Game Proposal: The Fast and The Furry-ous

CPSC 427 - Video Game Programming, Winter 21/22

Story:

- Background Context
  - Two groups of pets are neighbors and don't like each other, so they fight
- Major Levels
  - There will be a tutorial level but besides that
  - There are different levels for 1 player mode; this is a turn-based game where player battles against AI team until one team is elimiated
  - There are no levels for 2 player mode, two players can set desirable turn time and number of characters in their own team
  - There will be a few different maps
- Game Rules
  - Each game should only last around 5 - 10 mins
  - Team that runs out of pets first is eliminated
  - A pet is eliminated if their hp runs out
  - Each team has the same number of pets (3-5, depending on player-chosen settings)
  - Each turn one action (move, attack, defend) can be made on each team
    - Attack: Do one attack
    - Move: Move a certain distance
  - Each time has same amount of time to choose their action
- Player Goals
  - Eliminate all of the pets on the opposing team

Technical Elements:

- Rendering
  - 2D side-view perspective
  - Two opposite environmental structures that serve as bases (houses)
  - Character action and projectile animation
  - Number of characters on each side
  - HP bar or number of lives
- Assets (Geometry, Sprites, Audio)
  - Pixel sprites for pets/units/weapons
  - Sounds for player actions (feedback)
  - Background music

    - Squares and triangles for shaping the environment/map terrain
- 2D Geometry Manipulation
    - Sprites can move, jump, and attack
- AI/Gameplay Logic
    - User can play against AI or another user
- Physics
    - Physics to calculate trajectory of ranged attacks (power, distance, direction)
    - Collision detection (projectile hitting a pet, pets not going through the terrain elements)
    - Universal gravity that affects everything (both projectiles and character movement)

Advanced Technical Elements:

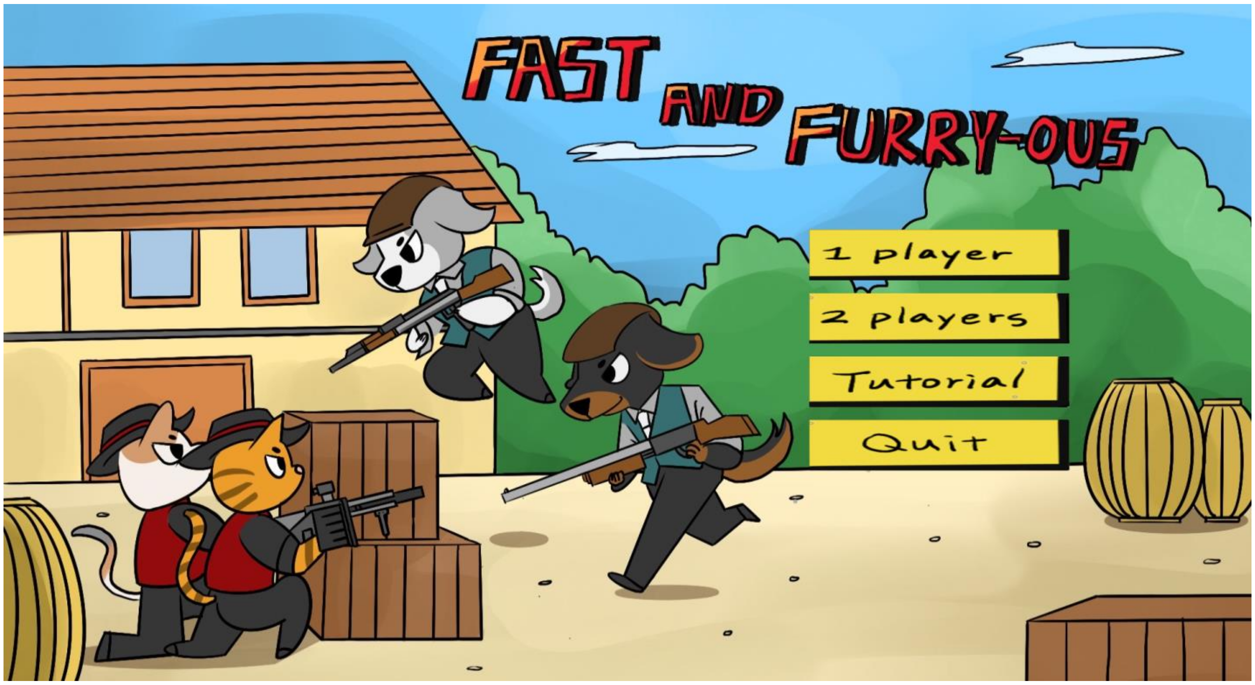
- Multiple pets to choose from for each team
    - There will be less customizability if this is skipped, but no major impact on gameplay
    - Instead of different pets, we could allow each player to choose a different colour to customize their team's base
    - If time permitting the different pets can have different weapons, with different properties i.e launch angle, destructive force etc
- Allowing pets to defend incoming attacks
    - If skipped, gameplay will be quicker
    - An alternative to this is allowing players to 'revive' pets
- Terrain or environmental changes due to collisions (base/terrain destruction)
    - There will be less variability in gameplay if this is skipped

