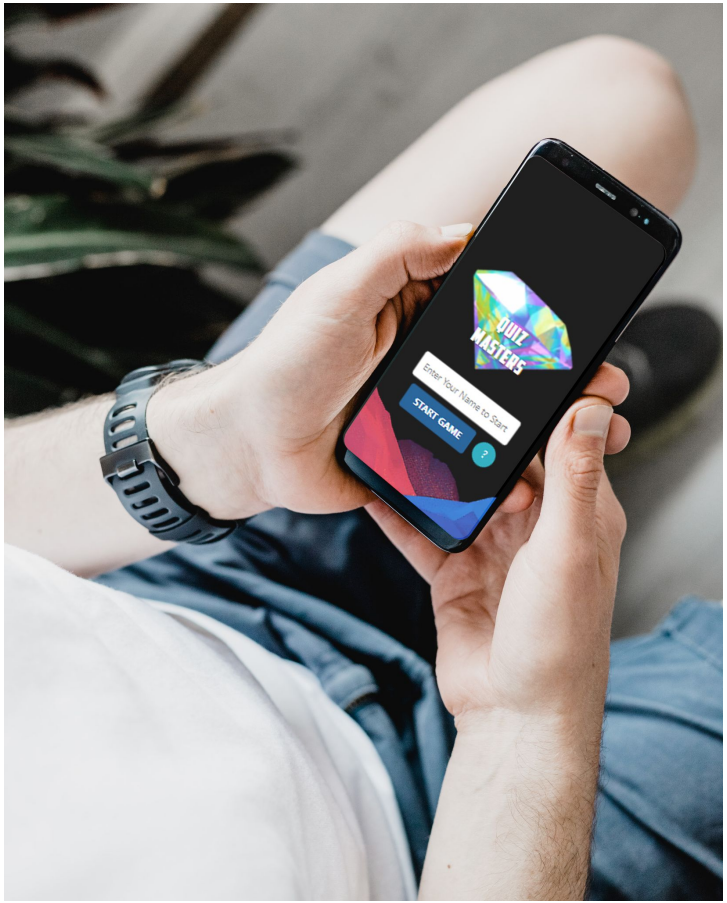
Alan Maizon

Module 3 - Python

Quiz Masters

Conceptualization

This is a web-based quiz game built using Python and the Flask web framework. The game loads questions from a CSV file and presents them to the player one at a time. The player wins by correctly answering 5 questions before making 3 incorrect attempts.



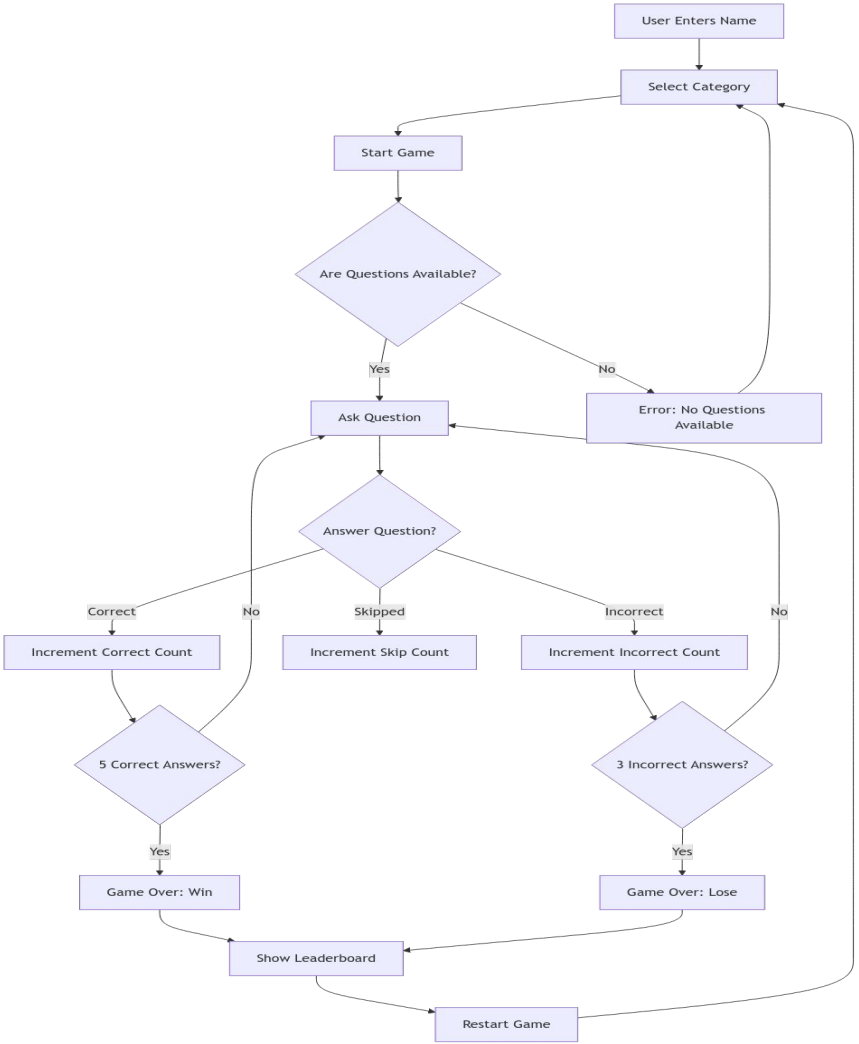
Flowchart

- When you start the game, the first question will be displayed.

- Out of 4 options only 1 is correct, you can skip questions.

- The game will display whether your answer is correct or incorrect.

- The game continues until you either answer 5 questions correctly or get 3 incorrect answers.



CSV files

Different categories were created with a *Question* and *Correct answer* and then modified generating 3 incorrect answers with Natural language generation. I used generative pre-trained transformers (GPTs) to fill a primary CSV with this structure:

Question, Correct Answer, Option 2, Option 3, Option 4, Correct Answer Index

Just need to be shuffled with *modules.py.* You can either create or modify the CSV files. The CSV file should follow this structure:

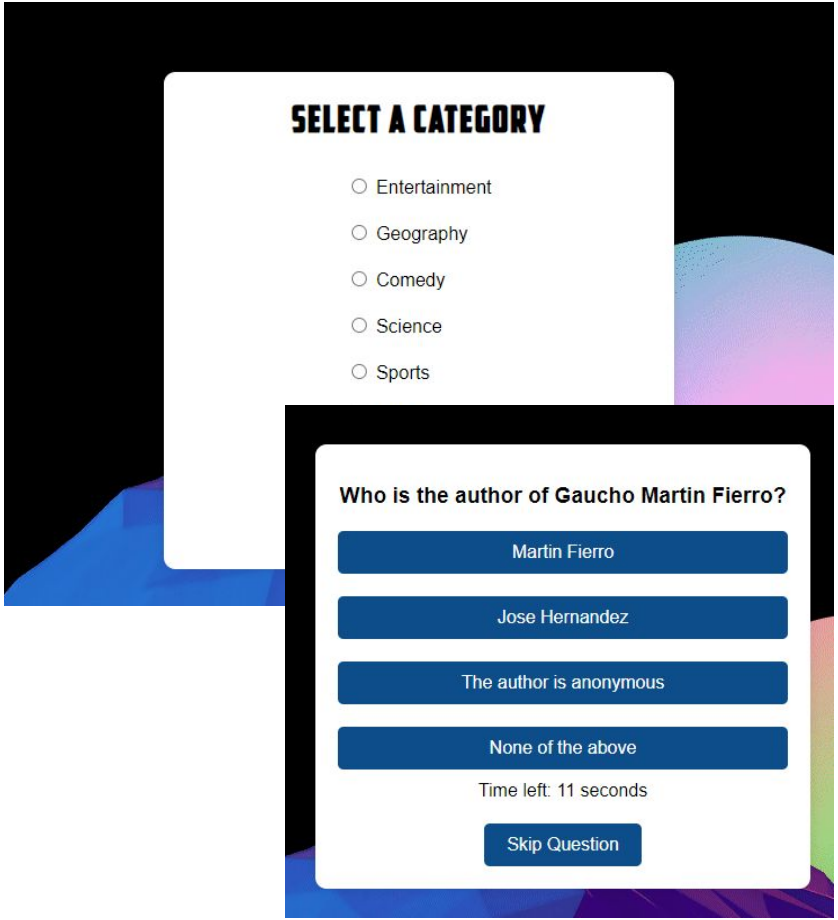
Question; Option 1; Option 2; Option 3; Option4; Correct Answer Index

Example:

When did the Berlin Wall fall?;1989;1988;1987;1990;1

Features

- Multiple-choice questions loaded from a CSV file.
- You can choose from different catego
- Randomized question selection.
- Track of correct and incorrect answers.
- Win or lose the game based on player performance.
- Simple web interface with HTML forms.
- SEO/Social Sharing Meta Tags Optimization



