P02: Makers Makin' It, Act I
Design Document

Project Name: Steak Co.

TNPG: KungFuPandaSquad

Roster: Alex Luo, Evan Chan, Leon Huang, Stanley Hoo

TARGET SHIP DATE: 2025-01-17f

Overview

Our website will be an online gaming site where users can:
- Acquire and use a universal virtual currency
- Play games (against bots or other players) including
  - Plinko: Users drop a chip, and it lands in a slot that either awards or decrements currency
  - Poker: Texas Hold'em and Chinese Poker (Rules will be incorporated on the site)
  - Blackjack: Users try to get closer to 21, but not exceed it

We aim to create an engaging experience that utilizes Flask, a simple user account system, Bootstrap for our front end framework, and RESTful APIS.

Program Components:
1. **Flask/Python Modules**
   a. __init__.py : define routes for html templates
   b. auth.py : manages user registration, login, and logout
   c. game_logic/ : packages/modules for game implementation if needed
      i. plinko.py : logic for dropping a chip with VPython physics, random slot determination, and payouts
      ii. poker.py : logic for dealing cards, evaluating hands, and playing against bot(s)
      iii. blackjack.py : logic for dealing cards, bust conditions, and playing against bot(s)

2. **SQLite3 Modules**
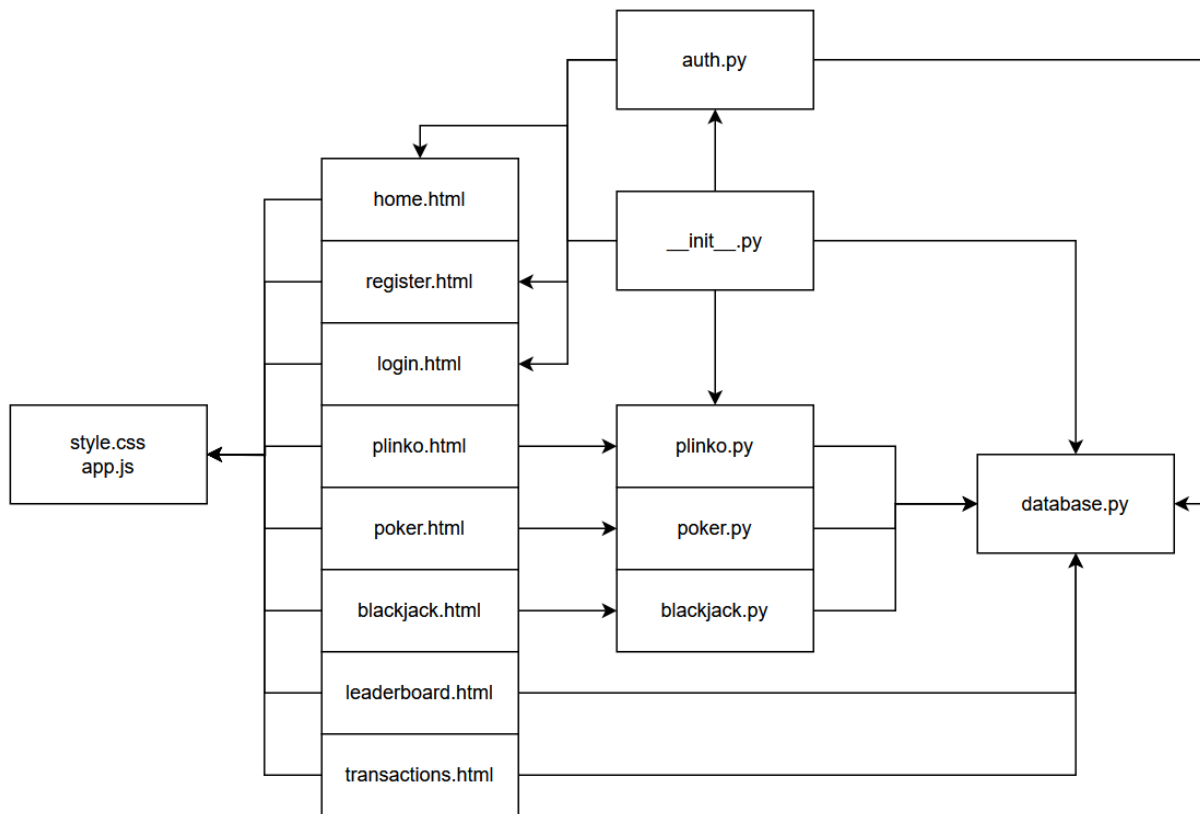   a. database.py : queries and sql for the database creation
3. **HTML**
    a. home.html : homepage that displays user's current balance and quick game links
    b. register.html : register
    c. login.html : login
    d. game_templates/ :
        i. plinko.html
        ii. poker.html
        iii. blackjack.html
    e. leaderboard.html : displays leaderboard based on currency
    f. transactions.html : displays transaction history
4. **Static**
    a. style.css
    b. app.js: improve animations and manipulate the DOM (displaying updated cards, balances, and games in real time

