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| Feature list |
| F1. Add numbers into the list. |
| F2. Modify elements from the list. |
| F3. Write the numbers having different properties. |
| F4. Obtain different characteristics of sublists. |
| F5. Filter. |
| F6. Undo the last operation. |

Problem statement : A math teacher needs a program in order to help students to ***test different properties of numbers***.

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| Iteration | Planned features |
| I1 | F1, F5 |
| I2 | F3, F4 |
| I3 | F2, F6 |

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|  | User | Program | Description |
| a |  | Please choose from the following features :  1. Add numbers into the list 2. Modify elements from the list  3. Write the numbers having different properties 4. Obtain different characteristics of sublists 5. Filter” 6. Undo the last operation You can always exit the application by writing “exit” | Presents the features |
| b | 1 |  | Wants to add a number into the list |
| c |  | Examples of the commands supported by our application :  “add 123” – adds 123 at the end of the list  “insert 123 at 1” – insert number 123 at position 1 in the list; positions are numbered from 0 | Presents the commands |
| d | add 3 |  | Adds 3 at the end of the list |
|  |  | Please choose from the following features :  1. Add numbers into the list 2. Modify elements from the list  3. Write the numbers having different properties 4. Obtain different characteristics of sublists 5. Filter” 6. Undo the last operation You can always exit the application by writing “exit” | Presents the user the features |
|  |  |  |  |
| e | 5 |  | Chooses feature 5 |
| f |  | Examples of the commands supported by our application :  “filter prime” – retains only the prime numbers “filter negative” – retains only the negative numbers  Please write a command | Presents the commands and asks for input |
| g | filte prime |  | Writes a wrong command |
| h |  | Please write a command, as seen in the example :  “filter prime” – retains only the prime numbers “filter negative” – retains only the negative numbers  Please write a command | Asks for a correct input |
| i | filter negative |  | Commands the program to retain only negative numbers in the list |
| J |  | [] | Prints empty list |
| K |  | Please choose from the following features :  1. Add numbers into the list 2. Modify elements from the list  3. Write the numbers having different properties 4. Obtain different characteristics of sublists 5. Filter” 6. Undo the last operation You can always exit the application by writing “exit” | Presents the features |
| L | 3 |  | Selects feature |
| M |  | prime from 1 to 5 – writes the prime numbers between position 1 and 5 in the list odd from 1 to 5 – writes the odd numbers between position 1 and 5 in the list | Presents options |
| N | prime from 1 to 5 |  | Selects option |
| O |  | 3, 5 | Prints the prime numbers in the given range |
| P |  | Please choose from the following features :  1. Add numbers into the list 2. Modify elements from the list  3. Write the numbers having different properties 4. Obtain different characteristics of sublists 5. Filter” 6. Undo the last operation You can always exit the application by writing “exit” | Presents the features |
| Q | 4 |  | Selects feature |
| R |  | sum from 1 to 5 - writes the sum numbers between position 1 and 5 in the list gcd from 1 to 5 - writes the greatest common divisor of elements between position 1 and 5 in the list | Presents options |
| S | Gcd from 1 to 6 |  | Selects option |
| T |  | 4 | Prints GCD |
| U |  | Please choose from the following features :  1. Add numbers into the list 2. Modify elements from the list  3. Write the numbers having different properties 4. Obtain different characteristics of sublists 5. Filter” 6. Undo the last operation You can always exit the application by writing “exit” | Presents features |
| V | exit |  | User wants to close the program |
| W |  | - | Program closes |

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| T1 | Presents the user the possible commands for adding to the list feature and gets a command |
| T2 | Checks if the input is a valid add to list input |
| T3 | Adds to the list, based on the input |
| T4 | Checks if a number is prime |
| T5 | Presents the user the possible commands for filtering the list feature and gets a command |
| T6 | Checks if the input is a valid filter input |
| T7 | Filters the list, based on the input |
| T8 | Presents the user the features of the program and gets a menu number |
| T9 | Checks if a string has the format WordNumberWordNumber (Numbers can be negative if the corresponding Boolean is True) |
| T10 | Checks if a string has the format WordNumber (Number can be negative if the Boolean is True) |
| T11 | Checks if the input is a valid property input |
| T12 | Performs the property command given by the user |
| T13 | Presents the user the possible command for getting the numbers with a certain property and gets a command |
| T14 | Checks if the input is a valid characteristic input |
| T15 | Performs the characteristic command given by the user |
| T16 | Presents the user the possible command for obtaining a certain characteristic of the numbers in the list in a given range and gets a command |
| T17 | Gets the maximum from a list |
| T18 | Gets the sum of the elements of a list |
| T19 | Gets the greatest common divisor of two numbers |
| T20 | Gets the greatest common divisor of the numbers in a list |
|  |  |

T3 -> T1

T2 -> T1

T4 -> T7

T5 -> T8

T1 -> T8

T6 -> T5

T7 -> T5

T9 -> T2

T10 -> T2

T11 -> T13

T12 -> T13

T14 -> T16

T15 -> T16

T17 -> T15

T18 -> T15

T19 -> T20

T20 -> T15