

# SIT305 – Personalized Quiz App

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## Task 10.1D

GitHub repo: <https://github.com/AndyWanng/Deakin-SIT305-2024.git>

Demo video: <https://deakin.au.panopto.com/Panopto/Pages/Viewer.aspx?id=77c1ae7f-610b-4701-a704-b16800d93c83>

### Introduction and Purpose

The Personalized Quiz App is meticulously crafted to revolutionize the way users engage with educational content through quizzes. The app is developed to cater to learners who seek a personalized learning experience, offering quizzes across various topics including history, geography, science, and literature. The fundamental goal is to enhance user engagement through personalized content and to incorporate social learning dynamics, making learning an interactive and enjoyable experience.

### App Design and Development

The app is developed using Android Studio, utilizing Java and XML for crafting a responsive and intuitive user interface. By adhering to the MVVM architectural pattern, the app ensures that the UI code is separated from the business logic, which enhances the maintainability and scalability of the application. The use of XML layouts facilitates a more organized and modular approach to UI design, allowing for easier adjustments and scalability.

### Key Features and Technologies

#### 1. Dynamic Content Generation

- **LLM Integration:** Utilizing Large Language Models, the app dynamically generates quiz questions based on the selected topics. This ensures fresh and relevant content, keeping the user engaged and providing a customized learning journey.
- **Smart Analytics:** Post-quiz analytics are powered by LLMs to give users

insights into their performance, highlighting strengths and areas for improvement.

## 2. User Management

- **Firestore Authentication:** Robust user authentication is handled via Firestore, ensuring secure access to user accounts and personalized data.
- **Data Management:** Firestore also manages user data, storing quiz results and preferences securely in the cloud, which allows for seamless access across multiple devices.

## 3. Enhanced User Experience

- **SmoothBottomBar:** This component enhances the navigation experience within the app, allowing users to seamlessly toggle between quizzes, analytics, and social features.
- **Retrofit for Network Requests:** Ensures efficient data transmission between the app and backend servers, providing a smooth and responsive user experience.

## 4. Social Integration

- **Sharing and Competitiveness:** Users can share their quiz results on social media, inviting friends to compete or collaborate, which integrates a social dimension into the learning process.

## Adherence to Modern Android Development Practices

The development of the Personalized Quiz App follows best practices in Android development:

- **Use of Latest Android SDKs:** Ensures compatibility with a wide range of devices and access to the latest features from Android.
- **Responsive Design:** The app is designed to be fully responsive, providing an optimal experience across different device sizes and orientations.
- **Security:** Emphasis on security with Firestore's built-in features for data handling and user authentication, ensuring that user data remains secure and private.

## Future Enhancements with LLMs

- **Adaptive Learning Paths:** Future versions of the app could utilize LLMs to adapt

quizzes based on user performance, creating a more tailored educational experience.

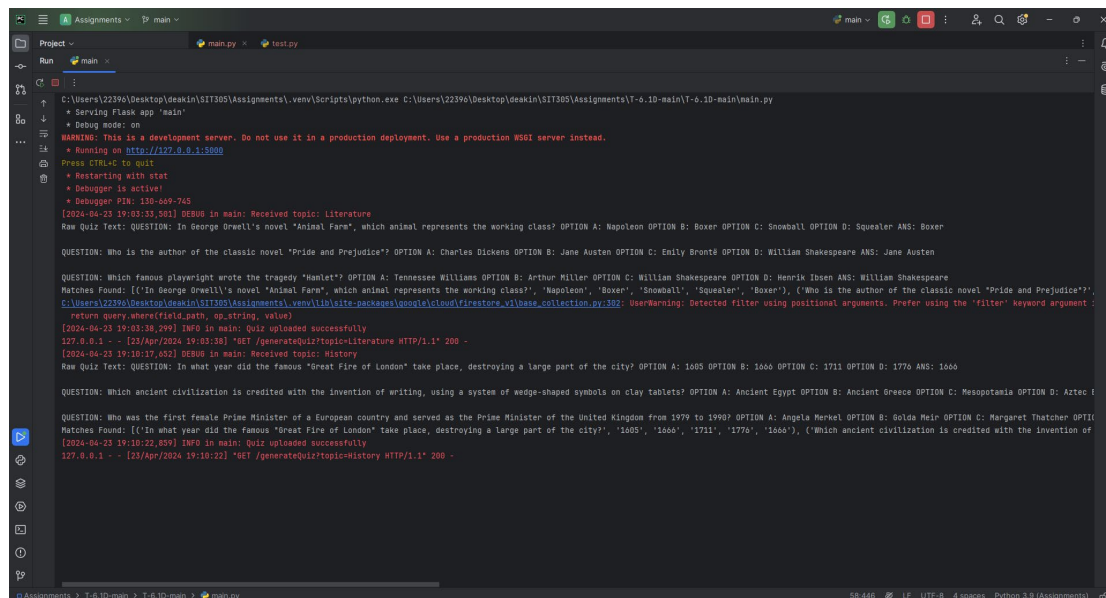
- **Voice Interaction:** Integration of voice-based question answering and interaction to make the app more accessible and engaging.
- **Natural Language Processing:** Enhanced NLP capabilities for analyzing open-ended responses, providing more depth to quizzes and analytics.

