



COMSATS UNIVERSITY ISLAMABAD, ABBOTTABAD

Software testing Lab final

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Question 1

Bubble Sort Implementation

```
package org.example;
//ReverseArray-Column(01)
public class Main {
    public static void main(String[] args) {
        int[] array = {1, 2, 3, 4, 5};
        reverseArray(array);
        for (int num : array) {
            System.out.print(num + " ");
        }
    }
    public static void reverseArray(int[] array) {
        int left = 0, right = array.length - 1;
        while (left < right) {
            int temp = array[left];
            array[left] = array[right];
            array[right] = temp;
            left++;
            right--;
        }
    }
}
```

Equivalence Partitioning and Boundary Value Analysis

Equivalence Partitioning

Valid Partitions:

Array with no elements (empty array)

Array with one element

Array with two elements

Array with multiple elements

Invalid Partitions:

Null array: null

Boundary Value Analysis

Boundary values for array lengths:

0 elements (empty array)

1 element

Test Cases

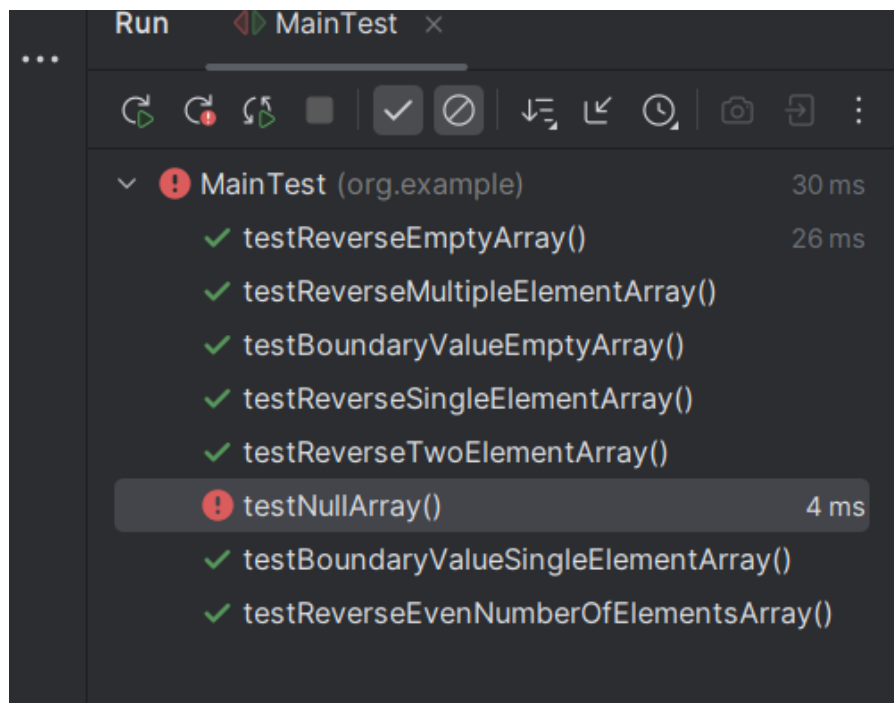
Equivalence Partitioning Test Cases

Test Case ID	Description	Input Data	Expected Result	Actual Result	Verdict
TC1	Reverse empty array	[]	[]	[]	Pass
TC2	Reverse array with one element	[1]	[1]	[1]	Pass
TC3	Reverse array with two elements	[1, 2]	[2, 1]	[2, 1]	Pass
TC4	Reverse array with multiple elements	[1, 2, 3, 4, 5]	[5, 4, 3, 2, 1]	[5, 4, 3, 2, 1]	Pass
TC5	Reverse array with an even number of elements	[1, 2, 3, 4]	[4, 3, 2, 1]	[4, 3, 2, 1]	Pass
TC6	Handle null array	null	No operation or exception	No operation	Fail

Boundary Value Analysis Test Cases

Test Case ID	Description	Input Data	Expected Result	Actual Result	Verdict
TC7	Boundary value test: empty array	[]	[]	[]	Pass
TC8	Boundary value test: single element array	[1]	[1]	[1]	Pass

JUnit Testing Result



Question 02

Exam Module

Test cases

Here is the table converted to text:

Test ID	Description	Preconditions	Steps	Expected Result
TC_SA_001	Verify Exam Details Display	User is logged in and on the Exams page.	1. Navigate to the Exams page. 2. Verify the display of exam details: title, duration, examiner, course, start time.	All exam details are displayed correctly.
TC_SA_002	Verify Question Types and Marks Distribution	User is logged in and on the Exam Summary page.	1. Navigate to the Exam Summary page. 2. Verify the display of number of MCQs, true/false questions, marks per question, total marks.	Question types and marks distribution are displayed correctly.

UX automation

Video: