

**STUDENT INDUSTRIAL INTERNSHIP PROGRAMME LOGBOOK**

**SIT LOGBOOK REPORT**

**Student Name : Nur Nabilah Bt Nor Azelan**

**Matric ID : 24606**

**Programme : Information Technology (IT)**

**Place of Training : Murdoch University, Australia**

**Period of Training : 7 months**

**LOG BOOK WEEK NO: 11–12**

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| **WEEK NO** | **DATE** | **BRIEF DESCRIPTION OF DAILY ACTIVITIES** |
| **11** | **15/07/2019** | * Connecting PUN to server * Setting up XAMPP |
| **16/07/2019** | * Practicing PUN basic tutorial * Read documentation on Photon Server |
| **17/07/2019** | * Understanding connection of Photon server |
| **18/07/2019** | * Installing and setting up MySQL Workbench |
| **19/07/2019** | * To fix Photon server error * Configure the connection of database |
| **12** | **22/07/2019** | * Fixing the connection of server |
| **23/07/2019** | * Connecting two PCs using pun * Connecting database from unity |
| **24/07/2019** | * Fixing connection from database to unity |
| **25/07/2019** | * Retrieving data from database to unity |
| **26/07/2019** | * Importing User Interface on build unity |

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| Logbook Weekly Evaluation by HOST COMPANY SUPERVISOR | | | | | |
| I**nstruction to Host Company Supervisor**  Please refer to the student’s to assess his/her performance.  Please award the scores based on the range below: | | | | | |
| **Student’s Score** | **Beginning**  **(<2.0)** | **Developing**  **(2.0 to <3.25)** | **Accomplished**  **(Rare)**  **(3.25 to <4.0)** | **Exemplary**  **(Exceptionally Rare)**  **(4.0 to 5.0)** | **Score** |
| Initiative & Creativity | Had little observable drive and did not have new ideas | Some observable drive and some new ideas | Mostly self-starter and sometimes sought new challenges and offered new ideas | Always a self-starter and consistently sought new challenge and offered new creative ideas | **/5** |
| Task Accomplishment & Commitment | Partially accomplished given task despite full supervision | Accomplished given task but with full supervision | Accomplished given task but with some supervision | Accomplished given task with very minimum supervision | **/5** |
| Attendance & Punctuality | Frequently absent and always late | Sometimes absent and sometimes late | Never absent and almost always on time | Never absent and always on time | **/5** |
| Attitude & Self Control | Unable to demonstrate positive attitude and hardly maintained self-control under pressure | Occasionally demonstrated positive attitude and occasionally maintained self-control under pressure | Sometimes demonstrated positive attitude and maintained self-control under pressure | Consistently demonstrated positive attitude and consistently maintained self-control under pressure | **/5** |
| Total Score | | | | | **/20** |
| **Comments:** | | | | | |
| **Host Company Supervisor’s Signature & stamp:** | | | | | |
| **Name & Designation:** | | | | | |
| **Date:** | | | | | |

*(make copies if necessary)*

**DETAIL REPORT WEEK NO: 11**

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| **Objective(s) of the activities :**   * **Connecting PUN to server** * **Setting up XAMPP** |
| **Contents :**  We continued to connect using self-hosted server to Photon Unity Networking (PUN) in Unity. Before that, we tried to learn about XAMPP server by installing the XAMPP component and run it on LocalHost. Unfortunately, we still cannot figure out how to connect the server to Unity. To figure out the connection, several documentations from Photon website were read. We tried to follow a tutorial in the documentation about basic tutorial on PUN in order to refresh the idea about setting up a PUN in Unity. The basic tutorial explains on how to develop own multiplayer powered by Photon Cloud and how to use Characters using Animator for their animations. The tutorial was followed until Lobby User Interface. After reading documentation in server part, we finally configured a way to make a connection between Photon server and Unity. By unchecking the server name in PhotonServerSetting in Unity, we can provide the server IP address in order to connect it. We tried to connect to Photon server by providing the IP address of our server. The connection was successfully connected to the master server. However, several things are still unsure :   * Whether we could connect the Unity to own server such as XAMMP and own database such as MySQL. * If the Photon server has been setup, where can we refer the data that have been collected   Challenges I was facing along the way were:   * Connection to the master server was connected to Photon Cloud and not our own server * Difficulty to setup XAMPP server as we need to identify the available port for connection. Errors occurs while we starting up the database, MySQL. Therefore the connection was not established. |
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**DETAIL REPORT WEEK NO: 11**

