

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

PROJECT NAME - TRIVIA CRACK

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 5v5. Winning 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.
- After answering a trivia question (whether right or wrong), the user will be linked to a wikipedia page where they can find more information on the topic.
- Users will be able to select a category they want to answer a trivia question from.
- Scores will be displayed in a global leaderboard that shows both the top nations and top users.
- Users can go into their profile to change their login credentials.

Additional Features we would like to add for the final product

- Two new game modes: Multiplayer 1v1 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.
- Users can earn currency from trivia.
- Currency can be used in the store to buy packs of random profile pictures from shows like Rick and Morty.
- Users can go into their profile to change their profile picture.
- Users can view other users' profiles from the leaderboard to see which profile pictures they own.

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.

- Users can search for the history of a specific game using game IDs.
- 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

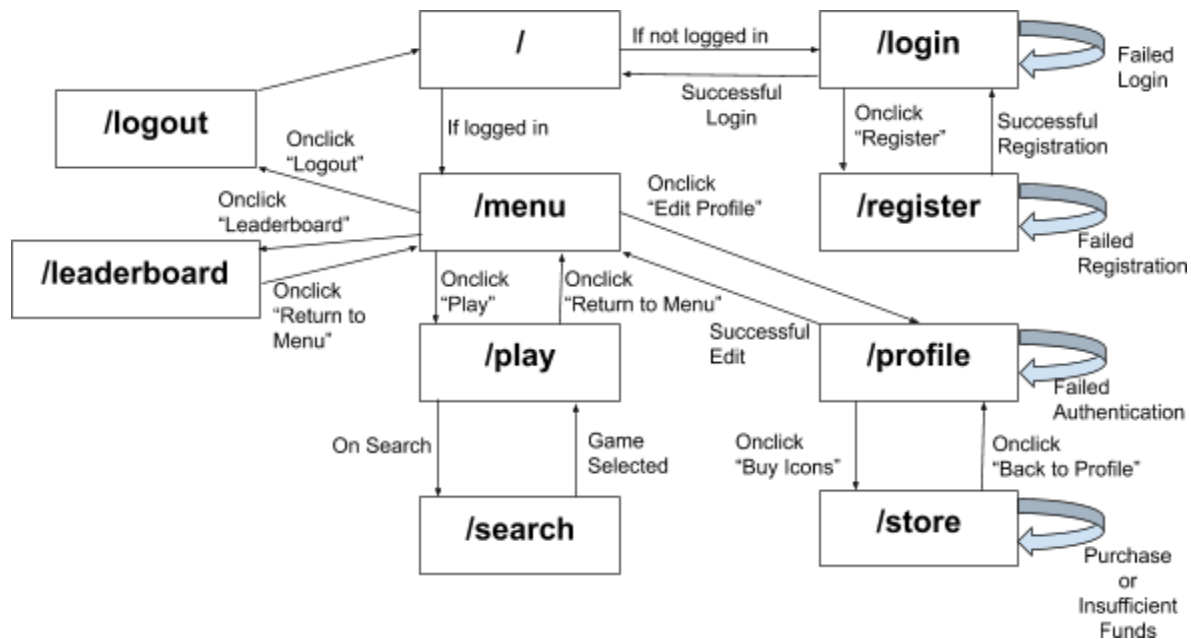
- Login/Sign Up stored in User Database
 - Wrong password or username for login will redirect to login page with error message
 - Will have error message if signing up with existing username or a missing password/username
- Homepage
 - Has four sections:
 - My Profile
 - Leaderboard
 - Play
 - Store
- Profile (stored in users db)
 - See user score and stats/rank in each category
 - View profile picture/change it using inventory of pictures
 - See country flag
 - List of games participating in
- View other Users Profile (stored in users db)
 - Can see the stats/rank of the other user
 - View what game the other user is participating in
 - See profile picture and country flag
- Inventory of pictures
 - Each person has a collection of pictures bought
 - Displays all pictures that can be selected as profile picture
 - Only shows up when user wants to change profile picture
- Leaderboard (obtained from users db)
 - See top ranked nations or users
- Play
 - Single Player Mode
 - Pick a category to answer questions about and add points to your score and gain money
 - Shows wikipedia page for the answers after selecting answer
 - PVP Mode
 - Send request for battle and number of questions for trivia
 - First player must finish all trivia questions before same exact questions sent for the second player to complete

