**Title:** Test Result for Part 1: Data Structure and Algorithm – Simple Data Type

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1. **Introduction**

This document records the test results for part 1: data structure and algorithm – simple data type in JavaScript, based on the test plan.

It includes details on the execution status and any issues encountered.

1. **Test Execution Result**

| **Test Case ID** | **Description** | **Expected Output** | **Actual Result** | **Status (Pass/Fail)** |
| --- | --- | --- | --- | --- |
| TC-001 | Sort the array in ascending order.  Input: array = [11, 5, 8, 3, 25, 16, 31, 45, 14, 20] | [3, 5, 8, 11, 14, 16, 20, 25, 31, 45] | [3, 5, 8, 11, 14, 16, 20, 25, 31, 45] | Pass |
| TC-002 | Insert 19, 23, 30 into sorted array | [3, 5, 8, 11, 14, 16, 19, 20, 23, 25, 30, 31, 45] | [3, 5, 8, 11, 14, 16, 19, 20, 23, 25, 30, 31, 45] | Pass |
| TC-003 | Remove 8, 31 from array | [3, 5, 11, 14, 16, 19, 20, 23, 25, 30, 45] | [3, 5, 11, 14, 16, 19, 20, 23, 25, 30, 45] | Pass |
| **TC-004** | **Sequential search (value exists)** | **Index of 6** | **Index of 6** | **Pass** |
| **TC-005** | **Sequential search (value does not exist)** | **-1** | **-1** | **Pass** |
| **TC-006** | **Binary search (value exists)** | **Index of 2** | **Index of 2** | **Pass** |
| **TC-007** | **Binary search (value does not exist)** | **-1** | **-1** | **Pass** |

1. **Issues & Recommendations**

* **Input Validation Issue:** Stricter validation should be implemented for inputs. For example, the property of an array might be a string, or the input number for Binary Search or Sequential Search could be a string, causing the program to malfunction.
* **Error Handling Issue:** The try-catch method should be used to handle errors related to this defect.

**4. Conclusion** Based on the test results, some improvements are needed in input validation and error handling to meet the expected requirements. Fixes should be implemented and retested accordingly.