

After the brainstorm (read that document if you didn't) I need to make clear (to me and you) what I will try to implement, and what will be my goal, so let's start

General Idea

This will be a tower defense game genre located in space, the main concept is that we are a colony of some interplanetary beings (maybe customizable character if I have time) and in the search for new worlds we find that we are being attacked by other interplanetary race (here is when the tutorial starts).

Scenarios

All fights will be in space, if we create some kind of lore about it we can add like planet's surfaces or atmospheres.

Game concept

As said will be a space game, our ships are going to be our towers, we can conquer enemy's towers and make ours, or conquer pacifists ships near by (less effort).

- In this game phase all ships are going to start with 30 population, if this population goes to 0 you lose the ship, the population increases in passive way, but if we sent over the ship this ratio decreases.
- If we are attacking our population increase will stop, but if we are fighting we will lose population.
- We can receive population from allies ships
- we win when all enemy's ship are conquered, lose if ours.
- Score will increase by killing enemy's soldiers, conquering ships and by time passed (this opens possibility for horde gamemode, but not this version)

Technology

As said before, I will use Unity with C#, I will code my design patterns based on <https://github.com/Habrador/Unity-Programming-Patterns> (I will be more descriptive in documentation) with MVC in top of my head.

For the leaderboard I will create my own API with Node.js, Express.js and MongoDB with design patterns based on: <https://www.terlici.com/2014/08/25/best-practices-express-structure.html>

For version control I will use git hosted on GitHub.

For deployment I will use Heroku, so we can play anywhere.

For database I will be using MongoDB hosted in Atlas.

Functional requirements

Requirement's number	FR 00		
Requirement's name	Template		
Type	Requirement	Restriction	
Conditions (if has)			
Priority	High	Normal	Low

Requirement's template

Game menu

Requirement's number	FR 01
Requirement's name	Main menu
Type	Requirement
Conditions (if has)	1 st view in game
Priority	High
Description	<p>Is the first view the player is going to see.</p> <p>It has 3 options:</p> <ul style="list-style-type: none">• Level selector<ul style="list-style-type: none">◦ Send to FR 02• Options<ul style="list-style-type: none">◦ volume manager

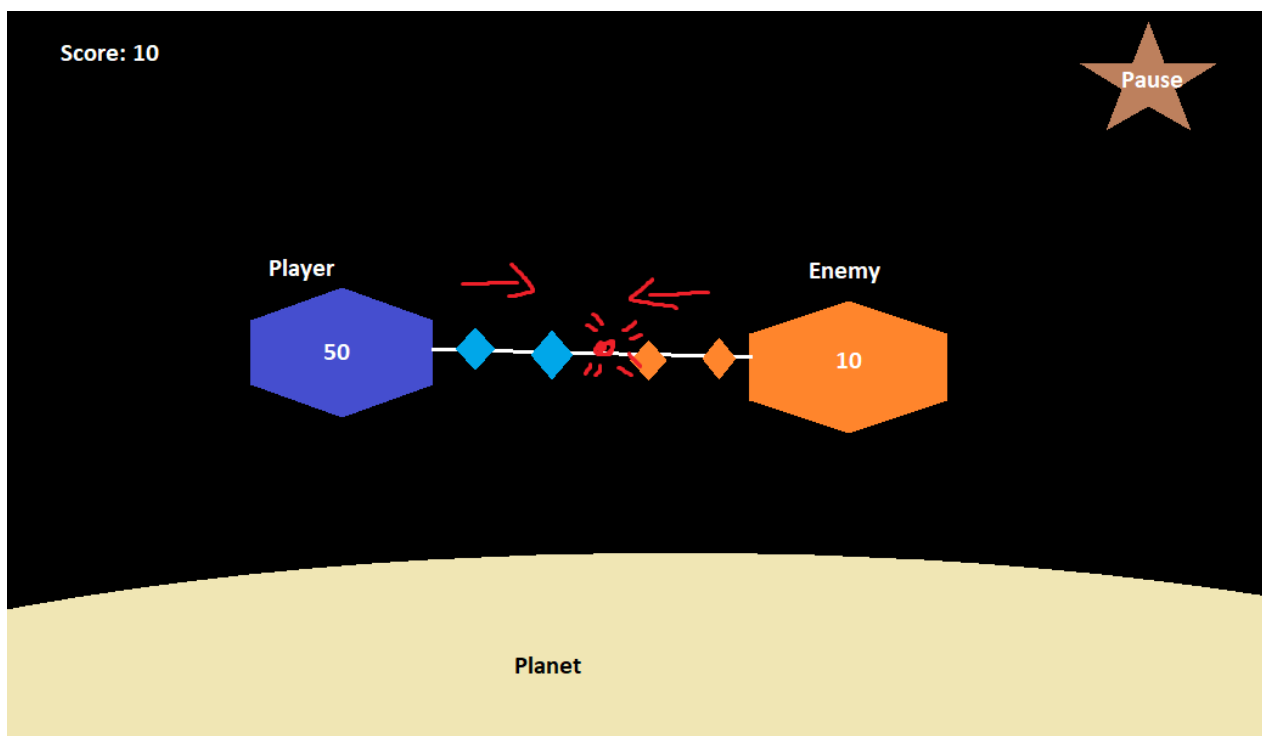
	<ul style="list-style-type: none"> Exit game <ul style="list-style-type: none"> Finish the execution of the game
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Requirement's number	FR 02
Requirement's name	Level menu
Type	Requirement
Conditions (if has)	Child of FR 01
Priority	High
Description	<p>Contains all levels with leaderboard of each.</p> <p>Each level can be represented as programmer decides with top 5 scores.</p> <p>Clicking on level should show description of it, your max score and option to play.</p> <p>One button to return to FR 01</p>