Devices:

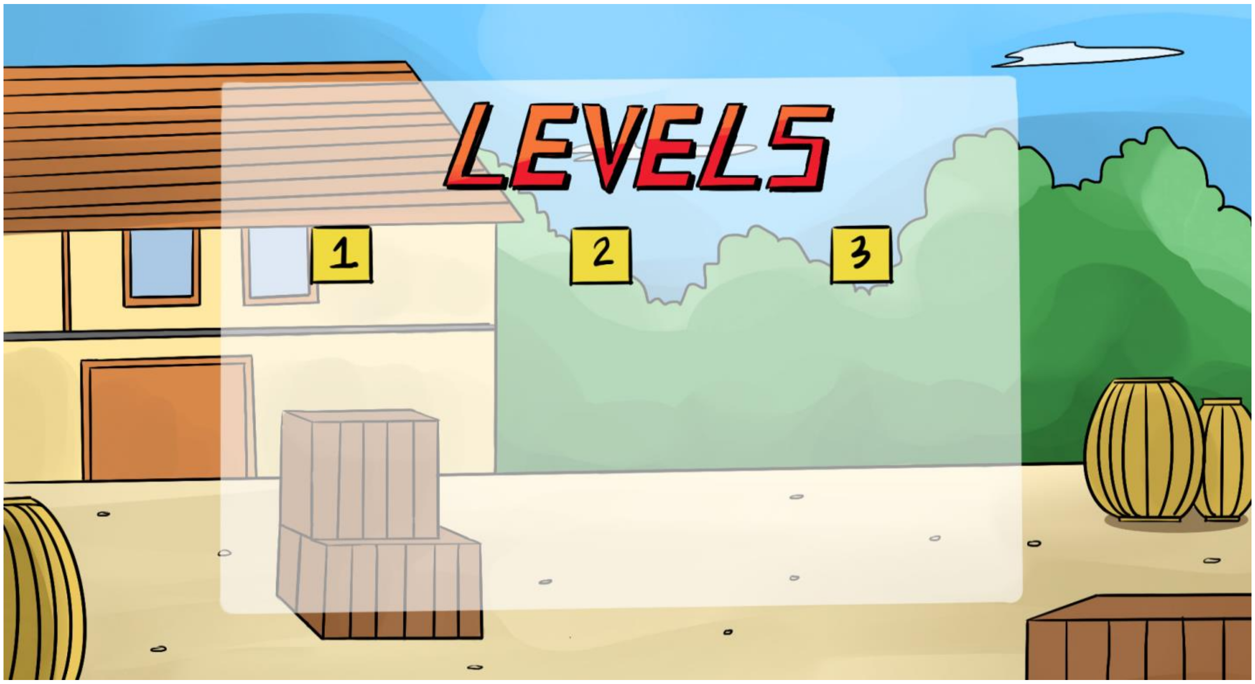
- Mouse and Keyboard
    - W/A/S/D, I/J/K/L will be used for character sprite movement
    - UP/DOWN keys will be used to aim and fire projectiles

Concepts:

- Starting screen will include a list of choices for the player, and a game title with a game graphic in the background.
    - A list of choices includes a "1 play" button, "2 player" button, a "tutorial" button, and a "quit" button



