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Project Plan 3

Working Title: Space Wars

Brief Description

This is a Risk-like game set in space. The goal is to conquer all the planets in the Galaxy.
You do this by sending units from one planet to the next. Each planet you own gives you a certain bonus (money, a different unit type, better defense, …). Each planet can only reach certain other planets. There are one or more (AI) opponents with the same goal. Once you own all planets, you win the game.

Detailed Description

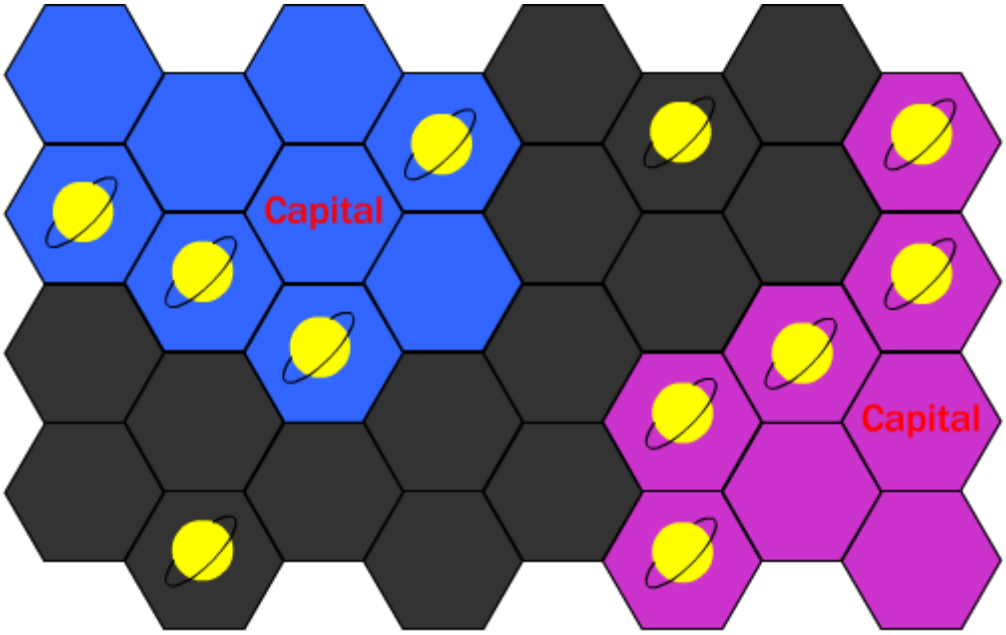
The player starts out as the ruler of a few planets in a galaxy. Through these planets, he can produce units or structures to improve aspects of the planet. Each turn, the player can send these units out to conquer other planets. At first, most planets are neutral – they are occupied by a certain amount of units that doesn't change. However, there are one or more opponents with the same goal as you have: to get all planets. The goal is to eliminate all opponents and/or occupy all planets.

There will be two types of planets, inhabitable and habitable. Each planet will have certain bonuses, but these bonuses will be dependent on what type of planet it is. Inhabitable planets can be mined for resources, some planets will yield more resources or different resources.

Habitable planets will give other bonuses such as increased build speed, pre-built factories, access to certain unit types, increased stats, and possible some other bonuses.

<u>Details about the Non-combat system:</u>
the map should be a 2d one. It is made up by cells (hexagons are simply for demonstration). Each cell can represent a planet or just null. Planets are grouped in solar systems. If you own a complete solar system, you get a bonus. A set of cells forms a solar system. There are two solar systems in this demonstration, which are the purple solar system and the blue solar system. The grey cells belong to neither solar system. Each solar system has a capital planet, on which and only on which, combat units can be produced and functional facilities can be built. Other planets can have bonus / mines etc. on them, as described in the draft plan. There can also be planets in the gray area.

Each player can produce spaceships (like heroes in Heroes of Might and Magic) which carry combat units. It took each spaceship / or fleet 1 unit of action point to move from one cell to an adjacent one (If we are not going to introduce different type of terrain). A spaceship has several action points at the beginning of each turn, and might use up all of them at the end of a turn.



Details about the combat system:
The combat system will resemble the combat system of Heroes of Might and Magic. Each unit will have a distance it can move each turn, hit points, attack points, and defence points. There should also be a randomness factor to each of these, so that the player cannot be sure of a victory if their stats are only slightly better than the opponent. Multiple units can be grouped together into a fleet to increase their combat effectiveness.

Preliminary Graphics Designs:
The game is set in space. Graphics will be in 3D. Each solar system will have a central sun which will act as a point light source. Planets will slowly rotate around the sun to give the impression of realism.

