Unity Lab

Getting Started

- Launch Unity in the lab. Follow the steps at Unity sign-in to create an account
- Check your email in your browser, activate your account and then return to Unity to log in.
- Create a new 3D project – call it "Lab8"

Setting up GameObjects in the Scene

- Create new cube and plane 3D GameObjects
- Place the cube over the plane. Run the game and visualise this.
- Return to the scene view and add Physics (i.e. a RigidBody component to the cube)
- To do this, click on the cube, view the GameObject inspector and add the component
- Play the "Game" again and view gravity's effect on the cube
- Next add a sphere to the scene and also add physics behaviour to the sphere
- Move the camera position so that it has a near view of all objects in the scene

Character Movement and Camera Controller Scripts

- In the assets panel, create a new folder called "Scripts".
- In that folder, create a new script called "CubeMovement"
    - Write the script so that the arrows move the cube. See: https://docs.unity3d.com/ScriptReference/KeyCode.html and https://docs.unity3d.com/ScriptReference/Transform.Translate.html for details on how to implement this.
    - Attach the newly created script to the cube GameObject by drag and drop
- Create a new script called CameraController
    - Have the camera follow the cube as it moves. Use the following tutorial for reference: https://unity3d.com/learn/tutorials/projects/roll-ball-tutorial/moving-camera
    - Test this by adding your new script to the Main Camera GameObject (drag and drop). Also add the cube as the "Player" – using the component inspector
    - The previous tutorial controls the position of the camera. Also allow the mouse to control the rotation of the camera – see: https://gamedev.stackexchange.com/questions/104693/how-to-use-input-getaxismouse-x-y-to-rotate-the-camera

Materials:

- In your "Assets" folder, create a new Material folder. Create a new materials and apply them to the cube, sphere and plane – see: https://docs.unity3d.com/Manual/Materials.html

Advanced:

1. Rather than translating the cube directly, have the arrow keys impart a force to the object and let the physics engine compute the result of the force applied – see: https://unity3d.com/learn/tutorials/projects/roll-ball-tutorial/moving-player?playlist=17141
2. Add walls to the scene by creating cubes and /moving stretching them as described in: https://unity3d.com/learn/tutorials/projects/roll-ball-tutorial/setting-play-area?playlist=17141
3. Modify the script so that another cube is instantiated in the scene when the Spacebar is pressed – see the “Instantiate” method.