

Flashcards App Documentation

Name : Aniket Bourasee

Email : aniketbourasee007@gmail.com

Project Overview

Title: Flashcards App - Easy Learn

Objective: The Flashcards App, titled “Easy Learn” is an interactive educational app designed to help users learn the fundamentals of programming languages through a combination of flashcards, notes, and quizzes. The app supports four programming languages: C, C++, Java, and Python, and provides a comprehensive, step-by-step learning experience with progress tracking and result visualization.

App Structure & User Flow

Splash Screen :

- **Content:** Displays the app logo, title (“Easy Learn”), and tagline (“Learn programming language easily”).
- **Functionality:** Serves as the initial welcome screen, enhancing brand visibility before directing the user to the login/sign-up screen.

Authentication (Login/Sign-Up) :

- **User Flow:**
 - **Sign-Up:** New users are prompted to enter their name, age, email, and password. Upon successful sign-up, they receive an on-screen alert ("Sign-up successful") and click "OK" to proceed to the Main Screen.

- **Login:** Returning users can log in using their email and password, with a similar alert ("Login successful") displayed on successful authentication.
 - **Backend:** User authentication is managed through Firebase, where sign-ups and logins are tracked within the Firebase Authentication dashboard.
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Main Features & Functionality

Main Screen :

Upon successful login, users are directed to the Main Screen, which features the following options:

1. **Languages:** Opens a screen where users can choose from the available programming languages to access basic notes.
2. **Flashcards:** Allows users to review flashcards containing questions based on each programming language.
3. **Quiz:** A quiz module where users can test their knowledge in any of the four programming languages.
4. **Results:** Displays a pie-chart summary of the user's quiz scores for progress tracking.

The Main Screen also includes a "Logout" button at the bottom for easy sign-out access.

1. Languages :

Selecting **Languages** on the Main Screen directs the user to the **Language Selection Screen**, where they can choose one of the following:

- **C Language Notes**
- **C++ Language Notes**
- **Java Language Notes**
- **Python Language Notes**

Upon selecting a language, users are taken to a **Notes Screen** for the chosen language, where they can study essential programming concepts. Each Notes Screen includes:

- **Basic Concepts:** Key points covering the foundational aspects of the selected language.
 - **Navigation:** A back button for returning to the Language Selection Screen.
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2. Flashcards :

Selecting **Flashcards** on the Main Screen opens the **Flashcards Screen**, allowing users to pick a programming language for flashcard-based learning.

- **Flashcard View:** Each flashcard displays a question related to the selected language's foundational concepts, drawn directly from the notes.
 - **Interactive Elements:**
 - **See Answer:** Reveals the answer below the question.
 - **Previous/Next:** Allows navigation through different flashcards.
 - **Languages Supported:** Flashcards are available for C, C++, Java, and Python, each covering core topics for that language.
 - **Back Navigation:** Users can return to the Flashcards Screen to select another language.
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3. Quiz :

Selecting **Quiz** on the Main Screen opens the **Quiz Screen**, where users can select a programming language to test their knowledge.

- **Quiz Structure:**

- **Question Format:** Each quiz consists of 10 multiple-choice questions, with four options per question.
- **Answer Selection:** Users can select only one answer. Correct answers turn the selected option's background green, while incorrect answers turn it red.
- **Quiz Navigation:** A "Next" button moves to the next question. For the final question, a **Finish** button appears.

- **Results Display:** After completing the quiz, users see their score (e.g., "Your Score: 5 out of 10") with a "Go to Main Screen" button to return to the Quiz Screen.

4. Results :

The **Results** option on the Main Screen takes users to the **Results Screen**, where quiz scores are visually represented as a pie chart.

- **Display Options:** Users can filter scores by day, week, and language, allowing them to track their progress across different programming languages over time.

Technologies Used :

- **Language:** Swift
 - **Framework:** SwiftUI (for UI components and view structure)
 - **Authentication:** Firebase (for secure user login and sign-up management)
 - **Data Storage:** Local arrays for storing predefined questions and answers for each language
 - **Visualization:** Pie charts for graphical representation of quiz results
 - **Testing:** SwiftUI Previews for in-development view testing
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Conclusion

The “Easy Learn” Flashcards App offers an engaging and accessible learning experience for individuals interested in programming fundamentals. Through structured notes, interactive flashcards, and a quiz feature, users can strengthen their understanding of C, C++, Java, and Python at their own pace. Result tracking further personalizes the experience, encouraging continuous improvement and progression.

