**Lab 1 Test plan, Invalid and Valid selection of all menus and selections within them**

**Test 1: Main Menu**

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| --- | --- | --- | --- | --- | --- |
| **Test #** | **Description** | **Input** | **Expected Output** | **Actual Output** | **Status (Pass/Fail)** |
| A | Valid Selection | 1,2,3,4,5,6 | Resulting feature will be as described in the following tables |  | Pass |
| B | Invalid Selection:  Alpha, Symbols | A, a, @ | Input mismatch Exception |  | Pass |
| C | Invalid Selection | 7 | Default: Invalid entry |  | Pass |

**Test 2. Displaying Avg**

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| **Test #** | **Description** | **Input** | **Expected Output** | **Actual Output** | **Status (Pass/Fail)** |
| a | Display average after adding 4 numbers in previous test | 5 | Displays average min and max |  | Pass |
| b | Add another number | Select 3  Then 2 | Adds value |  | Pass |
| c | Display average after adding additional number | 5 | Displays average min and max of updated |  | Pass |

**Test 3: Tests on Empty Data**

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| **Test #** | **Description** | **Input** | **Expected Output** | **Actual Output** | **Status (Pass/Fail)** |
| A | Initialize a default array | 1 | Nothing to user, backend initialize of an array |  | Pass |
| B | Re-initialize a default array | 1 | Nothing to user, backend initialize of an array |  | Pass |
| C | Specify the max size of the array | 2 then 10 | Nothing to user, back end creates array of size 10 |  | Pass |
| **D** | Re-specify the max size of the array | 2 then 5 | Nothing to user, back end creates array of size 5 |  | Pass |
| **E** | Display values in the array | 4 | Displays all elements/values in the array, if empty: Numbers are: |  | Pass |
| **F** | Display the average of the values and min max | 5 | 0, 0, 0 will be displayed |  | Pass |
| **G** | Exit the application | 6 | Exits program with message. |  | Pass |

**Test 4: Adding Values (Note) 3 is pressed before each test**

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| **Test #** | **Description** | **Input** | **Expected Output** | **Actual Output** | **Status (Pass/Fail)** |
| a | Add a whole number | 3 | Prompts user for input, then displays menu again. |  | Pass |
| b | Add a decimal number | 1.1 | Prompts user for input, then displays menu again. |  | Pass |
| c | Add a negative whole number | -3 | Prompts user for input, then displays menu again. |  | Pass |
| d | Add a negative decimal number | -1.1 | Prompts user for input, then displays menu again. | D | Pass |
| e | Add an invalid alpha character | A, a | Prompts user for input, then displays err, followed by menu |  | Pass |
| f | Add an invalid symbol character | #, @ | Prompts user for input, then displays err, followed by menu |  | Pass |
| g | Display values | From main menu select 5 | Displays avg, min, max, followed by menu. |  | Pass |

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| **Test #** | **Description** | **Input** | **Expected Output** | **Actual Output** | **Status (Pass/Fail)** |
| a | Re-specify the max size of the array | 2 then 5 | Creates new array size 5 |  | Pass |
| b | Display values in the array | 4 | Numbers Are: followed by menu |  | Pass |
| c | Add numbers  (1,2,3,4,5) to the array | 3, then 5 values | Adds all values |  | Pass |
| d | Display values in the array | 4 | Displays 1-5 |  | Pass |
| e | Add 6th number | 3 then 2 | Array full message |  | Pass |
| f | Display values in the array | 4 | Displays 1-5 |  | Pass |
| g | Display average | 5 | Displays avg min, max |  | Pass |

**Test 5: Shrinking Array**