# **Final Year Project: Multiplayer Online Game with AI - Progress Report**

## **Progress Chart**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Agenda\Week** | **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** | **11** | **12** | **13** |
| Determine project direction |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Find out feasibility of Mahjong AI |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Explore Unity |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Study Machine Learning |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Research on TensorFlow & Pytorch |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Research and understand Machine Learning agents (ML-agents) in Unity |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Try out demo game using ML-agent in Unity |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Identify methods to train the AI (Tic Tac Toe) |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Understanding the of various data types seen in examples |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Implementing the logic required by the AI |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Write and troubleshoot the script for the AI gameObject |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Training and troubleshooting the AI script with existing .yaml trainer file. |  |  |  |  |  |  |  |  |  |  |  |  |  |

## **Tasks Completed**

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| --- | --- | --- |
| **Date** | **Number of hours** | **Task Completed** |
| 23-SEP-20 | 10 | Implementing the logic required by the AI:  Added reward function  Added function for swapping the agents turns to start |
| 25-SEP-20 | 12 | Write and troubleshoot the script for the AI gameObject:  Solved the issue of NullReferenceException |
| 25-SEP-20 | Ongoing | Training and troubleshooting the AI script with existing .yaml trainer file. |

## **Problems Faced**

gameController object was thrown a NullReferenceException. This was debugged using UnityEngine.Debug.Log. This was due to double assignments of the gameController script, 1 in inspector and the other in code, thus making it null.

AI is not on self-play and still requires human input.