Project Title: Arcade Space Shooter

Description
This game will be an arcade space invaders-style shooter with vertical side-scrolling, multiple types of enemies, and powerups to make the game a bit interesting.

Feature Proposals:
- Sidescrolling
- Projectile Motion
- UI Management
- Sound Management

Object Oriented Design:
- **Game** class
    - This should be the main game class that contains *`Game.update, Game.draw`* methods that constitute the model, view, and controller (MVC) of the game.
    - Possible Attributes
        - Score
        - Time
        - Enemies
        - Transitions (Splash screen)
- **Player** class
    - This should contain the necessary player information.
    - Possible Attributes
        - Health
        - Space Ship Design
        - Items/Power-ups
- **Enemy** class
    - This should contain the necessary information for each enemy.
    - Possible Attributes
        - Health
        - Space Ship Design
- **EnemyController** class
    - This should handle the backend movement of all enemies in the game and should be able to update all at once.
- **UIManager** class
    - This should handle all UI elements for each game state (in-game, main menu, help, etc.)
        - We would benefit from creating a button class that is universal and can be called simply with a *`Button.draw, Button.isClicked`* which could call a callback function.

- **Particle/Bullet** class
    - This should be a single bullet that is fired from either an enemy or player, and a mass of these instances would be managed within the player/enemy class.
        - These would be updated with an update call from the **Player** and **Enemy** class.

Implementation Plan

- Create a basic model, view, controller
- Level design

Platform Agreement

- **Version Control**
    - Git would probably be the optimal version control method since we could utilize branching to develop different components.
- **Game Design**
    - The game will be designed based on MVC with updates and controllers, draws as the view.

Component Assignment

- **Code Design & Assembly: < Andrew Youn (ayoun2) >**
    - This role will mainly design code and guidelines and be able to refactor large chunks of code for readability, modularity, etc.
- **Level Design: < Zhenfang Chen (zhenfanc) >**
    - This role will mainly involve working on how levels should be played: What enemies could appear, what power-ups we may introduce to the user, and how difficult it will be.
- **Updates: <Jennifer, Sean Wu >**
    - This role will mainly involve working together to write the update (controller) portions of each class.
        - The update methods will manage most of the backend controller code for the game, including enemy updates in movement and user interactions
    - We noticed that working on different classes together was inefficient since all of our classes interacted with each other deeply.
- **Draws: < Sean Chen (yihsianc), Ariel >**
    - This role will mainly involve working together to write the draw (view) portions for each class.
        - The draw methods will control most of the view code, and the assignee should work on all parts of drawing specific objects while also working on image parsing into the game (scaling, cropping).
- **Sound Design: < 1 person >**

    - This role will mainly involve working together to implement sound into the game for each class.

Repository URL:

- https://github.com/ay0503/24-780-Final-Project--Arcade-Space-Shooter