- After selecting “1 player”, players are able to choose different levels



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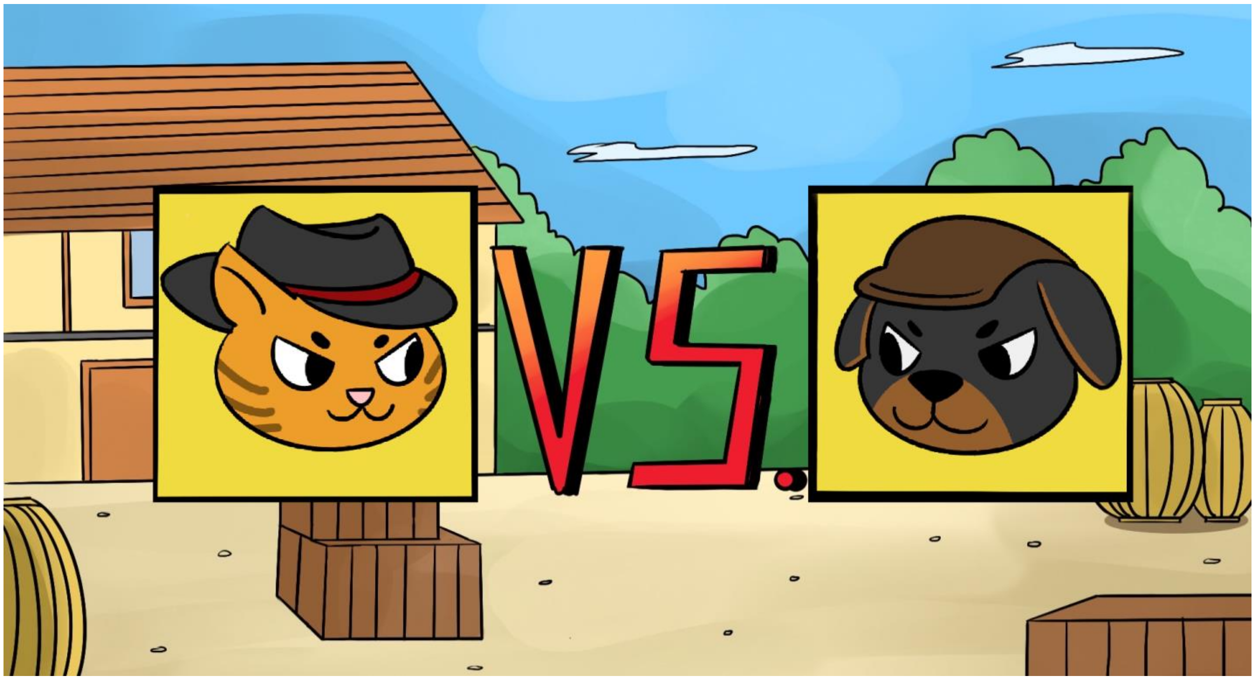
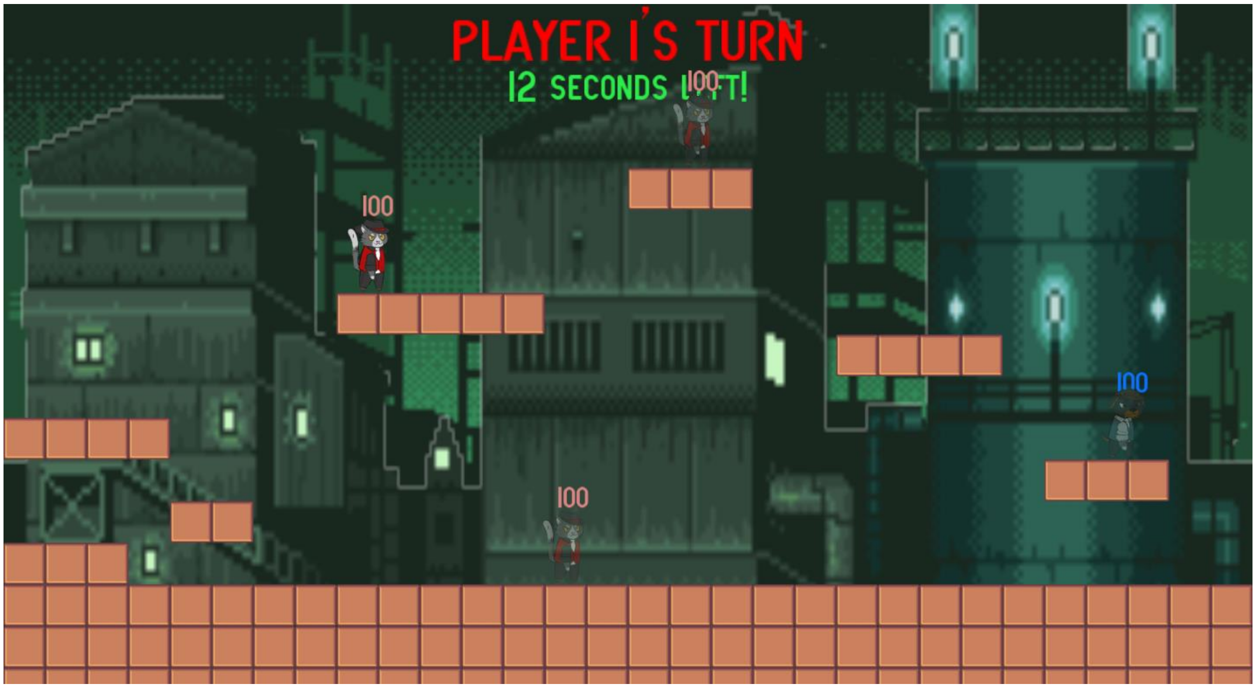
- After selecting “2 player”, players are able to select to play as Cat or Dog. After selecting the characters, players can set different turn time in seconds and numbers of players on each team.



