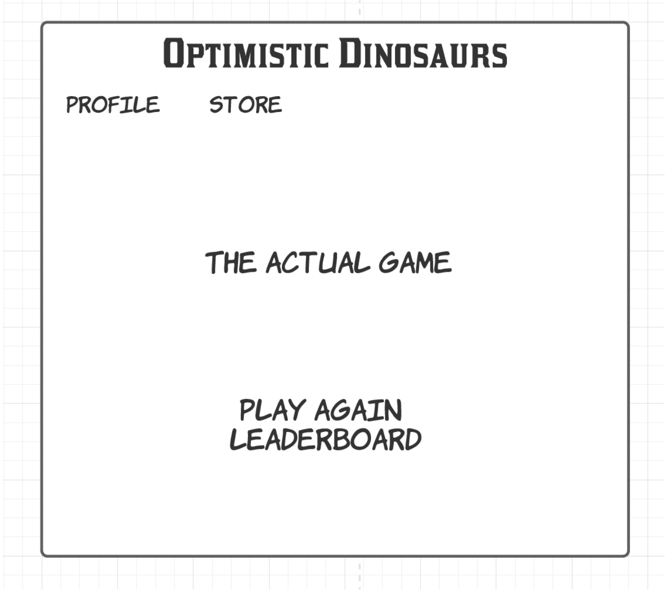
Optimistic Dinosaurs - Yuqing Wu (Zero), Hebe Huang (Umbreon), Roshani Shrestha (Pete), Justin Zou (Piggy)
SoftDev Pd2
P02 -- Run For Your Life | Design Doc
2022-03-01

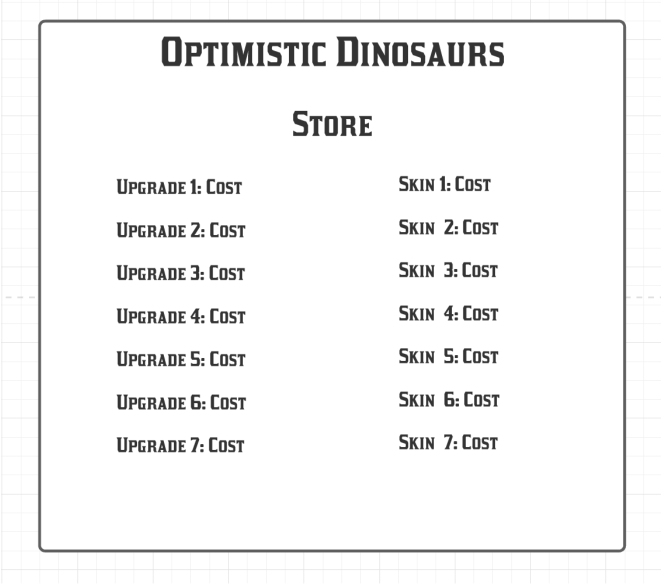
Project Description:

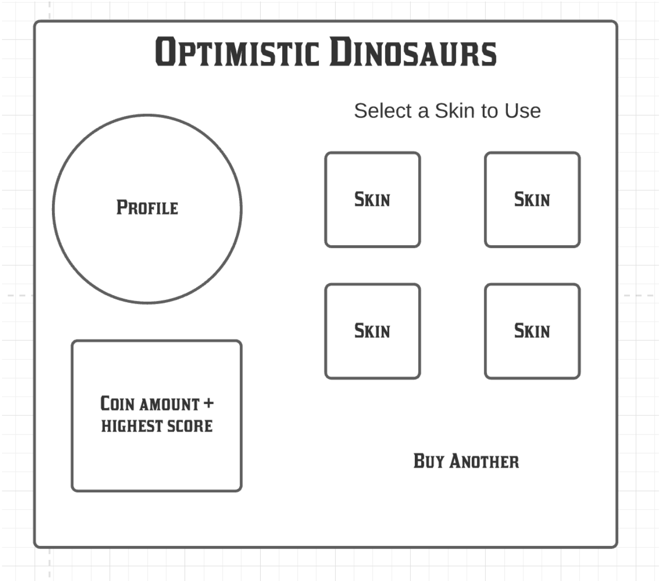
We are making an infinite runner game, similar to the offline dinosaur game except it wouldn't be available offline. It will have the character be able to jump and duck under randomly generated obstacles. Users will control the character through the keyboard. When the character runs into an obstacle, the game ends and the user can log in to upload their high score on the leaderboard; this score will be the total distance traveled. The user can also visit the store and purchase items, such as skins and power-ups, using coins collected during the game. The user can view their profile to see what items they have and equip them.

