The Convicts: Annabel Zhang, Alif Abdullah, Sophie Liu, Qina Liu (Mang, The Eagle In The Sand, Quacky, Nyx)
SoftDev
P04 -- Forged By Land | Design Doc
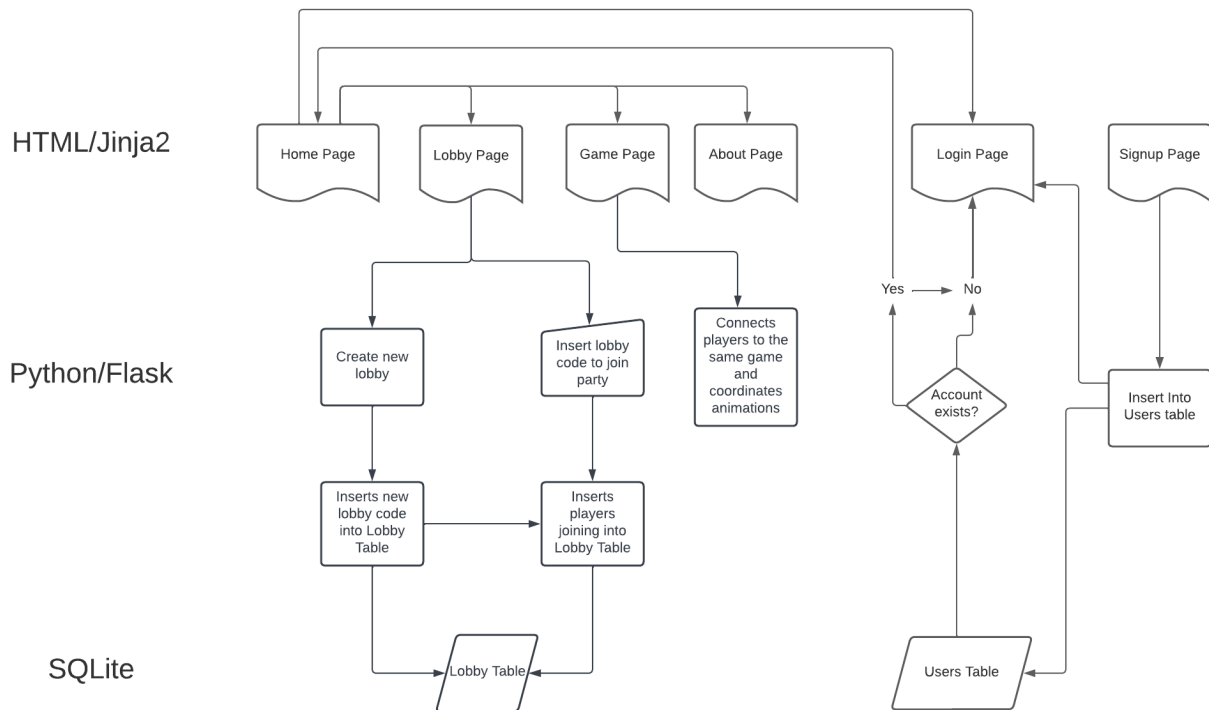**2022-05-19**

Project Description:

Forged by Land is an empire building game focusing around destroying the capitals of all enemy empires. Every turn, your capital building will generate gold, which you can use to create troops at your capital. You can then send these troops to other tiles on the map and establish sub capitals, which can generate more gold and are places where you can create more troops. Troops can venture into the territory of other enemies and claim that territory as their own, offering more space to build more capitals and generate more troops. May the best empire builder win!

Program Components:

- Jinja2
  - Create a layout for web pages the user will interact with
  - Renders templates
- Flask
  - Web framework to host our web pages
  - Enables us to render our templates
  - Will get usernames and passwords from the front end when a user logs in or registers
  - Will create sessions for each user when they are logged in
- SQL Database
  - Table for users' login information and games won
  - Table for lobby rooms (rooms will be automatically deleted if there are no users present; completed game lobbies will also be deleted)
- Javascript
  - Displays game interface on canvas and handles all the game functions (i.e. claiming tiles and attacking other kingdoms)
  - Updates canvas with visual game events
  - Sends JSON files to and from Python for game progression
- Python
  - Websocket (might be using flask-websockets) functions to create lobby rooms
  - Identify users currently playing and relays appropriate functions for game progression
- Game Features

○ [Look at the end of the design doc]

Component Map:

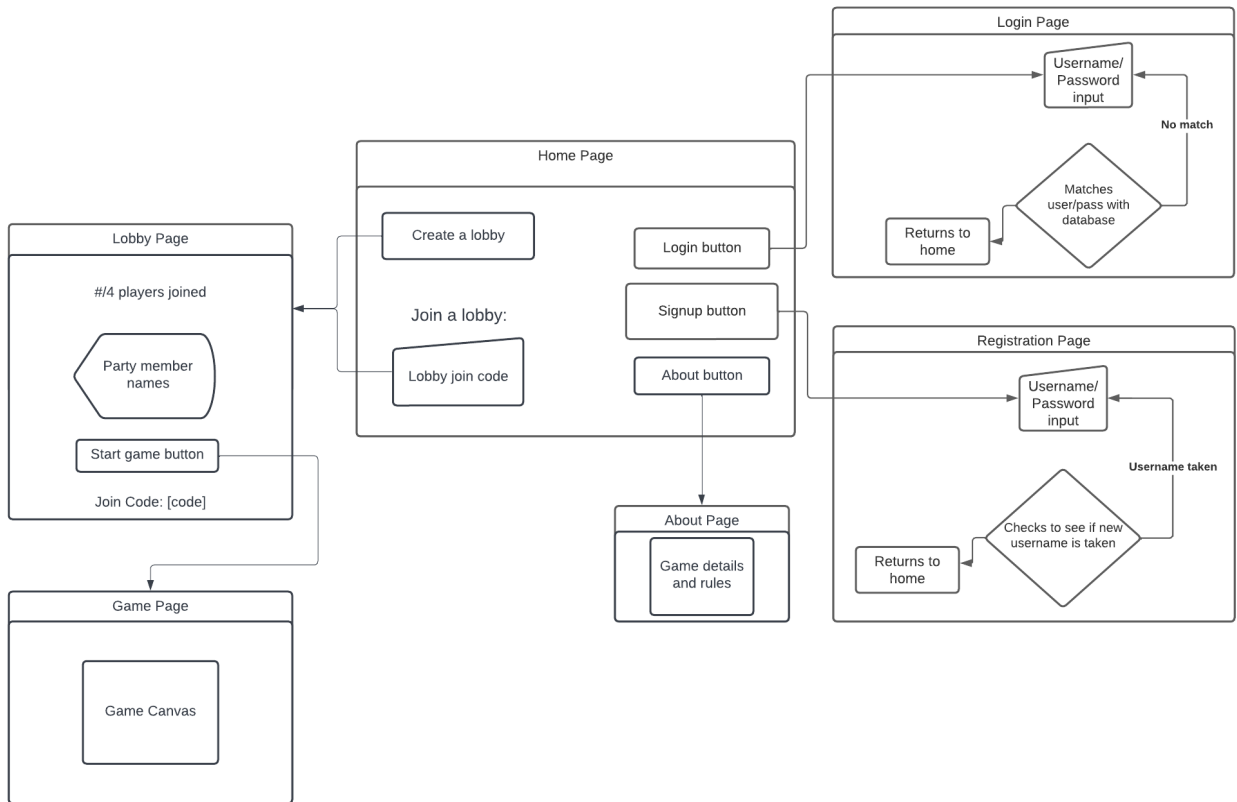HTML/Jinja2 — Home Page | Lobby Page | Game Page | About Page | Login Page | Signup Page

Python/Flask — Create new lobby | Insert lobby code to join party | Connects players to the same game and coordinates animations | Account exists? | Insert Into Users table

Inserts new lobby code into Lobby Table | Inserts players joining into Lobby Table

SQLite — Lobby Table | Users Table

Yes → No

Database Organization:

Users

Username (TEXT UNIQUE)	Password (TEXT)	Games Won (INTEGER)
Bobby	BobbyWins	0
Jess	123	4

Lobby Rooms

Lobby Code (TEXT UNIQUE)	Player 1 (TEXT)	Player 2 (TEXT)	Player 3 (TEXT)	Player 4 (TEXT)
uekl8v2	Bobby	Jess	P3	P4
px30si6	Timmy	casualGamer123		

Login Page

Username/ Password input

No match

Matches user/pass with database

Returns to home

Home Page

Create a lobby

Join a lobby:

Lobby join code

Login button

Signup button

About button

Lobby Page

#/4 players joined

Party member names

Start game button

Join Code: [code]

Registration Page

Username/ Password input

Username taken

Checks to see if new username is taken

Returns to home

About Page

Game details and rules

Game Page

Game Canvas

Templates:

/home

Login | About

Forged By Land

Create a lobby
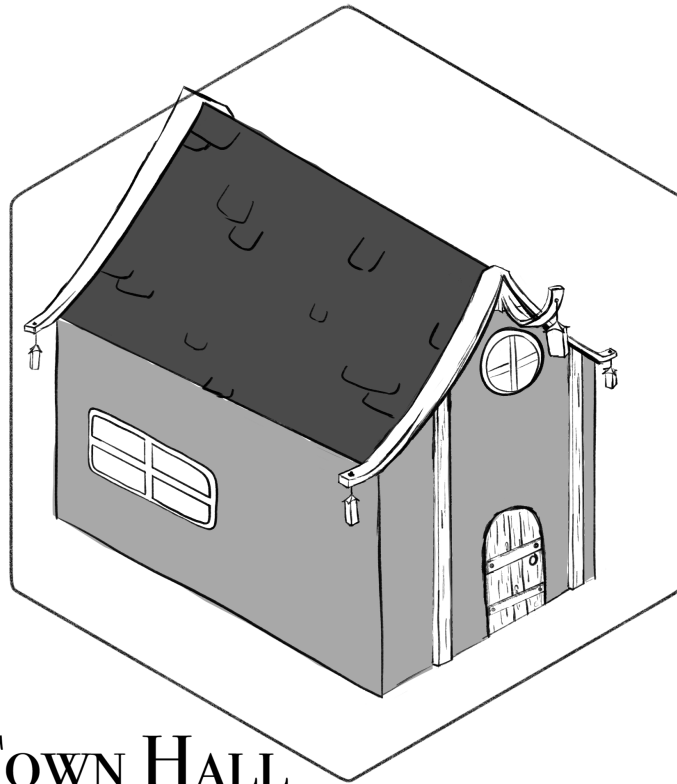
Join a lobby: [*input*] [Go!]

/lobby

2/4 Players joined
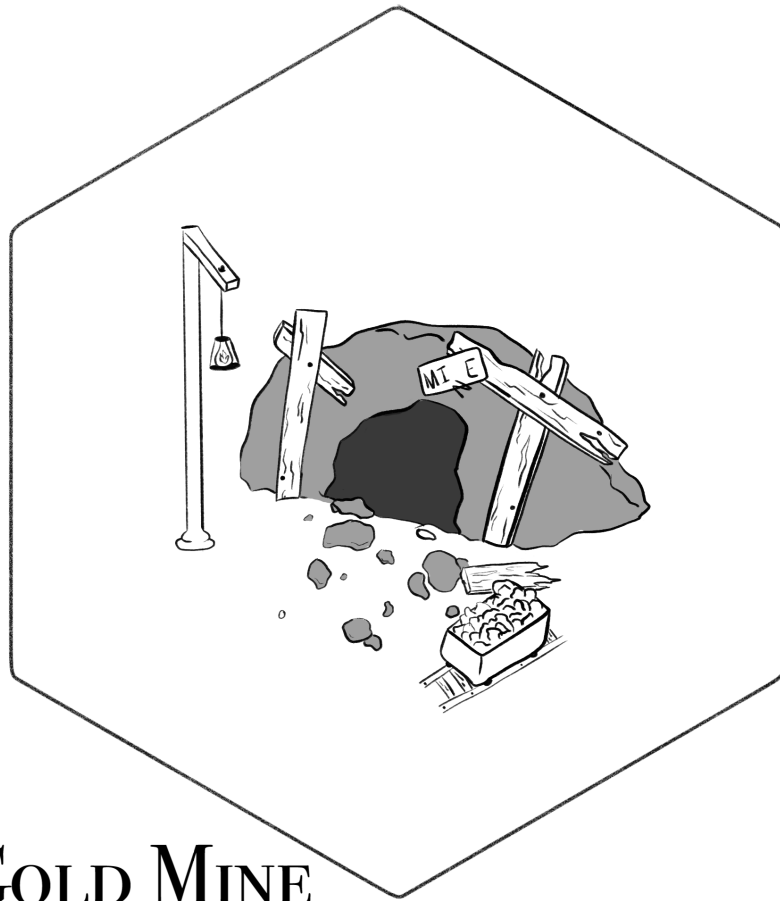
Timmy
casualGamer123

Start Game

Join code: px30si6

Tile type examples:

TOWN HALL

Gold Mine

Frontend Framework: Bootstrap

- Bootstrap
    - We are more familiar with Bootstrap
    - Bootstrap features are easier to implement
    - Default CSS (rounded buttons/rectangles) is more visually appealing and clean to users

Task Division:

User Management: (Sophie)
- ☐ Login/Logout/Sign-up Functions
- ☐ Creating the templates for different pages (login/signup, game, about, lobby)

Game Management:
- ☐ Sprite creation - Annabel

- ☐ Troop movement - Alif, Sophie
- ☐ Troop combat - Alif, Sophie
- ☐ Tile randomization/claiming - Qina, Alif, Sophie
- ☐ Troop + buildings creation - Qina, Alif, Sophie
- ☐ Building deletion - Qina
- ☐ Resources (gold) - Qina
- ☐ Storing + pulling database data - Alif

Websocket/Database Management: (Annabel)
- ☐ Lobby room creation
- ☐ Joining separate lobby rooms
- ☐ Maintaining correct information being sent to each individual player during the game

Target Ship Date: June 14th, 2022

Game Mechanics:

- Hexagonal board with all resources/lands available for view (6x6)
- Four players starting on respective corners of the map, one kingdom capital each with a different color (red, green, blue yellow)
- Two cycles of turns:
    - Moving/planning turn
        - Kingdoms point where they want their troops to move
        - Everyone can see the move they plan to make
        - Get or delete buildings (fort, gold mine)
        - Get troops
        - *Extra: choose own turn order*
    - Action turn
        - Tiles can be claimed, or troops start fighting
- Everyone starts off with two troops
    - Troops can enter into any adjacent tile once per turn
        - The following cases occur with **unoccupied** tiles
            - If a troop of a single color **seeks** to enter an **unclaimed** tile uncontested, the troop **claims the tile during action.**
            - If two troops of differing colors **seek** to enter the same, **unclaimed** tile, the victor **during action claims that tile**
        - The following cases occur with **friendly-occupied** tiles
            - If a troop of a single color **seeks** to enter a **claimed** tile, they **fight the troops left on that claimed tile.** The winner of the fight **keeps the tile.**
                - If there are **no troops** left on a tile, it is **claimed during action.**
            - If two troops of differing colors **seek** to enter the same **claimed** tile, the **player that went first fights the claimed tile first.**
                - **The second player** fights the **winner.**
            - Whenever a tile **with a building on it** is claimed by another color, the building stays and the new empire can use it (or delete it)
        - Spawned troops can only spawn at the capital (or a fort).
- You can see how many (yours + enemies) troops are in each tile
    - *Extra: hidden enemy troop count + scout mechanic*
- **Goal is to MURDER EVERY CAPITAL**
- Tile types:
    - Claimed tiles: those claimed by a certain kingdom will have their color changed to reflect whose land it belongs to
        - Only tiles claimed by that specific kingdom can be used to build structures

- ○ Resource tiles randomly distributed across the map
  - ■ Gold vein tile - provides 5 gold upon claim
  - ■ *Extra: Forest tile - provides # wood upon claim*
- ○ Building tiles
  - ■ Capital - spawns [in corner of each kingdom/randomly within a # hexagon radius]
  - ■ *Extra: Landmarks/beacons - provides static buff to troops*
  - ■ Gold mines - generates 5 gold per turn
  - ■ Forts - allows for Troops to be spawned in tiles other than the Capital
  - ■ Buildings can be destroyed by the owner during the **planning phase,** but the resources used are **lost**
- Each tile can only have one type of building
- Troops:
  - ○ Cost 3 gold each
  - ○ Done in the planning phase
  - ○ Troops can attack other troops or the capital (that are on the tile)
  - ○ Each troop deals 3 damage
- How to lose your capital:
  - ○ Capital health: 30
  - ○ When capital dies due to enemy troops successfully attacking it, you lose
  - ○ Your other structures do not disappear (other empires can take them)
  - ○ *Extra: capital comeback mechanic*
- *Extra: Trading*
- *Extra: The river expansion*
  - ○ *River combat*
  - ○ *River tiles*
  - ○ *Port for extra resources? Not necessary to capture the port for win but it can be an option on the map*

CHANGES- 6/6
- No phases
- One troop per tile
- Troop classes: footsoldier, dragon
- Each troop class can have certain troop speed (can many moves per turn)
- Can move however amount of troops u want, but each troop can only move a certain amount of hexs per turn
- Troops can go inside any buildings (puts out of action)
  - Only one troop can go inside per building
  - To heal