App Demo :

1. Splash Screen:

- Displays logo, app name ("Easy Learn"), and tagline ("Learn programming language easily").



2. Authentication:

- **Sign-Up:** New users provide name, age, email, and password.
Success message: "Sign-up successful."
- **Login:** Existing users enter email and password. Success message: "Login successful."
- **Firebase Authentication:** Manages user accounts and updates on the dashboard.

11:19



11:19



Login Signup

Name

Age

Email

Password

Sign Up

Login Signup

Email

Password

Login

The screenshot shows the Firebase console's Authentication section. On the left sidebar, 'Authentication' is selected under 'Build'. The main area displays a table of users with columns: Identifier, Providers, Created, Signed In, and User UID. The table lists five users, all created on Oct 23, 2024, and signed in on Oct 24, 2024. A search bar at the top allows filtering by email or phone number.

Identifier	Providers	Created	Signed In	User UID
ankit@gmail.com	Email	Oct 23, 2024	Oct 24, 2024	oumpe310y3hpj4L715t7zLBX0...
aniket@gmail.com	Email	Oct 23, 2024	Oct 24, 2024	EL9pmtRyZMYwoUW0zyiZKlgX...
amit@gmail.com	Email	Oct 21, 2024	Oct 21, 2024	02S7lEEymNRdsHzNiGYkJ07...
jitetcbuddy08@gmail.c...	Email	Oct 21, 2024	Oct 23, 2024	NInyaQQifFXhpTDSkh75peSi...
akshay@gmail.com	Email	Oct 21, 2024	Oct 21, 2024	KvycjcS7NXYy4CUt8DU2PqP3...

Rows per page: 50 | 1 - 5 of 5 | < >



Firebase

Flashcards ▾

Authentication

Users Sign-in method Templates Usage Settings Extensions

Search by email address, phone number, or user UID Add user

User ID	Providers	Created	Signed In	User UID
rajesh@gmail.com	✉️	Oct 24, 2024	Oct 24, 2024	Tn9AxzWDsaa5ARF6weX2xCz...
ankit@gmail.com	✉️	Oct 23, 2024	Oct 24, 2024	ounpe310y3hpj4L715t7zLBX0...
aniket@gmail.com	✉️	Oct 23, 2024	Oct 24, 2024	EL9pntRyZMYwoUWOzyiZKlgX...
amit@gmail.com	✉️	Oct 21, 2024	Oct 21, 2024	02S7IEEymNRdsHzNiGYkJ07...
jitetcbuddy08@gmail.c...	✉️	Oct 21, 2024	Oct 23, 2024	NinayaQQfFXThpTDSkht75peSi...
akshay@gmail.com	✉️	Oct 21, 2024	Oct 21, 2024	KwycjcS7NXYy4CUlt8DU2PqP3...

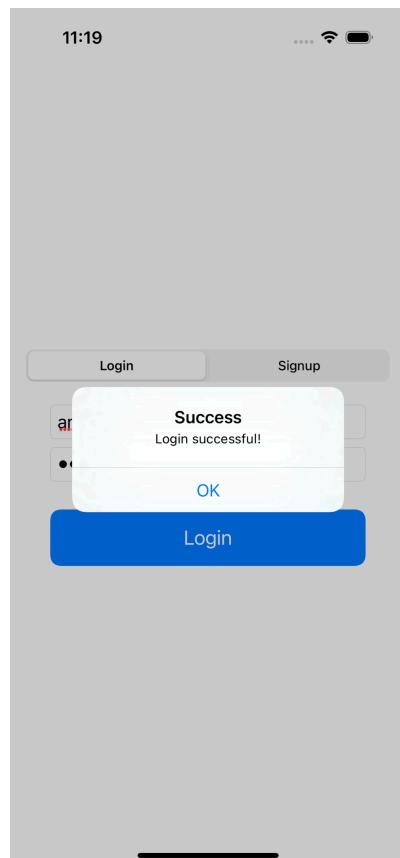
Rows per page: 50 1 - 6 of 6

Authentication

Generative AI Build with Gemini Project shortcuts Firestore Database Authentication Product categories Build Run Analytics All products Related development tools IDX ⓘ Checks ⓘ Upgrade No code (0 months)

