TIC TAC TOE AND ITS VARIANTS

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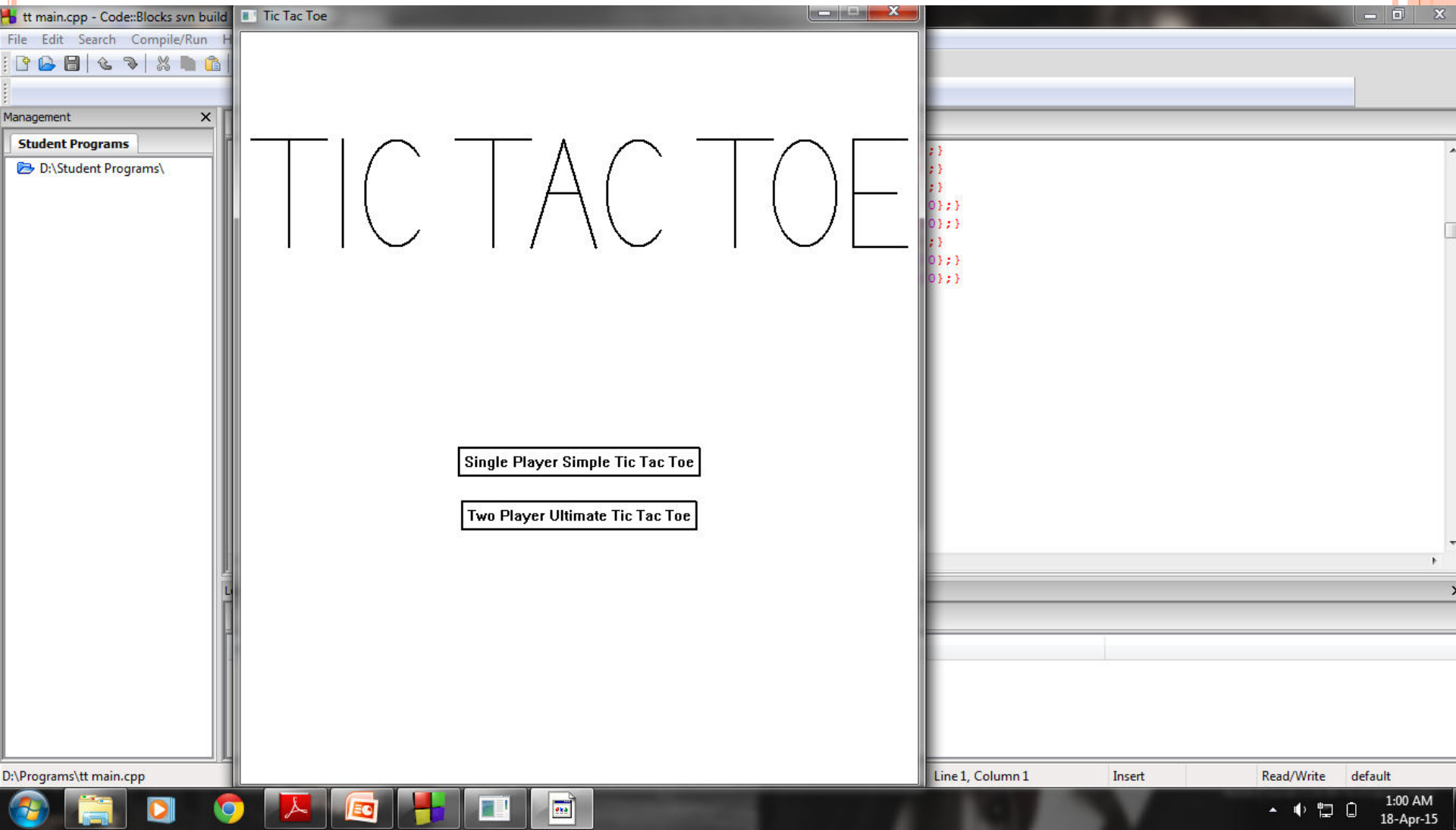
PROBLEM STATEMENT