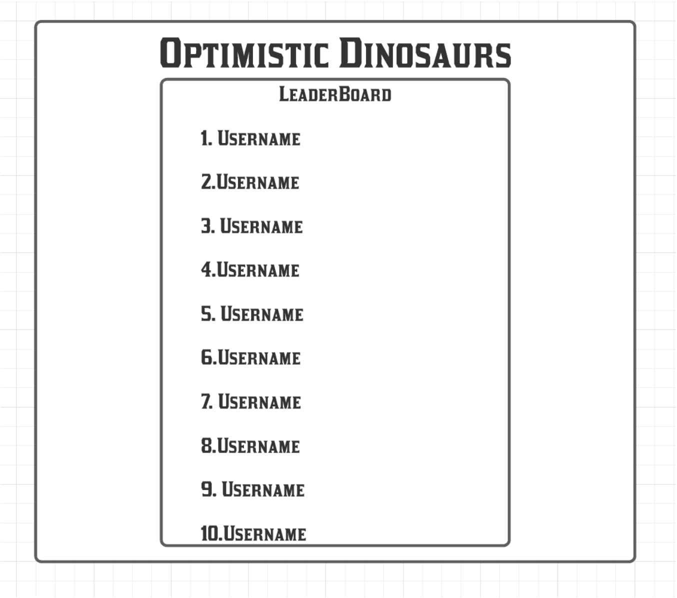
Templates:

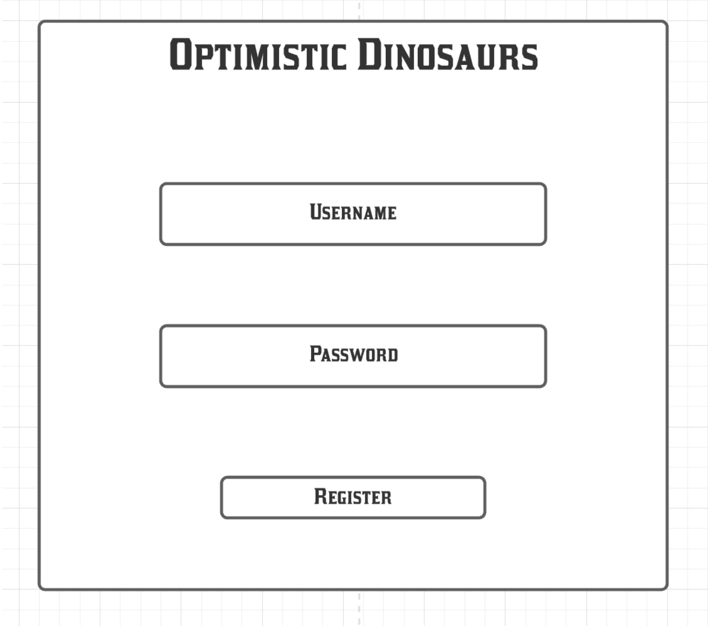
https://lucid.app/lucidchart/d696c5b6-446e-4bdd-9248-5fb92eed5987/edit?invitationId=inv_f90cfbf5-8e74-4035-b4ff-27facdc09f26

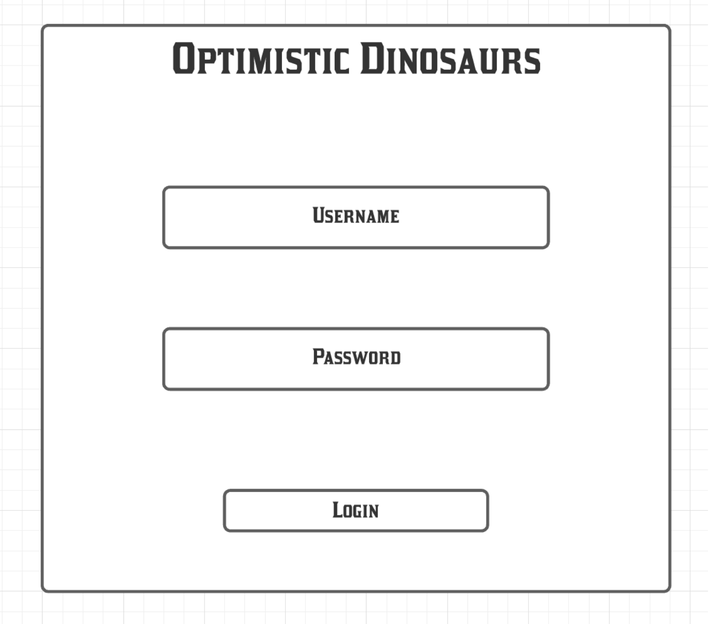












Program components:

Frontend

- HTML
    - “/”
        - The user can click a start button to start the game or login and then start to record their scores.
        - Displays the leaderboard once the game ends.