- Once the teams are assigned to each player, the in-game screen will be rendered with 3 characters on each side.


PLAYER 1'S TURN

12 SECONDS LEFT!

Tools:

- No additional tools will be used

Team Management:

- Using workflow manager ClickUp to track tasks
    - Deadlines and task assignments will be tracked here, and it is expected that each team member will complete their assigned tasks on-time
    - Major deadlines are outlined below, internal deadlines will be decided on a sprint-to-sprint basis
- Using Discord for team communication

Development Plan:

Skeletal Game

Week 1

- Gameplay
    - Setting up an ECS architecture
    - Creating the player
    - Creating the blocks/terrain
- Rendering
    - Basic platforms for characters to stand on
    - Add character blocks

Week 2

- Gameplay
    - Moving characters
    - Object Collision - basic detection and avoidance
- Rendering
    - Add basic textures/sprites
- Testing & bug fixing

Minimal Playability

Week 1

- Gameplay
    - Create and implement a simple decision tree structure for user input
        - Player turn system
        - Character attacks
        - Character moves
        - Start Menu
        - Team/Character select
        - Victory conditions
- Animation

    - Create 2 sprite sheets (one for each type of pet)
- Assets
    - New sprites for pet types
    - Map & terrain textures

Week 2

- Gameplay
    - Add health and death state to characters
- Animation
    - Pets react to taking damage (visual feedback)
- Assets
    - Background music

Week 3

- Gameplay
    - Implement aiming projectiles
    - Implement moving logic - players only allowed to move certain distances
    - Start working on CPU opponent
- Help
    - Implement basic hints/user tutorial
- Testing & bug fixing

Advanced Game

Week 1

- Gameplay
    - Bug fixing
    - Work on stability and robustness as outlined in the doc
- Animations
    - Add fancier physics-based projectile animations
- Assets
    - Assets for all UI graphical info needs to be created
        - Turn #, player options, player turn
        - Start Screen, character select screen

Week 2

- Gameplay
    - Bug fixing
    - Work on stability and robustness as outlined in the doc
    - Make the terrain more complex using various geometric assets
- Animations
    - Add fancy idle animations

- Assets
    - Assets for weapons

Week 3

- Documentation
- Gameplay
    - Implement correct collision detection for the complex geometry
- Assets
    - Add different textures for different weapons

Final Game

Week 1

- Stability
    - Fix all previously identified bugs
- User Experience
    - Create tutorial explaining game mechanics
- Creative Components
    - Include advanced graphics (particle system, 2D dynamic shadows)
    - Implement advanced physics system (gravity)

Week 2

- Creative Components
    - Add audio feedback for all meaningful game interactions

Week 3

- Documentation
- Finish any other tasks or fix issues found in previous weeks