Development of a Mobile App for In-Depth Roadmap Recommendations in Learning Technology

BY: Group 2

COURSE TITLE: Principles of programming language (II)

COURSE CODE: CSC 432

DEPARTMENT OF COMPUTER SCIENCE

FACULTY OF SCIENCE

LAGOS STATE UNIVERSITY

AUGUST, 2024

GROUP MEMBERS

	NAME	MATRIC NUMBER
1	AKINTUNDE TAOFEEK AKOREDE	200591024
2	OKORO JAMESPETER	200591094
3	TALL ABDULRAHMAN MOHAMMED	200591129
4	POPOOLA QUDUS ORIYOMI	200591117
5	TINUBU PRECIOUS BUKUNMI	200591130
6	GARUBA PRECIOUS OSEVOSIMEH	200591066
7	AMODU AYODELE SULAIMON	200591028
8	ADEYOMOYE AYOMIDE GOLD	200591012
9	SALIU OLUWASEGUN SOLOMON	200591120
10	BADMUS OMODEBOLA PAUL	200591039
11	ADEMOLA ABDULMALIK TEMILEYI	200591010
12	OLOPADE FAWAZ OMOBOLAJI	20115042
13	OLAYODE ADEMOLA MICHEAL	200115040
14	HAMZAT RAMADAN MUHAMMED	210115019

PROJECT OVERVIEW

Objective:

To develop a mobile application that offers a comprehensive roadmap for learning various technology fields. The app is designed to simplify the learning process by recommending relevant resources and structured learning paths. The goal is to create a user experience that stands out from existing systems by offering a more personalized and enriched approach.

Background:

Aspiring tech professionals often face challenges in navigating the vast array of learning resources available online. Existing systems provide general recommendations but lack tailored guidance. This project aims to bridge this gap by providing users with a more focused and interactive learning experience.

Proposed Solution:

The mobile app will not only suggest learning paths but will also provide detailed recommendations, resources, and interactive features to assist users in their tech learning journey. The app's design and functionality are centred around user experience, ensuring ease of use and accessibility.

TECHNICAL IMPLEMENTATION

Programming Languages Used:

- **Dart**: The primary programming language used for the app development. Dart is chosen for its performance and ease of use, making it an ideal choice for building high-performance applications.

Frameworks and Tools:

- **Flutter**: The app is developed using Flutter, a framework that allows for the creation of natively compiled applications for mobile, web, and desktop from a single codebase. Flutter provides a rich set of pre-designed widgets and tools, enabling the creation of a highly interactive user interface.

Packages and Libraries:

- **url_launcher**: A package used to handle the opening of URLs within the app, allowing users to access external resources directly from the app.
- **Material Design**: The app adheres to Material Design principles to ensure a consistent and visually appealing user interface.

FEATURES AND FUNCTIONALITY

1. **Home Screen**:
    - **Search Functionality**: Users can search for specific tech fields and filter results based on their interests.
    - **Recommendations**: Personalized tech field recommendations are displayed based on user preferences.
    - **All Tech Fields**: A comprehensive list of all tech fields with descriptions and details is available for exploration.
    - **Drawer Navigation**: Includes key options such as About, Developers, Settings, and Back to OnboardingScreen. Each option is clickable and navigates to the corresponding section.

2. **Detail Screen**:
    - **Field Information**: Provides a detailed view of each tech field, including its name, description, learning steps, and associated resources.
    - **Scrollable Details**: Learning steps and links to online resources are presented in a scrollable format for easy access.
    - **Clickable Links**: Integration with the url_launcher package enables users to open external links in their browser directly from the app.
3. **Gradient Cards**:
    - **Visual Appeal**: The UI features gradient cards that enhance the visual appeal of the tech field listings.
    - **Interactive Elements**: Cards are tappable, leading users to detailed information about each tech field.
4. **Preferences Screen**:
    - **User Settings**: Allows users to manage their preferences, including tech fields of interest. The preferences are stored using shared preferences, ensuring that user settings are retained even after the app is closed.
5. **Developers Section**:
    - **Developer Information**: A dedicated section in the app provides a list of developers who contributed to the project, ensuring transparency and recognition.
6. **About Section**:

- **Comprehensive Overview**: The About section provides detailed information about the app, including its purpose as a group project for CSC 432, emphasizing its educational objective and collaborative development.

