

**TEAM KIRKLAND MEESECKS - JUNHEE LEE, JACKIE LIN, MICHAEL ZHANG, AMANDA ZHENG**

**PROJECT NAME - TRIVIA CRACK**

**PROJECT MANAGER - Jackie Lin**

**SOFTDEV - PD1**

**DESIGN DOCUMENT**

## **I. Project Description**

For our project, we are planning to create a trivia game website. When creating an account, they will be able to select a username and a nation they would like to represent. Users will be able to play multiple modes of trivia, including single player, multiplayer 1v1, and multiplayer 3v3. Answering questions and winning multiplayer games will reward both score points and currency. Currency can be used in the store to buy packs, which will give unique profile pictures for users to collect. Score will be displayed in a global leaderboard that shows off the top users' and nations' scores.

### **Core Features that must be added in the minimum viable product**

- Users will be able to sign up for an account and log in to an existing account.
- Users will be able to make a username and choose a nation to represent when they sign up.
- Users can play single-player trivia to earn points only
- Scores will be displayed in a global leaderboard that shows both the top nations and top users globally and top users in their nation
- Users can go into their profile to change their login credentials and profile picture

### **Additional Features we would like to add for the final product**

- Two new game modes: PVP against another random user and team-based multiplayer where users take turns answering trivia questions.
- Users can join specific multiplayer games with their friends using game IDs.
- Currency can be used in the store to buy packs of random profile pictures from shows like Rick and Morty, Pokemon, or the mystery pack
- Users can go into their profile to change their profile picture.
- Users can view other users' profiles from the leaderboard and from search.

### **Features we will only add if there is extra time**

- Buying things in the shop will give random facts.
- Users can play games in multiple arenas from different nations around the world.
- Showing more advanced statistics in the leaderboard (which nation does best at a certain topic, which nation does best in a certain arena, etc.).

- Public vs. private multiplayer games (private ones would require a password to join).

## **II. Component Description**

### **Frontend**

#### **CHOSEN FRAMEWORK:** Bootstrap

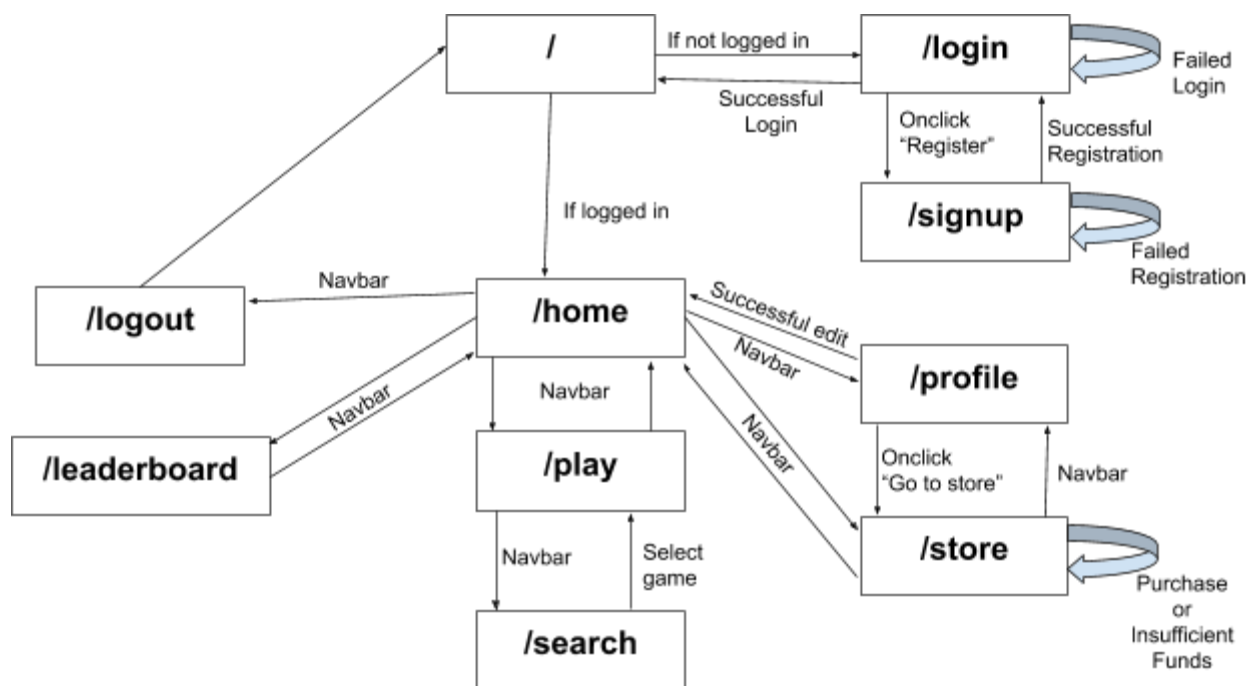
- Login/Sign Up stored in User Database
  - Wrong password or username for login will redirect to login page with error message
  - Will display error message if signing up with existing username or username contains commas
- Navigation Bar
  - Home | Profile | Leaderboard | Play | Store | Search
- Home Page
  - Displays username, profile picture, score, money, stats, and game history
- Profile
  - Change profile picture using inventory of pictures
  - Reset Password
- Leaderboard
  - See top ranked nations, users, and users within a specific country
- Play
  - Single Player Mode
    - Answer ten trivia questions to earn points (no money awarded)
  - PVP Mode
    - Users compete against a random player to answer the most trivia questions correctly out of a set number, money and points are awarded
  - Team Mode
    - Join team 1 or team 2, must have three participants on each team to start game
    - Each participant tries to answer the most trivia questions correctly for their team, money and points are awarded
- Search
  - All users can join any multiplayer game that is not yet full
  - Can search for game id to join games
  - Can search for other players and join one of their games
- Store
  - Use money to purchase new random picture pack (of three)