Requirement's number	FR 03
Requirement's name	Game pause menu
Type	Requirement
Conditions (if has)	Being playing a mission level or game level
Priority	High
Description	<p>Pauses the game</p> <p>Show option to quit level (go to FR 02)</p>

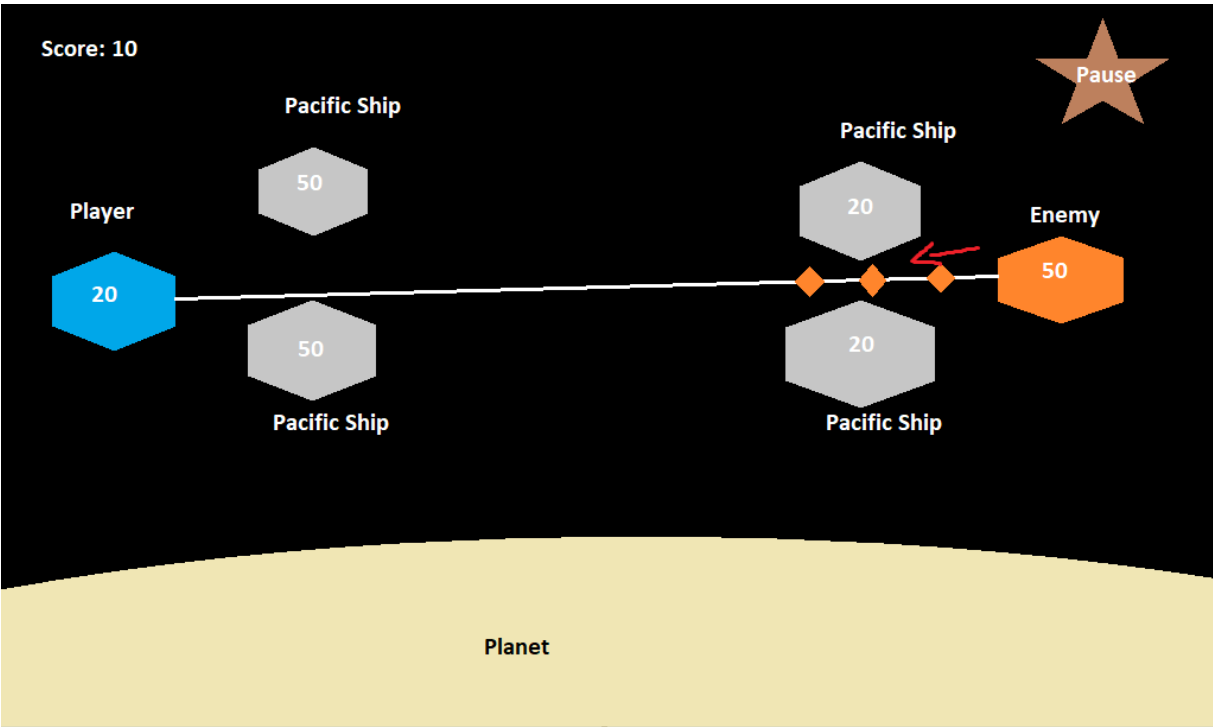
Gameplay levels

Requirement's number	FR 04
Requirement's name	Tutorial
Type	Requirement
Conditions (if has)	First level playable
Priority	High
Description	<p>In this level we teach the player how to play.</p> <p>The main objective is that the player understand how to attack.</p> <p>Convenient show instructions in dialog.</p> <p>Player should win always.</p>



Requirement's number	FR 05
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Requirement's name	Level 1
Type	Requirement
Conditions (if has)	Tutorial ended
Priority	Medium
Description	In this level we teach the player conquer methods



Requirement's number	FR 06
Requirement's name	Level n
Type	Requirement

Conditions (if has)	Previous level finished
Priority	Low/Optional
Description	Design challenging levels

Gameplay mechanics

Requirement's number	FR 07
Requirement's name	Attack
Type	Requirement
Conditions (if has)	Ship units needed
Priority	High
Description	<p>Attacking an enemy will create a line that connects attacker and attacked.</p> <p>If attacking ship directly without response do double damage</p> <p>If attacking ship's units both ships will lose units.</p> <p>If attacking neutral ship, it will require 10 units to conquer.</p> <p>If attacking team ship, it will transfer units to it.</p>

Requirement's number	FR 08
Requirement's name	Conquer

Type	Requirement
Conditions (if has)	If neutral ship 10 units If enemy/player ship it need to have 0 or less units
Priority	High
Description	If conquering neutral ship, it will start with units marked quantity. If conquering enemy/player ship, it will start with 5 units

