Data 10.24.17 Name Goteciuc Horatiu Gabriel

# Problem statement:

# During a programming contest for students, each contestant had to solve 3 problems (named P1, P2and P3). Afterwards, an evaluation committee graded the solution to each of the problems solved bythe contestants using integers between 0 and 10. The committee needs a program that will allowmanaging the list of scores and establishing the winners.

# Feature list

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| **Feature** |
| 1. Add a new score to the list |
| 2. Show the current list. |
| 3. Remove scores from the list on a range, a position or with a given property |
| 4. Replace the score of a given problem |
| 5. Compute the average score on a given range |
| 6. Compute the minimum score on a range |
| 7. Determine the general top or the top scores on a given problem |
| 7. Performe the undo operation on then current set of scores |

## Running scenario 1

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| --- | --- | --- | --- |
|  | **User** | **Program** | **Description** |
| a | help |  |  |
| b |  | Show help menu | Shows the allowed commands |
| c | list |  |  |
| d |  | [7, 6, 8]  [10, 7, 9]  [5, 3, 4]  [2, 8, 3]  [9, 8, 10]  [4, 6, 10]  [10, 5, 4]  [7, 9, 7]  [2, 4, 6]  [8, 8, 7] | Shows the preinitialized list |
| e | add 2 3 2 |  | Adds the score <2, 3, 2> to the list |
| f | list sorted | [9, 8, 10]  [10, 7, 9]  [7, 9, 7]  [8, 8, 7]  [7, 6, 8]  [4, 6, 10]  [10, 5, 4]  [2, 8, 3]  [5, 3, 4]  [2, 4, 6]  [2, 3, 2] | Show the list sorted by the average score |
| g | remove 2 to 4 |  | Deletes the elements from position 2 to 4 from the list |
| h | list |  |  |
| i |  | [7, 6, 8]  [9, 8, 10]  [4, 6, 10]  [10, 5, 4]  [7, 9, 7]  [2, 4, 6]  [8, 8, 7]  [2, 3, 2] | Shows the current list |
| j | avg 4 to 6 |  |  |
| k |  | 6.0 | Shows the average score from position 4 to 6 |
| l | top 3 P1 |  |  |
| m |  | [10, 5, 4]  [9, 8, 10]  [8, 8, 7] | Shows the top 3 scores sorted by the score at the first problem |
| n | exit |  |  |
| o |  |  | Exit the application |

## Tasks

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| **Id** | **Description** |
| T1 | Implement a command based user interface |
| T2 | Implement a function that adds elements to the list |
| T3 | Implement a function that removes elements from the list |
| T4 | Implement a function that replaces the score of a given problem at a given position |
| T5 | Implement functions for minimum and average score on a range |
| T6 | Implement top determination function |
| T7 | Implement the undo command |
| T8 | Validate the input |
| T9 | Implement test functions |