# Sample Refactoring Documentation for Project “Minesweeper-6”

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**Class MinesweeperGame.cs**

1. Set the namespace at the beginning of the page.

|  |  |  |
| --- | --- | --- |
| using System;  using System.Collections.Generic;  using System.Linq;  using System.Text;  using System.Xml;  namespace MinesweeperProject  {  ……….  } | **🡪** | namespace MinesweeperProject  {  using System;  using System.Collections.Generic;  using System.Linq;  using System.Text;  using System.Xml;  ……..  } |

1. Remove the usings which are not in use:

|  |  |  |
| --- | --- | --- |
| using System.Text;  using System.Xml; | **🡪** | ~~using System.Text;~~  ~~using System.Xml;~~ |

1. Added **readonly** modifier to **private MinesweeperGrid grid** field:

|  |  |  |
| --- | --- | --- |
| private MinesweeperGrid grid; | **🡪** | private readonly MinesweeperGrid grid; |

1. The constructor is moved between the fields and the properties according to the best practices for the C# language.
2. “this” keyword added before the instances of the class.
3. Added validation in the setter of property **List<ScoreRecord> ScoreBoard**:

|  |  |  |
| --- | --- | --- |
| public List<ScoreRecord> ScoreBoard  {  get  {  return scoreBoard;  }  set  {  scoreBoard = value;  }  } | **🡪** | public List<ScoreRecord> ScoreBoard  {  get  {  return this.scoreBoard;  }  set  {  if (value != null)  {  this.scoreBoard = new List<ScoreRecord>();  foreach (ScoreRecord scoreRecord in value)  {  this.scoreBoard.Add(scoreRecord);  }  }  else  {  this.scoreBoard = null;  }  }  } |

1. Added validation in the setter of property **Score**.

|  |  |  |
| --- | --- | --- |
| public int Score  {  get  {  return score;  }  set  {  score = value;  }  } | **🡪** | public int Score  {  get  {  return this.score;  }  set  {  if (this.score < 0)  {  throw new ArgumentOutOfRangeException("The score cannot be less than 0!");  }  this.score = value;  }  } |

1. Documentation added.

**Class MinesweeperExceptions.cs**

1. Change exception inheritance:

|  |  |  |
| --- | --- | --- |
| class InvalidCellException : SystemException  {  …  }  class IllegalMoveException : SystemException  {  …  }  class CommandUnknownException : SystemException  {  …  } | **🡪** | class InvalidCellException : ApplicationException  {  …  }  class IllegalMoveException : ApplicationException  {  …  }  class CommandUnknownException : ApplicationException  {  …  } |

1. Set the namespace at the beginning of the page.

|  |  |  |
| --- | --- | --- |
| using System;  using System.Collections.Generic;  using System.Linq;  using System.Text;  namespace MinesweeperProject  {  ……….  } | **🡪** | namespace MinesweeperProject  {  using System;  using System.Collections.Generic;  using System.Linq;  using System.Text;  ……..  } |

1. Removed unused usings.
2. Documentation added.