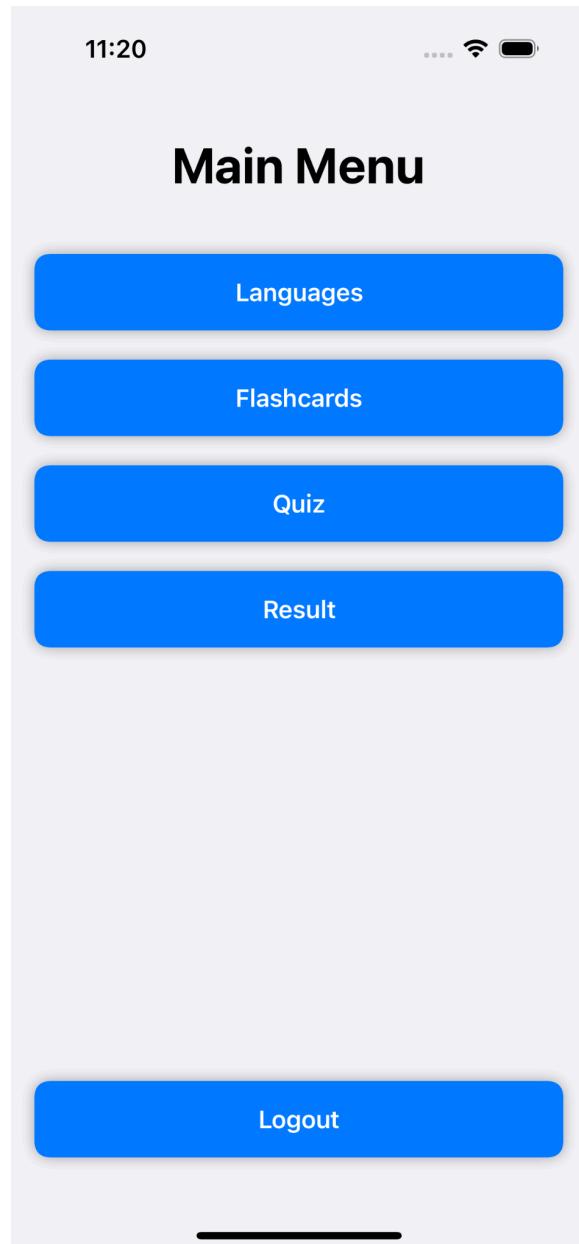
Profile icon

Help



3. Main Screen:

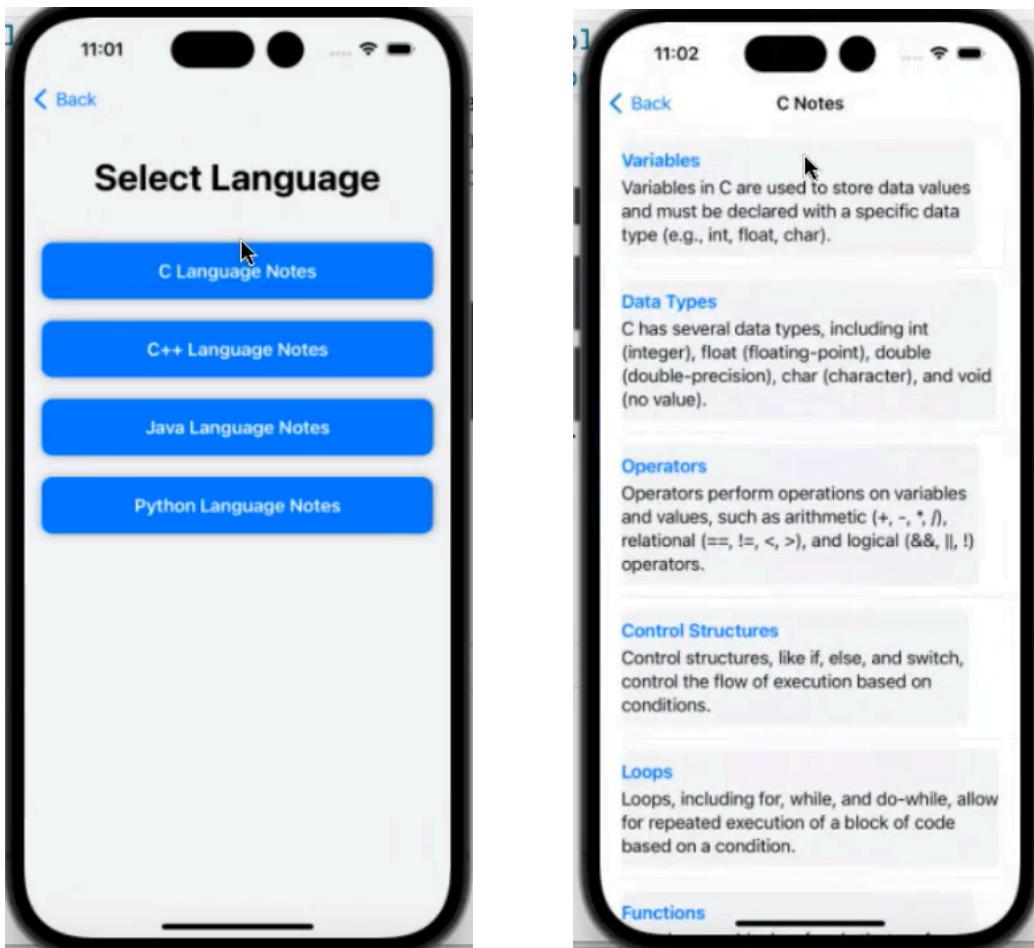
- **Options:** Languages, Flashcards, Quiz, Result.
- **Logout Button** at the bottom.