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| **Objective(s) of the activities :**   * **Practicing PUN basic tutorial** * **Read documentation on Photon Server** |
| **Contents :**  In relation to the yesterday problem, we did try again to follow the basic of PUN total to get the idea of setting up the PUN and connect it to Photon. We tried to change the IP address in PhotonServerSetting in PUN Unity to see if the connection changes when we change the IP address. The results showed in Unity console from the testing are :   1. If we set the IP address in PUN PhotonServerSetting the address of local IP, the connection establish and the Unity get connected to the server. 2. If we change the IP address to public IP of photon server or other IP address the output showing errors, the Unity could not get connected to server.   To get the PUN connected to server, we fixed the IP address in PUN PhotonServerSetting to local IP address. We moved setting up the database. XAMPP was installed in the computer and run. At first setup, the XAMPP application has establish connection to the local host and phpmyadmin also started. Before trying to connect to database through XAMPP, we tried to connect the database to Playfab. All data can be transfer into Playfab when Unity is run using the local IP address. However, when we tried to create database from the local host error occurred.  Challenges I was facing along the way were:   * Connecting server to database, the connection on local host was establish but the Unity cannot get connected to database. * Integrating Playfab database to Unity is not an easy task as the Playfab requires AppID of Photon PUN. When database in Playfab is created, all data is been stored in the cloud. |
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**DETAIL REPORT WEEK NO: 11**

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| **Objective(s) of the activities :**   * **Understanding connection of Photon server** |
| **Contents :**  To get more understanding about the connection on server, I read documentation of Photon server. I read about LoadBalancing of Photon server. The documentation actually has been revised before, but I still cannot get the main idea of how a connection is established. On the photon server application, we tried to run the *Run Test* *Client* to know whether connection established or not. The test was run as a client side to get connected to master server. The result of the test is shown in the diagram below.    *Figure 2 Run Client Test Result on local PC Figure 1 Photon server screen shot*  The test shown the client is trying to connect but could not get connected as shown in the Photon server (Right picture). In the documentation, it is stated that when running the photon loadBalancing, it will start two different applications which are Game Server and Master server and whenever we choose local IP or public we have to setup firewalls, routers and switches. There are several things that I am not sure and still don’t understand, challenges I was facing along the way were:   * How to confirm the photon server is running using the IP address of PC. * Should we change the IP address in one of the server either Master server or Game server? In the documentation, there are short tutorials on changing the server IP address in loadBalancing.dll file. * As we running the server, which server will get connected to the photon server? Game server or Master server? More reading is need on this part. |
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**DETAIL REPORT WEEK NO: 11**

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| **Objective(s) of the activities :**   * **Installing and setting up Mysql Workbench** |
| **Contents :**  We tried to skip the connection to server part to focus on installing and setting up database. As for database to store clients’ data, we decided to use MySQL Workbench because it has and application interface that visualize your table and running server in one application. To setup a free database, we chose to download MySQL workbench community as it is free to download and use. After the connection in the MySQL server has been setup, we tried to figure out how to connect data from Unity to database of MySQL workbench.  Although we successfully establish connection of MySQL server, but we cannot connect the database to Unity. Several tutorials in the website and Youtube were followed but the setup is not using Photon server. But we tried the coding to get the idea of connecting the database and Unity. There are several questions and challenges that we need to overcome:   * Which address we need to use to connect to database when coding the .cs file? Is it the local host of the database or IP address of the PC? * In which files should the SQL queries (the connection setup) placed? Is it in the CS? We tried to follow a tutorial, the tutorial code the connection setup in CSharp file by including namespace of system and MySQL. However, when we run the code, there’s error that client cannot be authenticated and need to consider upgrading MySQL client. We are not sure about this error because the solution from website suggested that we Grant a privilege for the local host, but the solution does not work as the same error keeps appearing. * Is database connection related to Photon server connection? Should we use the same IP address used in Photon server when establishing a database connection? We tried to include the IP address of Photon server (which is also an IP address of local PC) but the connection can’t be established. |
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**DETAIL REPORT WEEK NO: 11**