### **Backend**

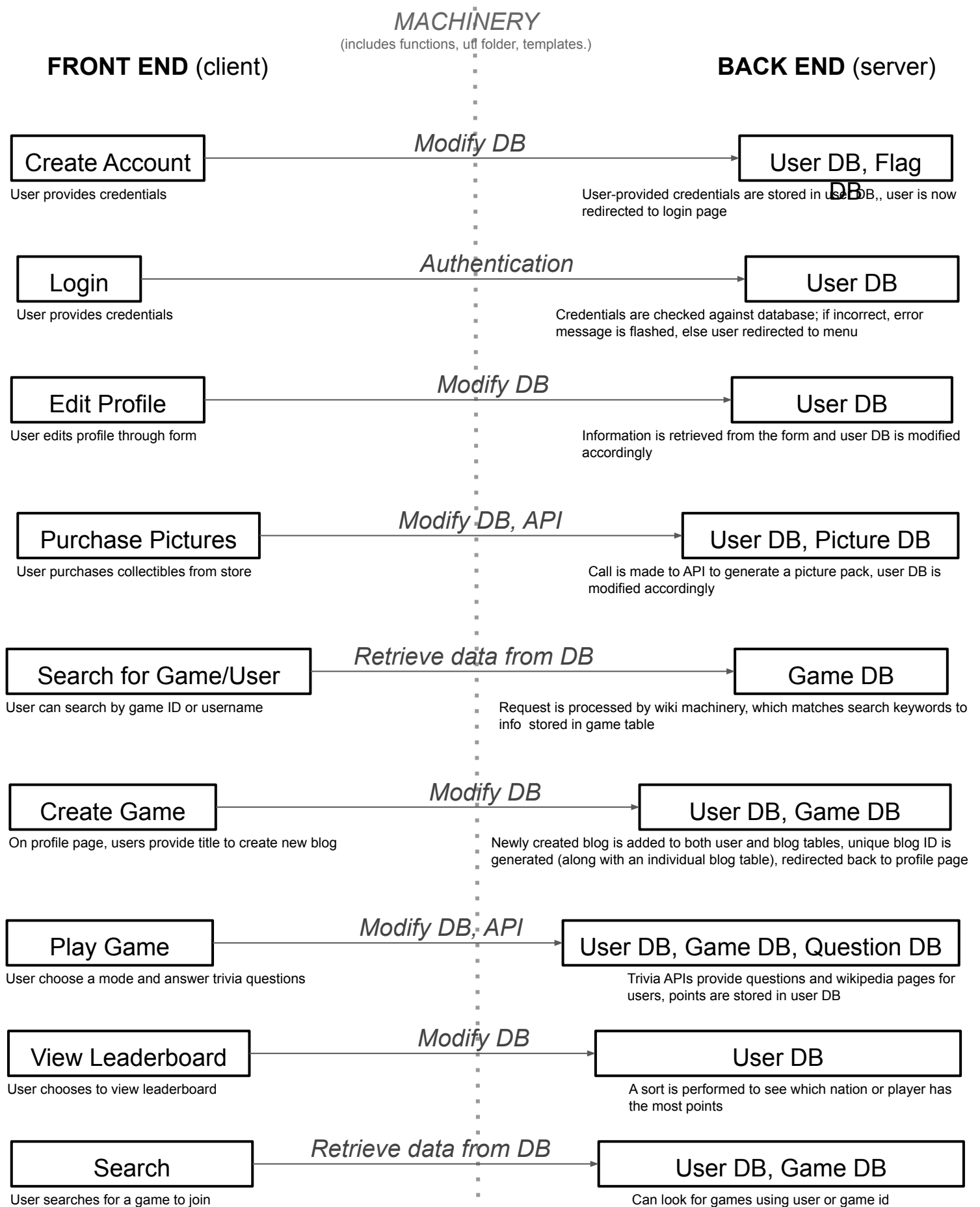
- Searching Mechanism
  - Can choose to search by username or game ID
- User Database

