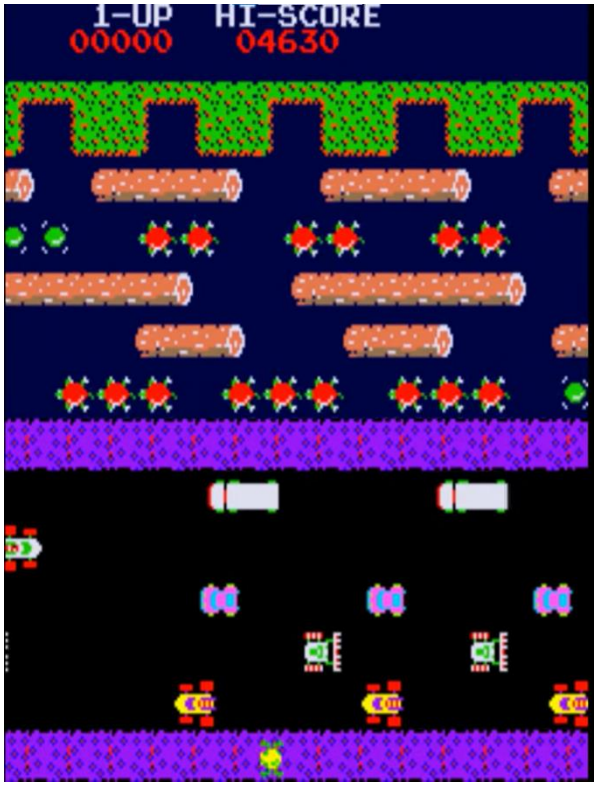
CS2340 Spring 2023 Project Outline

Project Description

The project theme this semester is a road-crossing Android mobile game. In this game, you play as a character that starts on the bottom of the screen. The objective of the game is to get to the goal on the other side of the game map. In doing so, the character must cross both roads and rivers. While crossing roads, the character must hop between the vehicles driving on the roads (don't cross the street like this outside of the game). To cross rivers, the character jumps on floating logs. See the link below to Frogger for an example.

Your project will be implemented across five sprints. The proceeding descriptions are basic ideas of what each sprint should cover. The sprint descriptions are subject to change and requirements may be added or removed. There may also be extra credit opportunities in certain sprints for certain extra features implemented.



Source: [Frogger arcade game]

Sprint 1

- Start Screen
    - A way to start the game
    - A way to quit the game
- Initial Configuration Screen
    - An input for player name
        - Name cannot be whitespace-only, empty, or null
    - A way to choose difficulty of the game
    - A way to pick a character sprite to represent the player
    - A way to continue to the game screen
- Game Screen
    - This screen is where the actual game will take place. This is where most of the functionality in later sprints is implemented. For now, the screen will:
        - Display starting lives
        - Player name
        - Display player character sprite depending on the selected character

Sprint 2

- Make the player able to move up, down, left, and right. It may be a good idea to simplify things by using a grid or tile system to represent all possible locations of the player.
    - The player should not be able to move off the screen.
- Generate safe tiles, road tiles, and river tiles. Rivers and roads should extend across the width of the screen.
    - Roads and rivers should be of varying widths. For example, the player may have to cross a 2-tile river or a 5-tile river, assuming a tile system is used.
    - Water tile functionality will be implemented in a future sprint.
- Implement a goal tile
    - Should be located at the opposite end of the map with respect to the player.
    - The functionality associated with the goal tile (for example, going to the win screen) will be implemented in a future sprint. For now, simply have the goal tile display.

Sprint 3

- Implement vehicles
    - Must have 3 different types which are differentiated by some gameplay behavior (not just aesthetic). Consider different vehicle sizes, different vehicle speeds, etc. Moving in different directions alone does not count.
- Implement score
    - The player should receive points for travelling towards the goal, but NOT sideways or backwards (ex. Passing a road of cars gives 100 points, passing a road of bicycles – which are slower – gives 50 points)

Sprint 4

- Implement water tiles
    - The player should lose a life if they touch a water tile. Losing a life should work the exact same way as the previous sprint.
- Collisions + Losing Lives
    - If a player touches a car, they should lose a life.
    - Once the player loses all their lives, they should get sent to a game over screen.
- Game Over Screen
    - Should give the player an option to restart the game or quit.
    - Text displaying the player's final score should be displayed.

Sprint 5

- Continue to implement score
    - The player should receive points for travelling towards the goal, but NOT sideways or backwards
- Implement functionality for the goal tile
    - If the player touches the goal tile, the winning game screen should show up.
- Implement logs
    - Must have 2 different types which are differentiated by some gameplay behavior. Moving in different directions alone does not count.
    - A player on top of a log or should move in the same direction and speed of the log.
        - The player should die if they move off the screen
- Win Screen
    - Should give the player an option to restart the game or quit.
    - Text displaying the player's final score should be displayed.