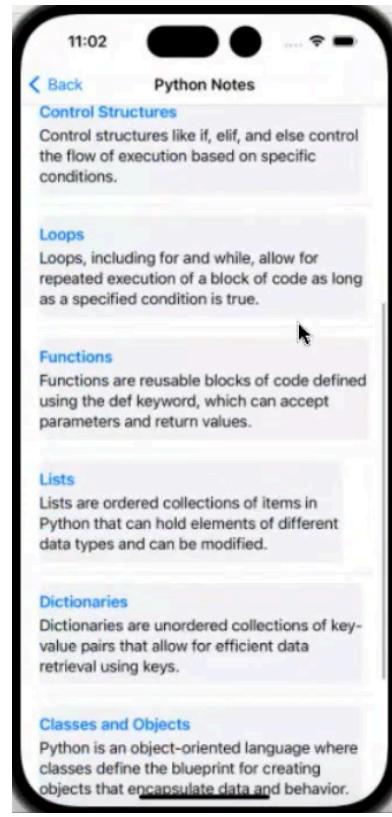
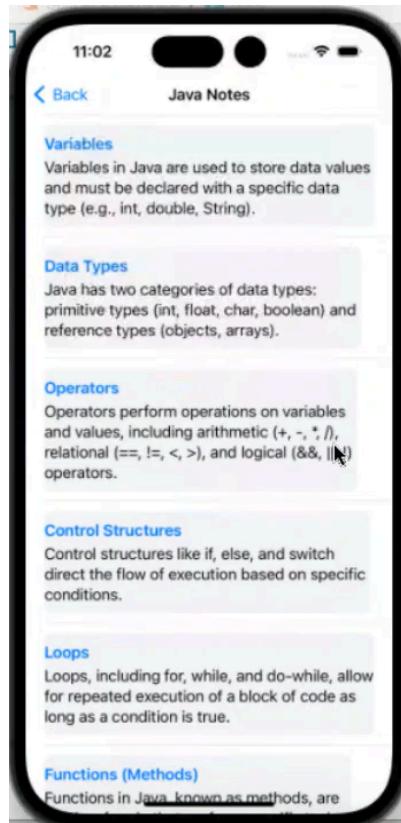
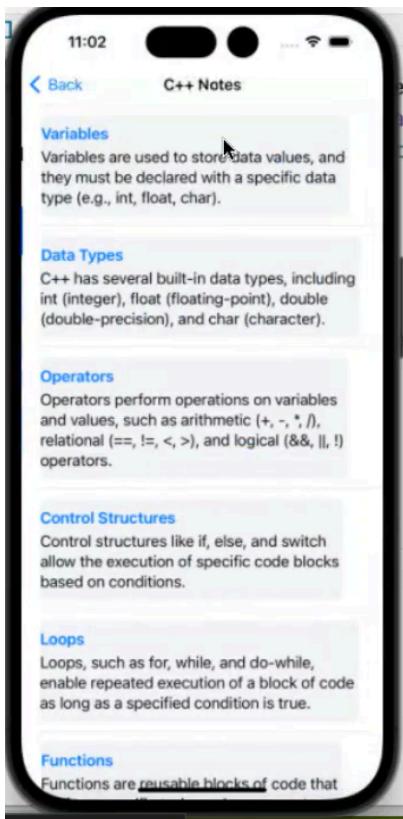


