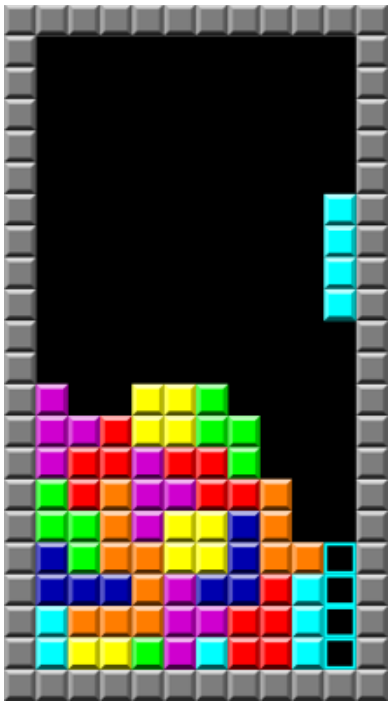
Object-oriented Programming
Section J&K, Fall 2020
Course Project

Tetris Game **Due: December 22, 2020**

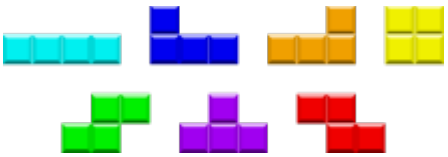
Tetris is a popular tile-matching game with numerous implementations done for several platforms over the years, since its first introduction in the mid 1980s. The idea of the game is to place pieces (tetrominoes) that descend from the top on the board such that complete lines are filled. When a line is filled, it collapses, freeing space available on the board to complete more lines and also adding to the score of the player.

There are seven types of pieces and each piece (apart from the square or box) can be rotated in different ways to create different representations. This is illustrated in the images below. Further details can be explored at the Wikipedia page (https://en.wikipedia.org/wiki/Tetris) and can be played online at Free Tetris (https://www.freetetris.org).

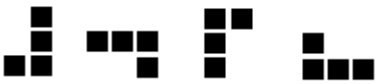
The project is to develop an **Object-oriented** Tetris Game using the concept of **inheritance and polymorphism**. Create a **Piece** class with appropriate **subtypes** such that each piece knows how to **rotate** itself and **draw** its appropriate representation on the board. Also, create a **Board** class to represent tetris board. When a piece is placed on the board, the piece is consumed and no longer required. It becomes part of the board filling vacant spaces. If a complete line is filled, the line collapses to make more space available. Board **draws** itself after every placement.



(a) Tetris Board



(b) Seven Tetrominoes or pieces



(c) Rotation of a single piece as illustration

Instructions

- You are provided with a simple graphics library that you may use for rendering graphics and handling events on a Windows console, although there is no strict requirement for graphics for this project.
- You have to submit a complete working system, along with the source code and a README file that tells us how to use your software.
- Your implementation shall be **object-oriented** according to the description given above. **No credit without proper use of inheritance and polymorphism**.
- Your code should be properly commented and use descriptive and meaningful names for classes and their members.
- Your program should be user friendly
- Plagiarism will not be tolerated. It will result in a straight F in the course and forwarded to DC committee, who might award 5 F's in all courses you are taking.
- The project may be done in a group of **two people at max**. Include the name and roll number of group members in the README file.