IMPLEMENTATION DETAILS

1. **Main Code Structure**:
   - **Main Module**: The entry point of the app, defining the MyApp class and setting up routes for navigation across different screens.
   - **HomeScreen Module**: Manages the display of tech fields, recommendations, search functionality, and drawer navigation.
   - **DetailScreen Module**: Provides a detailed view of tech fields, including learning steps and resources.
   - **GradientCard Module**: A custom widget for displaying tech fields with a visually appealing gradient background.
2. **Data Management**:
   - **Tech Fields Data**: Information about various tech fields is managed as a list of maps, each containing details such as names, descriptions, learning steps, and resources.
3. **User Interface**:
   - **Purple Color Scheme**: The UI design features shades of purple to create a visually cohesive experience, representing the department and maintaining a consistent theme.

- **Responsive Layout**: The app utilizes GridView and ListView to ensure a responsive and user-friendly interface.

FUTURE IMPROVEMENTS

1. **Enhanced Recommendations**:
   - Further refinement of the recommendation algorithms to provide more personalized learning paths based on user preferences and progress.
2. **Expanded User Preferences**:
   - Enhancing the Preferences Screen to include more customizable settings, allowing users to have a more tailored experience.
3. **Additional Features**:
   - **Bookmarking**: Allow users to bookmark tech fields or specific resources for easy future access.
   - **Progress Tracking**: Implement features that enable users to track their learning progress and milestones.
4. **Testing and Optimization**:
   - Conduct thorough testing to ensure smooth performance and address any bugs or issues, ensuring a seamless user experience.

CONCLUSION

This mobile app aims to provide a comprehensive, user-friendly solution for learning various technology fields. By focusing on personalized recommendations, interactive features, and a visually appealing design, the app serves as a valuable tool for individuals

embarking on a tech career. Continuous improvements and enhancements will ensure that the app remains effective in guiding users through their learning journey.

REFERENCES

1. Dart Programming Language Documentation. (n.d.). Retrieved from dart.dev
2. Flutter Framework Documentation. (n.d.). Retrieved from flutter.dev
3. url_launcher Package Documentation. (n.d.). Retrieved from url_launcher on pub.dev

SCREENSHOTS FROM THE APP

ON THE NEXT PAGES

Welcome to Tech Learning Roadmap

Discover a new way to streamline your journey in learning technology. Our app provides carefully curated resources, so you can focus on acquiring the skills that matter most in today's tech landscape.

SKIP

NEXT

Personalized Roadmaps

We understand that everyone's learning path is unique. That's why our app tailors recommendations based on your specific interests and goals, guiding you through a structured, efficient learning process.