- Create and update profile, including password reset and profile picture change
  - Access profile to display stats, score, money, profile picture
- Game Database
  - Start a new game or join an existing one that is not full
- Cached Databases
  - Questions - cache questions retrieved from trivia API
  - Pictures - cache picture urls retrieved from Rick & Morty API, Lorem Picsum API, and PokeAPI
  - Flags - cache pictures and country names retrieved from Country API
- APIs we are using
  - Trivia API
    - [https://opentdb.com/api\\_config.php](https://opentdb.com/api_config.php)
  - Rick & Morty API
    - <https://rickandmortyapi.com/api/>
  - PokeAPI
    - <https://pokeapi.co/api/v2>
  - Lorem Picsum API
    - <https://picsum.photos>
  - Country API
    - <https://restcountries.eu/>

### III. Site Map



## IV. Component Map



## V. Database Design

### User Table

Username (text)	Password (text)	Pic (text)	Coll (text)	Game_id (text)	Money (int)
AZ123	pekingduc	<link to pic>	<link1>, <link2>, <link3>, <link4>	P125, T12R, T145, S121	1200

Flag (text)	Stat (text)	Score (int)
USA	History 10 40, Entertainment 39  40	2100

#### Description:

username - stores username as TEXT

password - stores password as TEXT

pic - stores src of user's current profile picture as TEXT

coll - stores comma separated list of user's collection of pictures as TEXT

game\_id - stores comma separated list of games that user is participating in as TEXT (see **game table** for more info)

money - stores amount of money user has as INT

flag - stores name of user's country as TEXT

stat - stores comma separated list of all categories of trivia questions, pipes indicate separation between questions attempted and questions correctly answered for that category (TEXT)

score - stores total number of points accumulated by user as INT

### Game Table

Game_id (text)	Team1 (text)	Team2 (text)	Playing1 (text)	Playing2 (text)
P122	70,9,harryPotter	60,10,Voldemort	harryPotter	Voldemort
T134	10,2,Amanda, Jennifer11	80,10,Theodore, James01	Amanda	Theodore

Started (int)	Completed1 (int)	Completed1 (int)	Currentq1 (text)	Currentq2 (text)
1	0	0	<question>	<question>

1	0	0	<question>	<question>
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Description:

game\_id - stores randomly-generated ID of game as TEXT, takes the format of a letter (S for single-player, P for PVP, T for teams) plus a random number; for teams

team1 - stores comma-separated list of participants, with first item in the list being the score and second item being the number of questions answered as TEXT

team2 - see **team1**

playing1 - stores username of who is currently playing for team1 as TEXT

playing2 - see **playing1**

started - stores 0 or 1 to indicate if game has started as INT

completed1 - stores 0 or 1 to indicate if team1 has completed their questions (INT)

completed2 - see **completed1**

currentq1 - stores question that team1 is currently up to as TEXT

currentq2 - see **currentq1**

### Questions Table (cache)

Category (text)	Question (text)	Diff (text)	Choices (text)	Answer (text)
Entertainment	"What year was Beyonce born?"	Easy	1981~1982~1983~1984	1981

Description

category - stores category of question as TEXT

question - stores question as TEXT

diff - stores difficulty of question as TEXT

choices - stores different choices for question as a "~"-separated list (TEXT)

answer - stores answer of question as TEXT

### Flags Table (cache)

Country (text)	Flag (text)
USA	<link to pic>

Description

code - stores country as TEXT

flag - stores src of image of country's flag as TEXT

### Pictures Table (cache)

Category	Pic (text)
R123	<link to pic>

Description

category - stores R, P or M for Rick and Morty, Pokemon, or Mystery plus ID number as TEXT

pic - stores link to image source as TEXT

## **VI. Division of Labor**

### **A. Roster**

- Jackie Lin (project manager)
- Amanda Zheng (user experience)
- Junhee Lee (game developer)
- Michael Zhang (game developer)

### **B. Specific Task Breakdown**

1. Sign In (Amanda) / Login (Michael)
  - a. Actual HTML page
  - b. Database for sign in and login
  - c. Error messages
  - d. Sign up Inquiries
2. Profile
  - a. Change password (Jackie)
  - b. Picture inventory (Junhee)
    - i. Display all pictures owned
    - ii. Picture gallery
    - iii. Select picture to be profile picture
  - c. View stats, rank, score and flag (Jackie)
  - d. List of current games that you are participating in (Junhee, Jackie)
3. Leaderboard (Amanda, Jackie)
  - a. User leaderboard
    - i. All users ranked
  - b. Nation leaderboard
    - i. Country ranking
  - c. Country Leaderboard
    - i. Ranking of all users with same country as user in session
4. Games
  - a. Single Player game (Junhee, Jackie)
    - i. Point scoring
    - ii. Money addition
  - b. PVP (Michael, Jackie)
    - i. Order of play
    - ii. Questions and scoring
    - iii. Winner
    - iv. Game database edits
  - c. Team (Junhee, Jackie)
    - i. Selection of Teams
    - ii. Order of Play
    - iii. Questions and player tracker

- iv. Winner
  - v. Game database edits
- 5. Store (Amanda, Jackie)
  - a. Money changes
  - b. Select category of pictures
  - c. Randomly buys a picture (could be duplicate)
  - d. Add to database
- 6. Search Mechanism (Michael, Jackie)
  - a. Search by usernames and display profile page of user
  - b. Search by game id