**General Phases of Project:**

1. AGE Game Engine.
2. Ice Cream Drop (Game #1).
3. Space Invaders (Game #2).
4. Documentation.

**Phase 1: AGE Game Engine.**

Part 1: Game Objects and Display.

The first step of the project will be to learn *ncurses* and implementing the game objects (i.e characters, rectangles, and bitmaps), and be able to display them as well as the border and status on the screen. Since there will be some learning involved, I will give myself two days from Due Date 1 to complete this part.

Completion Date: Sunday, December 4th.

Part 2: Movement Types.

After the game objects and display are working, I will proceed to implementing the following movement types in the *Movement* Class, in order of priority, and make it responsive to user-input via the *Controller* and *PlayerControl* Class.

- moving in a straight-line path
- Gravitating towards a specified border of the screen (the *Gravitate* Class).
- stationary, cycling through a periodic sequence (the *Cycle* Class).

Completion Date: Monday, December 5th.

Part 3: Collision/Spawning/Game State.

Finally,  I will proceed to implementing the following collision types in the *Collision* Class, in order of priority for the cases where two colliding objects are

- Passing through each other. (the *PassThrough* Class).
- Colliding and stopping (the *Stop* Class).
- Triggering a win or loss (the *End* Class).
- Bouncing off one another. (the *Bounce* Class).
- Potentially Damaging or Destroying one another (the *Damage* Class).

In addition, I plan to implement the spawning feature (the *Spawn* Class) and the *GameState* Class prior to the completion date.

Completion Date: Tuesday, December 6th.

Overall Completion Date: Tuesday, December 6th.

**Phase 2: Ice Cream Drop.**

Parts in order of priority.

Part 1: Implementing platforms with holes between them that shift up after a specified amount of time, ending the game if the ice cream goes off screen at the top of the border.

Part 2: Incorporating movement for the ice cream with gravity when it falls between the holes and having it pass through one side of the screen (for instance the left side) and come out the other (i.e wraparound).

Part 3: Integrating Collisions with the fruit flies. When the ice cream collides with the fruit fly, the ice cream and fruit bounce off one another and the game ends.

Part 4: Adding apples in the game such that collisions destroy the fly if the ice cream ate an apple and dies otherwise.

Features shown in Game #1:

- Moving in a straight-line path.
- Gravitating towards a specified border (the bottom) of the screen.
- Collisions triggering a win or loss.
- Collisions destroying another object.
- Colliding and bouncing off one another.

Overall Completion Date: Friday, December 9th.

**Phase 3: Space Invaders.**

Premise of the game: The main character will be in the middle with the space invaders coming from both the top and bottom of the screen. The character will be cycling in a stationary position unless otherwise specified by the user.

Parts in order of priority.

Part 1: Implementing cycling for the character and having one additional row of aliens on each side after a specified amount of time.

Part 2: Spawning the bullets after a specified amount of time such that they shoot towards the main character and having the main character shoot bullets based on keyboard input.

Part 3: If the bullet collides with the main character, the game stops.

- If the bullet collides with an alien, they stop and the alien gets destroyed. (if they collide with another bullet, it passes through).

Features shown in Game #2:

- Stationary, cycling through a periodic sequence.
- Collisions passing through each other.
- Colliding and stopping.
- Colliding and destroying.

Overall Completion Date: Monday, December 12th.

**Phase 4: Documentation.**

After completing the project, I will finish the final design document consisting of the following parts and reflect on the overall process of building the project:

- Introduction (if needed)
- Overview (describe the overall structure of your project)
- Updated UML
- Design (describe the specific techniques you used to solve the various design challenges in the project)
- Extra Credit Features (what you did, why they were challenging, how you solved them—if necessary)
- What would you have done differently if you had the chance to start over?
- Conclusion (if needed)

Overall Completion Date: Tuesday, December 13th.