

Nov 12th, 2021:

- Preliminary design:
  - Idea: Infinite scroller type of game
    - Fighter jet/Space ship flying through space trying to avoid debris/asteroids from destroying their ship
    - As time goes on, the game gets harder as there is more debris/astroids to avoid
  - Core Loop:
    - Dodge asteroids/debris, aim at astroids/debris, shoot it, destroy it
- Aesthetic goals:
  1. Infinite Scroller: This allows the player to play for a theoretically infinite amount of time while trying to attain the highest possible score
    - a. Success:
      - i. Players are invested in getting the highest possible score each run they play
      - ii. Players have fun playing for an extended period of time
      - iii. Easy enough for anyone to play
    - b. Failure:
      - i. Players feel like they cannot get past a certain point in the game
  2. Space shooter: Conforms to the genre of space shooter type games, players feel like they are in charge of the wellbeing of their aircraft
    - a. Success:
      - i. Players want to avoid getting their ship destroyed
    - b. Failure
      - i. Players don't feel like they are controlling a spaceship/aircraft
- Design implementation 1:
  - Creating a dynamic background with stars that move across the screen horizontally
    - Gives a deep space aesthetic
  - Used the Unity particle system to create a moving starfield against the direction of the player
  - Made the background a black color to depict deep space
- Design Implementation 2:
  - Downloaded a sprite sheet online for 2d space ships
    - <https://craftpix.net/freebies/free-pixel-art-enemy-spaceship-2d-sprites/>
  - Animated the thrusters behind the spaceship

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- Design Implementation 3:
  - Trying to create the spaceship movement script
  - Having trouble with the addForce function: the player can theoretically add an infinite amount of force if they hold down the arrow keys
    - Trying to limit how much force can be added

- Want to add a feature where the spaceship goes back to its original position when the user doesn't press any buttons
  - Got this to successfully work
  - Had an error when i added force to the spaceship and there was a value being divided by 0
    - Used an if statement making it so that the division only occurs when the denominator is greater than 0

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- Design Implementation 4:
  - Created the laser shooting function for the player
    - Used the laser sprite bundled in the previous sprite sheet indicated
      - <https://craftpix.net/freebies/free-pixel-art-enemy-spaceship-2d-sprites/>
    - Created a laser script. Whenever the user presses the spacebar:
      - The laser animation plays
      - Instantiate a new Bullet prefab and sets its velocity to a specified positive value
- Design Implementation 5:
  - Creating the asteroid field that come towards the player spaceship
  - Got an asteroid sprite from the internet
    - <https://opengameart.org/content/brown-asteroid>
  - Manually figured out the Min and Max Y values for the camera window
  - Used Random.range to get random Y values between the Min and Max values and spawn an asteroid
  - Made it so when a laser beam hits the asteroid, an explosion animation plays and then the asteroid disappears from the screen

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- Design Implementation 6:
  - Added a home border that decreases the amount of lives if an asteroid crosses past the player.
  - Player also loses a life if the asteroid hits the player spaceship
  - Added box collider and made its y scale 10
- Design Implementation 7:
  - Made it so that the game gets harder every 5, 10, 15 asteroids that the player destroys/misses
    - Higher level means higher asteroid count and velocity
- Design Implementation 8:
  - Added UI which indicates how many lives are left, the level, and the players score
  - Decided to put them in the three corners of the screen
- Design Implementation 9:
  - Adding explosion and laser sound effect:
    - Explosion: <https://opengameart.org/content/8-bit-explosions-1>

- Credit: Jesús Lastra
- Laser: <https://opengameart.org/content/laser-fire>
  - Credit: dklon
- Game Over sound: <https://opengameart.org/content/game-over-theme>
  - Credit: Music by Cleyton Kauffman - <https://soundcloud.com/cleytonkauffman>
- Explosion sound effect activates whenever the user destroys an asteroid or when the user misses an asteroid

#### Postmortem:

- My original idea was to make a space defender game where the player would destroy and clear asteroids/debris, but I just made it asteroids to make it a little simpler.
- My goals by the end were to just make an endless space game which progressively got harder as the player played on. I stuck to this plan and I feel my product is very successful
- Of these goals I feel like I accomplished more than I thought I could. I did not think I was going to implement the game getting harder, but I felt like my game was too boring otherwise; I wanted to add a challenge to the player
- I overall feel like I was able to accomplish everything that I set out to do. I realized from my last game I made, that being over ambitious makes everything worse if you are crunched on time.
- I feel like I learned to structure my code much better than last project. Last Project, I kind of created scripts and put lines of code wherever I saw fit, but In this project, I made a much simpler design and much more organized. I also learned from my mistakes from last project and was able to create a game in which I really liked the outcome.