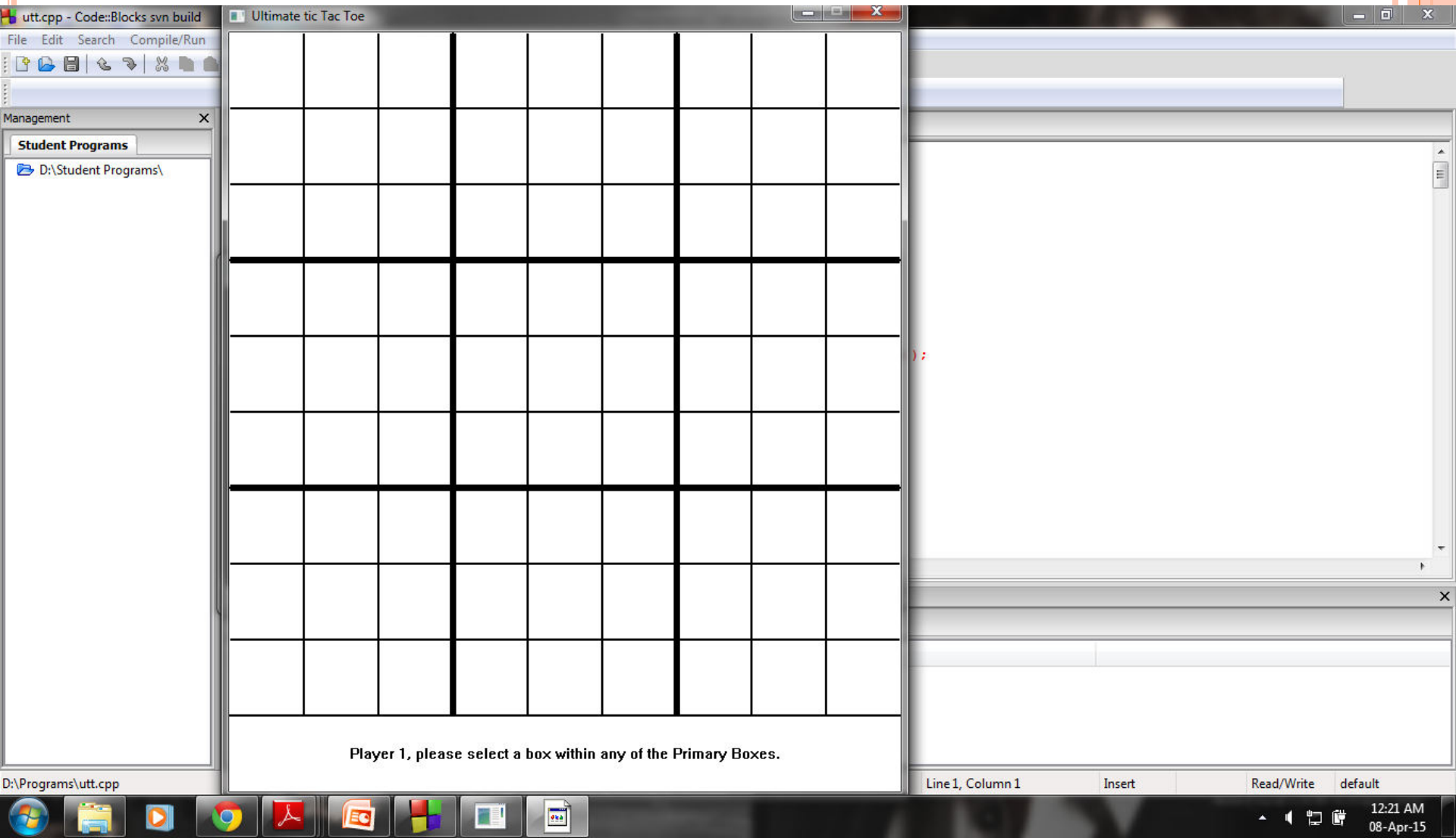
The aim of our project was:

