CST-320 Technical Report - Software and Foundational Tools Readiness

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Period (Mon-Sun dates): 9/6/21-9/12/21

Student Name: Ryan Scott, Andrew Esch, and Diego Guerra

Faculty Name: Isac Artzi

Project Topic: Topic 1

Current task(s) (refer to the tasks listed in LoudCloud and/or instructor directions; detailed bullet list):

- As a team (CLC) submit the Unity scripts for the app you plan to develop as your initial experience with Oculus Quest
- Include 2 screenshots representing two different states of the object on screen
- Provide 3 tentative ideas (3-4 sentences) for a project you wish to develop as a team, in VR this semester

Activities performed this week (bullet points with explanations):

- Installed and integrated Unity 3D with XR Toolkit and Android Studio for building VR applications.
    - Explanation: Following the instructions from the XRTerra tutorial, each team member setup an instance of Unity 3D to build and run VR applications.
- Unboxed and configured the Oculus Quest 2 with a mobile device
    - Explanation: During the class session, our team unboxed and configured an Oculus Quest 2 using the headset and a paired mobile device.
- Enabled the Oculus Quest 2 with developer mode using the Oculus mobile application
    - Explanation: Following the XRTerra tutorial, our team enabled used the paired mobile device to create an Oculus developer account and enable developer mode on the Oculus Quest 2.
- Creating a test VR scene in Unity 3D with essential objects, scripts and assets
    - Explanation: Each team member set up a test VR scene during class sessions and outside class hours with basic objects (e.g. cubes, cylinders, and planes), the Oculus Integration package, and scripts (see GitHub).
- Fixed Unity 3D editor and code to be prepared for the Wednesday class session.
    - Explanation: We didn't have all of the proper packages and configurations installed, resulting in errors that could not be resolved during both class sessions.
- Setting up team collaboration using GitHub and Unity Teams
    - Explanation: Each team member set up Unity IDs and synced several projects using Unity Collaboration. Although there were some issues with version control, we are prepared to collaborate on the main VR project.

Overall progress (describe new knowledge acquired, successes, ideas generated, etc.):

- VR only works on the latest versions of Unity (e.g. 2019, 2020, 2021).
    - Our team is working on setting up our VR projects on a single version of Unity (2021) for collaboration.
- VR is uses Android Studio to run, requiring Android Studio to sideload applications
    - We are working on building and running Unity applications to Oculus using Android Studio.
- To work with an Oculus Quest in Unity 3D, it requires installing the Oculus Integration package from the Unity Asset Store.
    - We are learning about how to download assets, packages, and other scripts related to this project.
    - All team members installed and configured this for our system.
- Our team is currently creating a list of free Unity assets from the asset store for our class project

Issues that need to be resolved (bullet list):

- Resolve SKG Tools Error
    - According to debugger, our SKG Tools version must be on API level 26 or higher. However, our team has SKG Tools API version 31 currently installed.
- Build and run VR application on Oculus Quest 2

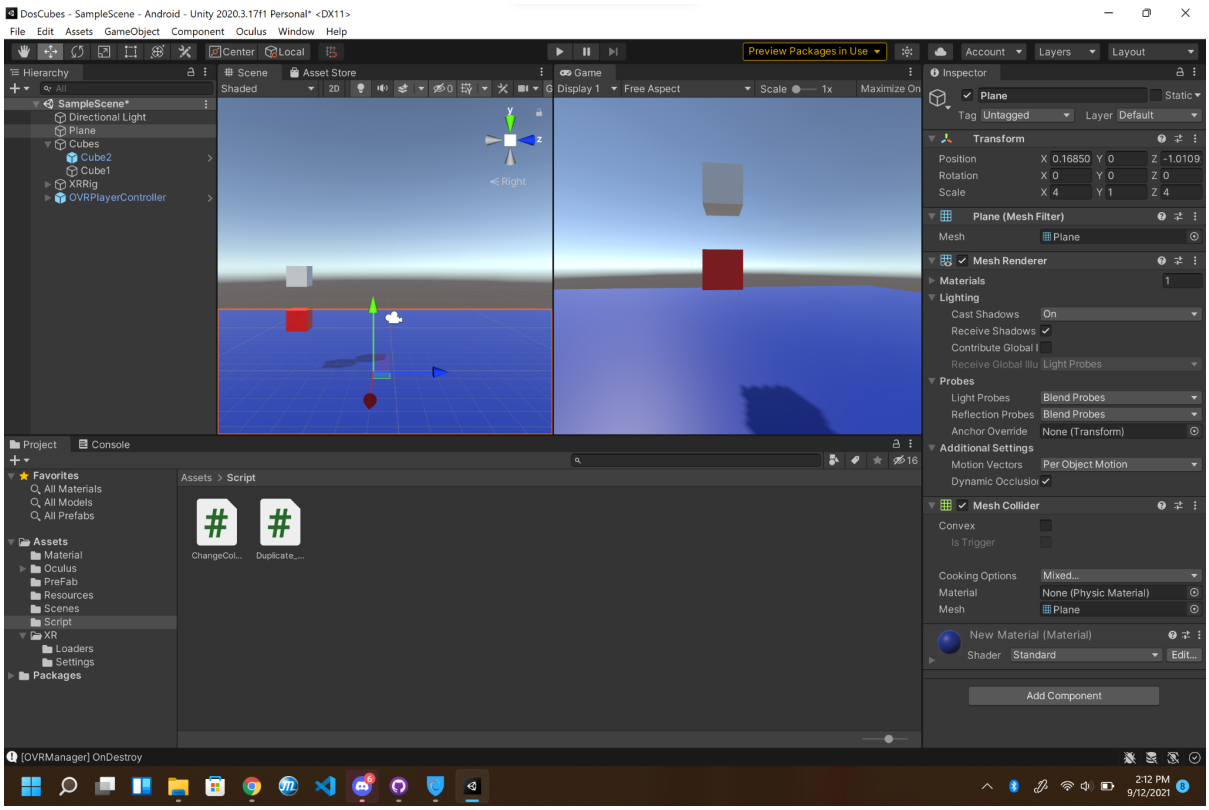
Next steps (how will you mitigate the issues listed above; bullet list):

