**Research Report - Unity**

**Objective**

* Introduction to Unity 2D SDK using guided tutorials.
* Learn the basics of the framework and how it is used in Android game development.
* Apply what I learn to the development considerations of the team project.
* How to design for different screen sizes.

**Findings**

* Unity Hub is a download manager for the Unity SDK. You can download Android plug-ins for Unity.
* You test your Android app with the Android Studio Emulator.
* By default, objects are anchored to the parent rectangle. You can change the anchors, in the scene editor or the inspector, to the corners of the viewable area. This allows flexibility for screen sizes.
* You can select an object in the hierarchy window, move the cursor over the scene and press “f” to center the frame on that object.
* When you build a project from Unity, you can download and select Android as a build type. The linked build settings are recommended for Android per [Unity’s website](https://docs.unity3d.com/Manual/android-BuildProcess.html).
  + https://docs.unity3d.com/Manual/android-BuildProcess.html

**Terms**

* **Scene View**
  + For editing, formatting and coding the objects of the game.
* **Game View**
  + Can play test your game in the game view.
* **Inspector**
  + Unity window that displays information about the currently selected GameObject, Asset or Project Settings, allowing you to inspect and edit the values/properties.
* **Occlusion Culling**
  + Feature that disables rendering of objects when they are not currently seen by the camera.
    - You need to tag all the scene objects that you want to be part of the occlusion to Occluder Static or Occludee Static in the Inspector.
    - Objects that are transparent or translucent should be marked as Occludees, not Occluders.
* **LOD Groups**
  + A component to manage level of detail (LOD) for GameObjects.
* **Scene**
  + Contains the environments and menus of your game. In each Scene, you place your environments, obstacles, and decorations.
* **Bounding Volume**
  + A closed shape representing the edges and faces or trigger. (Hitboxes?)
* **Rendering Mode**
  + Shader Material parameter that allows you to choose whether the object uses transparency, and if so, which type of blending to use.

**Conclusion**

Unity is a powerful developer environment which supports application development for a handful of different platforms. This is a tool that seems easy enough following tutorials but could take a lifetime to master.

It appears to be capable of producing all the functional requirements necessary for the teams project. A lot more learning and research into Unity is going to be required throughout the duration of the development cycle.