## Conclusion

The Personalized Quiz App sets a new standard for educational apps by combining personalized content, robust architecture, and interactive features. By leveraging the power of LLMs, the app not only offers customized learning experiences but also scales new heights in smart analytics. Future enhancements are aimed at making learning even more adaptive and interactive, ensuring that the Personalized Quiz App remains at the forefront of educational technology.

## Screenshots:

Flask server:



```
C:\Users\22396\Desktop\deakin\SIIT305\Assignments\.venv\Scripts\python.exe C:\Users\22396\Desktop\deakin\SIIT305\Assignments\T-6-1D-main\T-6-1D-main\main.py
* Serving Flask app "main"
* Debug Mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on http://127.0.0.1:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 130-669-745

[2024-04-23 19:03:53.501] DEBUG in main: Received topic: Literature
Raw Quiz Text: QUESTION: In George Orwell's novel "Animal Farm", which animal represents the working class? OPTION A: Napoleon OPTION B: Boxer OPTION C: Snowball OPTION D: Squealer ANS: Boxer

QUESTION: Who is the author of the classic novel "Pride and Prejudice"? OPTION A: Charles Dickens OPTION B: Jane Austen OPTION C: Emily Brontë OPTION D: William Shakespeare ANS: Jane Austen

QUESTION: Which famous playwright wrote the tragedy "Hamlet"? OPTION A: Tennessee Williams OPTION B: Arthur Miller OPTION C: William Shakespeare OPTION D: Henrik Ibsen ANS: William Shakespeare
Matches Found: [{"In George Orwell's novel "Animal Farm", which animal represents the working class", "Napoleon", "Boxer", "Snowball", "Squealer", "Boxer"}, {"Who is the author of the classic novel "Pride and Prejudice"?", "Charles Dickens", "Jane Austen", "Emily Brontë", "William Shakespeare"}]
C:\Users\22396\Desktop\deakin\SIIT305\Assignments\.venv\lib\site-packages\apocallypse\infrastr_v\libbase_collection.py:302: UserWarning: Detected filter using positional arguments. Prefer using the 'filter' keyword argument :
  return query.where(field_path, op_string, value)
[2024-04-23 19:03:58.299] INFO in main: Quiz uploaded successfully
127.0.0.1 - - [25/Apr/2024 19:03:58] "GET /generateQuiz?topic=Literature HTTP/1.1" 200 -
[2024-04-23 19:10:17.602] DEBUG in main: Received topic: History
Raw Quiz Text: QUESTION: In what year did the famous "Great Fire of London" take place, destroying a large part of the city? OPTION A: 1665 OPTION B: 1666 OPTION C: 1711 OPTION D: 1776 ANS: 1666

QUESTION: Which ancient civilization is credited with the invention of writing, using a system of wedge-shaped symbols on clay tablets? OPTION A: Ancient Egypt OPTION B: Ancient Greece OPTION C: Mesopotamia OPTION D: Aztec

QUESTION: Who was the first female Prime Minister of a European country and served as the Prime Minister of the United Kingdom from 1979 to 1990? OPTION A: Angela Merkel OPTION B: Golda Meir OPTION C: Margaret Thatcher OPTION D: Indira Gandhi
Matches Found: [{"In what year did the famous "Great Fire of London" take place, destroying a large part of the city?", "1665", "1666", "1711", "1776"}, {"Which ancient civilization is credited with the invention of writing, using a system of wedge-shaped symbols on clay tablets?", "Ancient Egypt", "Ancient Greece", "Mesopotamia", "Aztec"}]
[2024-04-23 19:10:22.859] INFO in main: Quiz uploaded successfully
127.0.0.1 - - [25/Apr/2024 19:10:22] "GET /generateQuiz?topic=History HTTP/1.1" 200 -
```

Personalized Quiz App:

Login and signup screen

9:10



# Quiz App

## Login with account



Email Address

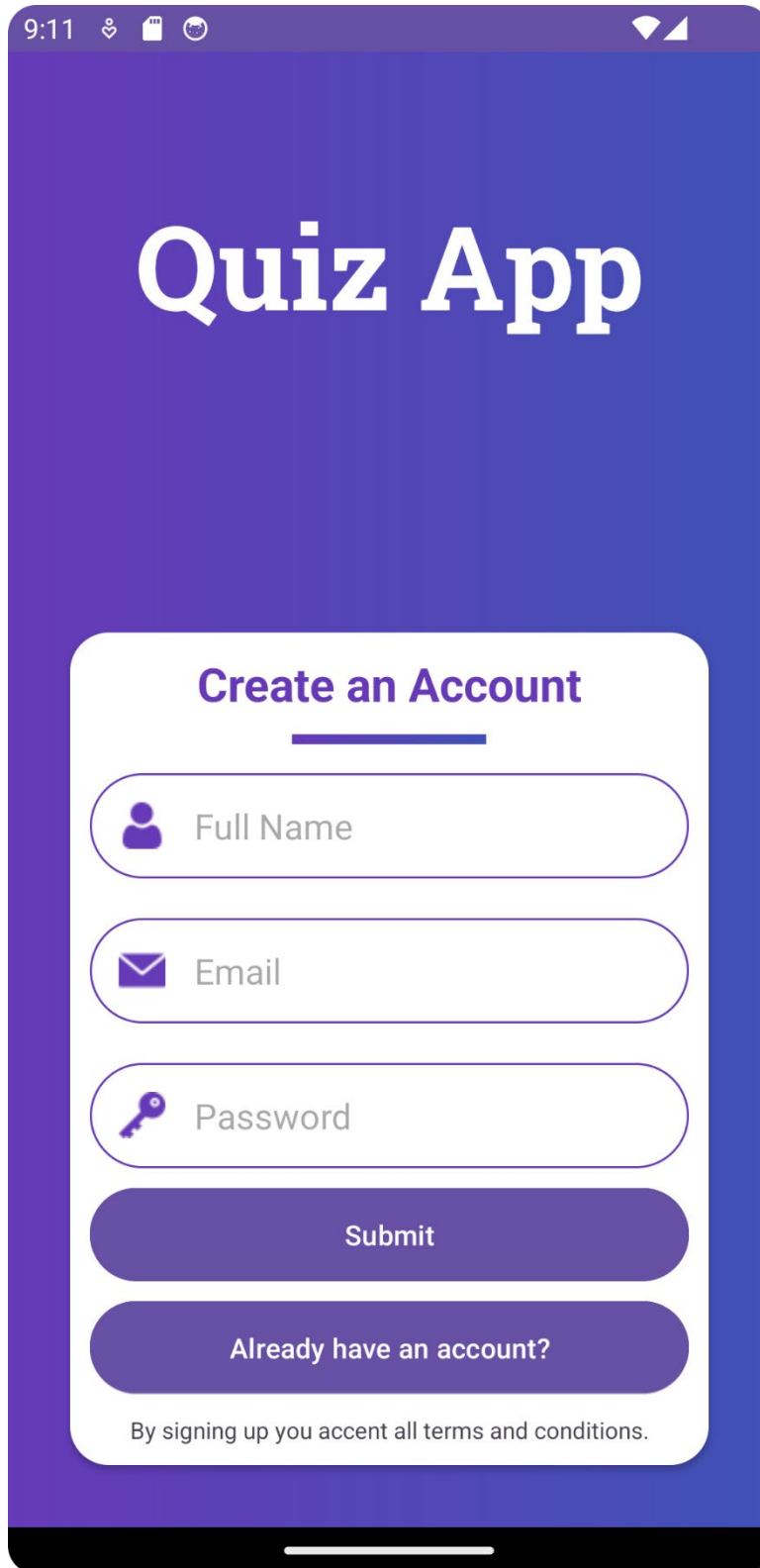


Password

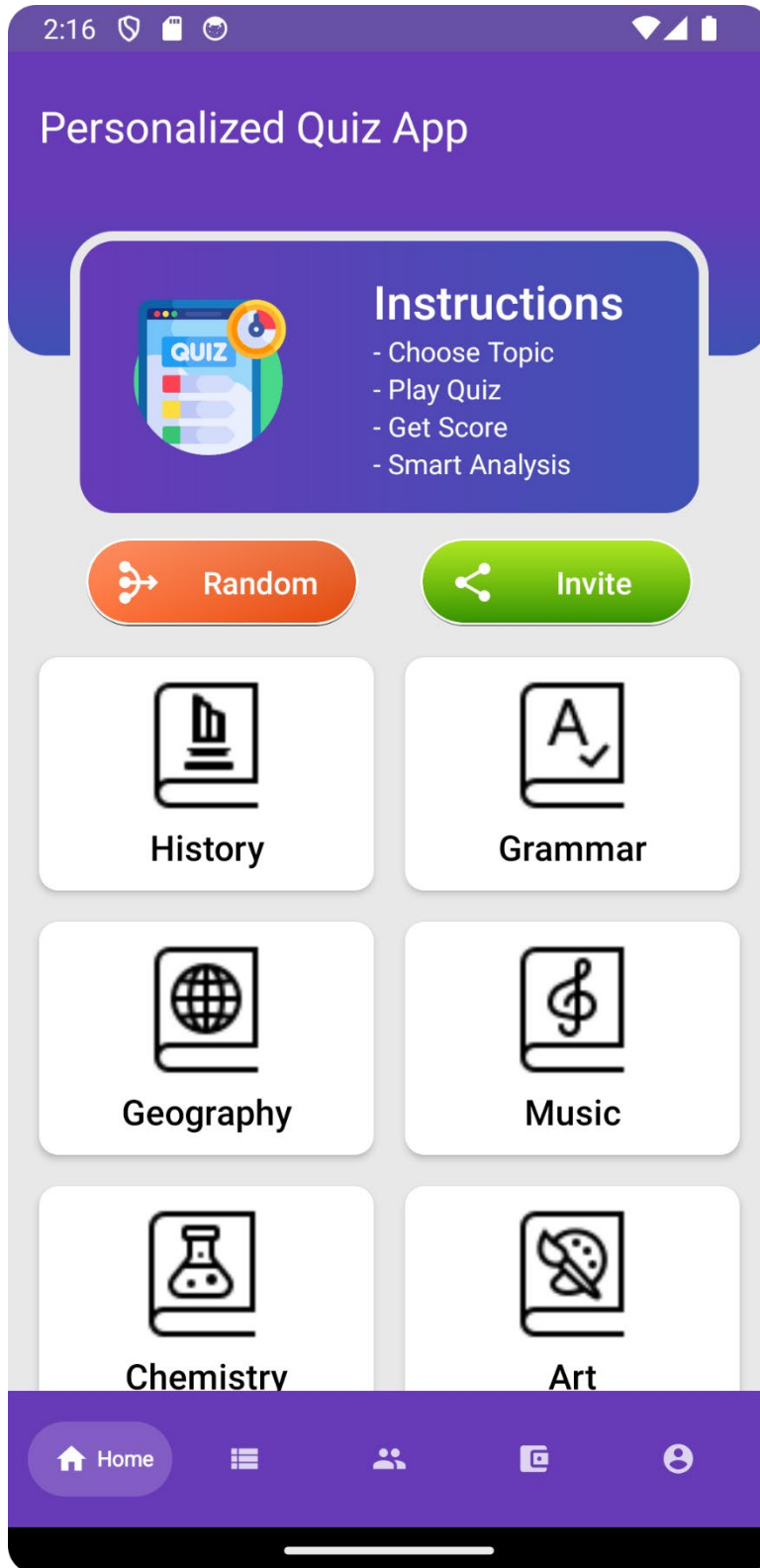
[Forgot your password?](#)

