Cows and Bulls - Variant 1

**Project structure:**

Implement Command pattern to organize all gameplay actions.

Implement Command Factory responsible for creating instances of concrete commands.

Implement the following concrete commands:

1. Exit command
2. Guess command
3. Help command
4. Restart command
5. Top command

Change the main file cows\_buls.cs to GameEngine.

Keep the main methods Play, Initialize and GenerateNumberForGuess.

Move the logic from the while loop in Play method to separate method called ExecuteCommandLoop.

Remove all duplicate code.

Move ProcessTextCommand and ProcessDigitCommand methods to Create method in Command Factory.

Refactored CountBullsAndCows method to two separate classes – CountBulls and CountCows.

Move PrintBullsAndCows, UpdateGuessString, CountCows, CountBulls and CountCowsForCurrentDigit methods to Guess command.

Move RevealDigit and PrintHelpingNumber methods to Help command.

Create ScoreBoard class holding information for top players.

Replace List<PlayerInfo> with instance of ScoreBoard class

Move AddPlayerToScoreboard, AddPlayer, PrintScoreboard and PrintLine to ScoreBoard class.

Decouple the input source and output destination by creating IInputReader and IOutputWriter intefaces. Make the GameEngine work with classes(ConsoleReader and ConsoleWriter) implementing these two interfaces instead of working directly with the Console.

Decouple all commands from the GameEngine by making the commands use IGameEngine interface instead of working directly with the GameEngine class.

Introduced constants and created separate classes for them (Messages, ExceptionConstants and GameConstants).

Replaced string concatenation with StringBuilders for optimization.

Changed the protection level for methods.

Naming:

Change names in bulgarian to english.

Change the casing of all private fields to camel case.

Change the casing of all public properties , methods and constants to Pascal case.

Formatting:

Put **{** and **}** after all conditionals and loops

Remove unnecessary empty lines.

Move all namespaces outside of the classes.

Keep the conventon for formating the code.