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**Lab 1**

**Data Structure**

**Feature: Menu Processing**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T1 | Test the initialization of a default array. | 1 | The array should be initialized with default values. | Array is initialized with default values. | Pass |
| T2 | Test specifying the max size of the array. | 2 | The array should be resized to the specified size. | Array is resized to the specified size. | Pass |
| T3 | Test adding a value to the array. | 3  5.0 | The value should be added to the array. | 5.0 has been added to array. | Pass |
| T4 | Test displaying the values in the array. | 4 | Numbers are:  5.0 | Numbers are:  5.0 | Pass |
| T5 | Test displaying the average, minimum value, maximum value, max mod min, and factorialMax. | 5 | Average is: 5.00, Minimum value is 5.00, Maximum value is 5.00, max mod min is 0.00 factorial of Max is 120 | Average is: 5.00, Minimum value is 5.00, Maximum value is 5.00, max mod min is 0.00 factorial of Max is 120 | Pass |
|  |  |  |  |  |  |
| T6 | Test out of range input for the menu | 7 | Select a value in the range. | Select a value in the range. | Pass |
|  |  |  |  |  |  |
| T7 | Test non interger input | sina | Select an integer. | Select an integer. | Pass |

**Feature: Exceptional Inputs**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T8 | Test when factorial output is more than integer max value | 3  22.2  5 | It should print maximum integer value | factorial of Max is 2147483647 | Pass |
| T9 | Test max mod min when min is equal to zero | 3  0  5 | Max mod min should be zero | max mod min is 0.00 | Pass |
| T10 | Test adding a value to the array when it doesn’t have a maximum size. | 3  5.0  3  10.0  3  15.34  3  11.2  4 | Numbers are:  5.0  10.0  15.34  11.2 | Numbers are:  5.0  10.0  15.34  11.2 | Pass |
| T11 | Test adding a value when maximum is set | 2  2  3  5.0  3  11.1  3  15.2  4 | Array has reached it maximum allowed numbers  Numbers are:  5.0  11.1 | Array has reached it maximum allowed numbers  Numbers are:  5.0  11.1 | Pass |
| T12 | Test adding a string to array | 3  sina | Please enter a float | Please enter a float | Pass |
|  |  |  |  |  |  |