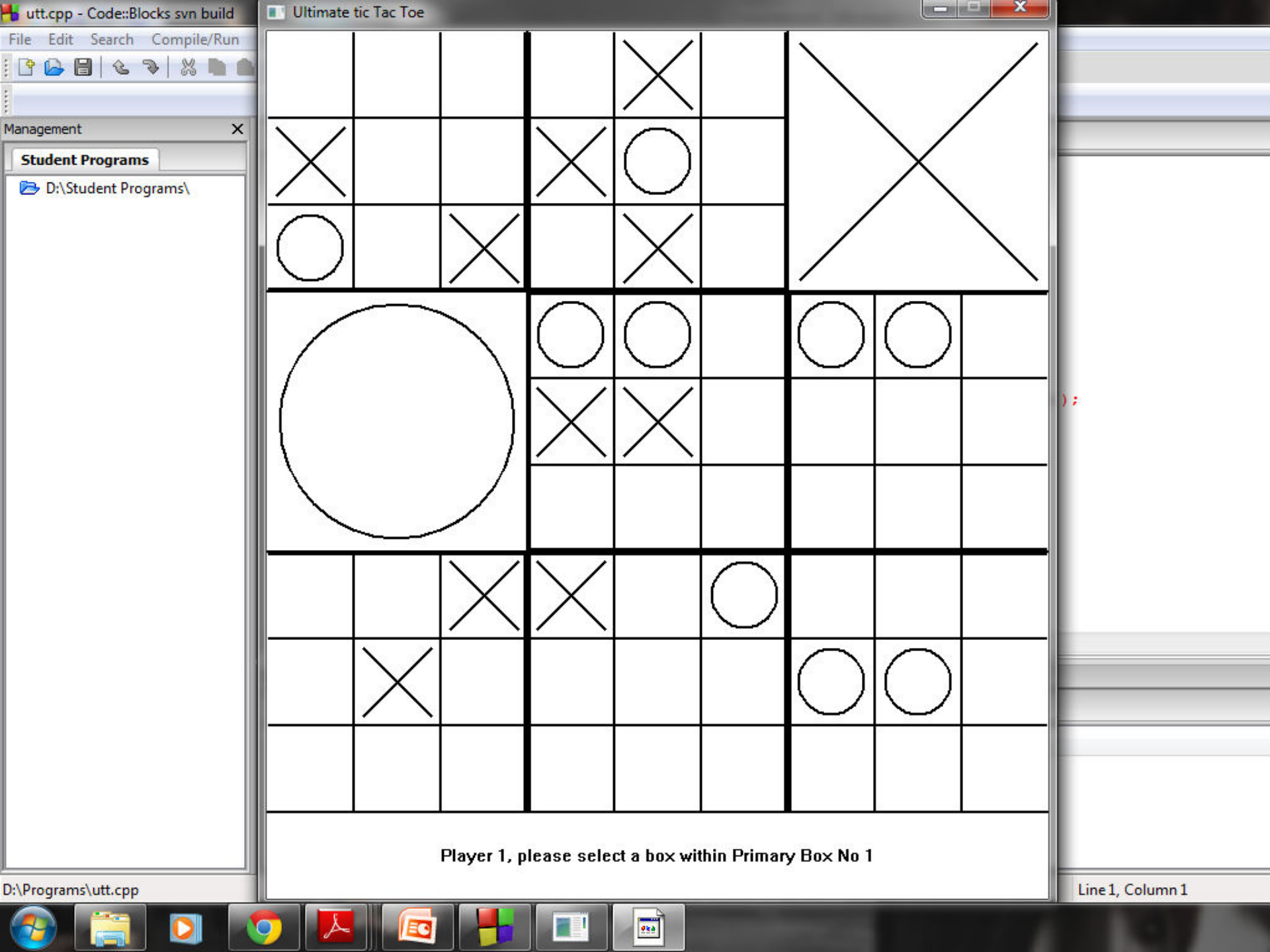
- To implement an advanced and tougher version of simple Tic-Tac-Toe, commonly known as Ultimate Tic-Tac-Toe.
- To use Artificial Intelligence in making single player Simple Tic-Tac-Toe game.
- To display appropriate information during the gameplay.