SKIP

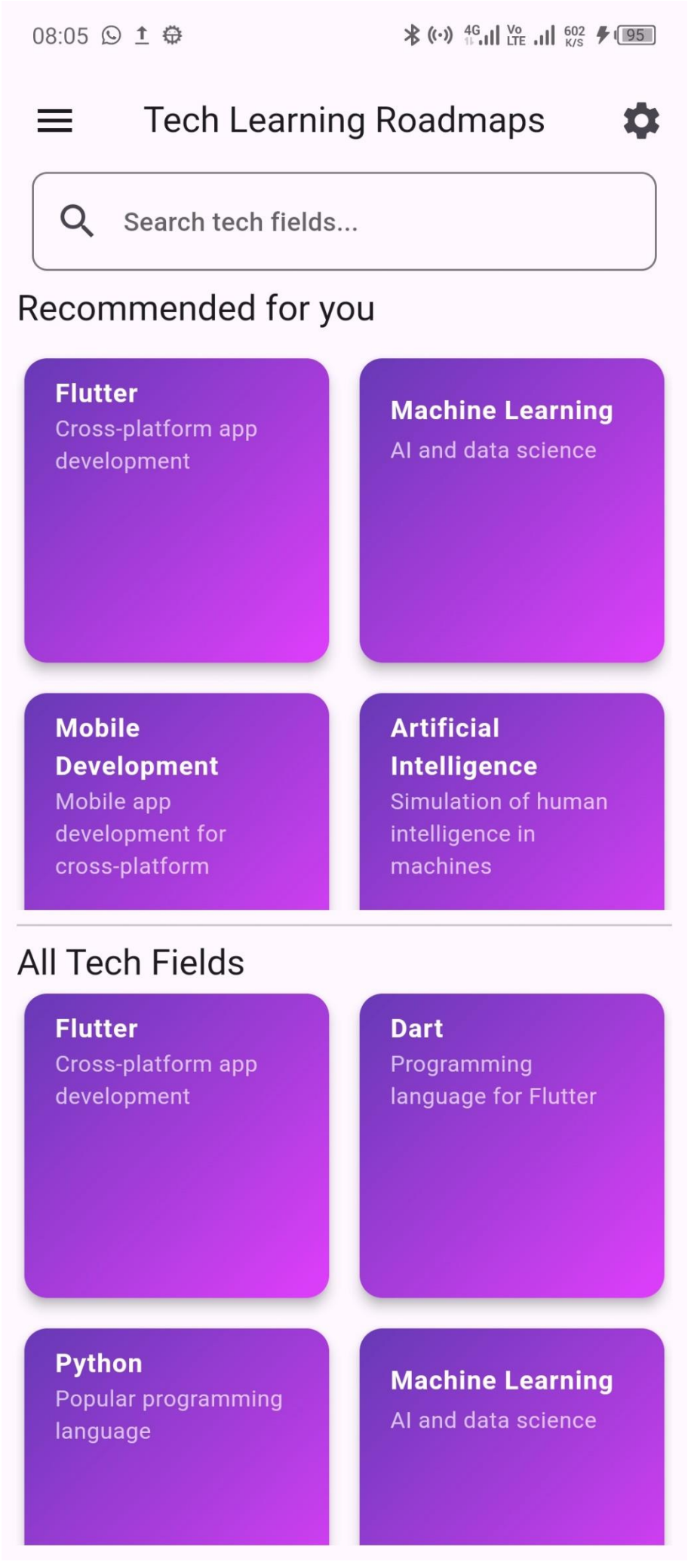
NEXT

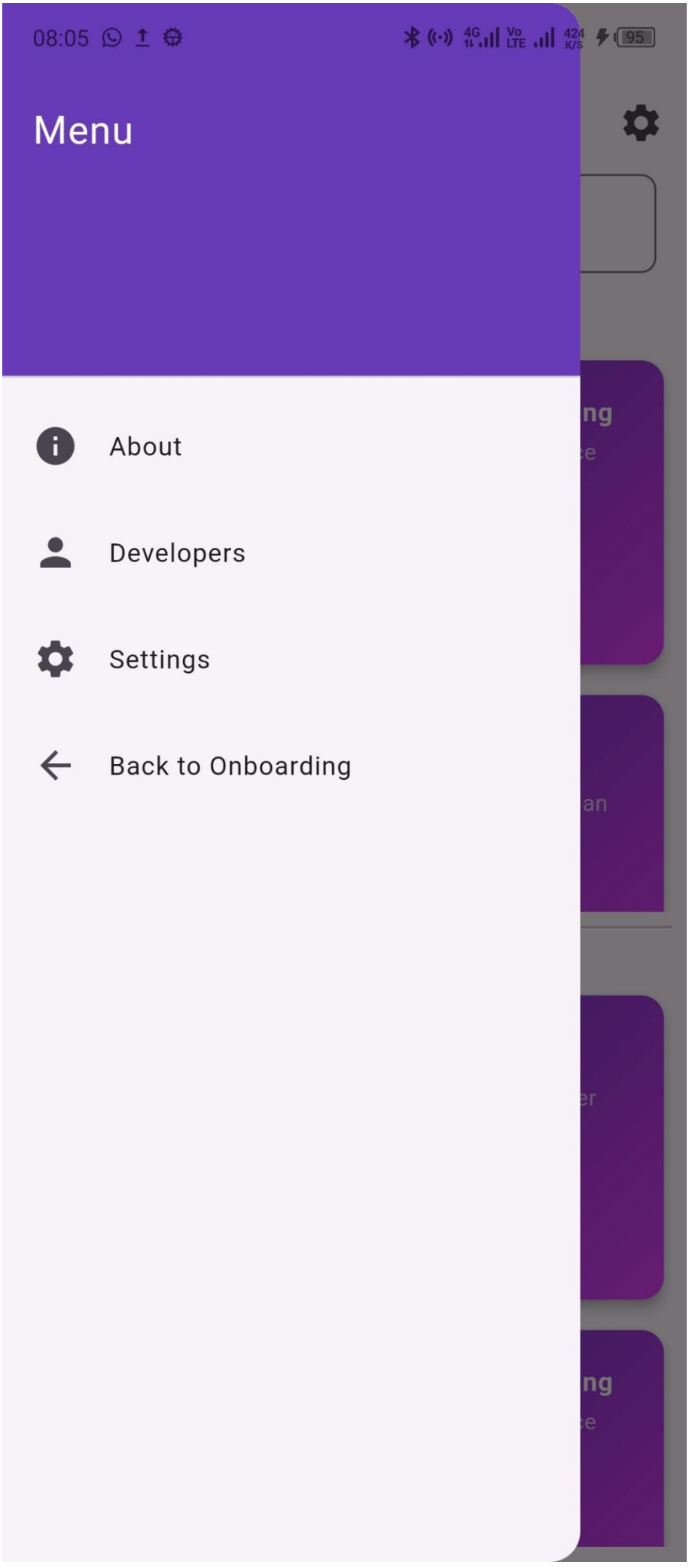
Start Your Journey Now

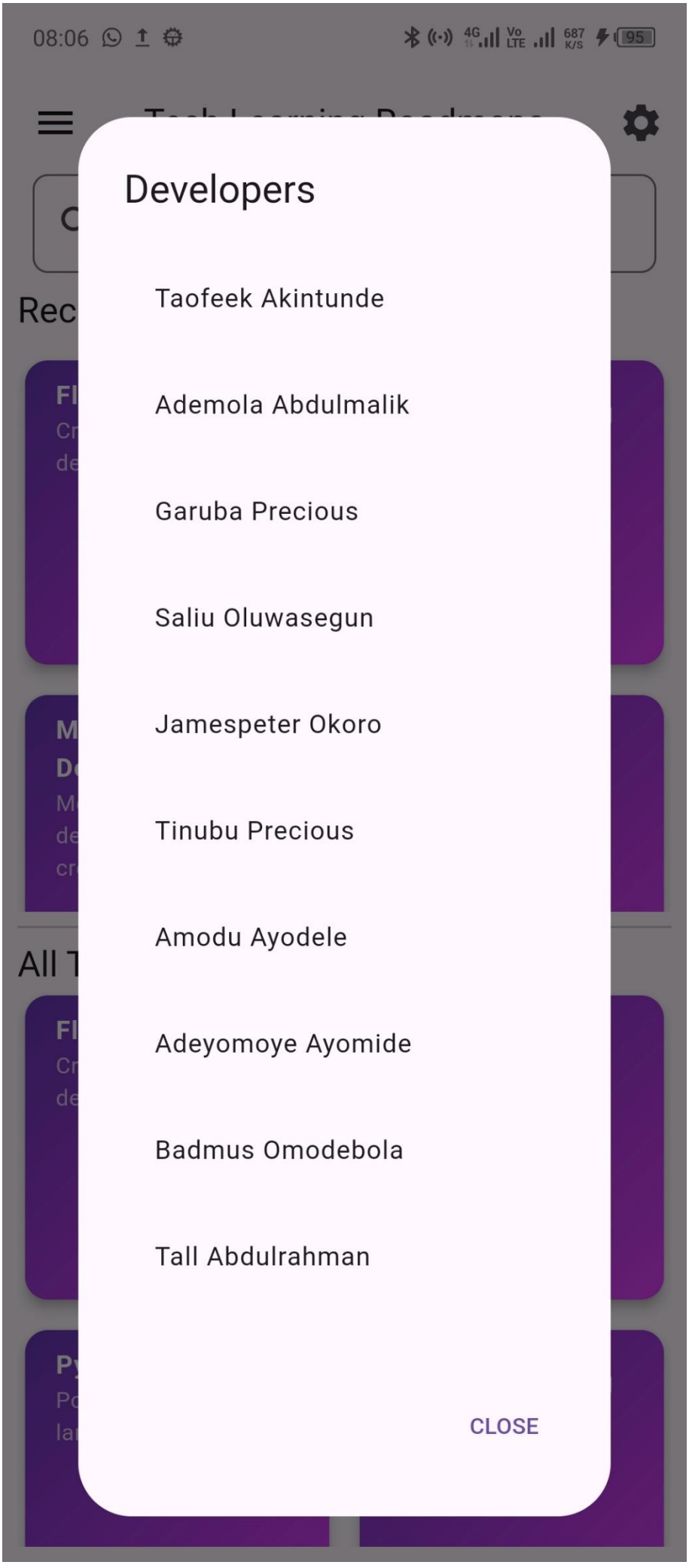
Embark on your tech journey with confidence. With our curated resources and personalized roadmaps, you're just a few clicks away from mastering the tech skills that will shape your future.

