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h446 component 3: Empire Game Project

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# Introduction

For my H446 Project, I shall be making a 4K strategy game similar to the “Sid Meier’s Civilization” Series. The game will revolve around managing an empire of cities against other players and AI using different types of units. I will be building the game in the Unity Engine, which will allow me to easily compile to different operating systems.

# Analysis

## Computational Methods

This problem is able to be solved through computational methods, as it is primarily a video game. Part of the game involves moving units around, which could be done more efficiently by the user by using a “shortest path” algorithm such as the A\* algorithm, allowing less experienced users to avoid terrain penalties they may not notice along the way.

The game could also be made to feel more realistic, and therefore more immersive by using a computer, as it can make use of animation. The game also relies on other players,

## Stakeholders

The stakeholders for my project are people who enjoy playing strategy games similar to civilization. The game will give players a new experience that feels familiar but also has new features allowing for the players to enjoy the project without feeling it is simply a copy of an existing game.

## Existing Solutions

Existing solutions to this problem include the titles from the “Sid Meier’s Civilization” series, as well as other games such as “Pandora: First Contact”.

### Sid Meier’s Civilization III

* Older Title
* Square Tiles
* Transports carry people on water
* Unit Stacking
* Semi-realistic style
* Allowed to cross borders without war being declared

### https://vignette3.wikia.nocookie.net/civilization/images/1/13/Standard-Earth-map.jpg/revision/latest?cb=20101105112509Sid Meier’s Civilization V

* Realistic
* Hex Tiles
* Tech tree
* Ideologies



### Sid Meier’s Civilization: Beyond Earth

* Space Setting
* Miasma causes terrain damage to units
* Tech Web
* Affinities for factions (supremacy, harmony, purity)



### Sid Meier’s Civilization VI

* Cartoon style
* Hex Tiles
* Breakthroughs (boosts to science, culture etc.)
* Multi Tile Cities

### https://i.ytimg.com/vi/cBcRZEIQLUk/maxresdefault.jpgPandora: First Contact

* TODO: Look into this game

## Essential Features

* Tile Based
  + Using Hex tiles as this allows for equal movement cost regardless of direction
  + Different types of tiles
  + Tiles have movement cost
  + Water tiles & ships
* Map Generation
  + Generates a reasonable map
* Different civilizations
  + Each have different abilities so not all the same
  + Player can choose one or choose random
  + AI Players to fill map
* Revolutions
  + Unique Feature
  + Unhappy areas far from capital can revolt
  + Can join another civ or become independent
    - Independent civ needs name
      * Based on area / city name / defined options based on civ succeeds from
    - Independent civ auto declare war unless peaceful independence agreed
* Combat
  + Units can fight each other
  + Element of randomness
* Territory
  + Cities hold territory around them
  + Borders can prevent passage of troops
* Units
  + Different units with different abilities
  + Settler can found cities
  + Worker does work, builds improvements etc.
  + Various military units with different stats
  + “Great People” provide boosts in different stats

## Limitations

Maps can only be a certain size due to want to load whole map at once

## Requirements

* Needs GPU in order to render graphics
* Needs to be able to run Unity games

## Success Criteria

* TODO

# Design