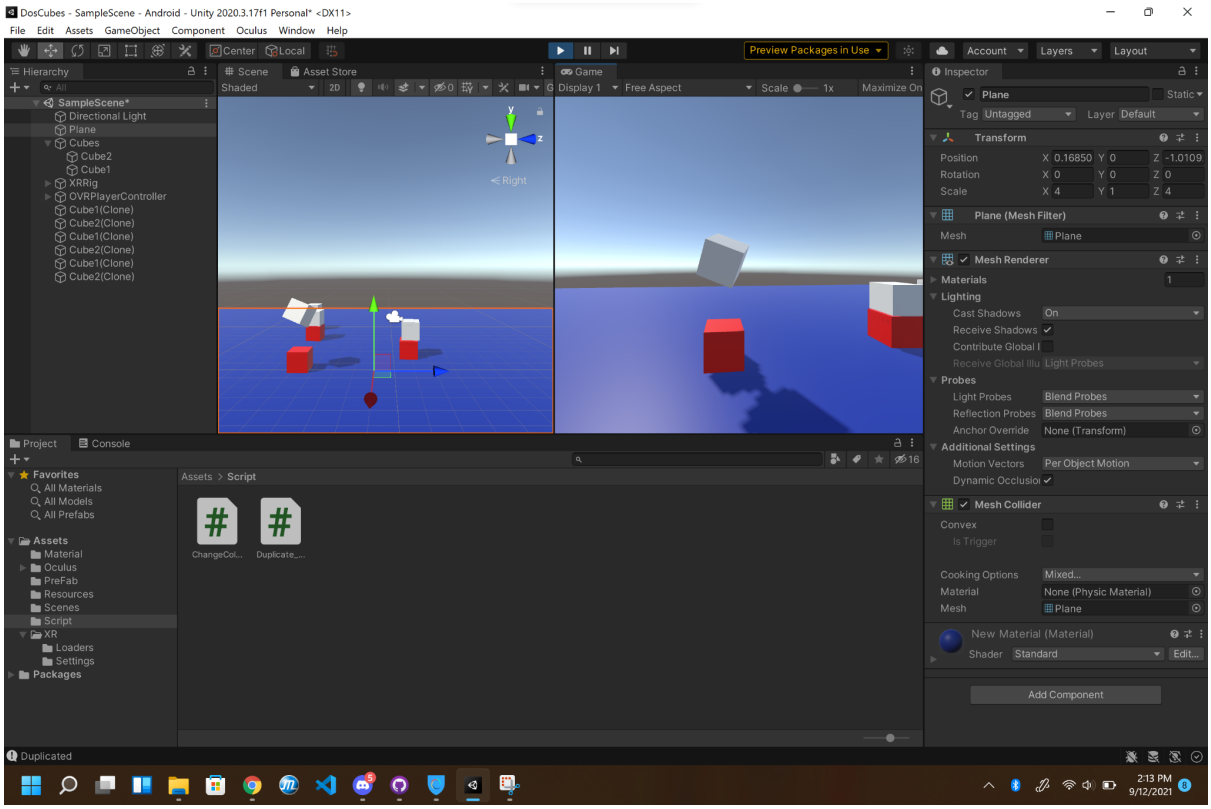
- Re-install the proper packages, dependencies, assets, etc to resolve the SKG Tools Error
- Work with Isac Artzi to build and run a working VR application

Other comments:

- GitHub Link: https://github.com/drewesch/CST-320
    - Our Unity Scripts are located under /Scripts/Topic-1

Representative screenshot or diagram:





Ideas for the "Imagine" Project

1. Imagine what it would be like to be a toy story character
    - You would be a small toy-like character, running around and completing small tasks. When the human comes back into their room, you would need to go still and act like a toy should. This has a lot of potential for really fun and unique environments due to your size, like a messy sock drawer for example.

2. Imagine what it would be like to be an astronaut
    - This VR simulator would be a fun experience for everyone who wanted to be an astronaut but without all the training and hassle that it takes to actually become one. The player would be out in space and would have certain task to complete.

3. Imagine what it would be like to cook in VR
    - This VR simulator would help one learn the basics of cooking. You would be able to learn basic kitchenware, how to use them safely while also learning how to cook different foods. This would provide a safe environment for a new cook to learn how to cook food for friends.

4. Imagine playing an arcade game in VR
    - There would be an arcade cabinet you could walk up to with a joystick and some buttons. With your left hand, you can control the movement of your character, the buttons with your right. This is basically playing a game within a game, through VR!\

5. Imagine taking care of a pet dragon
    - Taking care of a pet dragon would entail feeding the dragon, flying it, doing other activities that dragons would do. Imagine a Nintendo pets type game but it is in VR and you're taking care of a dragon. If confused, watch How To Train Your Dragon.