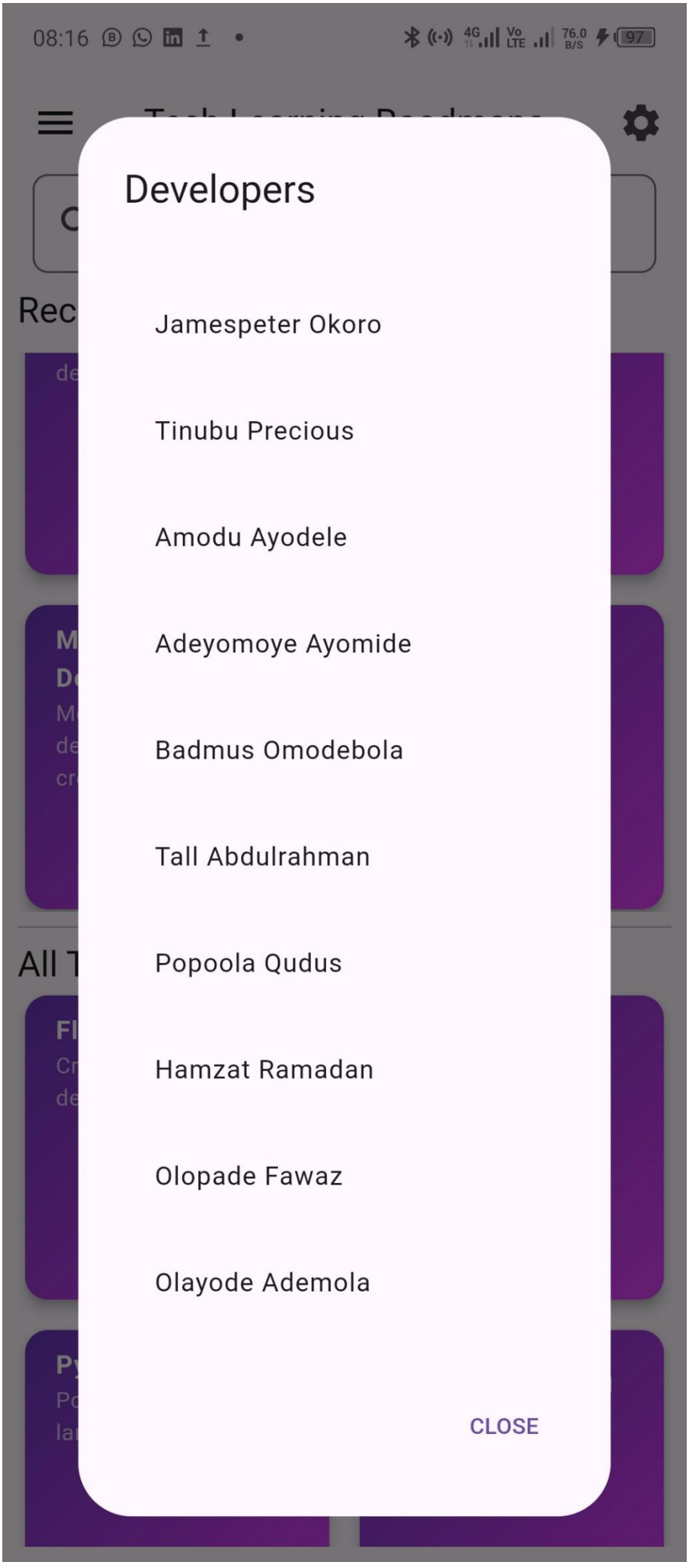
SKIP

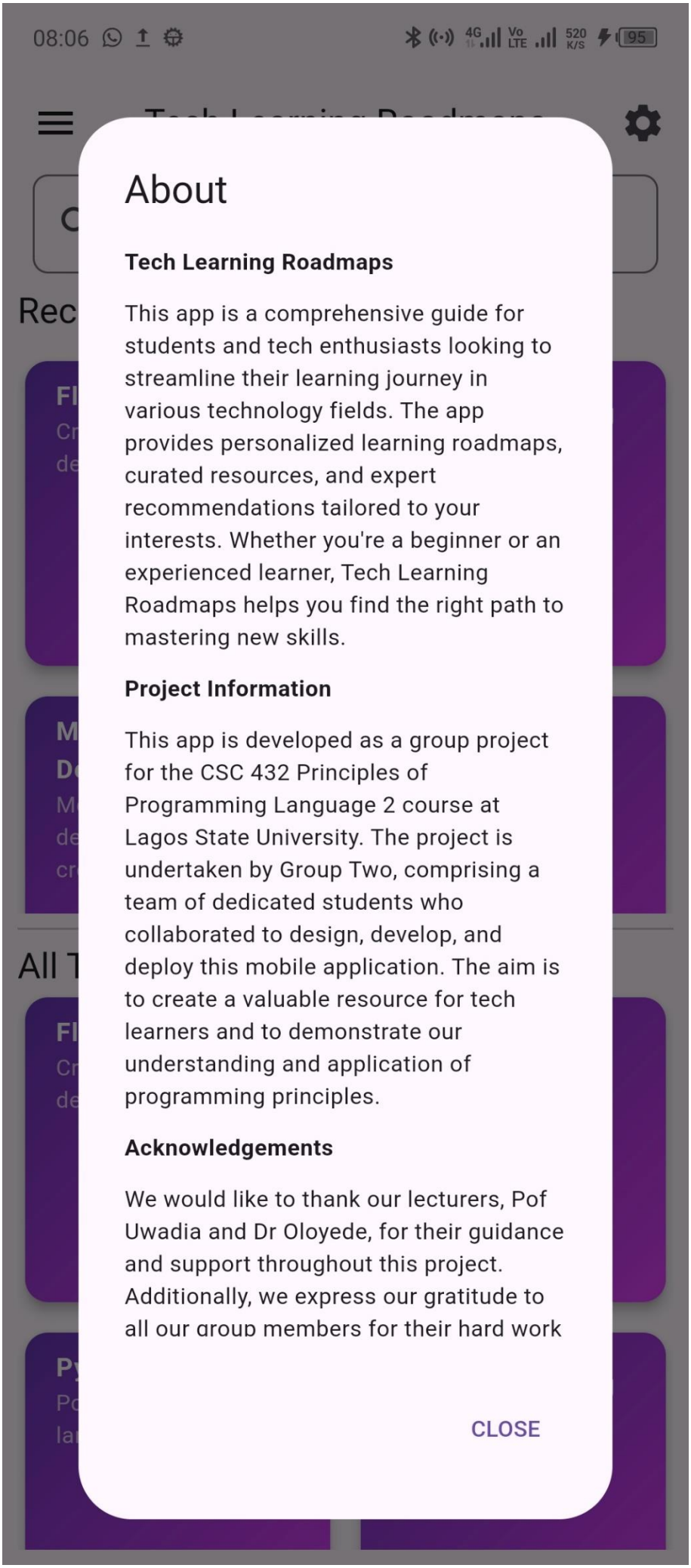
GET STARTED

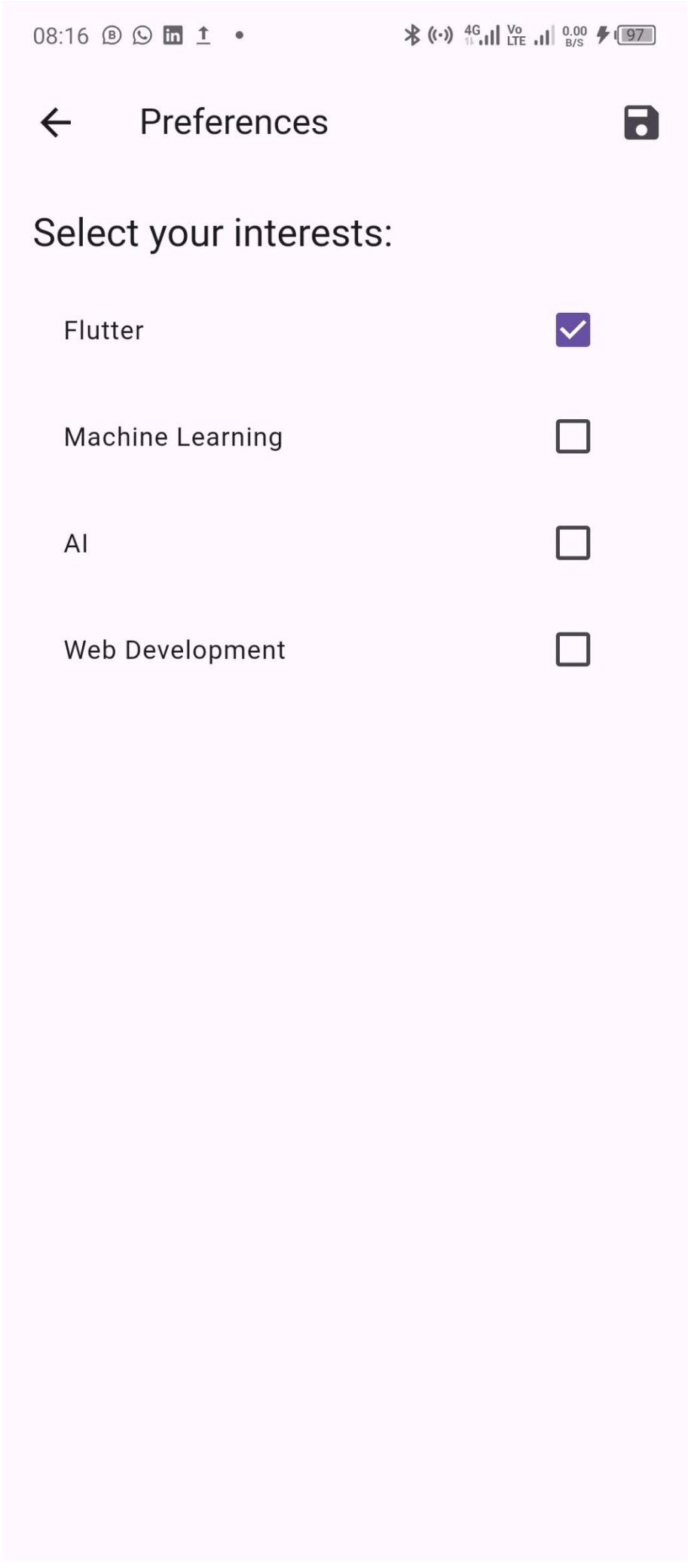

08:05
Tech Learning Roadmaps
Search tech fields...
Recommended for you
Flutter
Cross-platform app development
Machine Learning
AI and data science
Mobile Development
Mobile app development for cross-platform
Artificial Intelligence
Simulation of human intelligence in machines
All Tech Fields
Flutter
Cross-platform app development
Dart
Programming language for Flutter
Python
Popular programming language
Machine Learning
AI and data science

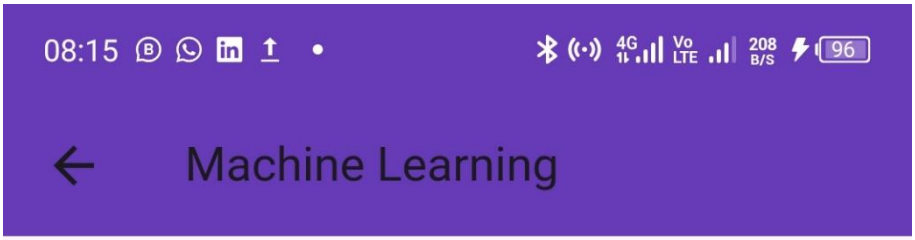

08:05
Menu
About
Developers
Settings
Back to Onboarding


08:06
Developers
Taofeek Akintunde
Ademola Abdulmalik
Garuba Precious