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| **Objective(s) of the activities :**   * **To fix Photon server error** * **Configure the connection of database** |
| **Contents :**  We again tried to connect to the Photon server using two IP addresses, Public and Local. We run the test client from loadbalancing but the outcome is still the same.   1. When connecting to Local IP address, the clients loop in state of trying to connect to the Photon server 2. When connecting to Public IP address, the status of clients is disconnecting. In the documentation provided in Photon website, it said that “*If you run the test client and notice some failures to connect or "Game does not exist" errors this might be explained by the fact that created Photon peers are trying to connect to the server or join rooms too soon. The solution to this "server-client race condition" is to delay the startup of the test peers using "StartupInterval" setting from "deploy\bin\_tools\stardust.client\Photon.StarDust.Client.exe.config".* The solution provided seems not completed because we don’t know the value to delay the startup. But we tried with some value, it does not working.   challenges I was facing along the way were:   * To configure whether the connection of Photon server has established or not. The connection is determined by trying to get connected form other PC in the lab using the same IP address. Result: the other computer cannot get connected to the Photon server and remain in the “trying to connect” state. * Connection to database. It is still in confusion on how to link Unity to database.   Today, I learned how to identify if the connection between PC is blocked by firewall or not. Using Command prompt and ping the IP address of the other PC that we would like to connect to will show the result. |
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**DETAIL REPORT WEEK NO: 12**

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| **Objective(s) of the activities :**  **• Fixing the connection of server** |
| **Contents :**   * Fixing the connection of server * challenges I was facing along the way were:   + Scene that loads room when clients have connected is unloaded, it is because the scene the connection is not connected to master server.   + We try to fix the connection of master server by changing the IP address in   + PUN server setting. While changing the IP address we checked the connection by running the scene, the scene van be run but the it cannot get connected to the master server therefore the scene is not loaded   The connection has been establish when we restart the unity and rerun the project; the player has entered the room. But the client on other PC cannot get connected to the host PC. We tried to enter the IP address of the host computer through PUN network setting in client’s computer but the client cannot get connected. |
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**DETAIL REPORT WEEK NO: 12**

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| **Objective(s) of the activities :**   * **Connecting two PCs using pun** * **Connecting database from unity** |
| **Contents :**   * We try to load scene with pun setting set into the same ip address as host server * Connection established and the scene has been loaded whenever two players has entered the room, however, the player could not see each other yet. Therefore, the error is still need to be fixed * Also, established of connection between database and unity is made. The database server has been running but unity cannot connect to the database because of certain errors such as dictionary errors in visual studio * challenges I was facing along the way were:   + When the scene is loaded the server detected at certain time more than two person although the player connected were only two.   + When scene has been loaded the scene is not synchronized with the other player connected to the server   + In connecting the database, an error state “the given key was not present in the library” still cannot be fixed although other alternatives has been tried.   + Connection to database is failed to establish due to error. |
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**DETAIL REPORT WEEK NO: 12**

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| **Objective(s) of the activities :**   * **Fixing connection from database to unity** |
| **Contents :**   * Error of the given key was not present in the library” still cannot be fixed as the given error related to several component in MySQL. for example, some comment suggested that we should upgrade the MySQL client, some suggested that we should change the privilege in our MySQL server. * We tried to follow the suggested ways but other error occurred. After changing several coding, the connection is established. The error fixed when we add the character set in the connection string to be passed to MySQL server. We also changed the order of the connection string because the syntax of passing the connection string also important and needed to be in order * challenges I was facing along the way were:   + The error still occurred although we fixed it by following several suggested solutions.   + After error is fixed, another error occurred made us stuck to solve the problem.   + When connection established we need to find the correct syntax to authenticate the username and password entered by user when login |
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**DETAIL REPORT WEEK NO: 12**

