CST8130 – Data Structures

Lab 1 – Test Plan

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1. Display of Main Menu

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| |  | | --- | | **Description of Test** | | |  | | --- | | **Input Values** | | |  | | --- | | **Output / Result** | | |  | | --- | | **Pass/Fail** | |
| 1. a. Valid input | |  | | --- | | 1,2,3,4,5,6 | | Resulting feature will be as described in the following tables | Pass |
| 1. b. Invalid input – digits | |  | | --- | | 0, 7, 100 | | Option entered is invalid | Pass |
| 1. c. Invalid input – Alpha characters | |  | | --- | | A, a | | You must input integer ... Please try again | pass |
| d. Invalid input – Symbol | |  | | --- | | @, | | | You must input integer ... Please try again | pass |
| 1. e. Invalid input – Whitespace | |  | | --- | | Space, tab | | You must input integer ... Please try again | pass |

2. Tests on Empty Data

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| |  | | --- | | **Description of Test** | | |  | | --- | | **Input Values** | | |  | | --- | | **Output / Result** | | |  | | --- | | **Pass/Fail** | |
| a. Initialize a default array | |  | | --- | | 1 | | To the user, nothing appears to happen. The main menu is displayed again, awaiting user input | Pass |
| |  | | --- | | 1. b. Re-initialize a default array | | |  | | --- | | 1 | | To the user, nothing appears to happen. The main menu is displayed again, awaiting user input | Pass |
| |  | | --- | | c. Specify the max size of the array | | |  | | --- | | 2 then 10 | | It will appear  Enter new size of array:  And then it will return him back to the main menu | pass |
| d. Re-specify the max size of the array | |  | | --- | | 2 then 5 | | It will appear  Enter new size of array:  And then it will return him back to the main menu | pass |
| 1. e. Display values in the array | |  | | --- | | 4 | | |  | | --- | | The heading “Numbers are:” is displayed with no numbers listed. The main menu is displayed again, awaiting user input | | pass |
| |  | | --- | | 1. f. Display the average of the values | | 5 | |  | | --- | | The message “Average is: 0.00, Minimum value is 0.00, Maximum value is 0.00 ” is displayed. The main menu is displayed again, awaiting user input | | pass |
| |  | | --- | | 1. g. Exit the application | | 6 | The message “Exiting…” is displayed and the program is terminated | pass |

3. Adding values to the Array

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| |  | | --- | | **Description of Test** | | |  | | --- | | **Input Values** | | |  | | --- | | **Output / Result** | | |  | | --- | | **Pass/Fail** | |
| a. Add a whole number | 3 | Message “Enter value:” is displayed and  user can successfully enter the input. | pass |
| b. Add a decimal  number | 1.1 | Back to the main menu | Pass |
| c. Add a negative whole number | -3 | Message “Enter value:” is displayed and  user can successfully enter the input. The  main menu is displayed again, awaiting  user input | Pass |
| d. Add a negative  decimal number | -1.1 | Message “Enter value:” is displayed and  user can successfully enter the input. The  main menu is displayed again, awaiting  user input | pass |
| 1. e. Add an invalid alpha character | A, a | Array only can except decimal numbers... Please try again | pass |
| f. Add an invalid  symbol character | #, @ | Array only can except decimal numbers... Please try again | pass |
| g. Display values | From main  menu select 5 | Average is: -1.00, Minimum value is -3.00, Maximum value is 1.10 | pass |

4. Display Average

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| |  | | --- | | **Description of Test** | | |  | | --- | | **Input Values** | | |  | | --- | | **Output / Result** | | |  | | --- | | **Pass/Fail** | |
| a. Display average after adding 4 numbers in previous test | 5 | Message “Average is:” displayed as it should as max and min  The  main menu is displayed again, awaiting  user input | pass |
| b. Add another number | Select 3 from  main menu,  enter 2 | Message “Enter value:” is displayed and  user can successfully enter the input. The  main menu is displayed again, awaiting  user input | pass |
| c. Display average after  adding additional  number | 5 | Message “Average is: 2.32, Minimum value is 1.10, Maximum value is 3.30” will  be displayed it sets to two decimal points . The main menu is  displayed again, awaiting user input | pass |

5. Adding values to the Array

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| |  | | --- | | **Description of Test** | | |  | | --- | | **Input Values** | | |  | | --- | | **Output / Result** | | |  | | --- | | **Pass/Fail** | |
| a. Re-specify the max  size of the array | 2 then 5 | To the user, nothing appears to happen.  The main menu is displayed again,  awaiting user input | pass |
| b. Display values in the  array | 4 | The heading “Numbers are:” is displayed  with no numbers listed. The main menu  is displayed again, awaiting user input | pass |
| c. Add numbers  (1,2,3,4,5) to the array | Select 3 from  main menu,  then add values 5  times | Message “Enter value:” is displayed and  user can successfully enter the input. The  main menu is displayed again, awaiting  user input | pass |
| d. Display values in the array | 4 | The heading “Numbers are:” is displayed  with all 5 numbers listed. The main menu  is displayed again, awaiting user input | pass |
| e. Add 6th number | Select 3 from  main menu | Array full message display to the user | pass |
| 1. f. Display values in the array | 4 | The heading “Numbers are:” is displayed  with all 5 numbers listed. The main menu  is displayed again, awaiting user input | pass |
| g. Display average | 5 | Message “Average is: 3.00, Minimum value is 1.00, Maximum value is 5.00 ” will be  displayed. The main menu is displayed  again, awaiting user input | pass |