Functional Modules

1. Languages:

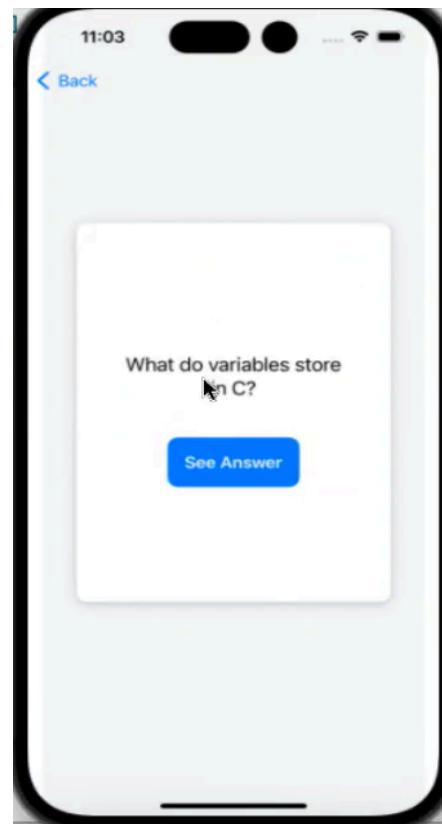
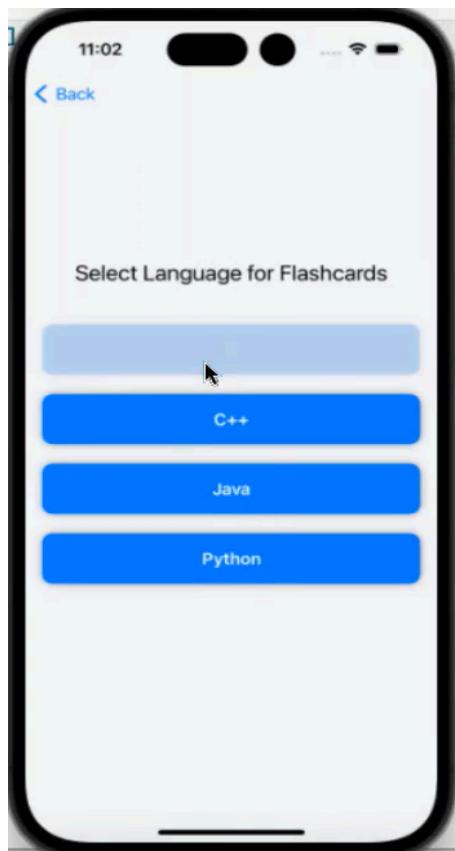
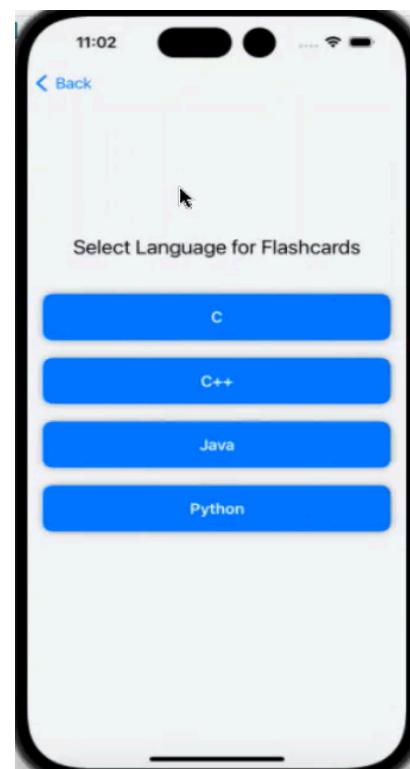
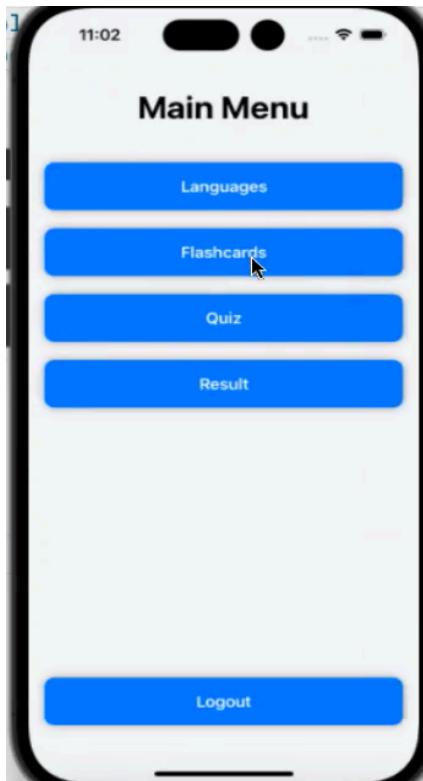
- Opens a selection screen with options for C, C++, Java, and Python notes.
- Each note screen displays essential concepts for the selected language.
- **Navigation:** Back button returns to Language selection.