Login

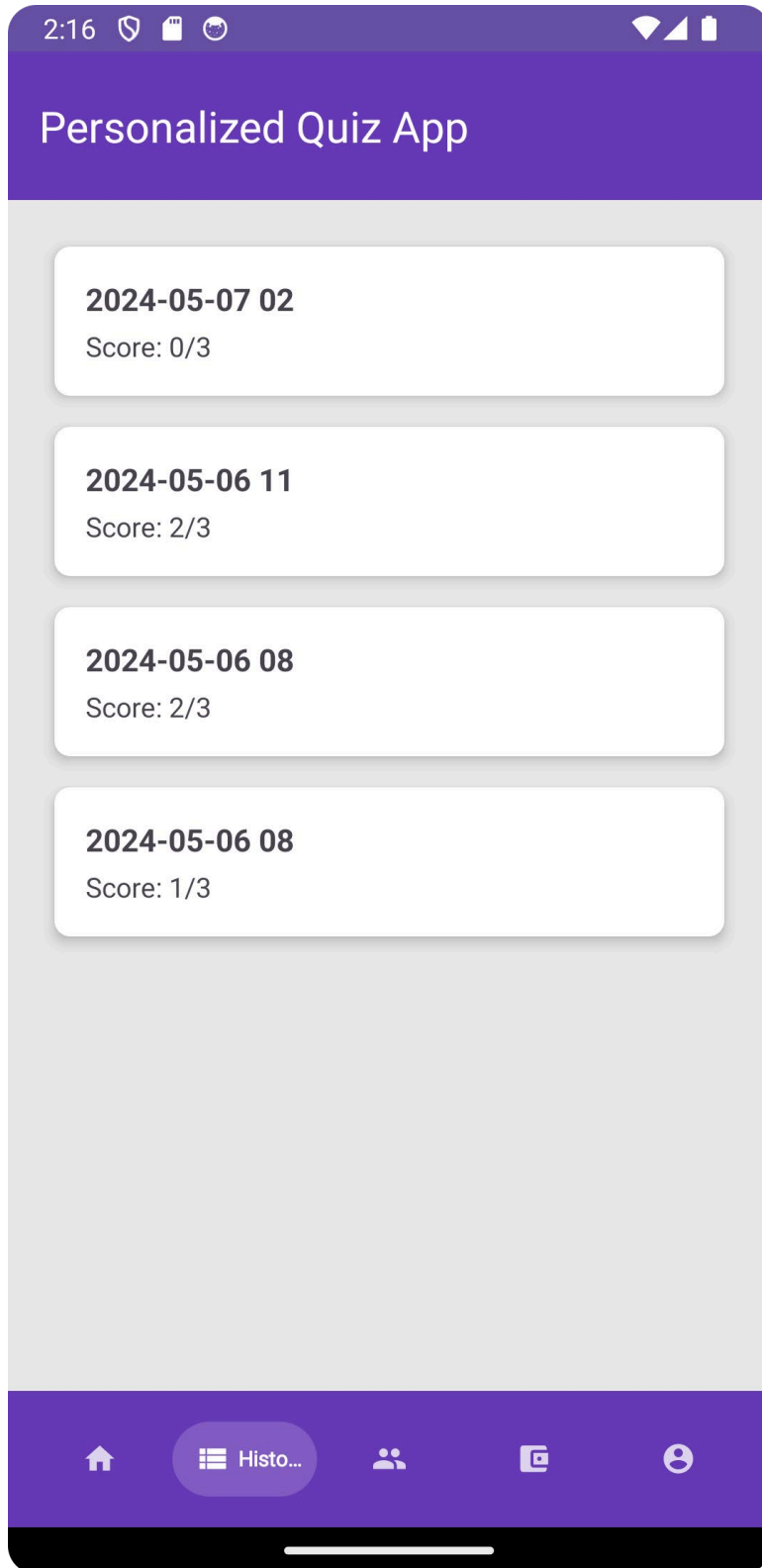
Create an account



Main screen (including topics)



