**Report on Project: Implementing Go-Moku (five-in-row) Game**

**Team members:**

**Piran Caci**

**Simen Sverdrup-Thygeson**

**Ojin Kim**

**Abstract**

This report provides a brief overview of the game five-in-row, also known as Go-Moku (from Japanese: five-stones), the basic structure of our program, including the single-player and multi-player mode. The multi-player mode consists of two player giving input from the command line, whereas the single-player mode is a more complicated one, since we had to implement a computer-based opponent player, which takes reasonable decisions. In the single-player mode the player is playing against the computer. The program doesn’t provide a GUI (Graphical User Interface) and will only be played from giving input in the command line.

**Introduction**

The five-in-row game is a two-player abstract strategy board game often played with Go board and pieces. Its rules are simple, but they lead to a highly complex game. The board consists of n horizontal lines and n vertical lines, where two players Black and White take turns to mark their own color on one of the empty squares. The board is more often seen in sizes of 15 x 15 or 19 by 19. Five-in-row game is a game with long history. The Black player is the one who shall start the game and is believed that the first player has an advantage of winning the game. For that purpose, we choose to set the size of the board by 15 x 15, which is believed to reduce the advantage of moving first. Our board has rows marked with alphabetically ordered capital letters, whereas colons are marked with numbers. In our program, since we don’t provide Graphical User Interface, our players are marked with O for the Black player and X for the White one. These are the rules of the game; once a marker is placed on the board (in our case O for the black player starting the game ), it can’t be moved to another position later. A marker can’t be taken over by another player, either. The player, who creates a line of five consecutive markers of his color/symbol horizontally, vertically or diagonally, wins the game. A consecutive line of 6 markers can be theoretically created but will not be counted for the player who creates it, while the opponent player will not have any restriction. If no one creates five-in-row before the board is completely filled, the game is drawn.