Spike: 05
Title: Game State Management

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Goals / deliverables:
Goals this spike aims to achieve:

- Create a simple console application that implements Zorkish Phase 1
- Create an implementation with flexible game states and state management using OO State Pattern
- Implement the following states:
  - Main Menu
  - About
  - Help
  - Select Adventure
  - Gameplay
  - New High Score
  - Hall of Fame

Deliverables required:

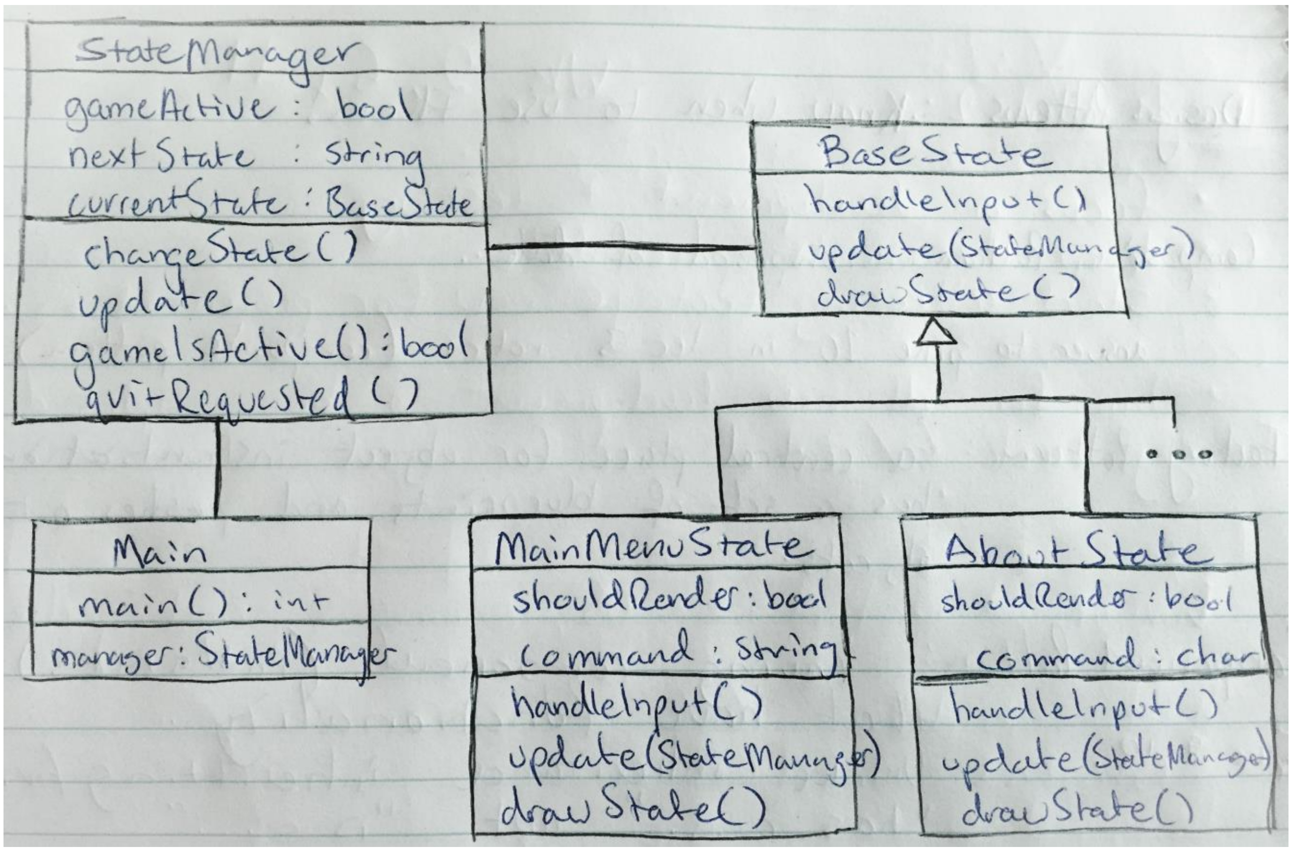
- Code for the Zorkish phase 1 with flexible state management
- Hand written design for a state manager
- Spike report

Technologies, Tools, and Resources used:
The following is required to complete this spike:

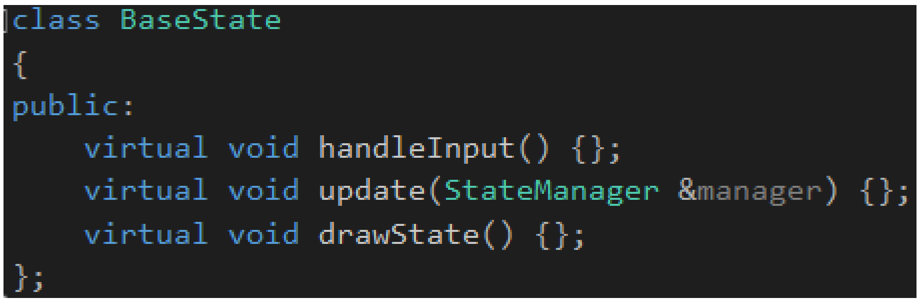
- Visual Studio 2015
- Zorkish game specification
- Online State Pattern references/examples

Tasks undertaken:
The list below details the steps taken to complete this spike.