History screen(Quiz history)

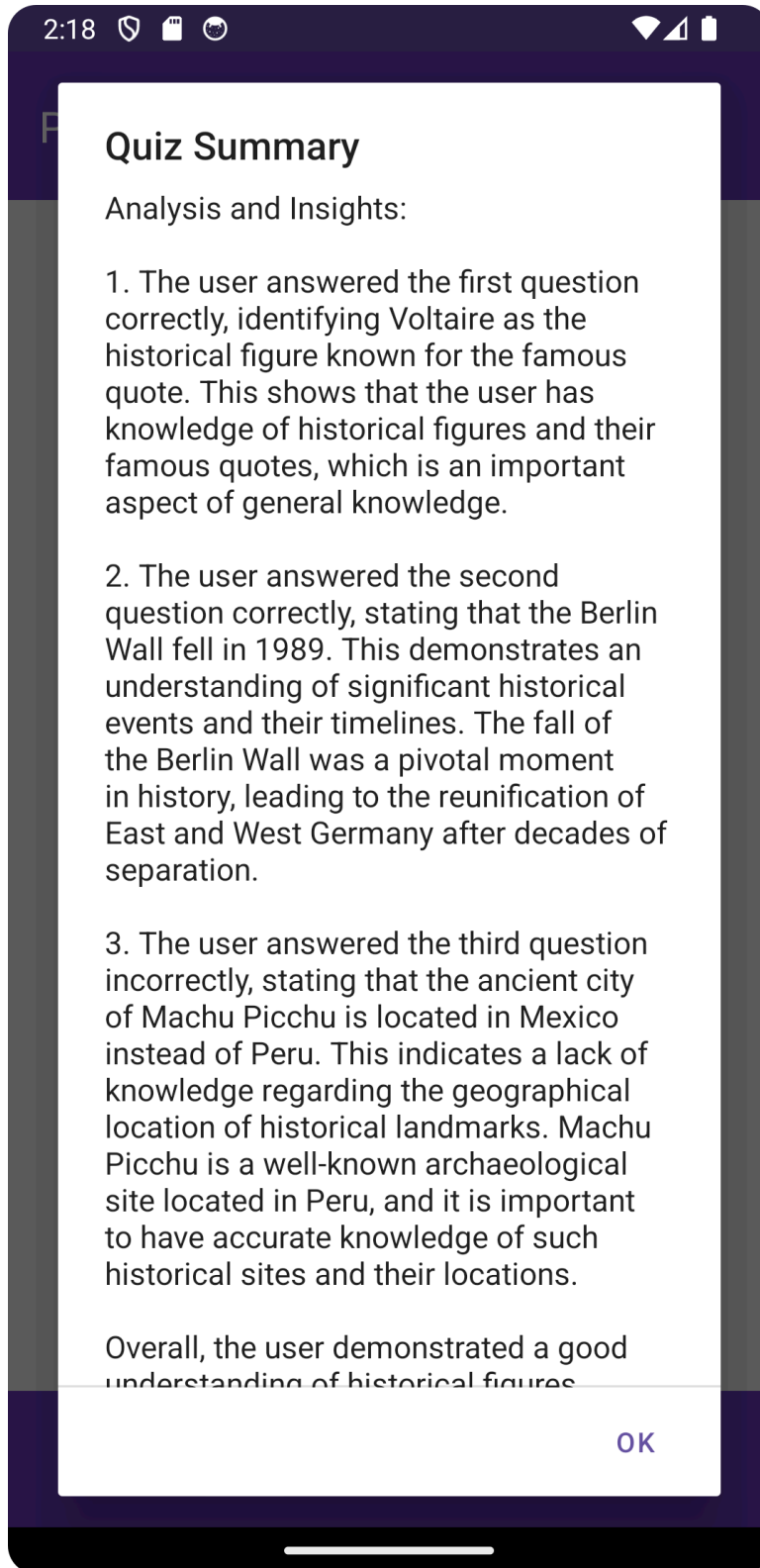


History screen(Quiz details)

