest)**

```
                                     [ ju: ]

--- maven-surefire-plugin:2.12.4:test (default-cli) @ RemoveDuplicates ---
Surefire report directory: E:\c\Documents\NetBeansProjects\RemoveDuplicates\target\surefire-reports

-------------------------------------------------------
 T E S T S
-------------------------------------------------------
Running RemoveDuplicateTest
Tests run: 5, Failures: 0, Errors: 0, Skipped: 0, Time elapsed: 0.005 sec

Results :

Tests run: 5, Failures: 0, Errors: 0, Skipped: 0


------------------------------------------------------------------------
BUILD SUCCESS
------------------------------------------------------------------------
Total time:  1.123 s
Finished at: 2024-05-24T09:47:48+05:00
```