Saliu Oluwasegun
Jamespeter Okoro
Tinubu Precious
Amodu Ayodele
Adeyomoye Ayomide
Badmus Omodebola
Tall Abdulrahman
CLOSE


08:16
Developers
Jamespeter Okoro
Tinubu Precious
Amodu Ayodele
Adeyomoye Ayomide
Badmus Omodebola
Tall Abdulrahman
Popoola Qudus
Hamzat Ramadan
Olopade Fawaz
Olayode Ademola
CLOSE


08:06
Rec
All T
About
Tech Learning Roadmaps
This app is a comprehensive guide for students and tech enthusiasts looking to streamline their learning journey in various technology fields. The app provides personalized learning roadmaps, curated resources, and expert recommendations tailored to your interests. Whether you're a beginner or an experienced learner, Tech Learning Roadmaps helps you find the right path to mastering new skills.
Project Information
This app is developed as a group project for the CSC 432 Principles of Programming Language 2 course at Lagos State University. The project is undertaken by Group Two, comprising a team of dedicated students who collaborated to design, develop, and deploy this mobile application. The aim is to create a valuable resource for tech learners and to demonstrate our understanding and application of programming principles.
Acknowledgements
We would like to thank our lecturers, Pof Uwadia and Dr Oloyede, for their guidance and support throughout this project. Additionally, we express our gratitude to all our group members for their hard work
CLOSE


08:16
Preferences
Select your interests:
Flutter
Machine Learning
AI
Web Development