Functionality	Description	Status	Priority
User Registration	Users can enter their name before starting the game.	Completed	High
Category Selection	Users can choose from a list of categories before the quiz starts.	Completed	High
Question Loading	Load questions from different CSV files based on the selected category.	Completed	High
Non-Repeating Questions	Ensure that questions are not repeated within a single game session.	Completed	High
Dynamic Title Updates	Update the HTML title to show the current round or "Game Over" when the game ends.	Completed	Medium
Score Tracking	Track the user's score, round, and number of skips per game session.	Completed	High
Leaderboard Display	Display the leaderboard with user names, scores, and categories.	Completed	Medium
Restart Game	Allow users to restart the game after it ends.	Completed	High
View Leaderboard	Provide a button to view the leaderboard when the game is over.	Completed	Medium
Error Handling	Gracefully handle errors (e.g., file reading issues, empty question lists).	In Progress	High
Responsive Design	Ensure the application is fully responsive and works well on different devices.	In Progress	Low

Testing

1. Correct Answers:
   - Ensured that the correct count increases when a correct option is selected.
   - Verified that the game ends with a win after 5 correct answers.

2. Incorrect Answers:
   - Confirmed that the incorrect count increases when an incorrect option is selected.
   - Checked that the game ends with a loss after 3 incorrect answers.

3. Question Randomization:
   - Observed that the questions are presented in a random order.

4. Form Submission:
   - Ensured that the correct and incorrect results are displayed immediately after submission.
   - Verified that the form resets for the next question.

Testing	Description	Expected Outcome	Status
User Registration Test	Enter different names and start the game.	Game starts with the provided user name.	Passed
Category Selection Test	Select different categories (Entertainment, Geography, Comedy).	Correct questions load based on the selected category.	Passed
Question Loading and Encoding Test	Ensure all questions are loaded correctly from various CSV files.	No UnicodeDecodeError or missing question issues.	Passed
Non-Repeating Question Test	Ensure no question is repeated in a single game session.	Questions are unique within each session.	Passed
Dynamic Title Update Test	Check if the title shows the correct round number or "Game Over."	Title updates correctly as per the game state.	Passed
Score Tracking and Game Over Test	Complete the game to verify score, round count, and win/loss conditions.	Scores and results display correctly on game completion.	Passed
Restart Game Test	Click "Restart Game" after the game ends.	Game resets properly, and the user is prompted to enter their name again.	Passed
View Leaderboard Test	Click "View Leaderboard" after the game ends.	Leaderboard displays correctly with updated scores.	Passed
Error Handling Test	Force errors (e.g., missing file, invalid CSV format) and observe behavior.	Graceful error messages displayed, no app crash.	In Progress
Responsive Design Test	Test on different devices (desktop, tablet, mobile) and screen sizes.	Application is fully responsive, no layout issues.	In Progress

Debugging

1. Incorrect display of questions and options
   - Ensured that the CSV file is read and parsed correctly, and that the HTML template receives the correct data structure.

2. Game not resetting correctly after a win/loss
   - Added initialization of game state variables (`correct count`, `incorrect count`, `round`) in the `start game` function.

3. Form submission not correctly identifying the selected option.
   - Adjusted the HTML form to ensure that the selected option is passed correctly as a POST parameter.

4. Incorrect game state tracking after form submission.
   - Verified the logic for updating the `correct count` and `incorrect count` to ensure the game progresses as expected.

Debugging Issue	Cause	Solution Implemented	Status
UnicodeDecodeError: 'utf-8' codec can't decode	CSV files have characters not encoded in utf-8.	Modified load questions function to try different encodings (utf-8 and latin-1).	Resolved
IndexError: list index out of range	Malformed CSV data or empty lines.	Added validation to check the number of fields in each line before processing.	Resolved
IndexError: Cannot choose from an empty sequence	No questions available due to all questions being asked.	Added logic to check if any questions remain before selecting one.	Resolved
Repeating Questions	Questions were repeated within a single game session.	Implemented a mechanism to track and exclude asked questions from being selected again.	Resolved
Title Not Updating Correctly	Title did not reflect the current round or "Game Over".	Dynamically set the title in base.html based on the game state passed from Flask.	Resolved
Error Handling for Invalid CSV Format	Application crashed on encountering invalid CSV format.	Added validation and error handling to log and skip malformed lines in CSV files.	In Progress
Layout Issues on Mobile Devices	Layout not fully responsive on smaller screens.	Applied CSS media queries and tested with different devices to ensure responsiveness.	In Progress

Deployment

Quiz Masters - Render Page

Resources used for this project:

- https://google.com/
- https://chatgpt.com/
- https://claude.ai/
- https://www.meta.ai/
- https://gemini.google.com/
- https://www.adobe.com/
- https://www.figma.com/
- https://pythontutor.com/
- https://developer.mozilla.org/
- https://www.w3schools.com/
- https://stackoverflow.com/
- https://jinja.palletsprojects.com/
- http://github.com/