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

## **Progress Chart**

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| **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 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| TicTaeToe AI Game Development |  |  |  |  |  |  |  |  |  |  |  |  |  |

## **Tasks Completed**

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| **Date** | **Number of hours** | **Task Completed** |
| 12-AUG-20 | 1 | Determine project direction:  Discuss and decide game direction |
| 12-AUG-20 | 1 | Determine project direction:  Plan project stages |
| 17-AUG-20 | 1.5 | Find out feasibility of Mahjong AI:  Understand Mahjong logic and available Mahjong AI on market |
| 17-AUG-20 | 1 | Find out feasibility of Mahjong AI:  Research and understand Suphx development (Microsoft’s Mahjong AI) |
| 19-AUG-20 | 0.5 | Explore Unity:  Download Unity |
| 19-AUG-20 | 1.5 | Study Machine Learning:  Understand core Machine Learning concepts |
| 19-AUG-20 | 1 | Study Machine Learning:  Research on Machine Learning framework: TensorFlow vs Pytorch |
| 24-AUG-20 | 1 | Explore Unity:  Research and understand Machine Learning agents (ML-agents) in Unity |
| 24-AUG-20 | 2 | Explore Unity:  Try out demo game using ML-agent in Unity |

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| 31-AUG-20 | 3.5 | Tic Tac Toe AI Game Development:  Developed a 2 player Tic Tac Toe game on Unity3D.    Features:   * 2 player game * Take turns to make their next move * Able to tell apart a draw or a win      * Option to restart and play again after a draw or win is concluded |
| 2-SEP-20 | 2 | Tic Tac Toe AI Game Development:  Researched on how to implement ML-agent on a game (that is not from the demo list). Currently still trying to figure out how to use ML-agent. |
| 8-SEP-20 | 3 | Tic Tac Toe AI Game Development:  Researched on how to implement ML-agent on a game (that is not from the demo list). Most are MiniMax, trying to explore other options |
| 14-SEP-20 | 4 | Research on Multiplayer System Architecture  Research on Development of iOS & Android Game Development via Unity3D |
| 16-SEP-20 | 3 | Demo Game for Unity3D Multiplayer via Mirror |
| 21-SEP-20 | 5 | Demo Game for Unity3D Multiplayer via Mirror  Demo Game for Unity3D Multiplayer via Photon |
| 23-SEP-20 | 3 | Demo Game for Unity3D Multiplayer via Photon |

## **Upcoming Tasks**

1. Explore and compare advantages and disadvantages of Mirror vs Photon
2. Plan out development of application in stages (Research > Identify > Develop > Test > Deploy)
3. Develop stage: UI Prototypes – App Development – Database Development - Asset Improvements