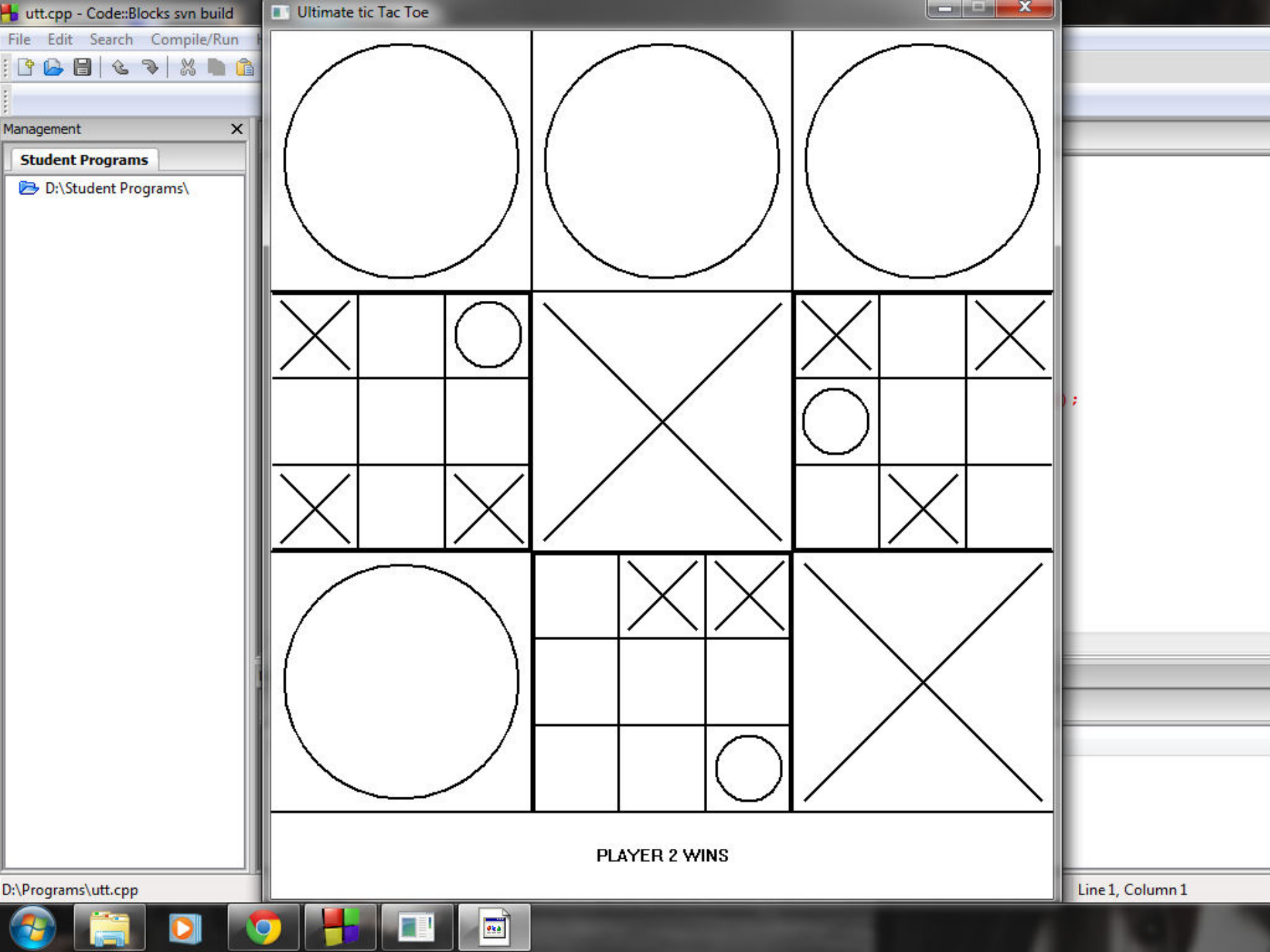
PROJECT SCREENSHOTS



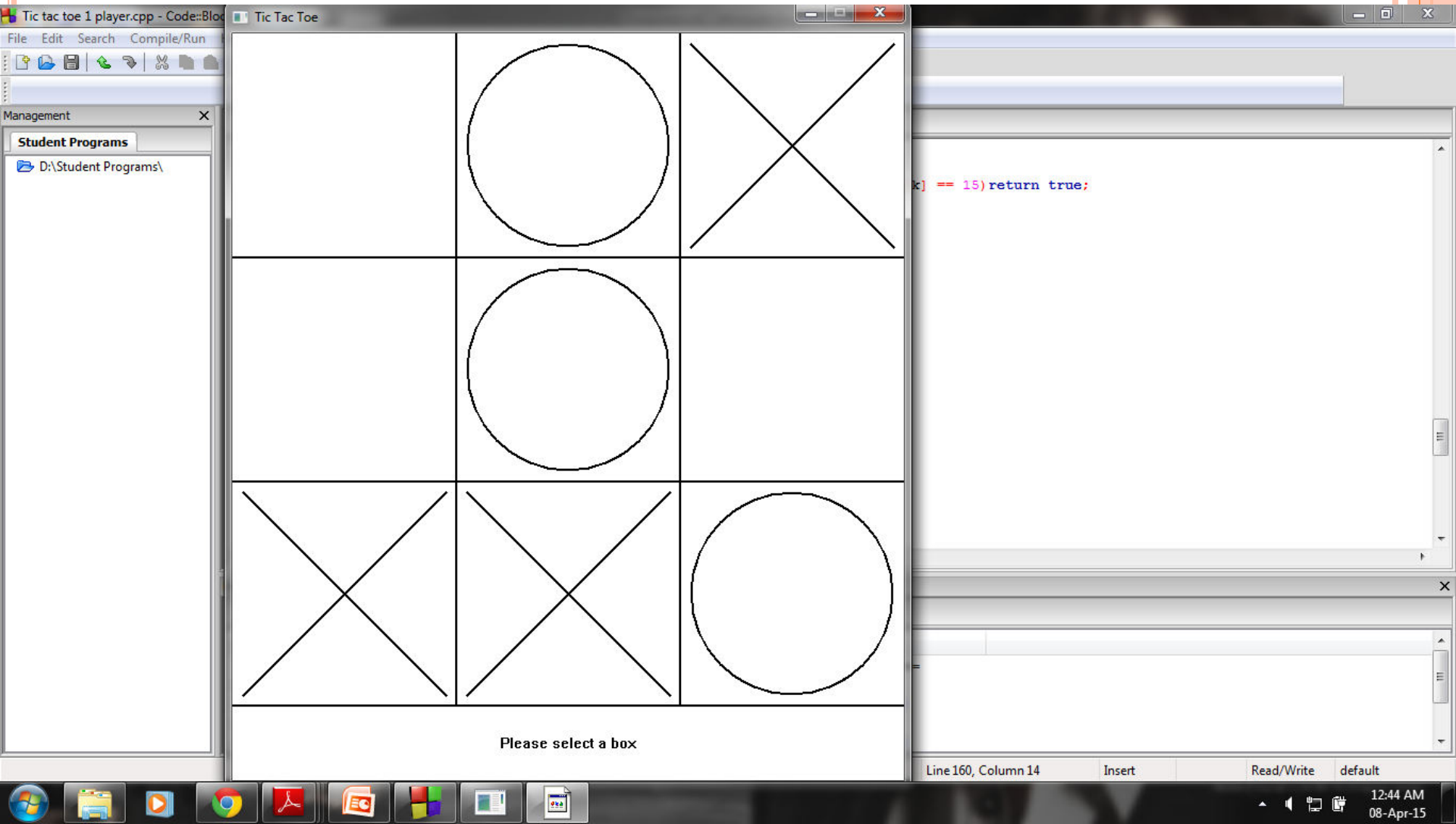
ULTIMATE TIC-TAC-TOE




utt.cpp - Code::Blocks svn build
File Edit Search Compile/Run
Management
Student Programs
D:\Student Programs\
Ultimate tic Tac Toe
Player 1, please select a box within Primary Box No 1
D:\Programs\utt.cpp
Line 1, Column 1


utt.cpp - Code::Blocks svn build
File Edit Search Compile/Run
Management
Student Programs
D:\Student Programs\
Ultimate tic Tac Toe
PLAYER 2 WINS
D:\Programs\utt.cpp
Line 1, Column 1

SIMPLE TIC-TAC-TOE



ALGORITHM

The computer can win or defend if it plays in the following order :

- Win: If the computer has two in a row, it plays the third to get three in a row.
- Block: If the opponent has two in a row, it plays the third to block them.
- Fork: Creates an opportunity where the computer can win in two ways.
- Block Opponent's Fork: If there is a configuration where the opponent can fork, block that fork.

CHALLENGES

- Initially, we planned to execute the Minimax algorithm which makes the computer perfect player and the player never wins. But we were not able to execute the algorithm as it was too complex and included concepts such as alpha-beta pruning and depth. So we executed a general algorithm available in Wikipedia which was much easier to execute.

- The graphics included in Simplecpp is very limited and causes a lot of problems such as the font size could not be increased, two canvases cannot be used at a time etc.

FUTURE EXTENSIONS

- Single player Ultimate Tic-Tac-Toe can be added.
- New variants of Tic-Tac-Toe such as Quantum Tic-Tac-Toe, 3D Tic-Tac-Toe etc can be added.
- Advanced graphic packages such as Allegro could be used to make the game more attractive.

THANK YOU!