Component Map:

Database Organization:

Users: login info, balance, and user ids

user_id	password_hash	balance
INTEGER	TEXT	INTEGER, default: 10000

Transactions: game transactions

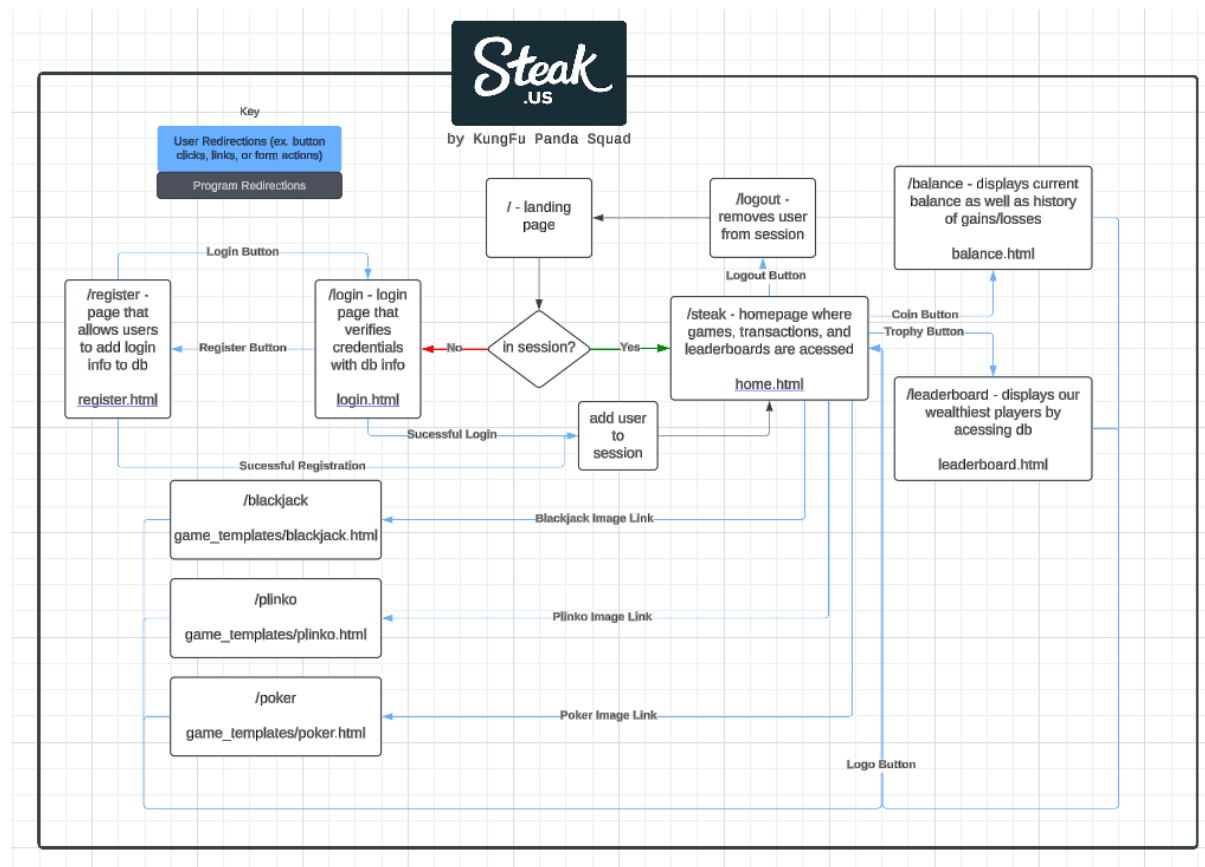| transaction_id	user_id	game	change
INTEGER	INTEGER	TEXT	INTEGER: positive or negative

Game_state : current state of a game (i.e. user has an ongoing poker hand), will also allow users to pause this game

state_id	user_id	game	state_data
INTEGER	INTEGER	TEXT	TEXT/JSON

Leaderboard :

leaderboard_id	user_id	balance
INTEGER	INTEGER	INTEGER

Site Map:

Front End Framework:

- We will use **Bootstrap** as our front end framework because of its:
  - responsive layouts and simple styling for buttons, forms and navbars.
  - numerous features including grid systems, form controls, and alerts

Task Breakdown:

Member	Task
PM Alex Luo	PM, flask routing, front end framework
Stanley Hoo	Implementing plinko and game bots
Evan Chan	Implementing blackjack and poker and will help with db creation
Leon Huang	HTML Templates and styling