Group Members: Martyn Bett (2508672), Group Number: 2

Emma Martin (2502836), Lucy Thomson (2505312) Word Count: 580

**Assignment 1 Report: Grid Based Game**

We began by meeting to discuss which game we would select to make. After discussing complexity and design, we decided to model our game around ‘Hey, That’s My Fish!’, a popular turn-based children's game which offers strategic play for adults. We thought this an apt selection as it would leave ample scope to introduce extra players and rules and give us a fun platform to implement quirky visual/design choices. We then went on to create our sketch and assign roles. As we have worked together extensively, we already knew our strengths and weaknesses but did not want to rely on those, so we tried switching roles for this project.

We started small and built from the base up. By beginning with the drag-and-drop GUI elements and then the code-generated button grid learned from the labs, we already had a solid foundation to build the logic on. Successfully starting with how to place and move players and adding points to the player scores, our confidence grew. Buoyed by this, we added a turn-based mechanic and improved the game's look. Not every team member had experience in Visual Studio, so this was an important step. Without confidence, team morale can drop and motivation fray. Unfortunately, we did hit roadblocks when working with files, especially images. Teamwork came to the fore at this point. The knowledge of more experienced team members proved invaluable in resolving the issues. This collaborative problem-solving highlights the importance of teamwork. Sharing knowledge improved the team's capabilities, allowing all members to apply these newly gained skills to future projects. This not only saves time and effort but cultivates growth within the group. Finally, we faced a challenge while developing the high-score system. Initially, employing a Dictionary led to exceptions due to duplicate keys, disrupting the functionality when players shared the same name. Using our understanding of data structures and conducting research, we found that a List of Key-Value pairs permitted duplicates, effectively resolving the issue. Such solutions are fundamental in programming, and gaining experience leads to enhanced coding competence.

Although we are pleased with the game we have made, it could have been better with some features we had hoped to include. In the future, it would improve gameplay if alternative player options were provided, for example, the ability to play against an AI opponent. On top of that, giving difficulty levels for said AI opponent would have added another dimension to both the game and our game-making credentials. Another further improvement we hoped to add was a timer, giving each player a limited amount of time to take their turn, like in chess. This would have upped the competitive side of the game and increased the replay value. Aside from user-facing changes, we also hoped to improve the efficiency of our methods inside the code. We know how important efficiency is within code and would have liked to demonstrate our skill to do so better.

Overall, we are pleased with what we have achieved in this assignment and think we have completed this work to a high standard. Without a doubt, we encountered challenges throughout the project, but we found effective solutions each time. This project created various challenges, from using unfamiliar software to creating alternative data structures. In overcoming these setbacks, we gained a deeper understanding and better implementation methods than we would have created before this project. Looking ahead, we hope to improve our GUI-making skills and better understand the nuances of Visual Studio and C#.