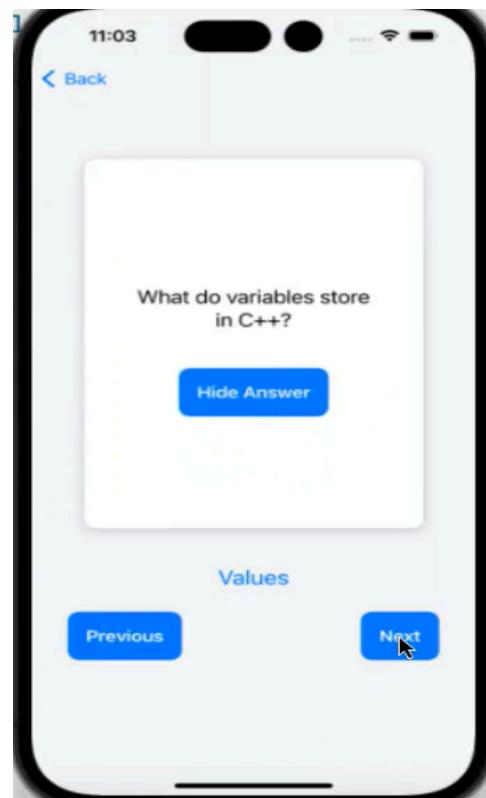
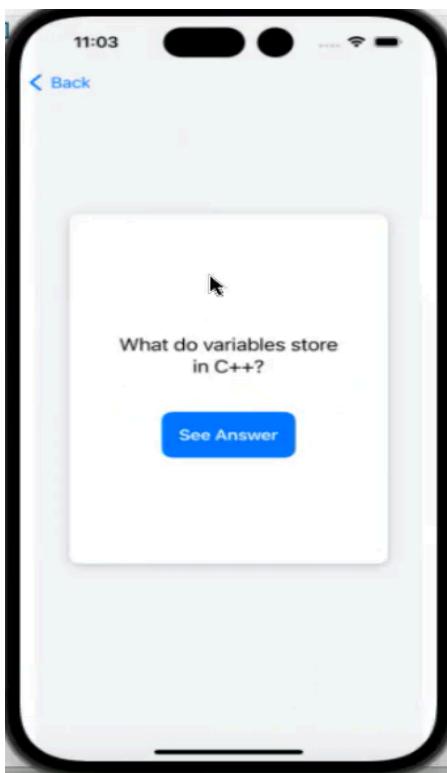
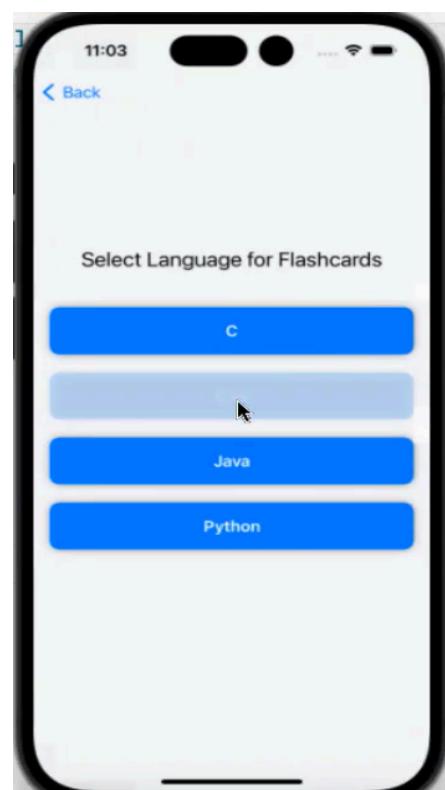
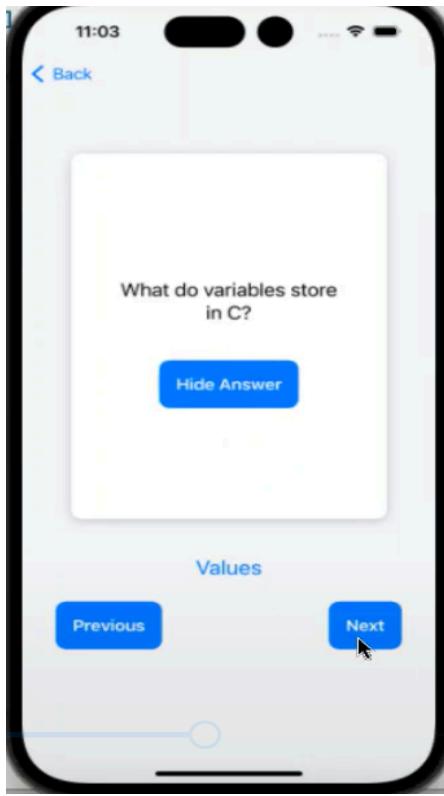


