Patel vrundaben Vijaykumar158605220 vvpatel20@mySeneca.ca  
Click or tap here to enter text.

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

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** |
| --- | --- | --- | --- | --- | --- | --- |
|  |  | **String:** hello, world! |  |  |  | The test should extract the position as entered by the user |
| Testing minimum edge condition | + | Position: 1 | l | l | yes | The test successfully extracts the character ‘l’ from the 1st position |
| Testing maximum edge condition | + | Position:11 | ! | ! | yes | The test successfully extracts the character ‘!’ from the last position |
| Testing nominal behavior | + | Position:5 | ‘ ‘ | ‘ ‘ | yes | The test successfully extracts the character ‘ ’ from the 5th position which is a space |
| Testing repeatability | + | Position:1 | l | l | yes | The test successfully extracts the character ‘l’ from the 1st position hence proving repeatability |
| Testing beyond the minimum edge condition | **-** | Position: 0 | prompt for new string | e | no | The test should have prompted for new string but instead it printed ‘e’ as the character on 0 position |
| Testing beyond maximum edge condition | **-** | Position: 12 | Should show a void/ empty character | **‘ ‘** | yes | the test handles the out-of-bounds position and prompts for a new position. |
| Testing when an atypical length string is used (<minimum) | **-** | **String:** vru  Position: 1 | u | u | yes | The test extracts the character on 1st position successfully |
| Testing when an atypical length string is used(>maximum) | **-** | **String:**123456789  Position:11 | Should show a void/ empty character | ‘ ‘ | yes | the test handles the out-of-bounds position and prompts for a new position. |

**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 |  |  |  |
|  |  | X >  O > |  |  |  |  |  |
|  |  | X >  O > |  |  |  |  |  |
|  |  | X >  O > |  |  |  |  |  |
| Testing the first turns of X & O | + | X >1  O > 2 | **X** 2 3  4 5 6  7 8 9 | X **O** 3  4 5 6  7 8 9 | Same as expected output | yes | Both players marks the first turn at its given position successfully. |
| Testing the second turns of X & O | + | X > 4 O > 5 | X O 3  **X** 5 6  7 8 9 | X O 3  X **O** 6  7 8 9 | Same as expected output | Yes | Both players marks the second turn at its given position successfully |
| Testing the third turns of X & O | + | X > 7 O > 6 | X O 3  X O 6  **X** 8 9 | X O 3  X O **O**  X 8 9 | Same as expected output | Yes | X is COLUMN 1-4-7 WINNER! |
| Testing invalid grid position | **-** | X >10  O > 11 | Error message | Error message | Instead of 13, use grid position 1 - 9  1 2 3  4 5 6  7 8 9 | yes | The program correctly handles an invalid grid position. |
| Testing non numeric input | **-** | X > a O > b | Error message | Error message | Please enter a numeric value between 1 and 9.  1 2 3  4 5 6  7 8 9 | yes | The program handles non-numeric input gracefully. |
|  |  | X >  O > |  |  |  |  |  |