# Refactoring Documentation for Project "Bulls And Cows 5"

1. Redesigned the project structure:
   * Renamed the project to **BullsAndCowsGame**;
   * Renamed the namespace to **BullsAndCowsGame**;
   * Renamed the main class **Program** to **BullsAndCows**;
   * Extracted each class in a separate file with a good name: **BullsAndCowsCore.cs**, **Scoreboard.cs**, **Message.cs, BullsAndCows.cs**.
2. Reformatted the source code:
   * Removed all unneeded empty lines in all the classes (BullsAndCowsCore.cs, Scoreboard.cs, Message.cs, BullsAndCows.cs);
   * Inserted empty lines between all the methods;
   * Split the lines containing several statements into several simple lines, e.g.:

|  |  |  |
| --- | --- | --- |
| **if (klasirane**.**Count == 6) klasirane.RemoveAt(5);** | ➔ | **if (klasirane.Count == 6)**  **{**  **klasirane.RemoveAt(5);**  **}** |

* Formatted the curly braces **{** and **}** according to the best practices for the C# language;
* Put **{** and **}** after all conditionals and loops (when missing);
* Character casing: variables and fields made **camelCase**; types and methods made **PascalCase;**
* Formatted all other elements of the source code according to the best practices introduced in the course "High-Quality Programming Code".

1. Renamed variables:

|  |  |  |
| --- | --- | --- |
| **Scoreboard:klasirane** | ➔ | **highScoreList** |

|  |  |  |
| --- | --- | --- |
| **CountBullsAndCows:guess** | ➔ | **guessNumber** |

1. Introduced constants:
   * **const int MinNumber = 1000;**
   * **const int MaxNumber = 10000.**
2. Extracted the methods **MakeNewJoker(), CountBullsAndCows(string guessNumber), ReadPlayerInput()** etc.from the method **Main()**.
3. Introduced classes **BullsAndCowsCore, Messages, Scoreboard** and moved all related functionality in them.

# Introduced test classes for all classes: BullsAndCowsCoreTest, BullsAndCowsTest, MessagesTest, ScoreboardTest.

1. Introduced test methods in the test classes:

|  |  |  |
| --- | --- | --- |
| **ScoreboardTest** | ➔ | **TestScoreboardAddAndDisplayPlayers() etc.** |

|  |  |  |
| --- | --- | --- |
| **MessagesTest** | ➔ | **TestPrintGetWelcomeMsg(),TestGetCallMsg() etc.** |