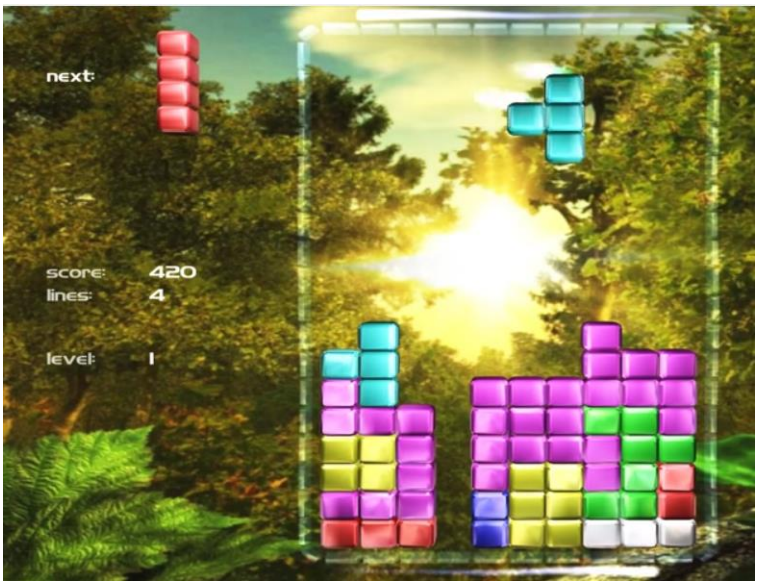
Project 1 – 3D Tetris

Final submission date: 4 December 2017 5pm

You are required to develop a 3D Tetris game (based on ideas from Tetris 5000 game or Crystal Cubes) using Unity. You should work in teams (two/three students per team). You are also required to write a brief report on your activities and contributions from the start to submission of the project.

Game Specification

- Two level game
- There should be 7 shapes: S-shape, Z-shape, T-shape, L-shape, Line-shape, Mirrored L-shape, and a Square-shape
- Allow the user to move shapes horizontally and vertically rotate coloured blocks in a playing field
- A menu displays score and status of the game
- A randomly chosen Tetris piece from the seven possible shapes is drawn at the top of the board. The pieces start falling at regular intervals; one at a time
- When a piece hits another piece or the bottom of the board, it stops moving and a new piece appears at the top of the board
- If a complete row forms, it disappears (with a particle effect) and all the blocks above it fall down one row
- If a new piece can no longer be placed at the top of the board, the game ends and a "Game Over" message is displayed and sound is played
- The user can use the arrow keys to move and rotate the pieces; 'Left', 'Right', 'Down' arrow keys move the piece left, right and down by 1 square. The 'Up' arrow key rotates the piece. The user can also drop a piece by pressing the spacebar. Dropping a piece results in the piece falling down until it can no longer move, the user can no longer rotate or move it in any other direction
- Level 1 has medium difficulty including Tetris piece fall speed. Level 2 is slightly more difficult with faster speed (accelerating slowing). Level 2 also introduces occasional bonus bomb that blows away some cubes.



Suggested Structure of Project Report

Project Plan; brief description of phases, approach, etc.

Collaboration and Allocation of Tasks; role of team member 1, role of team member 2

Weekly Activity Summaries; week 1, week 2, etc.

Implemented Features

Errors/Bugs/Areas of Improvement (in submitted project)

Important Notes:

Students in the same group may receive equal or different marks depending on the level of collaboration and contribution.

Plagiarism results in 0 mark. Collaboration between students is encouraged but submitting partial or complete work from someone else is plagiarism.

Attendance and working as a team during the lab classes is used as an evidence of collaboration.

Marking Scheme

0 - 40	40 - 75	75 - 100
Neat working basic playable Tetris game with minimum functionality	Clean working game with almost all functions implemented and working properly	Excellent game with full functionality
2D shapes and effects or low to medium quality 3D implementation	Good quality 3D shapes and effects	Excellent quality, visually appealing 3D shapes and 3D effects throughout the game, pleasant choice of colours and background
Low quality or non-existent particle effects	Nice explosion effect or other particle effects	Well implemented creative explosion and/or other effects
Includes sound effects	Satisfactory sound effects suitable for game events	Excellent quality and engaging sound Effects
Issues with directory structure of the project and github repository	Good directory structure of the project	Professional-level clean project including layout of the project directories and files
Code not well structured, poorly documented, code errors or bugs	Structured, formatted and documented error-free code. Some parts of code are not documented or do not follow code conventions	Well-structured and documented error-free code, follows code conventions
Low to moderate overall quality	Overall good quality, interesting game	Overall high standard, very interesting game, attention to detail

Low or non-existent creativity	Some creative features	Game is very creative and enjoyable
Mediocre or incomplete project report, insufficient collaboration, progress made close to deadline, low contribution (affects individual student)	Complete project report, satisfactory collaboration and project management, timely progress, identification of current bugs and other issues	Excellent group communication, well-written report, balanced allocation of tasks, adequate collaboration, identification of areas of improvement, overall well-organised project
Good attendance	Full attendance	Full attendance (9am-3pm)