    - “/login”
        - Asks the user for username and password and checks them.
    - “/register”
        - Asks the user for a new username and password and checks them.
    - “/create”
        - Creates account for user
    - “/leaderboard”
        - User can view the leaderboard with all the highest scores of the users in order from highest to lowest
    - “/store”
        - A shop page for the user to purchase things with the coins the user collects in the game.
        - User can buy power ups
            - Magnets, speed changes, reviving, double coins, invincibility
        - User can also buy skins
            - For characters, coins, backgrounds
    - “/profile”
        - View items that the player has bought
        - Switch between skins and power ups
- CSS
    - We will be using Bootstrap as our front-end framework because we think it looks better visually.
    - Features we will be using:
        - Gridding system for formatting
        - Drop-down menus and carousels for profile customization
        - Buttons and different button styles
        - Form controls for the login and register pages
- JS
    - Moving obstacles towards the character.
    - Respond to UP_ARROW, DOWN_ARROW key for jumping and ducking.
    - Check for game ends. Stores and updates locations of obstacles.
    - Generate new obstacles.
    - Speeds up the game over time.
    - Displaying leaderboard.
    - Displaying scores.
    - Possible feature: moving obstacles.

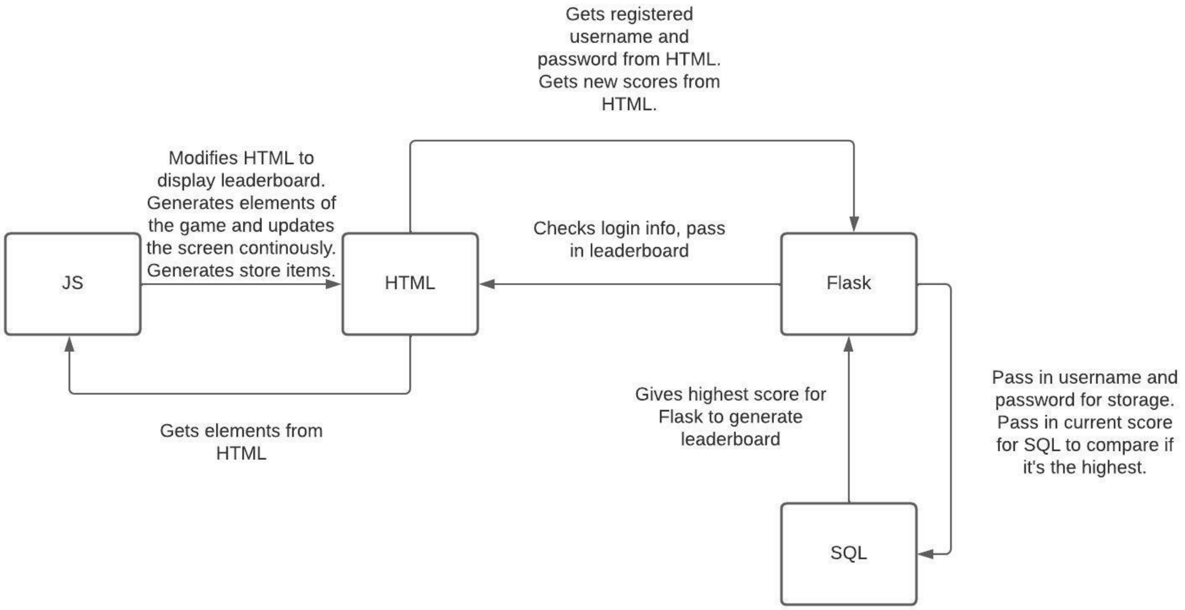
Backend

- Python / Flask
    - Handle login / registration

  - Generate leaderboard
  - Get highest score
  - Render pages
- Databases
  - Player Database: username | password | highest_score
  - Store Database: item | price
  - Items database: player | item_type | item

Component Map:

https://lucid.app/lucidchart/5a6d63a5-5b2c-438d-a813-e1269bd2772c/edit?invitationId=inv_9e8df603-817c-4c3e-b549-d19faf04a9e6


Gets registered username and password from HTML. Gets new scores from HTML.
Modifies HTML to display leaderboard. Generates elements of the game and updates the screen continously. Generates store items.
JS
HTML
Checks login info, pass in leaderboard
Flask
Gives highest score for Flask to generate leaderboard
Pass in username and password for storage. Pass in current score for SQL to compare if it's the highest.
Gets elements from HTML
SQL

Database Organization:

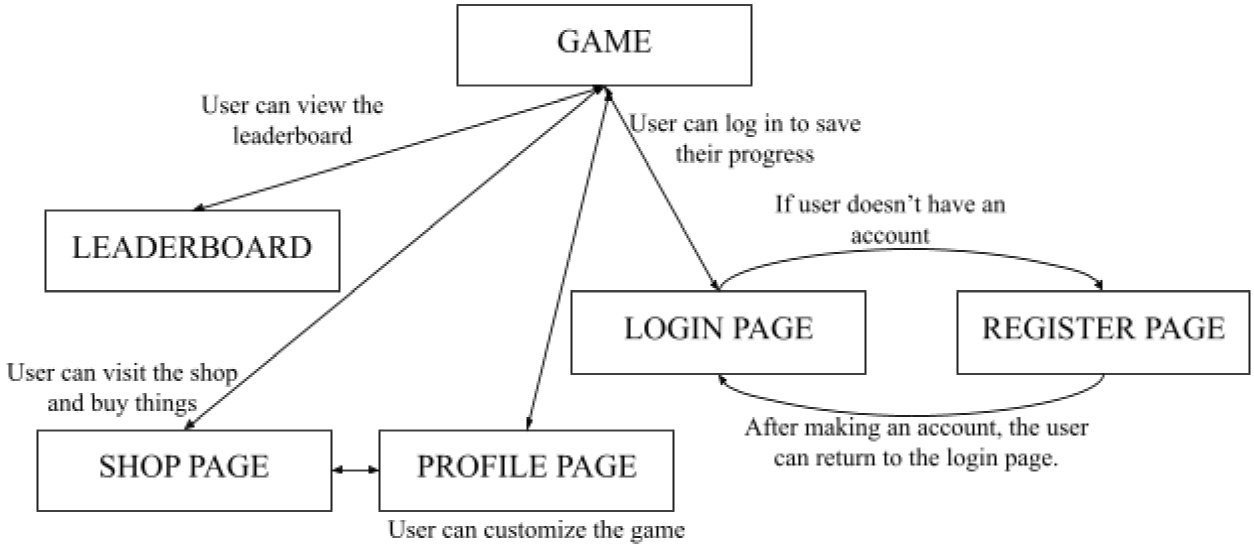
USERNAME (TEXT)	PASSWORD (TEXT)	HIGH SCORE (INTEGER)
username0	password0	score0

username0	password0	score0

STORE ITEM (TEXT)	PRICE (INTEGER)
item0	price0
item1	price1

PLAYER (TEXT)	ITEM TYPE (TEXT)	ITEM OWNED (TEXT)
player0	item_type0	item0
player1	item_type1	item1

Site Map:


GAME
User can view the leaderboard
User can log in to save their progress
LEADERBOARD
If user doesn't have an account
LOGIN PAGE
REGISTER PAGE
User can visit the shop and buy things
After making an account, the user can return to the login page.
SHOP PAGE
PROFILE PAGE
User can customize the game

APIs:

Background Images:

We might use this API to insert a background image for the game to run on, with the character and the obstacles on top of it.

- Lorem Picsum: https://github.com/stuy-softdev/notes-and-code/blob/main/api_kb/411_on_LoremPicsum.md

Background Music:
We might use one of these APIs to provide background music for the user while they play the game in the form of a widget.

- Spotify Web API: https://github.com/stuy-softdev/notes-and-code/blob/main/api_kb/411_on_Spotify.md
- SoundCloud: https://github.com/stuy-softdev/notes-and-code/blob/main/api_kb/411_on_SOUNDCLOUD.md

Task Division:

Frontend/Templates:

- Game.html (Justin)
- Login.html (Justin)
- Register.html (Justin)
- Leaderboard.html (Roshani)
- Store.html (Roshani)
- Profile.html (Hebe)

Flask/Python:

- Buy things (Justin)
- Rendering pages (Everyone)
- Setting skins/items the user selects from profile page (Justin)

Leaderboard/backend database:

- Login + score database (Justin)
- Store database (Hebe)
- Items owned database (Roshani)

Game Tasks:

- Moving the map, increasing speed, updating score based on distance (Hebe)
- Implementing backgrounds/sprites/skins (Yuqing)
- Generating, collecting, updating coins (Hebe)
- Generate Obstacles (Yuqing)
- Making the character jump/duck (Roshani)

- Detect game ends (Roshani)
- Power-ups/skills (Yuqing)
- Musics (Yuqing)

Timeline:

3/10
Moving map - Hebe
Generate obstacles - Yuqing
Make character, item owned database created - Roshani
Login & game page - Justin

3/14
Detect game ends - Roshani
Store database - Hebe
Set skins / items the user selects from profile page - Justin
Musics - Yuqing

3/17
Implements background / skins - Yuqing
Store html, rendering store items - Roshani
Profile.html, updating scores & passing them to flask - Hebe
Buy things - Justin

3/21
Power-ups - Yuqing
Generate, collect, update coins - Hebe
Adding power ups to store - Roshani
Leaderboard backend stuff - Justin

3/28
Leaderboard frontend - Roshani
Speeding up game - Hebe
Adding css / advanced features - everyone

Target Ship Date:

March 28, 2022