Homework 2

Upload your source code file from *DEUZEM SAKAI* until **December 25, 2024, 23:55.**

Upload only a single *.cs file.
The name of the file: **number_name_surname.cs**
For example: 2023510028_ali_yildirim.cs

Write a C# program for the game ***Tombala***. It is a very useful game to teach the letters of the alphabet to children.

Two users will play the game with age 3+ years.

On each card (**two-dimensional array**), there are two rows. Each row contains 4 different letters in accordance with the following rules:
- The first row contains the English letters from A to M;
- The second row contains the English letters from N to Z;

At the beginning of the game, each card should be randomly filled with distinct values.

Example:

The card of player1

M	A	K	D
P	U	Z	N

The card of player2

C	A	M	E
T	N	O	R

There is a small bag (**one-dimensional array**) including English letters from A to Z and a Joker (☺).

The computer randomly selects a letter from the bag. Each player deletes that letter from his/her array. Selected letter is removed from the bag, so the next letter is selected from the remaining letters.

If joker character (☺) is selected from the bag, both players deletes the largest letter (in terms of the ASCII values of the characters) from their cards.
For instance; in the example above, *player1* deletes the letter *Z* and *player2* deletes the letter *T*.

The first player to be able to delete all letters in one row from the array yells “First Çinko” and wins the first prize (150 points). If both players delete one row at the same time, nobody gets award (tie).

In each row of the cards, player earns 100 points when the letters with the lowest and highest values in this row are removed. For instance, in the given example above, after *player1* deletes both A (the letter with the lowest value of that row) and M (the letter with the highest value of that row) from the first row, then his score is updated by adding 100 points.

The type of each deleted letter as *vowel* or *consonant* has an effect on the total score. A score multiplier is used to determine the additional points gained from the letter type. The initial score multiplier is 30, and its value is decreased by 1 in each round. When a letter is removed from the cards of any of the players:

- If it's a vowel, the player receives 3 times the score multiplier as additional points.
- If it's a consonant, the player receives 2 times the score multiplier as additional points.

For example, if the round is 1, score multiplier is 30. If the letter E is deleted from any card, then the total score of the player is updated by adding 30 * 3 = 90 points because E is a vowel. If the round is 3, then the score multiplier is 30 - 2 = 28. When the letter B is deleted from any card in this round, then the total score of the player is updated by adding 28 * 2 = 56 points because B is consonant.

When a person deletes all letters from the array, he/she yells “Tombala” and wins the game and gets the grand prize. If both players delete their last letters at the same time, the game is over without any winner (tie).
The winner should be displayed, if exists.

The program must display all steps until the game is over.
At the end of the game, the program should also display “how many steps it takes, until the game is over”.
For example: in the following example, the game is over after 10 steps.

Don’t take any input from the user.

Sample output:

Player1: M A K D P U Z N	Player2: C A M E T N O R	Player 1 score: 0 Player 2 score: 0
1. selected letter: F Neither player scored a point		
Player1: M A K D P U Z N	Player2: C A M E T N O R	Player 1 score: 0 Player 2 score: 0
2. selected letter: D Player 1 gained 58 points		
Player1: M A K P U Z N	Player2: C A M E T N O R	Player 1 score: 58 Player 2 score: 0
3. selected letter: C Player 2 gained 56		
Player1: M A K P U Z N	Player2: A M E T N O R	Player 1 score: 58 Player 2 score: 56
4. selected letter: N Player 1 gained 54 points Player 2 gained 54 points		
Player1: M A K P U Z	Player2: A M E T O R	Player 1 score: 112 Player 2 score: 110
5. selected letter: P Player 1 gained 52 points		
Player1: M A K U Z	Player2: A M E T O R	Player 1 score: 164 Player 2 score: 110
6. selected letter: Z Player 1 gained 50 points Player 1 gained 100 points		
Player1: M A K U	Player2: A M E T O R	Player 1 score: 314 Player 2 score: 110
7. selected letter: U Player 1 gained 72 points First Çinko - Player1 wins the prize and gains 150 points		
Player1: M A K	Player2: A M E T O R	Player 1 score: 536 Player 2 score: 110
8.selected letter: A Player 1 gained 69 points Player 2 gained 69 points		
Player1: M K	Player2: M E T O R	Player 1 score: 605 Player 2 score: 179
9.selected letter: ☺ Player 1 gained 44 points Player 2 gained 44 points Player 1 gained 100 points Player 2 gained 100 points		
Player1: K	Player2: M E O R	Player 1 score: 749 Player 2 score: 323
10. selected letter: K Player 1 gained 42 points		
Player1:	Player2: M E O R	Player 1 score: 791 Player 2 score: 323
Tombala - Player1 wins the grand prize		

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The game is over after 10 steps.

Good Bye!
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This homework will be graded by Res.Asst. Orkun ÇINAR.
You can ask your questions to him from the "**FORUM → Homework 2 - Questions**" part of the *DEUZEM SAKAI* software.

Notes:

1. You should use meaningful variable names, appropriate comments, and good prompting messages.

2. If you want, you may write your own "*procedures / functions*".

3. Your program must work correctly under all conditions. Try to control all possible errors.

4. If you are late, your grade will be decreased 10 points for each day. After five days, your assignment will not be accepted.

5. Assignment must be your individual work. **Cheating** is strictly prohibited. If any cheating occurs, your assignment will be graded with **zero (0)**. A software will be used to automatically detect the similarities between all the source-codes of all the students.