- Whoever scores highest wins
 - Shows wikipedia page for the answers answer
 - Team Relay Mode
 - Join red or blue team, must have at least four participants who accepted invite to start game
 - Each player is given a number and that is the order of their turns. Whichever team can survive more rounds wins
 - Shows wikipedia page for the answers answer
- Search Mechanism (stored in games db)
 - All Multiplayer games will have game id (stored in game db)
 - All users can join any game
 - Can search for other players to see what games they are joining
 - Can search for game id to join games
- Store
 - Pick picture category: space, rick and morty ...
 - Use money to purchase new profile picture

Backend

- Searching Mechanism
 - Using SQL search through game database and user database
 - Can choose to search usernames or game ID
- User Database
 - Profile picture
 - Picture collection
 - List of game IDs
 - Money and Score count
 - Ranking
 - Password and Username
- Game Database
 - List of games with game id
 - One of three modes
 - Players in each game
 - Erase finished games
- APIs we are using
 - Trivia API
 - https://opentdb.com/api_config.php
 - Wikipedia API
 - <https://en.wikipedia.org/w/api.php>
 - NASA API
 - <https://api.nasa.gov/>
 - Rick & Morty API
 - <https://rickandmortyapi.com/api/>
 - Country API
 - <https://restcountries.eu/>

