**CST8130 – Data Structures**

**Test Plan < Lab 2>**

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**Feature: <Adding multiple values>**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T1 | Valid selection – no array initialization | 2  1  1 | You tried to add values without initializing an array. I will initialize a default one for you this time.  Constructed an array with default size of 10.  How many values do you wish to add?  2  Enter value:  > 1  Enter value:  > 1  You now have 2 values in the array of size 10 | You tried to add values without initializing an array. I will initialize a default one for you this time.  Constructed an array with default size of 10.  How many values do you wish to add?  2  Enter value:  > 1  Enter value:  > 1  You now have 2 values in the array of size 10 | Pass |
| T2 | Valid selection – array initialized first | 2  1  1 | How many values do you wish to add?  2  Enter value:  > 1  Enter value:  > 1  You now have 2 values in the array of size 10 | How many values do you wish to add?  2  Enter value:  > 1  Enter value:  > 1  You now have 2 values in the array of size 10 | Pass |
| T3 | Invalid selection – trying to add too many values in limited array size | 5 | How many values do you wish to add?  5  Your array is not big enough for that many more values. Please try again. | How many values do you wish to add?  5  Your array is not big enough for that many more values. Please try again. | Pass |
| T4 | Invalid selection – character input | d | Please only input an integer. Please try again. | Please only input an integer. Please try again. | Pass |
| T5 | Invalid selection – string input | apple | Please only input an integer. Please try again. | Please only input an integer. Please try again. | Pass |
| T6 | Valid selection – zero | 0 | You now have 0 values in the array of size 5 | You now have 0 values in the array of size 5 | Pass |
| T7 | Invalid selection – negative number | -1 | Negative input is not allowed. Please try again. | Negative input is not allowed. Please try again. | Pass |

**Feature: <reading from a file >**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T1 | Valid Selection – correct file name | lab2.txt | Valid inputs from lab2.txt has been read.  You now have 4 values in the array of size 10 | Valid inputs from lab2.txt has been read.  You now have 4 values in the array of size 10 | Pass |
| T2 | Invalid Selection – wrong file name | noSuchFile.txt | File reading failed. You might have entered a wrong file name. | File reading failed. You might have entered a wrong file name. | Pass |
| T3 | Invalid Selection – no file name |  | File reading failed. You might have entered a wrong file name. | File reading failed. You might have entered a wrong file name. | Pass |
| T4 | Invalid Selection – file contains some error(s) | error.txt | Reading from a file with error(s). Please fix the error(s).  Valid inputs from error.txt has been read.  You now have 4 values in the array of size 10 | Reading from a file with error(s). Please fix the error(s).  Valid inputs from error.txt has been read.  You now have 4 values in the array of size 10 | Pass |
| T5 | Invalid Selection – file is not suitable | error.txt | Reading from a file with error(s). Please fix the error(s).  Valid inputs from error.txt has been read.  You now have 0 values in the array of size 10 | Reading from a file with error(s). Please fix the error(s).  Valid inputs from error.txt has been read.  You now have 0 values in the array of size 10 | Pass |
| T6 | Invalid selection – trying to add too many values | lab2.txt | You are trying to add too many values. Values are added but only up until array reached a limit.  Valid inputs from lab2.txt has been read.  You now have 3 values in the array of size 3 | You are trying to add too many values. Values are added but only up until array reached a limit.  Valid inputs from lab2.txt has been read.  You now have 3 values in the array of size 3 | Pass |

**Feature: <Writing to a file>**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T1 | Valid Selection – correct file name | lab2.txt | File writing to lab2.txt has completed. There should be 4 values in the file | File writing to lab2.txt has completed. There should be 4 values in the file | Pass |
| T2 | Valid Selection – bad extension | wrong.exe | File writing to wrong.exe has completed. There should be 4 values in the file | File writing to wrong.exe has completed. There should be 4 values in the file | Pass |
| T3 | Valid Selection – no extension | lab | File writing to lab has completed. There should be 4 values in the file | File writing to lab has completed. There should be 4 values in the file | Pass |
| T4 | Invalid Selection – no file name |  | File writing failed. You might have entered a wrong file name. | File writing failed. You might have entered a wrong file name. | Pass |
| T5 | Invalid Selection – no prior array initialization | error.txt | You have to initialize an array first! | You have to initialize an array first! | Pass |
| T6 | Invalid Selection – no values in the array | test.txt | No values in the array. File named test.txt is created but it is empty.  You now have 0 values in the array of size 10 | No values in the array. File named test.txt is created but it is empty.  You now have 0 values in the array of size 10 | Pass |

