# Refactoring Documentation for Project “King-Survival-2”

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1. Reformatted the source code:
   * Removed all unneeded empty lines.
   * Removed all useless comments.
   * Change methods names.
   * Change variable names.
2. Created class diagram.
3. Created new class hierarchy. In the feature methods must be translated in this classes.
   * Created abstract class Figure.
   * Created classes Pawn and King and moved corresponding logic to them.
   * Created class GameBoard and moved corresponding logic to them.
   * Created class GameEngine and moved corresponding logic to them.
4. Created new project with unit tests. Now is empty.
5. Changes in ‘CheckPlayerInput()’ method. Created new methods ‘ChechInput()’. ‘CheckPlayerInput()’ in his body invoke ‘ChechInput()’.
6. Changes in ‘CheckAndProcess()’ method. Created new methods ‘MoveFigureLeftOrRight ()’. ‘CheckAndProcess()’ in his body invoke ‘MoveFigureLeftOrRight ()’.
7. Changes in ‘CheckNextKingPosition()’ method. Created new private method ‘CheckKingAvailableMove()’. ‘CheckNextKingPosition()’ in his body invoke ‘CheckKingAvailableMove()’.
8. Changes in ‘CheckAndProcess()’, optimized king move. Created new method ‘MoveKing()’.
9. UI changes. Clearing console after valid command. Fix bugs with missing message when command was invalid.
10. Game logic is moved to separate classes.
11. Created few inputs for specific game situation.
12. Fixed bug with king win where pawns have not available move.
13. Fixed bug with pawns win where king have not available move.
14. Added method HasKingExistingMove().
15. Removed old files that are unused.
16. Encapsulated all the fields, and redirected flow through properties.
17. Transformed all static classes to instance ones.
18. Created abstract fileds in the Pawn class and implemented them into it descendants.
19. Fixed the empty command input bug with IsNullOrEmpty check.
20. Created class PlayerInteractor and created method StartGame where initialize pawns, king and board before starting the game.
21. Created class ConsoleWriter.
22. Added unit tests classes:
    * GameBoard.Test
      + GameBoard\_TestBoradStartState
      + GameBoard\_TestCheckPositionNegativeNumbers
      + GameBoard\_TestCheckPostionOutOfBoard
    * GameLogic.Test
      + CheckPawnPlayerInput\_PawnInputsDownLeftIsValidTest()
      + CheckPawnPlayerInput\_PawnInvalidInputsDownLeftTest()
      + CheckPawnPlayerInput\_PawnValidInputsDownLeftTestTwo()
      + CheckPawnPlayerInput\_PawnValidInputsDownLeftTestThree()
      + CheckPawnPlayerInput\_PawnValidInputsDownLeftTestFour()
      + CheckPawnPlayerInput\_InvalidCommand()
      + CheckForKingExit\_WithValidValueForExit()
      + CheckForKingExit\_WithInvalidValueForExit()
      + CheckForKingExit\_WithInvalidValueOutsideOfBoard()
      + CheckForKingExit\_WithInvalidBigValueOutsideOfBoard()
      + HasKingExistingMove\_KingHasNotExistingMove()
      + HasKingExistingMove\_KingHasExistingMove()
      + SetNewKingPostion\_UpRightMove()
      + HasPawnsExistingMoves\_DoesNotHaveMovesKingWin()
      + CheckForKingExit\_KingHasExit()
      + CheckForKingExit\_KingPositionIsInvalid()
      + MovePawnOnBoard\_InvalidMove()
      + MovePawnOnBoard\_ValidMove()
      + MoveKingOnBoard\_OutOfRangeMove()
      + SetNewPawnPosition\_ValidPosition()
      + GetNewKingPosition\_UpRight()
      + GetNewKingPosition\_UpLeft()
      + GetNewKingPosition\_DownLeft()
      + GetNewKingPosition\_DownRight()
    * King.Test
      + King\_TestSignGet()
      + King\_TestDefaultValidInputsGet()
      + King\_TestEmptyvalidInputsArraySet()
      + King\_TestNullIvalidInputsArraySet()
      + King\_TestDefaultFigurePositionGet()
      + King\_TestEmptyFigurePostionSet()
      + King\_TestNullFigurePostionSet()
      + King\_TestInvalidFigurePostionSet()
      + King\_TestDefaultFigureExistingMovesGet()
      + King\_TestEmptyFigureExistingMovesSet()
      + King\_TestNullFigureExistingMovesSet()
    * Pawn.Test
      + Pawn\_SignGetTest
      + Pawn\_TestPositionSet
      + Pawn\_TestEmptyPositionSet
      + Pawn\_TestNullPositionSet
      + Pawn\_TestInvalidPositionSet
      + Pawn\_TestEmptyValidInputsSet
      + Pawn\_TestNullValidInputsSet
      + Pawn\_TestNullExistingMovesSet
      + Pawn\_TestEmptyExistingMovesSet
      + Pawn\_GetNewPositionTestLeftCommand
      + Pawn\_GetNewPositionTestRightCommand
      + Pawn\_GetNewPositionTestInvalidCommand
23. Added XML documentation header for all classes and methods.
24. Small formatting changes to all classes.