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**Problem statement:**

Implement a menu-driven console application that provides the following functionalities:

1. Read a list of integers from the keyboard.

2. Print the entire list of numbers.

3. Print to console the longest sequence that observes a given property:

* Strictly increasing numbers
* Consecutive numbers have different signs.

4. Exit the application.

**1.Feature list**

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| **Features** |
| F1. Read a list of integers from the keyboard. |
| F2. Print the entire list of numbers. |
| F3. Print to console the longest sequence that contains strictly increasing numbers |
| F4. Print to console the longest sequence in which the consecutive numbers have different signs |
| F5.Cleans list of its content |
| F6. Exit the application |

**2.Running scenario 1**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **User** | **Program** | **Description** |
| a |  | Menu:  0 Exit  1 Read sequence of numbers  2 Print the list of numbers  3 Check for the largest sequence with strictly increasing numbers  4 Check for the largest sequence whose numbers have different signs  Select one of the menu options: | Shows Menu with its options |
| b | 1 |  | Choose to read list of numbers |
| c |  | Enter the list of numbers (type 'exit' to exit): | Shows message with instructions |
| d | 2 |  | Add number to the list |
| e |  | Number added to the list | Shows message that confirms |
| f | 3 |  | Add number to the list |
| g |  | Number added to the list | Shows message that confirms |
| h | 0 |  | Add number to the list |
| i |  | Number added to the list | Shows message that confirms |
| j | 2 |  | Add number to the list |
| k |  | Number added to the list | Shows message that confirms |
| l | 3 |  | Add number to the list |
| m |  | Number added to the list | Shows message that confirms |
| n | exit |  | Stops reading the list of numbers |
| o |  | Select one of the menu options: | Shows message to make the user aware of reaching the menu |
| p | 2 | The list is:  [2, 3, 4, 0, 2, 3]  Select one of the menu options: | Prints the list of numbers  Shows message to make the user aware of reaching the menu |
| q | 3 |  | Choose to see the largest sequence with property one |
| r |  | Property 1: strictly increasing numbers  [2, 3, 4]  Select one of the menu options: | Shows specific message and prints out the demanded list |
| s | 5 |  | Choose an options that does not exist in the menu |
| t |  | Ooops... something went wrong:  That command wasn't valid!  Select one of the menu options: | Shows specific error |
| u | 4 |  | Choose to exit the application |
| v |  | The end of the program | Shows exit message |

**3.Running scenario 2**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **User** | **Program** | **Description** |
| a |  | Menu:  0 Exit  1 Read sequence of numbers  2 Print the list of numbers  3 Check for the largest sequence with strictly increasing numbers  4 Check for the largest sequence whose numbers have different signs  Select one of the menu options: | Shows Menu with its options |
| b | 1 |  | Choose to read list of numbers |
| c |  | Enter the list of numbers (type 'exit' to exit): | Shows message with instructions |
| d | 2 |  | Add number to the list |
| e |  | Number added to the list | Shows message that confirms |
| f | -2 |  | Add number to the list |
| g |  | Number added to the list | Shows message that confirms |
| h | 1 |  | Add number to the list |
| i |  | Number added to the list | Shows message that confirms |
| j | 1 |  | Add number to the list |
| k |  | Number added to the list | Shows message that confirms |
| l | -3 |  | Add number to the list |
| m |  | Number added to the list | Shows message that confirms |
| n | exit |  | Stops reading the list of numbers |
| o |  | Select one of the menu options: | Shows message to make the user aware of reaching the menu |
| p | 2 | The list is:  [2, -2, 1, 1, -3]]  Select one of the menu options: | Prints the list of numbers  Shows message to make the user aware of reaching the menu |
| q | 4 |  | Choose to see the largest sequence with property two |
| r |  | Property 1: strictly increasing numbers  [2, -2, 1]  Select one of the menu options: | Shows specific message and prints out the demanded list |
| s | 5 |  | Choose an options that does not exist in the menu |
| t |  | Ooops... something went wrong:  That command wasn't valid!  Select one of the menu options: | Shows specific error |
| u | 4 |  | Choose to exit the application |
| v |  | The end of the program | Shows exit message |

**4.Test case table for function strictlyIncreasingCondition(a, b)**

|  |  |
| --- | --- |
| **Data: a, b** | **Result: strictlyIncreasingCondition(a, b)** |
| 2 4 | True |
| 4 6 | True |
| 6 5 | False |
| 0 2 | True |
| 2 0 | False |
| 24 0 | False |
| as 0 | ValueError |
| 0 2w | ValueError |

**5.Test case table for function alternateSignCondition(a, b)**

|  |  |
| --- | --- |
| **Data: a, b** | **Result: alternateSignCondition(a, b)** |
| 2 4 | False |
| -2 3 | True |
| 6 3 | False |
| 1 -2 | True |
| 2 3 | False |
| 24 0 | False |
| --2 0 | ValueError |
| 0 1q | ValueError |

**6.Test case table for function checkCondition(listOfNumbers, givenCondition, pairFlag)**

|  |  |
| --- | --- |
| **Data: ListOfNumbers givenCondition pairFlag** | **Result: checkCondition(listOfNumbers, givenCondition, pairFlag)** |
| [1,2,3,4,0,1,2] strictlyIncreasingCondition True | (0, 3) |
| [1,2,3,4,0,1,2,4,5,6] strictlyIncreasingCondition True | (-1, -2) |
| [-1,-2,3,-4,5,6,7] alternateSignCondition True | (1, 4) |
| [1,2,3,4,0,5,6,7,8,9,0,1] strictlyIncreasingCondition True | (4, 9) |
| [] alternateSignCondition True | (-1, -2) |
| [] strictlyIncreasingCondition False | TypeError |