

Period 2

Group Members: Ivan Li and Brandon Chen

Group Name: Budget 99

Project Title: Tetris 99

Brief Project Description: This project aims to emulate Tetris, in which blocks known as tetrominoes slowly fall. The game ends when the block reaches the “vanish zone,” or the top of the playing field. The goal of the game is to either achieve some personal best score for single-player or to last longer than your opponent in multiplayer. This is done through a simple mechanic in which every time a row is completely filled, it’s cleared. Score is gained through clearing rows, in which for every row you clear, you get 100 points. In the multiplayer mode, you can send “garbage,” or an additional row to your opponent, for each row you clear.

List of Current Functionalities:

- Tetrominoes
 - Tetris blocks are moved by the WASD (Player 1) and arrow keys (Player 2)
 - Use Q to quick drop for Player 1
 - Use N to quick drop for Player 2
 - Use E to hold a block for Player 1
 - Use M to hold a block for Player 2
- Background grid (Singleplayer and multiplayer)
 - The grid in which the game is played on updates simultaneously with the blocks
- Controls for the game
 - The controls are in the main menu for people that are not familiar with the controls
- Borders
 - Blocks cannot move out of the playing zone
- Row Cleared
 - The tetrominoes actually stays on the grid, and stays until a row is cleared (Update the background simultaneously with the tetrominoes)
- Score Counter
 - When a row is cleared, it adds 100 points to your score
 - The highest score is the highest score you obtained while playing single player
- Next Block Screen
 - Indicates the next three blocks that will drop to help plan out block placements for the future
- End Screen
 - Different end screen for single player and multiplayer
 - You are able to play again in single player or multiplayer mode, or go back to the main menu from the end screen

- For multiplayer, it shows who the winner of the game is
- Garbage
 - When you clear a row in multiplayer, send a row of “garbage” to the other player
 - It is a one to one ratio, which means for each row you clear, you send one row of garbage to your opponent
- Drop Indicator
 - Outlines where the block would go if it were to go all the way to the bottom
- Quick drop
 - Tetris blocks go all the way down to the bottom instead of having to press the down key multiple times in a row
 - Use key “Q” for Player 1 and key “N” for Player 2
- Naïve gravity
 - Tetris blocks fall down on their own, and the pace increases as the game goes on
- Hold Block
 - This allows you to hold a block if you don’t want to use it and save it for a later time.
 - You can see the held block in the “Held Block” part of the screen
 - You can only use the hold function once for every new block. This is to help prevent the overuse of the hold function
 - Use “E” for Player 1 and “M” for Player 2

Log:

Functionality	Who did it
Tetrominoes	Brandon / Ivan
Background grid	Brandon / Ivan
Controls for the game	Ivan
Borders	Brandon
Row Cleared	Brandon / Ivan
Score Counter	Brandon
Next Block Screen	Brandon
End Screen	Brandon / Ivan
Garbage	Brandon / Ivan
Drop Indicator	Brandon

Quick Drop	Brandon / Ivan
Naive Gravity	Brandon / Ivan
Hold Block	Ivan

We both worked on the documents for the meetings. Ivan did the UML diagram for the meetings and both Brandon and Ivan worked on the “List of Current Functionalities,” “List of Functionalities to be Done by the Next Meeting,” and “Troubleshooting.”

How the Game Works:

In single-player mode, the main objective is to beat your own personal highest score. The controls are listed below:

Key	Action
W	Rotate the tetromino
A	Move the tetromino to the left
S	Move the tetromino down by one unit
D	Move the tetromino to the right
Q	Move the tetromino immediately to the bottom (quick drop)
E	Move the current tetromino you have to the “Held Block” menu, in which you can save the tetromino for later use (Hold Block)

You gain 100 points for each row you clear. As the game progresses, the pace of the game also increases. You can see where the block will drop using the outline provided. You can see your next three blocks in the “Next Blocks:” menu and the held block (if any) in the “Held Block” menu. Once any block goes above the red line to the area known as the “vanish zone,” the game will end, and you will be directed to the end screen in which you can play again or go back to the main menu.

Multiplayer mode is very similar to single-player mode. In multiplayer mode, your main objective is not to achieve a new personal high score, but to instead survive longer than your opponent. The controls for Player 1 are the same as the controls for single-player mode. The controls for Player 2 are listed below:

Key	Function
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UP ARROW	Rotate the tetromino
LEFT ARROW	Move the tetromino to the left
DOWN ARROW	Move the tetromino down by one unit
RIGHT ARROW	Move the tetromino to the right
N	Move the tetromino immediately to the bottom (quick drop)
M	Move the current tetromino you have to the “Held Block” menu, in which you can save the tetromino for later use (Hold Block)

The game functions exactly like single-player mode, with two people playing at the same time. However, this time, you can send rows of “garbage” to your opponent by clearing rows on your side of the screen. A row of “garbage” can be easily defined as it is gray, and needs only one block to clear. Clearing a row of garbage also sends a row of garbage to your opponent. This makes it more difficult for both players to survive, and creates a more fast-paced playstyle.