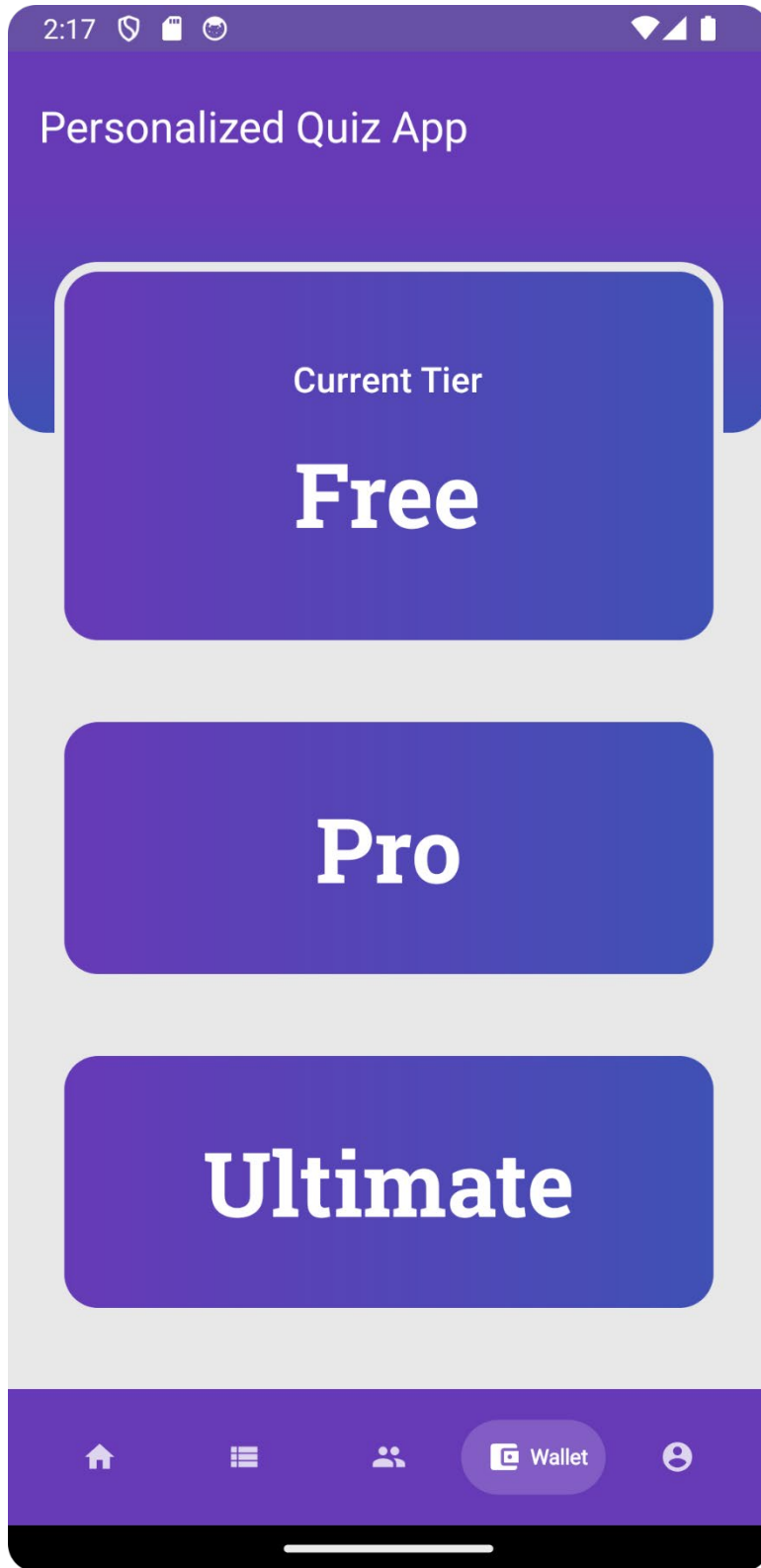


History screen(Quiz summary)

