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fun fact: Sharks existed before trees!

**Follow the following link to get the C sample codes**

**https://cpr101.ca/SDLC-Testing/index.html**

**See the topic's slides, the activity instructions, and the Programming Test Cases.docx (**

BlackBox-StringDemo.c**)**

The number of rows in the tables below are for convenience; they do not indicate the number of cases expected.

**Test Cases for the Black box program**

| **Description** | **+ / − Purpose** | **Data Input** | **Expected Output** | **Actual output if unexpected** | **Success?** | **Comments** |
| --- | --- | --- | --- | --- | --- | --- |
| **Inputting the testing string** | **+ (Acceptance of standard strings)** | **String: “Hello World”** | **Procedure to the next phase** |  | **YES** |  |
| **Inputting the testing string** | **- Acceptance of not standard strings** | **String: “ ”** | **\*\*Not Processing the input and asking user for proper input** | **\*\*string got accepted** | **NO** | **It’s a better idea to add a sanity check for input** |
| **Inputting number for position extraction** | **+ (Process of standard input which is basically prompted)** | Position:1  **“Hello world” test case** | **H** | **L** | **NO** | **Obviously there is a bug in the program and needs to be fixed! – further tests are required so we have some idea what would the problem be** |
| Inputting out of range number | - Checking for unexpected input from user | Position: -1 | \*\* **Not Processing the input and asking user for proper input** | Number got accepted and got an output!! | NO | The input shouldn’t have got accepted although now its more likely to say the input index of the string is incremented instead decrementing by 1 so the program would be user friendly |
| Inputting out of range number | - Checking for unexpected input from user | Position: 100 | \*\* **Not Processing the input and asking user for proper input** |  | YES | Although we didn’t get an output from the user but its better to say instead no response we can prompt the user for another input |
| Inputting non numerical characters | - Checking for unexpected input from user | Position: D | \*\* **Not Processing the input and asking user for proper input** | e | NO |  |
| Inputting non integral numbers | - Checking for unexpected input from user | Position: 1.3 | \*\* **Not Processing the input and asking user for proper input** | L | NO | :/ |
| Exiting the program as prompted | + Checking for the actual instructions to exit the program | Position:0 | \*\*exit the program | e | NO | Since there is a problem with the indexing 0 is still counted as an index not a way to exit |
| **Another try to exit the program** | **+ Checking if there is another alternative way to exit the program** | **String: zero** | \*\*exit the program |  | **YES** | **Its clever but not user friendly :)** |
| --------------- | --------------- | --------------- | --------------- | --------------- | --------------- | --------------- |
| Testing | | | | | | |
| Standard input | + Testing for expected numbers | A: 2  B: 3 | 5 |  | YES |  |
| **Standard input but with different negative values** | + Testing for expected numbers | A: -2  B: -6 | **-8** |  | **YES** |  |
| **Standard input but with decimal values** | + Testing for expected numbers | A: 1.2  B: 4.5 | 5.7 | 6 | NO | Since there was no instruction on the data type and simply asking for “A value” so there is a UX issue here or lack of use case research |
| Not standard inputs | - Testing for combination of non numerical characters and numerical | A: 5  B: hello | \*\* **Not Processing the input and asking user for proper input** | 5 | NO | Logically the only value I entered was counted and the other did not interrupt the process although to be safe its better to not start processing when the values are not right |
| Not standard inputs | - Testing all non-Numerical | A: Hello  B: \* | \*\* **Not Processing the input and asking user for proper input** | 0 | NO |  |
| Not standard inputs | - Testing all non-Numerical | A:  B: | \*\* **Not Processing the input and asking user for proper input** | 0 | NO |  |
| Exiting for program | + Testing given instructions | \*Ctrl + C | Exit the program |  | YES |  |

**Test Cases for the White box program.**

| **Description** | **+ / − Purpose** | **Data Inputs for X and O** | **Expected Output** | | **Actual output if unexpected** | | **Success?** | **Comments** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Start program | Record initial condition | n/a | 1 2 3  4 5 6  7 8 9 |  |  | |  | To copy a grid from terminal, hold [Alt] while click & drag to select. |
| Nominal test | + check recording of alternating moves to open grid positions | X > 1 O > 2 | **X** 2 3  4 5 6  7 8 9 | X **O** 3  4 5 6  7 8 9 |  | | YES |  |
| Nominal test | - Checking for repeating positions | X > 2 O > 1 | **X** O 3  4 5 6  7 8 9 | X **O** 3  4 5 6  7 8 9 | **X** X 3  4 5 6  7 8 9 | O X 3  4 5 6  7 8 9 | NO | Since the number where repeated it should have skipped the users turn or ask for an alternative choice so the game would be fare |
| Not expected inputs | - Checking for numbers out of range given on the grid | X > -1 O > 10 | Prompting the user for a valid input | Prompting the user for a valid input |  |  | YES |  |
| Not expected inputs | - Checking for decimal numbers | X > 3.3 O > 5.5 | Prompting the user for a valid input | Prompting the user for a valid input | O X X  4 5 6  7 8 9 | O X X  4 O 6  7 8 9 | NO |  |
| Nominal scenario test | + checking for winning of a player | X > 6 O > 9 | O X X  4 O X  7 8 9 | O X X  4 O X  7 8 O |  | O is DIAGONAL 1-5-9 WINNER! | YES |  |
| Not expected inputs | - Checking for non numerical characters | X > a O > b | Prompting the user for a valid input | Prompting the user for a valid input |  |  | YES |  |
| Not expected inputs | - Checking for mathematical expression of the desired choice | X > 1+4 O > | Prompting the user for a valid input |  | X 2 3  4 5 6  7 8 9 | X 2 3  O 5 6  7 8 9 | NO | This would take the second number as the choice of the other user!  Not bad! Though its buggy |
| Not expected inputs | - Lets test if taking two input at once would make two winners at the same time | X >2+6 O > | Prompting the user for a valid input |  | X X X  O O 6  7 8 9  X wins | X X X  O O O  7 8 9  O wins | NO | Interesting…. |
| Not expected inputs | - What is we can finish the game with one input ? | X > 2+4+1+5+3+6 O > | Prompting the user for a valid input |  | X X X  O O 6  7 8 9  X wins | X X X  O O O  7 8 9  O wins | NO |  |
| End of the Program after a win | - since there is no prompt to end the program lets see if it ends after a user wins | X > 2+4+1+5+3 and <ENTER> (for fast ending) O > | Ending the program | Ending the program | X X X  O O 6  7 8 9  X wins |  | NO | The program is still running |
| Resetting the Program after a round of the game | - since there is no prompt to end the program lets see if it ends after a user wins | X > 2+4+1+5+3 and <ENTER> (for fast ending) O > | Ending the program | Ending the program | X X X  O O 6  7 8 9  X wins |  | NO | The program is still running with the same after math |