PROBLEM STATEMENT

GAME FOR THE BLIND

MASTERMIND

**PROBLEM STATEMENT**

Games have been developed for decades to develop social skills,utilize their leisure time, improve mental skills etc .Games can also be a fun way to learn something.Our agenda was to give the same benefits to visually impaired people by developing games for their enjoyment and entertainment.

**PROBLEM SOLUTION**

‘MASTERMIND” is a computer game program specifically designed for the visually impaired. The two games currently featured on this software are Sudoku and CodeBreaker. Both games are navigable using a traditional QWERTY keyboard (with a number pad) and use pre recorded audio files to help explain the current game state to the player.

**FEATURES:**

**Sudoku User Manual**

The goal of Sudoku is to fill up the missing numbers on the board so that no number is repeated in each block, row, and column.

**4x4 Board**: A 4x4 Sudoku board is broken into four blocks. Each block contains four squares for numbers to be placed. The squares will be filled in with the numbers 1-4 such that no number is repeated in each block, row, and column.

**6x6 Board**: A 6x6 Sudoku board is somewhat different. The board is broken into six rectangles, each with six squares for numbers to be placed. Each block has two rows and 3 columns of squares to place the numbers 1-6. The squares are arranged so that there are two columns and three rows of squares on the board.

**9x9 Board**: A 9x9 Sudoku board is broken into nine blocks. Each block contains squares for numbers to be placed. The squares must be filled with the numbers 1-9 such that no number is repeated twice in each block, row, and column.

**How to Play Sudoku Using Keyboard**: The starting position is the top left of the board for all the board sizes. Navigating the board is done by using the arrow keys and the hot keys. To check if a space is empty or determine which number is in each square, simply pass over the squares to hear the number or that the square is blank. If the square is empty, no number will be read. Press the desired key and then press the number that you think belongs there. If the number is correct, it will be placed in the square. If the number is incorrect, that space will remain empty.

**CodeBreaker User Manual**

The goal of CodeBreaker is to correctly guess a predetermined code. Typically, this code is made up of a series of coloured pegs; however, in this version of CodeBreaker, numbered pegs will be used instead. The code length options are 4, 5, and 6 with the number of trials being 12, 15, and 20 respectively.

To guess the code, the player must place the correct amount of numbers from 1-6 (numbers may be used more than once) into the empty spaces. After making the guess, the player is notified about how much of their guess is correct. This is done by adding four/five/six small pegs off to the side.

A black peg means that a numbered peg is the right number in the right place. A red peg means that a peg with that number is in the code, but not in the correct place. No peg means that a peg is not the correct number nor is it in the correct place. This is repeated until the code is correctly guessed.

**How to Play Codebreaker Using Keyboard**: Use the arrow keys to select a hole to place the peg. Use the number pad to enter a number from 1 to 6. Hit the spacebar to make a guess. The player will be given feedback on the accuracy of their guess. Pressing “Q” followed by a number will read back that row. This will allow users to look back row by row and remember past guesses.