- Grab a pen and paper and make a simple design for the state management system
- Use any state pattern references or UML guides to complete your hand drawn design

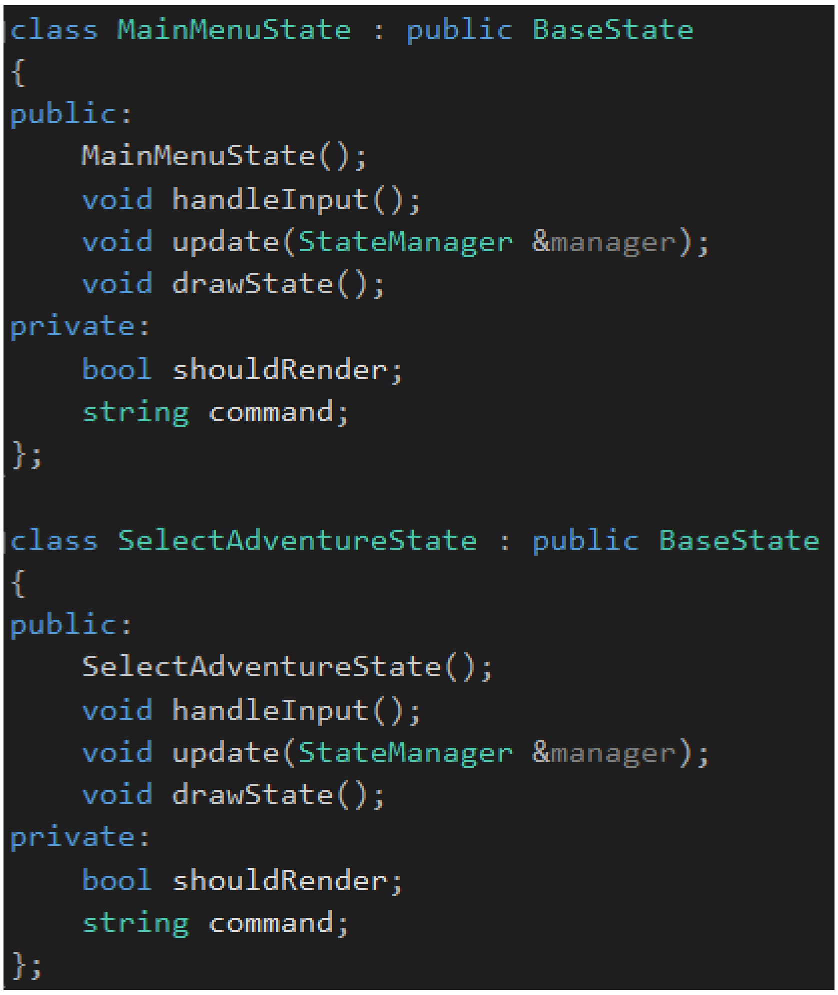


- Begin coding your paper design, starting on your state manager and base state first



```
class BaseState
{
public:
    virtual void handleInput() {};
    virtual void update(StateManager &manager) {};
    virtual void drawState() {};
};
```

- With the foundation of your state manager ready, set up and create your `MainMenuState`, inheriting from your `BaseState` class
- Be sure to build your project often, fixing any little errors or bugs along the way
- Once happy with the `MainMenuState`, implement a second state that you can then swap between, checking that the `StateManager` is working as intended
- Finish off by adding the rest of your states and testing your solution after each addition



```cpp
class MainMenuState : public BaseState
{
public:
    MainMenuState();
    void handleInput();
    void update(StateManager &manager);
    void drawState();
private:
    bool shouldRender;
    string command;
};

class SelectAdventureState : public BaseState
{
public:
    SelectAdventureState();
    void handleInput();
    void update(StateManager &manager);
    void drawState();
private:
    bool shouldRender;
    string command;
};
```

What we found out:

By completing this spike we found out how to implement a State Manager that allows very flexible state management and scalability. By using a `StateManager` object that contained a `BaseState` object, we were able to call the `handleInput()`, `update()` and `drawState()` method on the `currentState` regardless of what the current state of the game is.