III. Site Map



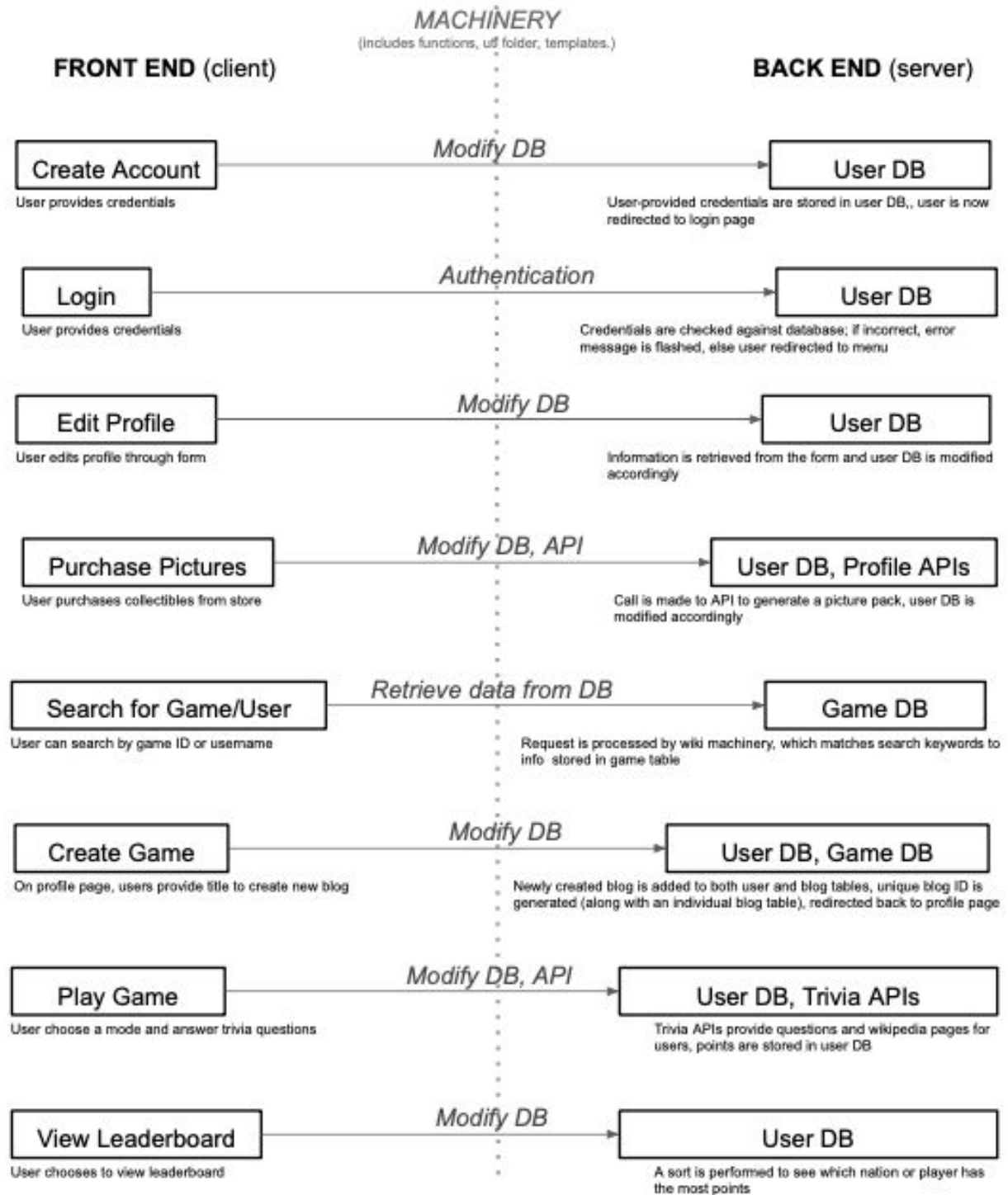
IV. Component Map

TRIVIA APIs

1. Open Trivia API
 - Provides trivia questions to be used in games
2. Wikipedia API
 - After use answers trivia questions, some more information on the topic may be provided from a Wikipedia page

PROFILE APIs

1. Countries API
 - Users must choose their country since leaderboard is organized by country
2. NASA API / Rick and Morty API
 - Used to provide collectibles that users can purchase with points earned from trivia game



V. Database Design

User Table

Username	Password	Profile Picture*	Picture Collection*	PVP ID**	Team Relay ID**	Money
AZ123	pekingduc	<link to pic4>	<link to pic1> <link to pic2> <link to pic3> <link to pic4> <link to pic5> <link to pic6>	125 12 145 121	10B 12R 134B 111B	1200

Flag	Stat***	Score****
USA	History 10 40,Entertainment 39 40	2100

Description:

Stored record of all users registered on web application

* source link of pictures are stored under profile pic and all the pictures the user has bought from the store

** These are game IDs for multiplayer games. Team Relay IDS have an extra Letter at the end to signify the tea the user is in (B for blue and R for red)

*** These are trivia stats. First is the category name, followed by a pipe, followed by the amount of questions they got correct, then another pipe, then by number of questions they attempted followed by a comma and then the next categories

**** Score of User that is based off of ONLY single player mode

Game Table

Game Id	Type*	Participants	Team 1**	Team 2*
122	P	harryPotter Voldemort	70 harryPotter	60 Voldemort
134	TR	Amanda Jennifer11 Theodore12 James01	130 Amanda Jennifer11	80 Theodore James01

Description:

Stores record of all games on web application

* Type of Multiplayer Game (P for PVP and TR for Team Relay)

** The two battlers. In PVP, one player is in each team 1 while in Team Relay, Team 1 is Red team and Team 2 is Blue team. In the data, number is the score of the team followed by pipes and name of participants of each team

Cached Questions Table

Category	QN	Difficulty	Answer Choices	Answers
Entertainment	"When was Beyonce born?"	Easy	September 4, 1981 September 11, 1981 September 4, 1982 September 1, 1982	September 4, 1981

Description

Stores questions obtained from API calls for future use in other games

Cached Game Table (Ongoing Games)

Game Id	Type	Participants	Team 1**	Team 2	Playing*
122	P	harryPotter Voldemort	70 harryPotter	60 Voldemort	Team1
134	TR	Amanda Jennifer11 Theodore12 James01	130 Amanda Jennifer11	80 Theodore James01	Team2 James01

Description

Stores records of all ongoing games

*since they are ongoing, the cached game table will also store whose turn it is currently for multiplayer games (this value is not stored in game table)

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)
 - i. Shows who is currently playing
3. Leaderboard (Amanda)
 - 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 (Jackie)
 - i. Category of questions and get questions
 - ii. Wiki answers
 - iii. point scoring
 - iv. Money addition
 - v. Wikipedia answers
 - b. PVP (Michael)
 - i. Order of play
 - ii. Questions and scoring
 - iii. Winner
 - iv. Game database edits
 - v. Wikipedia answers
 - c. Team Relay (Junhee)
 - i. Selection of Teams
 - ii. Order of Play
 - iii. Questions and player tracker
 - iv. Winner
 - v. Game database edits
 - vi. Wikipedia answers
5. Store (Amanda)

- a. Money changes
 - b. Select category of pictures
 - c. Randomly buys a picture (could be duplicate)
 - d. Add to database
- 6. Search Mechanism (Michael)
 - a. Search by usernames and display profile page of user
 - b. Search by game id