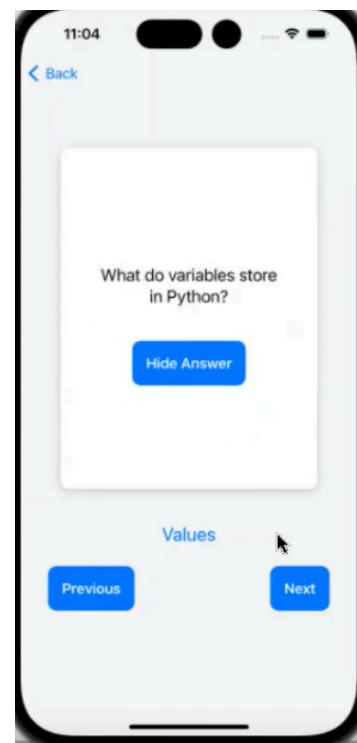
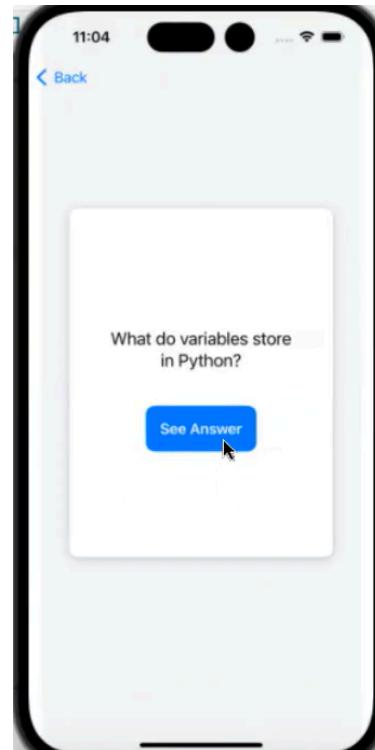
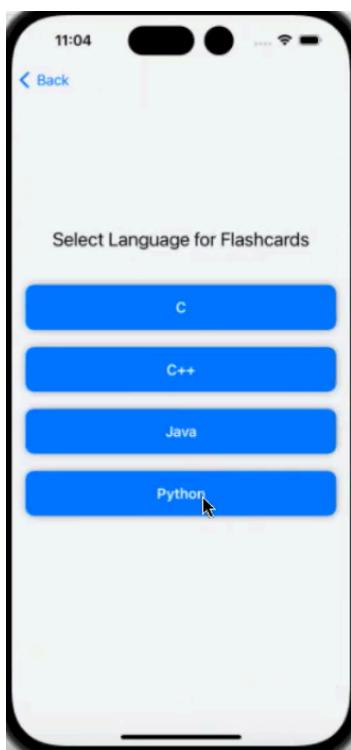
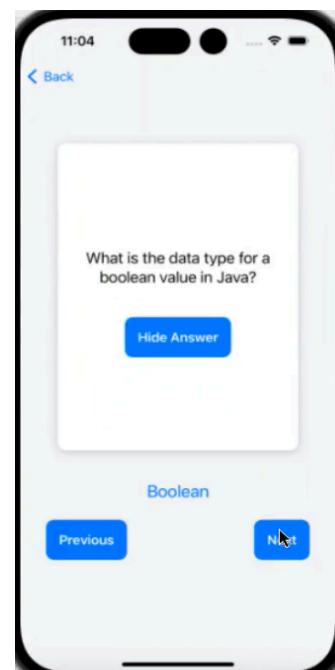
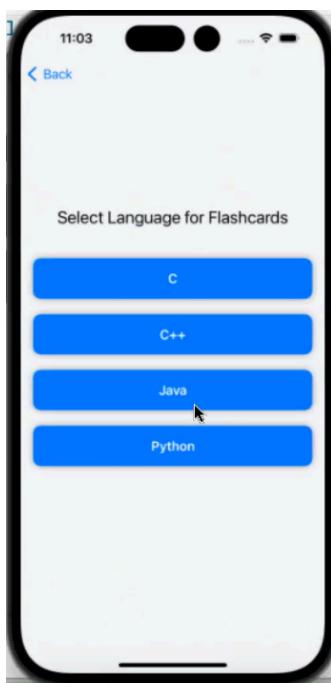


2. Flashcards:

- User selects a language to access language-specific flashcards.
- **Flashcard View:**
 - Displays a question with an option to "See Answer."
 - **Navigation:** Previous/Next buttons to move between flashcards.
 - **Back button** returns to Flashcards screen.