Machine Learning

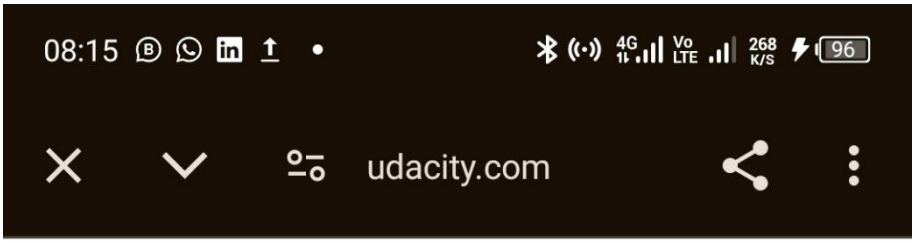
AI and data science

Details

- ✓ Introduction to Machine Learning
- ✓ Supervised Learning
- ✓ Unsupervised Learning

Resources

- https://www.coursera.org/learn/machine-learning
- https://www.udacity.com/course/intro-to-machine-learning--ud120



UDACITY
Part of Accenture

All Programs ▶

School Of Artificial Intelligence ▶

Intro to Machine Learning

Free

Intro to Machine Learning

Course

This class will teach you the end-to-end process of investigating data through a machine learning lens, and you'll apply what you've learned to a real-world data set.

Loading

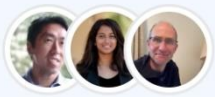
coursera

Browse > Data Science > Machine Learning

DeepLearning.AI

Supervised Machine Learning: Regression and Classification

This course is part of **Machine Learning Specialization**



Instructors: Andrew Ng **+3 more**

Top Instructor

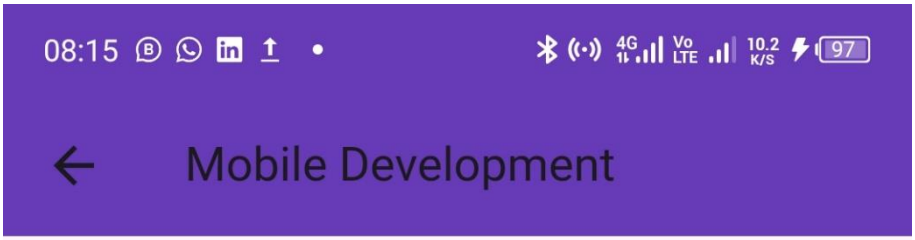
Enroll for Free
Starts Aug 19

Financial aid available

709,988 already enrolled

Course

Gain insight into a topic and learn the fundamentals



Mobile Development

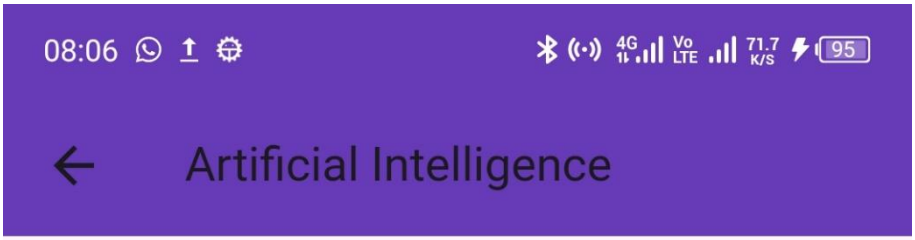
Mobile app development for cross-platform

Details

- Android
- iOS
- Windows and Linux

Resources

- https://developer.android.com/docs
- https://developer.apple.com/documentation



Artificial Intelligence

Simulation of human intelligence in machines

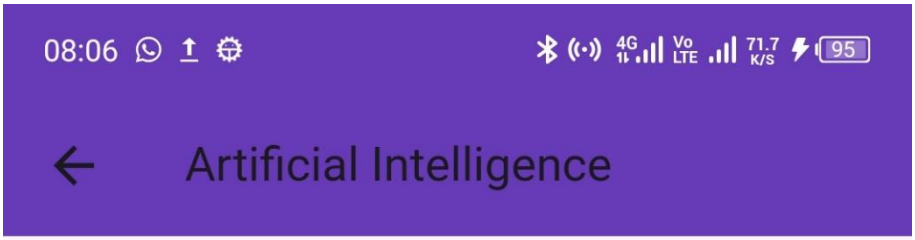
Details

- Introduction to AI
- Natural Language Processing
- Computer Vision

Resources

https://www.coursera.org/specializations/ai

https://www.udacity.com/course/intro-to-artificial-intelligence--cs271



Artificial Intelligence

Simulation of human intelligence in machines

Details

- Introduction to AI
- Natural Language Processing
- Computer Vision

Resources

https://www.coursera.org/specializations/ai

https://www.udacity.com/course/intro-to-artificial-intelligence--cs271