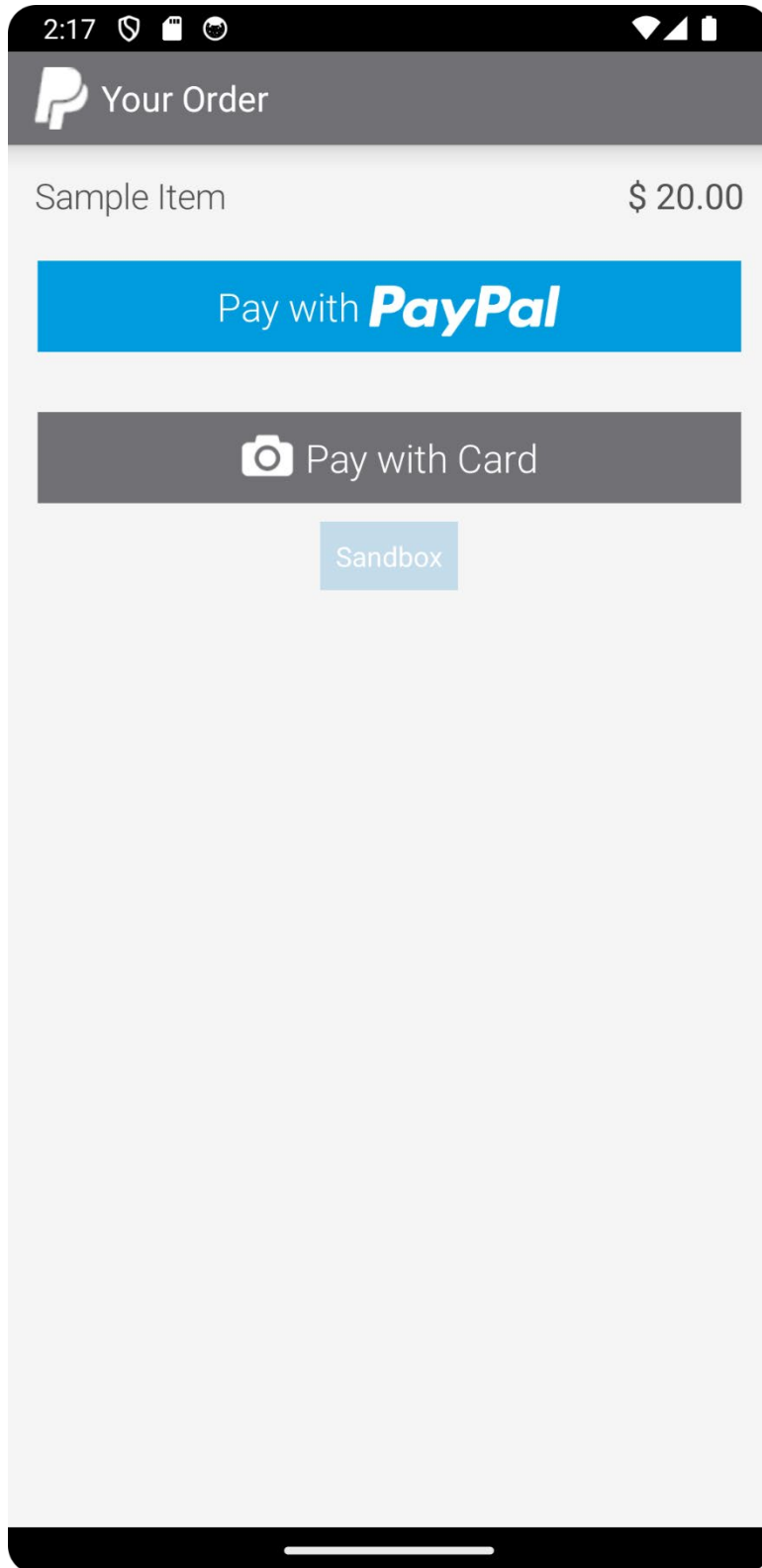




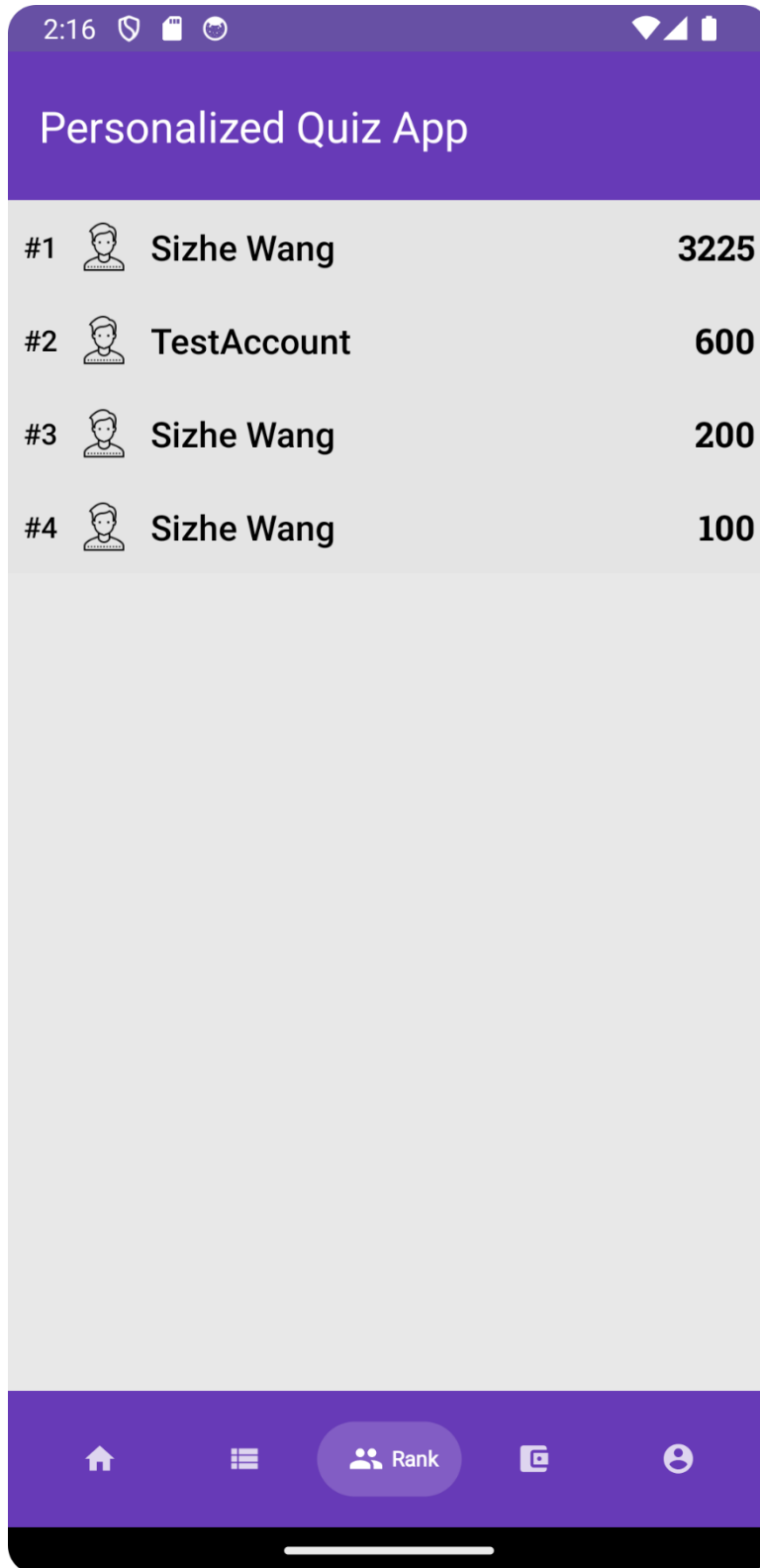
Payment screen



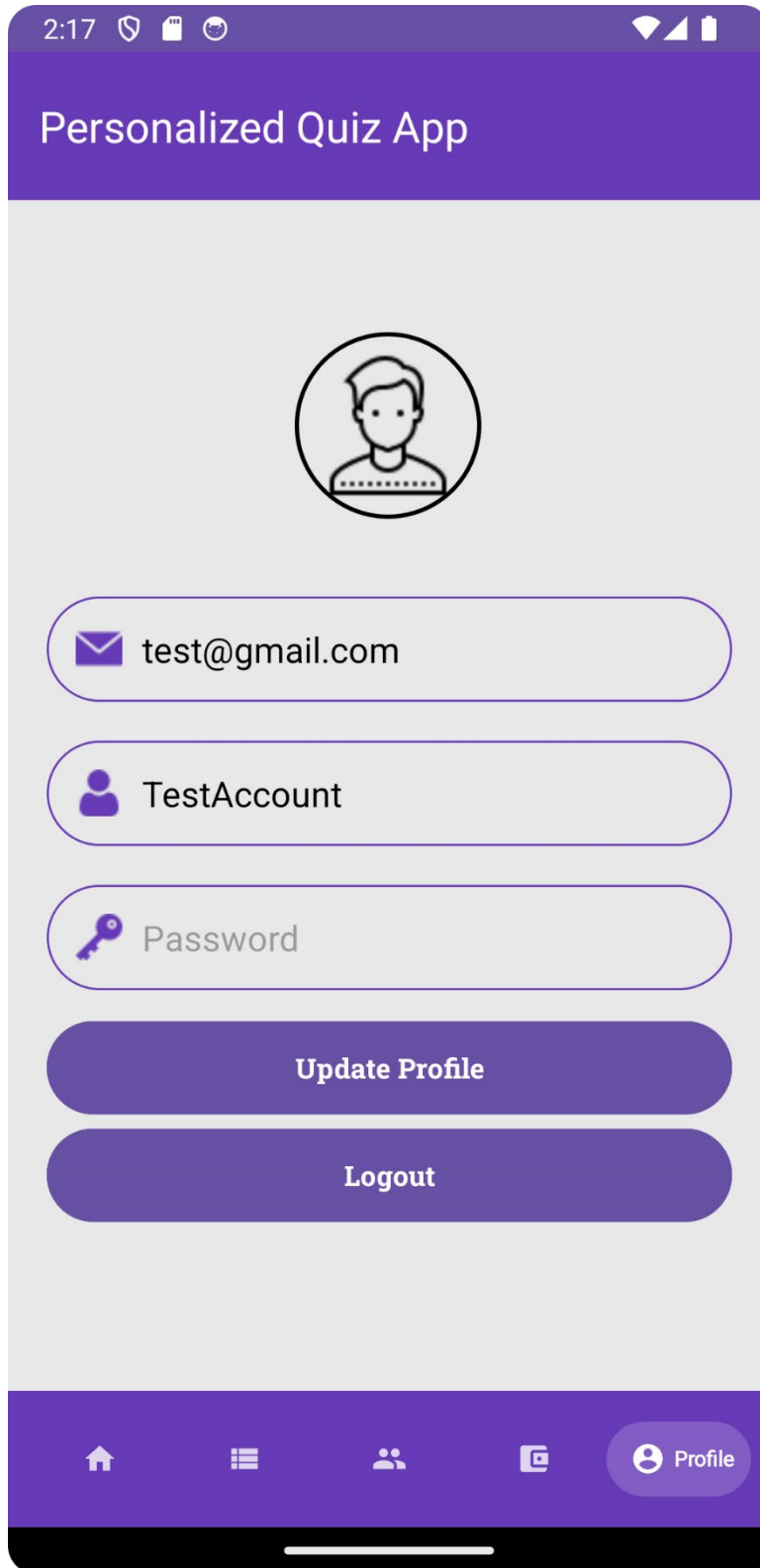
PayPal



Leaderboard screen



Profile screen



Quiz screen

9:10



24

1/3



**In what year did the famous  
"Great Fire of London" take  
place, destroying a large part  
of the city?**

1605

1666

1711

1776

Quit

Next

9:10



12

1/3



In what year did the famous  
"Great Fire of London" take  
place, destroying a large part  
of the city?

### Confirm Exit

Are you sure you want to quit the quiz?

NO

YES

1776

Quit

Next

2:18



# Congratulations!

YOUR SCORE

1/3

EARNED SCORES



100



Share

Restart



