A3: Functional Prototyping Reflection

By Emma Doyle

The program I developed is an interactive browser based game that challenges the player to collect falling balls of various colours. The player must press the *space* key to adjust their own ball's colour, as well as controlling their positioning by swiping a finger across the row of keys (A to Ä). A correct collision will gain the player a point whilst missing a ball will cost them one of their five lives. If the player loses all their lives, or collides with a wrong coloured ball, a "Game Over" overlay appears with an option to restart.

This project explores a variety of fundamental programing concepts, including event handling, loops and state management. The event listeners capture user input, such as key presses and clicks, which ensures the player's autonomy to begin the game, as well as the capability to control in-game mechanics. The state variables govern the game's dynamic behavior by tracking the player's position, score, lives and properties of each falling ball. The *for loop* inside the animation *loop* function manages game logic, including collision detection and score updates. This part of the program was particularly challenging, as it required extensive debugging and fine-tuning to ensure responsive gameplay. Additionally, the project employs *DOM* manipulation and modular programming to efficiently render and update visual elements. These techniques, supported by external utility functions, were proven to be essential for maintaining performance and not overstraining the game.

Overall the project enhanced my understanding of interactive programming. Adapting my initial rigid memory game into a fluid movement based game one allowed for a more creative and engaging user experience.