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| **Objective(s) of the activities :**   * **Retrieving data from database to unity** |
| **Contents :**   * Firstly to check connection of database from unity. * Connection established but the authentication is still invalid as we cannot compare and validate data input by user and compare with data in database * Challenges I was facing along the way were:   + Syntax to retrieve data from unity through MySQL server is not found, because most developer use PHP language to connect unity with database. As main reference we refer to .net and MySQL documentation about MySQL connection syntax   + Although the syntax follow was correct but there’s still error occurred. The error with statement “the syntax is incorrect” and asked to follow the correct syntax.   + The error finally fixed using parameter of MySQL connectors.   + The original syntax was correct because it can retrieve data from MySQL server to unity, but the way to display the data was still in searching.   + By adding parameter. Addwith value retrieved can be validated with data input by user in Input Field. By using parameter, it can specify data that we want to validate with user input by adding ‘@‘ or ‘%ʼ as reference type.   + The connection and validation is successful   + When we build and run the scene, the text set in GUI panel isn’t displayed. There’s no error when running in editor. The error is still in fixing phase. |
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**DETAIL REPORT WEEK NO: 12**

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| **Objective(s) of the activities :**   * **Importing User Interface on build unity** |
| **Contents :**   * As follow up to yesterday problem which was the text set in GUI panel isn’t displayed when the scene was run on build. There’s no error when running in editor. * The texts that we wanted to display were:   + the “connected” statement which show the user has been connected to database when running the application   + The “login successful” and “login failed” statements to authenticate whether the user has the account in the database or not. * challenges I was facing along the way were:   + The text was first assigned as .text component, and displayed whenever the connection to database is established and the user successful to login the apps. However, the text not appears when we build the scene, but it works fine in editor mode.   + Next we tried to assign the text to a GameObject and set the game object to .SetActive function. However, the text still not appears.   + The problem detected when the connection cannot was not actually established when we display the database connection status using GUI function on build mode. In Unity community website, solution suggested was to add in I18N.dll and I18N.West.dll in asset. * The connection was successfully established and texts that we wanted to displayed have displayed when running the build mode. * We tried to compile all scenes starting from login page, connecting to server and room whenever the players have been connected to server and database. The application has been successfully built but we do not to try to connect two users in multiplayer mode. * A problem arise when two users entered a room but they cannot see each other. |
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**LOG BOOK WEEK NO: 13–14**

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| **WEEK NO** | **DATE** | **BRIEF DESCRIPTION OF DAILY ACTIVITIES** |
| **13** | **29/07/2019** | * Connecting database from other PC |
| **30/07/2019** | * To make clients in other PC connect in multiplayer mode * To make other player see each other in other room |
| **31/07/2019** | * To make clients in other PC connect and see each other in multiplayer mode |
| **01/08/2019** | * To make clients on other PC see other player in one room |
| **02/08/2019** | * To fixed the position of avatar when clients enter a room |
| **14** | **05/08/2019** | * Adding controller to environment |
| **06/08/2019** | * Modules briefing * Oculus Quest setup |
| **07/08/2019** | * Oculus Quest setup |
| **08/08/2019** | * Pairing device (HMD) with oculus application on phone * Transferring APK into oculus quest |
| **09/08/2019** | * Enable two controller in oculus quest |

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| Logbook Weekly Evaluation by HOST COMPANY SUPERVISOR | | | | | |
| I**nstruction to Host Company Supervisor**  Please refer to the student’s to assess his/her performance.  Please award the scores based on the range below: | | | | | |
| **Student’s Score** | **Beginning**  **(<2.0)** | **Developing**  **(2.0 to <3.25)** | **Accomplished**  **(Rare)**  **(3.25 to <4.0)** | **Exemplary**  **(Exceptionally Rare)**  **(4.0 to 5.0)** | **Score** |
| Initiative & Creativity | Had little observable drive and did not have new ideas | Some observable drive and some new ideas | Mostly self-starter and sometimes sought new challenges and offered new ideas | Always a self-starter and consistently sought new challenge and offered new creative ideas | **/5** |
| Task Accomplishment & Commitment | Partially accomplished given task despite full supervision | Accomplished given task but with full supervision | Accomplished given task but with some supervision | Accomplished given task with very minimum supervision | **/5** |
| Attendance & Punctuality | Frequently absent and always late | Sometimes absent and sometimes late | Never absent and almost always on time | Never absent and always on time | **/5** |
| Attitude & Self Control | Unable to demonstrate positive attitude and hardly maintained self-control under pressure | Occasionally demonstrated positive attitude and occasionally maintained self-control under pressure | Sometimes demonstrated positive attitude and maintained self-control under pressure | Consistently demonstrated positive attitude and consistently maintained self-control under pressure | **/5** |
| Total Score | | | | | /20 |
| **Comments:** | | | | | |
| **Host Company Supervisor’s Signature & stamp:** | | | | | |
| **Name & Designation:** | | | | | |
| **Date:** | | | | | |