Requirement's number	FR 09
Requirement's name	Units
Type	Requirement
Conditions (if has)	
Priority	High
Description	Each clock tick will give all players ships (except for neutral ships) units. Each unit has 100 hp (health power) and 100 ap (attack power)

Requirement's number	FR 10
Requirement's name	Power ups
Type	Requirement

Conditions (if has)	
Priority	High
Description	<p>Each ship has the ability of deploy a special unit once depending of the level and the ship:</p> <ul style="list-style-type: none"> • Velocity increase: In a radius all ships inside will make its units faster • Power increase: In a radius all units inside will have more damage • Velocity decrease: In a radius all ships will deploy units more slower.

Communication (API)

Requirement's number	FR 11
Requirement's name	API – Node, express and mongoose
Type	Requirement
Conditions (if has)	
Priority	High
Description	Develop the environment necessary for the API calls

Requirement's number	FR 12
Requirement's name	Calls limit
Type	Requirement

Conditions (if has)	
Priority	High
Description	Wee need security against DDOS attacks, so limit request number per IP to 100 calls/hour

Requirement's number	FR 13
Requirement's name	Secure Injection
Type	Requirement
Conditions (if has)	
Priority	High
Description	Protect mongo injection attempts in each call or request

Requirement's number	FR 14
Requirement's name	Data compression
Type	Requirement

Conditions (if has)	
Priority	High
Description	We need data flow to be faster, so compress requests

Requirement's number	FR 15
Requirement's name	Data encryption
Type	Requirement
Conditions (if has)	
Priority	High
Description	Send all data though HTTPS protocol

DEPLOYMENT (HEROKU)

Requirement's number	FR 16
Requirement's name	Deploy API

Type	Requirement
Conditions (if has)	
Priority	High
Description	Make sure that anyone anywhere can use and play the game