

**Spike: 01****Title:** Simple Game Loop**Author:** Ford Killeen, 9731822**Goals / deliverables:**

The following deliverables are included in this spike report.

- GridWorld console application, see /01\_GridWorld/
- Hand drawn plan

**Technologies, Tools, and Resources used:**

The following is required to complete this spike.

- Visual Studio 2015 (or similar)
- C++ knowledge
- GridWorld game specification
- Pen & paper for hand drawn plan

**Tasks undertaken:**

To reproduce this spike, follow the below steps and tasks. Some of these may seem obvious but it ensures no steps are missed.

- Download and install Visual Studio 2015 (or similar)
- Create a new C++ Windows Console Application project
- Hard code the GridWorld map into the code, one way of doing this is with a two-dimensional array
- Set up your game loop within the `main` function, looping over the `input`, `update` and `render` methods until the player quits or the game ends
- Set up any other class variables required, and then implement the `input`, `update` and `render` methods one after the other
- Ensure you build and test often to find and fix any issues earlier rather than later
- Once you think you've finished the GridWorld implementation, test a few more times to ensure any extra game rules haven't been missed

**What we found out:**

After completing this spike you should be familiar with a basic game loop and the purpose of the input, update and render functions. The game loop as described, is a loop that repeats while the game is in a particular state or still running. The input function handles all player input and validation of player input, the update function handles all the game logic and updating the game map/player position and the render function handles drawing the game and all major output for the player.

**Open issues/risks:**

Depending on the implementation, the three functions of a game loop can sometimes get a little crossed over and fuzzy. See the below list of issues that can arise within a game loop and the separation of the three main functions.

- Output is sometimes done from within the input and update functions
- Validation of player input can be done within the input or update function

**Recommendations:**

This spike has re-enforced my knowledge of game loops and re-introduced me back into the C++ language which I haven't used in 2 years. A good recommendation for this spike is to keep it simple and don't overthink the separation of the input, update and render functions, as it can sometimes get a little complex when over designed.