*(make copies if necessary)*

**DETAIL REPORT WEEK NO: 13**

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| **Objective(s) of the activities :**   * **Connecting database from other PC** |
| **Contents :**   * Challenges I was facing along the way were:   + When connecting to other PC through deployed application, the application is not connected to database at server host   + We received error stating that the *“user is not connected to the database*” and connection also stated that it is not established yet. However the application connected to database when running on the host computer   + Privileged has been given to the user to connect to database, but it does not work. It is because the database used in the hosted PC is open to the local server to access. To access the database, there are two options:     - Either the *other* PC would install the database and access the database, which is so much risk because the data is not secured when other can access the database directly     - Or, upload database in online hosted server and use the PHP coding as a layer to allow user to access the database.   + Today we discovered that it is not conveniences to let user directly access the database, therefore we will try to have a layer between database and Unity by implementing PHP script before accessing the database. |
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**DETAIL REPORT WEEK NO: 13**

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| **Objective(s) of the activities :**   * **To make clients in other PC connect in multiplayer mode** * **To make other player see each other in other room** |
| **Contents :**   * Challenges I was facing along the way were:   + User can get connected through network in other pc but when player entered a room they cannot see each other. Connection between PC and server is checked and it is established.   + Some tutorials were followed but the player still unable to see each other in the same room   + Some reasons of the problems is identified:     - It could be the camera is not attached to a game object. The camera can be seen in a room when other player entered, but it cannot be seen in Virtual Reality device.     - Or it could be the object attached with the object is not instantiated when other user entered a room. |
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**DETAIL REPORT WEEK NO: 13**

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| **Objective(s) of the activities :**   * **To make clients in other PC connect and see each other in multiplayer mode** |
| **Contents :**   * To make the scene working in the state of connecting to server and entering a room, PUN tutorial is followed. Although the tutorial is not meant to develop a Virtual Reality (VR) environment, but the working concept is the same. * Some differences in the tutorial might not be applicable in developing the Virtual Reality (VR) environment. * The scene was successfully developed and run in other PC, avatar in the scene can be spawned when other player entered the same room and it is working well in terms of actions such as running, and lighting beams using keyboard input from user * Challenges I was facing along the way were:   + Player can connect with other PC in the same room, but the scene is developed without Virtual Reality (VR) setting.   + When player entered the room, 2 players can see each other but not using the Virtual Reality (VR) device. It is because the setting in the environment is set into getting input from user and not from Virtual Reality (VR) device.   + The next step is to change the camera view into VR camera |
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**DETAIL REPORT WEEK NO: 13**

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| **Objective(s) of the activities :**   * **To make clients on other PC see other player in one room** |
| **Contents :**   * The concept in making the player see each other is that when a player can transfer the its position and rotation to other player through photon server and the avatar will be spawn when other player enter the room while retrieving data from other player about their position in the scene * In our project, we first run the project without connecting scenes to Virtual Reality (VR) device, when two player entered a room, the avatar can be spawned and there are 2 avatar in one room * When we try to change the camera view into camera rig that can support Virtual Reality (VR), device the camera was not attached to the avatar and while testing to run the scene, the avatar seems to fall down. * Challenges I was facing along the way were:   + When two player enter a room, the avatar is cloned to double when the first user entered the room. Whereas in the other PC when the other player enter the room, there was only 2 avatar can be seen, which are the first player that entered first the room, and the second player. The view is different in first player view.   + The player position detached from the camera because the player has gravity and fall down while the scene is running.   + When other player enter the room, both player can be seen but the position sometimes hard determine because it is not fixed to the camera |
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**DETAIL REPORT WEEK NO: 13**