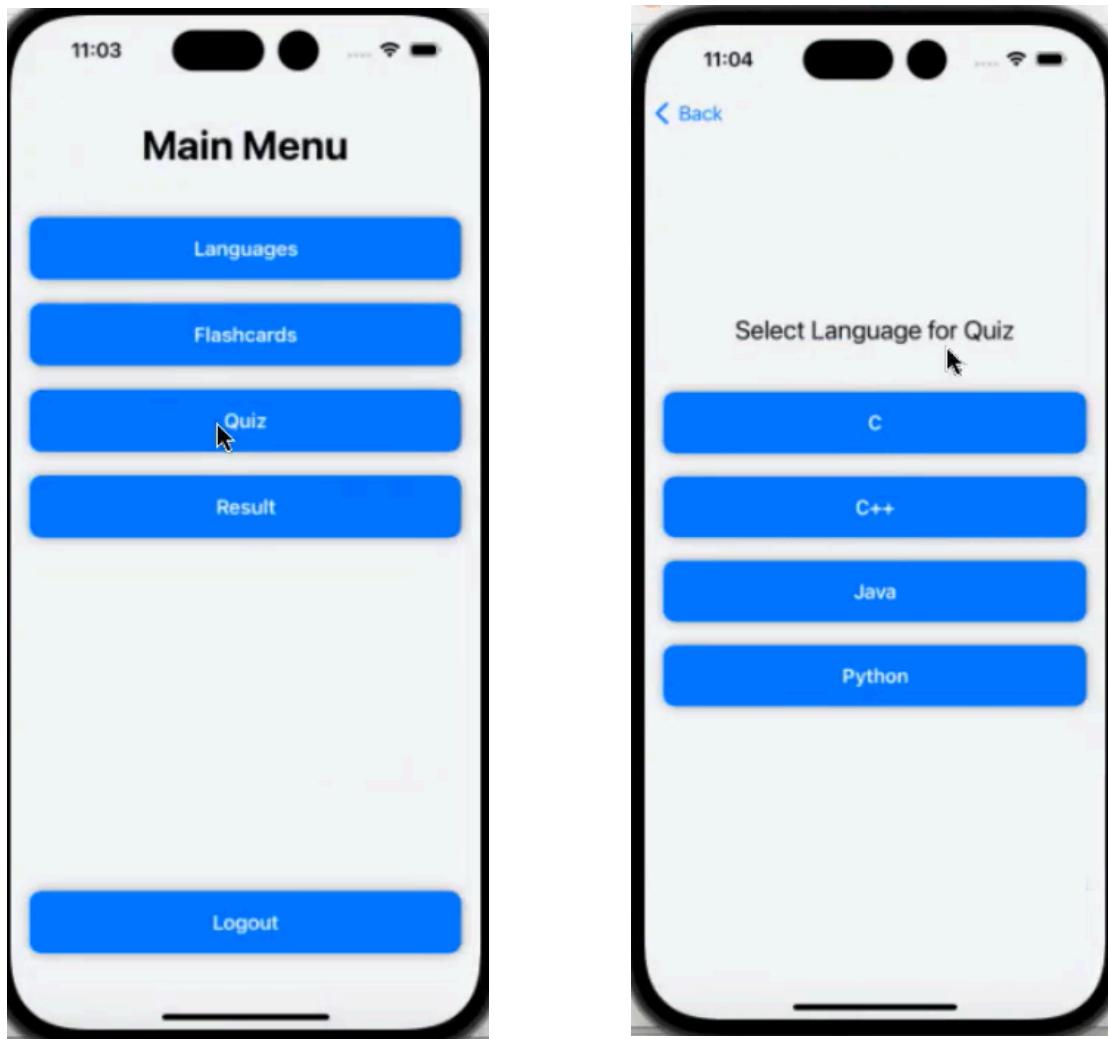






3. Quiz:

- Language selection screen for C, C++, Java, and Python quizzes.



- **QuizQuestionView:**

- Shows MCQ questions with four answer options. Single selection only.
- Background changes green for correct answers, red for wrong answers.
- Final question displays a "Finish" button, followed by a score summary (e.g., "Your Score: 5 out of 10").
- "Go to the main screen" button at the end of the quiz.

