

CST8130 – Data Structures

Lab 1 – Test Plan

1. Display of Main Menu

| Description of Test | Input Values | Output / Result | Pass/Fail |
|-------------------------------------|--------------|--|-------------|
| a. Valid input | 1,2,3,4,5,6 | Resulting feature will be as described in the following tables | <u>PASS</u> |
| b. Invalid input – digits | 0, 7, 100 | An error message is displayed, and the main menu is displayed again, awaiting user input | <u>PASS</u> |
| c. Invalid input – Alpha characters | A, a | An error message is displayed, and the main menu is displayed again, awaiting user input | <u>PASS</u> |
| d. Invalid input – Symbol | @, | An error message is displayed, and the main menu is displayed again, awaiting user input | <u>PASS</u> |
| e. Invalid input – Whitespace | Space, tab | An error message is displayed, and the main menu is displayed again, awaiting user input | <u>PASS</u> |

2. Tests on Empty Data

| 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 | <u>PASS</u> |
| b. Re-initialize a default array | 1 | To the user, nothing appears to happen. The main menu is displayed again, awaiting user input | <u>PASS</u> |
| c. Specify the max size of the array | 2 then 10 | To the user, nothing appears to happen. The main menu is displayed again, awaiting user input | <u>PASS</u> |
| d. 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 | <u>PASS</u> |
| 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 | <u>PASS</u> |
| f. Display the average of the values | 5 | The message “Average is: 0.0” is displayed. The main menu is displayed again, awaiting user input | <u>PASS</u> |
| g. Exit the application | 6 | The message “Exiting...” is displayed and the program is terminated | <u>PASS</u> |

3. Adding values to the Array

At the beginning of each test, select 3 from the main menu. Priot

| 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. The main menu is displayed again, awaiting user input | <u>PASS</u> |
| b. Add a 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 | <u>PASS</u> |
| 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 | <u>PASS</u> |
| 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 | <u>PASS</u> |
| e. Add an invalid alpha character | A, a | An error message is displayed, and the main menu is displayed again, awaiting user input | <u>PASS</u> |
| f. Add an invalid symbol character | #, @ | An error message is displayed, and the main menu is displayed again, awaiting user input | <u>PASS</u> |
| g. Display values | From main menu select 5 | All values successfully added in this test are displayed. The main menu is displayed again, awaiting user input | <u>PASS</u> |

4. Display Average

Note: Averages for floats may vary on different machines.

| Description of Test | Input Values | Output / Result | Pass/Fail |
|--|----------------------------------|--|-------------|
| a. Display average after adding 4 numbers in previous test | 5 | Message “Average is:” will be displayed with a very small number (why?). The main menu is displayed again, awaiting user input | <u>PASS</u> |
| 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 | <u>PASS</u> |
| c. Display average after adding additional number | 5 | Message “Average is: 0.39999998” will be displayed (why?). The main menu is displayed again, awaiting user input | <u>PASS</u> |

5. Shrinking Array

| 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 | <u>PASS</u> |

| Description of Test | Input Values | Output / Result | Pass/Fail |
|---|---|--|-------------|
| 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 | <u>PASS</u> |
| c. Add numbers (1,2,3,4,5) to the array | Select 3 from main menu, then value 5 times | Message "Enter value:" is displayed and user can successfully enter the input. The main menu is displayed again, awaiting user input | <u>PASS</u> |
| 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 | <u>PASS</u> |
| e. Add 6 th number | Select 3 from main menu, enter 2 | An error message is displayed, and the main menu is displayed again, awaiting user input | <u>PASS</u> |
| 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 | <u>PASS</u> |
| g. Display average | 5 | Message "Average is: 3.0" will be displayed. The main menu is displayed again, awaiting user input | <u>PASS</u> |