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| **Objective(s) of the activities :**   * **To fixed the position of avatar when clients enter a room** |
| **Contents :**   * When first user enter the room, the avatar will be spawn twice causing the avatar to have three avatar when two user entered a room * The avatar spawned in the room also detach from camera causing the character to fall down from the camera * The character is fixed and finally attached to the camera, the application also deployed and run successfully * The result of the deployed application: users can enter the same room and see each other along with its position in the room, the avatar also attached to the camera all the time |
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**DETAIL REPORT WEEK NO: 14**

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| **Objective(s) of the activities :**   * **Adding controller to environment** |
| **Contents :**   * Challenges I was facing along the way were:   + The controller at first cannot be attached to the character. The controller can be added in the scene, but it is not visible to other player. Therefore an avatar must be added to allow the controller to be visible   + The controller cannot be spawned in when other player enter the room, however the problem fixed by adding the game object to instantiate during playing |
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**DETAIL REPORT WEEK NO: 14**

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| **Objective(s) of the activities :**   * **Modules briefing** * **Oculus Quest setup** |
| **Contents :**   * We were briefed about modules that we will be doing. In the task, we asked to divide 4 of us into pairs and handle two different task * The task are :   + Integrating multiplayer mode, to ensure that multiplayer between players can always connect to each other in multiplayer mode   + Nursing model for injection, to create a simple model dictating an arm model that can be used by user to practice injecting to a person arms   + The model requires a model with different layers of cylinders like the real arms with layers of skin, each layers of cylinders has different resistance to depict that the injectors has goes in the layers of skin.   + As the first step, we must first setup the and transfer a module from Oculus Go to Oculus Quest   + We were given a guideline to setup the android SDK and NDK |
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**DETAIL REPORT WEEK NO: 14**

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| **Objective(s) of the activities :**   * **Oculus Quest setup** |
| **Contents :**   * Challenges I was facing along the way were:   + When we first setup the oculus quest, the procedures that we need to follow is to download the oculus apps in a device. In the application we have to connect the device and application through Bluetooth and change the Oculus Quest to developer mode.   + After downloading the apps, we has a problem in connecting the oculus head device (HMD) with the apps. the code was not appearing when the application wants the code to pair.   + We proceed to transfer the application from PC to the device. When downloading the ADB of given version as shown in the guideline, we found that the application was not compatible with the windows version that the application is running. Therefore we downloaded the different version of ADB and successfully run it.   + However the device was not found when the application (APK) was ready to transfer into device. It is because the devices was not yet connected to the PC and application in the phone |
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**DETAIL REPORT WEEK NO: 14**

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| **Objective(s) of the activities :**   * **Pairing device (HMD) with oculus application on phone** * **Transferring APK into oculus quest** |
| **Contents :**   * To overcome the problem of connecting to phone:   + factory reset the oculus quest (updating ADB in Oculus Quest)   + previously connecting to other device   + get the 5-digit code and sync with oculus apps on phone   + device now connecting to oculus apps * Challenges I was facing along the way were:   + device can't get connected apps in phone   + Method try to overcome :     - restart PC, phone     - use other cable to connect to PC     - use other PC   + to change the controller from one controller (when using oculus Go) to two controller (using oculus quest)   + to find component in the apk file, and setup the component to enable the quest 2 controller input   + we tried to change the option in the OVRCameraRig component to oculus quest; but the changes still not allow two controller in oculus Quest |
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**DETAIL REPORT WEEK NO: 14**

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| **Objective(s) of the activities :**   * **Enable two controller in oculus quest** |
| **Contents :**   * Ways tried to enable the controller:   + We tried to change the setting in OVRInputManager, but the changes still does not allow having two controllers setting in the APK file.   + Some coding in the APK files was changed   + Some tutorials provided through given link were tried, but still the apps work on one controller   + Problem still unsolved. When running the application, the controller was still using input as one controller |
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