Scalability Plan
The simplest possible version has these basic mechanics:
- Planets that can build basic structures
- Possible to attack other planets (a combat resolution system)
- Unit production
- A few different units & planet bonuses- An AI opponent

Things where scaling is possible:
- More different units & planet bonuses
- Different AI strategies
- A campaign (levels with different goals. eg. start out by eliminating 1 opponent in a 10-planet system, end with 4 opponents in a 50-planet system, slow introduction of new unit/planet types).
- An RPG – storyline
- Units could require several types of resources instead of just ‘money’.
- If really ambitious: implement the combat phase as an active component where

the player actually controls his units in some way. Possibly optional for the player.
- Could implement random generation of universes

Game Principles Discussion

The game has a clear goal; to destroy the enemy. Subgoals (conquering one planet or a solar system) generate rewards that benefit the gameplay. There could also be rewards for conquering an enemy.

The player chooses which planet to attack at what time. A planet with a larger enemy population might be worth attacking because it provides a bigger bonus. This creates trade-offs.

When the player gets further along in a level, he has more borders to defend. This increases the challenge. Also, he starts out bordering just neutral territories. These don't attack him, so at the start the game is easier.

Design Challenges

The implementing team will have to work out many details. The main things that have to be worked out/designed:

− The combat system
− The different types of units
− The different types of planets
− Whether or not there will be a campaign, and if so, the different level layouts.
− The graphical look & feel
− The AI strategy/strategies
− Balancing of units
− Turn-based / real-time / hybrid
− RPG elements Technical Overview & Challenges

A data structure will have to be designed to store the different planets and their possible connections.
The opponents require an extensive AI. This can be hard, especially if you would like to be able to tweak the AI to adjust the difficulty level.
Most if not all of the gameplay will happen with the mouse. This should be relatively easy.

Response to Critiques

Balancing Problem: if we cannot design the rules / parameters carefully, the game might easily become overwhelmingly difficult or have dominant strategy problems. Randomness is one way to solve this. Also, we can study the rules of mature game products to gain some experience.

Group Inventory

(What skills, talents, and resources do the members of your project team bring? Are there things your team is missing or is really good at? How should these effect what you try to achieve?)

Break is good with algorithms and artificial intelligence, which can be applied to AI component design and game logic programming. He is also familiar with the game Heroes of Might and Magic, from which we can borrow some ideas.

Matt is good with 3D graphics and programming, which will be useful in designing the look and feel of the game.

Lorenzo is good with designing behaviors with physics and and movements. He can help design the movements of the game, and in the battle mode (if needed), and can help model some objects too.

Tools Choices

We will be using javascript and webGL to program this game. 3D models will be made with either Blender or Maya. We decided to use webGL instead of a different editor because in our group, we use Windows, Linux, and Mac, and javascript and webGL can be programmed on any platform relatively easily.

Division of Labor

If a member is particularly good at one aspect, they should obviously be the person to work on that. Other than that, we have a pretty good idea of what needs to be completed first and what has to wait until later. We will all discuss what is the next area or areas that need to be worked on, and we will divide the work amongst ourselves. If a particular section is going to be a challenge, we can have two or three people looking over it so it is not just one person alone. Along those lines, if a member is having trouble with a section, the entire group should try and help with it, so it does not cause a bottle neck in the work.

Milestones

What milestones do you see along the way of building the game? Describe what you expect to have done at the 1 week, 2 week and 3 week marks (these are the “signs of life,” “tech demo,” and “play test” milestones).

Signs of life - it would be nice to have the basic graphical system down. Before we can select planets or ships, we must have a planet or a ship to select. They may only be orange boxes, but it would be nice to have the basic infrastructure down, and have objects to represent players, planets, ships, and solar systems.

Tech Demo - Expanding upon the basic infrastructure, it would be nice if everything could be interacted with. We expect to have a turn system down, and each turn you can interact with planets by building structures or ships on them. We also expect to be able to move ships around, and possibly have a simple version of the battle system done.

Play Test - By the play tests, we expect the game to be mostly complete. We will have computer players and the combat system complete. Some of the graphics may not be done depending on time constraints. Some units may be unbalanced, but this is something we hope the play tests will help us nail down. Based on the feedback we get from the play tests, we may also add or remove units, or modify other aspects of the game to make it more balanced.

Risks

We don’t know the potential of webGL, and it is possible we may design our system, and it is too much for the web browser to handle. If we have two armies of ships, we don’t know at what point there will be too many polygons for the web browser to handle.