My final project consists on making the game Tetris. When I started this project my main goal was to make the game work as any other Tetris we usually play: the player has to move and rotate the tetrads in order to make them fit at the end of the board; when a horizontal row is filled it is deleted and a score is saved; and if the bricks get to the top of the board the player loses and the game is over. On the other hand, I wanted to make a two player Tetris, that would basically use the same code but with a new array.

I succeeded on making the one player Tetris, but I could not make the double one. During the process of making this game I found a lot of obstacles and challenges, but as I got more involved in the project it became easier to overcome each of the obstacles.

The skeleton code had 4 classes: Draw, Tetromino, DrawListener and Tetris. To make the game work I had to add some methods to the Tetris class and make some loops in the main method. The first thing I did was make the tetrad move down until it got to the end of the board, to make this possible, I added a while loop to the mail method:

```java
int cn = 0;
while(true)
{
    tetris.clearBoard();
    tetris.drawBoard();
    tetris.tetrad.move();
    if(cn%speed==0)
        tetris.tetrad.moveDown();
    if(!tetris.tetrad.canMoveDown())
    {
        tetris.tetrad.stay();
        tetris.checkLines();
        tetris.createNewTetrad();
    }
    tetris.draw();
    tetris.draw.show(10);
    cn++;
}
```
This loop makes the tetrad move down at a certain speed and when it can’t move down anymore it stays where it is and a new tetrad is created. The second step was making \texttt{checkLines()} and \texttt{deleteRow()}. These two methods go through every row in the array and check whether it is full or not; if it is full, the row is deleted and everything is moved down.

\begin{verbatim}
public void checkLines()
{
    for(int i=0; i<BH; i++)
        for(int j=0; j<BW; j++)
            {
            if(board[i][j]==0)
                break;
            if(j==BW-1 &\& board[i][j]!=0)
                deleteRow(i);
            }
}

public void deleteRow(int line)
{
    for(int i = line; i>0; i--)
        for(int j=0; j<BW; j++)
            {
                board[i][j]=board[i-1][j];
            }
}
\end{verbatim}

After this the third step was making the board bigger so I could have space to show the number of lines deleted and the score (determined by how many lines are deleted). I also changed the color of the tetrads, the color of the board and added a rectangle around the board to make it look better.

The last step was making the game end when a tetrad reached the top of the board. To make this happen I created \texttt{endGame()}, which checks the top row of the board and returns true if the tetrad in that row cannot move down anymore. Then I had to add a conditional loop to the main method that calls this function and when it returns true, it ends the game. This was the most complicated part of the program.
After this the game was functioning like an ordinary Tetris game. I also tried to add some other features to the game as background music and a beep every time a row is deleted, but I could not do it.

```java
public boolean endGame()
{
    int i = 0;
    for(int j=0; j < BW; j++)
    {
        if( board[i][j]>0 & board [i][j] <10 & (!
            tetrad.canMoveDown()))
        {
            return true;
        }
    }
    return false;
}
```
The following is the main method of my program:

```java
public static void main(String[] args) {
    // Main Method
    Tetris tetris = new Tetris();
    tetris.createNewTetrad();

    int cn = 0;
    while (true)
    {
        tetris.clearBoard();
        tetris.drawBorder();
        tetris.tetrad.move();
        if (cn%speed==0)
            tetris.tetrad.moveDown();
        if (!tetris.tetrad.canMoveDown())
        {
            tetris.tetrad.stay();
            tetris.checkLines();
            tetris.createNewTetrad();
            if (tetris.endGame())
            {
                tetris.gameOver();
                tetris.draw.show(10);
                break;
            }
        }
        tetris.draw();
        tetris.draw.show(10);
        cn++;
    }
}
```
This is how my program looks like:
TETRIS

LINES
5

SCORE
75
GAME OVER

LINES
7

SCORE
105