WESTERN UNIVERSITY
FACULTY OF ENGINEERING
DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING

SE2250b – Software Construction

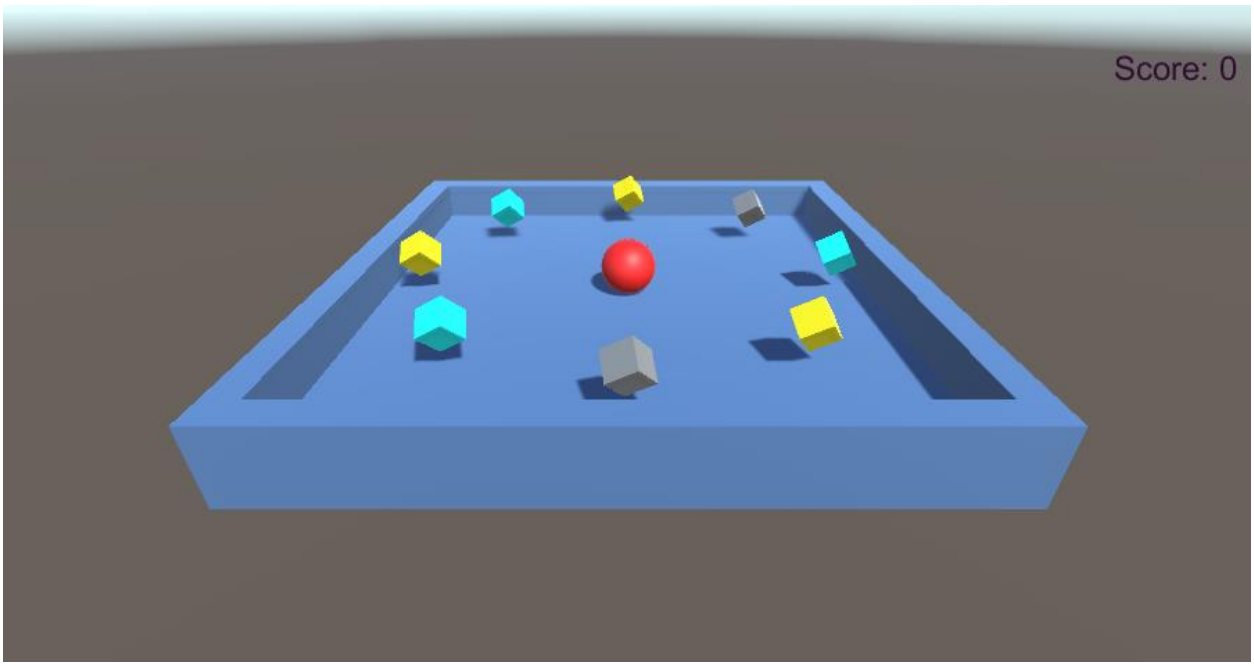
Assignment 2: Roll a ball

Deadlines:

Section 002: Tuesday, February 12th, 2019
Section 003: Monday, February 11th, 2019

NOTE: Proper coding practices should be used. Examples include, but are not limited to: following naming conventions, project organization, proper code formatting, clean code (no old commented out code or unnecessary code), and any other topics discussed in lectures or labs.

In this assignment you will create a simple 3D game where a player collects cubes by rolling a ball. The game view can look similar to the one below where the red ball represents a player and the cubes represent the pickup objects. You are free to change the shape of the box and pickup objects.



1. (4 points) The player rolls the ball within the box by pressing the arrow keys.
   - Select the appropriate way to model the ball so it behaves as if pushed.
   - When the ball hits the wall of the box, it should bounce back like a real ball rolled against the wall.
   - The ball must remain in the box and not bounce out of the box.

2. (8 points) Eight or more pickup objects (squares in the figure) should be located just above the box. They should differ in colour.

   2.a) (3 points) Identify at least two different ways to design pickups. Describe each approach in detail.

   2.b) (3 points) Select the design solution to implement and explain your reasoning.

   2.c) (2 points) Implement the pickup objects.
   - All pickup objects should be created from the script.
   - There should only be one pickup asset in the project.

3. (4 points) When the ball hits a pickup object, the pickup object must disappear and the score must increase (upper right corner). Display the score in the upper right corner.

4. (4 points) Collecting different colour cubes must result in different point gains. All the cubes of the same colour must result in the same number of points. Use 'property' to handle points for pickup object.

Tips:

- To display the score, use UI->Text object.
- Take advantage of scripting autocomplete to find methods and fields.
- You may need to use Rigidbody > 'Freeze position' to control the ball.
- You may use tags to mark and find the objects.

Deliverables:

- Functionality demonstrated to a TA during the labs.
- All game files uploaded to GIT and to OWL. This should contain all files needed to run your game from UNITY.
- A PDF file uploaded to OWL containing answers to 2.a and 2.b (make sure your name is included in the file header)
- In OWL submission (text field) provide a reference to Git submission.
- Your GIT repository name and structure must follow instructions from the Git tutorial (Intro_to_Git_2019.pdf).

If the student did not demo the solution to TA during the lab section on the due date or before, the student must contact the professor within the two days following the deadline to arrange the time for the demo.