**Feature: <Main menu processing – no array initialized >**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T1 | Valid Selection – default initialize | 1 | Constructed an array with default size of 3. | Constructed an array with default size of 3. | Pass |
| T2 | Valid Selection – specific initialize | 2 | Enter the max size of the array:  > | Enter the max size of the array:  > | Pass |
| T3 | Valid Selection – add value | 3 | Enter value:  > | Enter value:  > | Pass |
| T4 | Valid Selection – display values | 4 | Numbers are: | Numbers are: | Pass |
| T5 | Valid Selection – display average,etc | 5 | Average is 0.00, Minimum value is 0.00, Maximum value is 0.00, max mod min is 0.00 | Average is 0.00, Minimum value is 0.00, Maximum value is 0.00, max mod min is 0.00 | Pass |
| T6 | Valid selection – exit program | 6 | Exiting...  Program by Steven Kyong Ho Kim | Exiting...  Program by Steven Kyong Ho Kim | Pass |
| T7 | Invalid selection – wrong integer | 8 | You have entered an invalid input. Please only input an integer value from the menu. | You have entered an invalid input. Please only input an integer value from the menu. | Pass |
| T8 | Invalid selection – negative value | -1 | Negative input is not allowed. Please try again.  > | Negative input is not allowed. Please try again.  > | Pass |
| T9 | Invalid selection – character input | d | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |
| T10 | Invalid selection – string input | hello | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |
| T11 | Invalid selection – non-integer input | 1.1 | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |

**Feature: <entering the max size of the array>**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T1 | Valid input | 10 | Constructed an array with size of 10 | Constructed an array with size of 10 | Pass |
| T2 | Valid input – zero | 0 | Constructed an array with size of 0. | Constructed an array with size of 0. | Pass |
| T3 | Invalid input – negative number | -11 | Negative input is not allowed. Please try again.  > | Negative input is not allowed. Please try again.  > | Pass |
| T4 | Invalid input – character input | a | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |
| T5 | Invalid input – string input | owl | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |
| T6 | Invalid input – non-integer input | 1.1 | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |

**Feature: < Main menu processing – array initialized, but no value added >**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T1 | Valid Selection – default initialize | 1 | Constructed an array with default size of 3. | Constructed an array with default size of 3. | Pass |
| T2 | Valid Selection – specific initialize | 2 | Enter the max size of the array:  > | Enter the max size of the array:  > | Pass |
| T3 | Valid Selection – add value | 3 | Enter value:  > | Enter value:  > | Pass |
| T4 | Valid Selection – display values | 4 | Numbers are: | Numbers are: | Pass |
| T5 | Valid Selection – display average,etc | 5 | Average is 0.00, Minimum value is 0.00, Maximum value is 0.00, max mod min is 0.00 | Average is 0.00, Minimum value is 0.00, Maximum value is 0.00, max mod min is 0.00 | Pass |
| T6 | Valid selection – exit program | 6 | Exiting...  Program by Steven Kyong Ho Kim | Exiting...  Program by Steven Kyong Ho Kim | Pass |
| T7 | Invalid selection – wrong integer | 9 | You have entered an invalid input. Please only input an integer value from the menu. | You have entered an invalid input. Please only input an integer value from the menu. | Pass |
| T8 | Invalid selection – negative value | -2 | Negative input is not allowed. Please try again.  > | Negative input is not allowed. Please try again.  > | Pass |
| T9 | Invalid selection – character input | e | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |
| T10 | Invalid selection – string input | banana | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |
| T11 | Invalid selection – non-integer input | 2.2 | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |

**Feature: <addValue method processing>**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T1 | Valid input - integer | 10 | //no specific output | //no specific output | Pass |
| T2 | Valid input – zero | 0 | //no specific output | //no specific output | Pass |
| T3 | Valid input – float | 1.1 | //no specific output | //no specific output | Pass |
| T4 | Valid input – negative value | -5.5 | //no specific output | //no specific output | Pass |
| T5 | Invalid input – character input | w | Not a float input. Please try again.  Enter value:  > | Not a float input. Please try again.  Enter value:  > | Pass |
| T6 | Invalid input – string input | Jack | Not a float input. Please try again.  Enter value:  > | Not a float input. Please try again.  Enter value:  > | Pass |

**Feature: < Main menu processing – array initialized with size 3, and 2 values added (5.0, 2.0)>**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T1 | Valid Selection – default initialize | 1 | Constructed an array with default size of 3. | Constructed an array with default size of 3. | Pass |
| T2 | Valid Selection – specific initialize | 2 | Enter the max size of the array:  > | Enter the max size of the array:  > | Pass |
| T3 | Valid Selection – add value | 3 | Enter value:  > | Enter value:  > | Pass |
| T4 | Valid Selection – display values | 4 | Numbers are:  5.00  2.00 | Numbers are:  5.00  2.00 | Pass |
| T5 | Valid Selection – display average,etc | 5 | Average is 3.50, Minimum value is 2.00, Maximum value is 5.00, max mod min is 1.00 | Average is 3.50, Minimum value is 2.00, Maximum value is 5.00, max mod min is 1.00 | Pass |
| T6 | Valid selection – exit program | 6 | Exiting...  Program by Steven Kyong Ho Kim | Exiting...  Program by Steven Kyong Ho Kim | Pass |
| T7 | Invalid selection – wrong integer | 10 | You have entered an invalid input. Please only input an integer value from the menu. | You have entered an invalid input. Please only input an integer value from the menu. | Pass |
| T8 | Invalid selection – negative value | -3 | Negative input is not allowed. Please try again.  > | Negative input is not allowed. Please try again.  > | Pass |
| T9 | Invalid selection – character input | f | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |
| T10 | Invalid selection – string input | apple | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |
| T11 | Invalid selection – non-integer input | 3.3 | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |

**Feature: < Main menu processing – array initialized with size 3, and full with values (5.0, 2.0, 3.0) >**

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| **Test #** | **Description** | **Input** | **Expected output/result** | **Actual Output** | **Status (Pass/Fail)** |
| T1 | Valid Selection – default initialize | 1 | Constructed an array with default size of 3. | Constructed an array with default size of 3. | Pass |
| T2 | Valid Selection – specific initialize | 2 | Enter the max size of the array:  > | Enter the max size of the array:  > | Pass |
| T3 | Invalid Selection – add value | 3 | Array is full. You cannot add any more value. | Array is full. You cannot add any more value. | Pass |
| T4 | Valid Selection – display values | 4 | Numbers are:  5.00  2.00  3.00 | Numbers are:  5.00  2.00  3.00 | Pass |
| T5 | Valid Selection – display average,etc | 5 | Average is 3.33, Minimum value is 2.00, Maximum value is 5.00, max mod min is 1.00 | Average is 3.33, Minimum value is 2.00, Maximum value is 5.00, max mod min is 1.00 | Pass |
| T6 | Valid selection – exit program | 6 | Exiting...  Program by Steven Kyong Ho Kim | Exiting...  Program by Steven Kyong Ho Kim | Pass |
| T7 | Invalid selection – wrong integer | 8 | You have entered an invalid input. Please only input an integer value from the menu. | You have entered an invalid input. Please only input an integer value from the menu. | Pass |
| T8 | Invalid selection – negative value | -5 | Negative input is not allowed. Please try again.  > | Negative input is not allowed. Please try again.  > | Pass |
| T9 | Invalid selection – character input | g | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |
| T10 | Invalid selection – string input | peach | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |
| T11 | Invalid selection – non-integer input | 5.5 | Please only input an integer. Please try again.  > | Please only input an integer. Please try again.  > | Pass |