



ATHENA

Raya Thawabe & Tala Abu Soud

Dr.Samer Arandi

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**Application
& Web flow**

Technologies

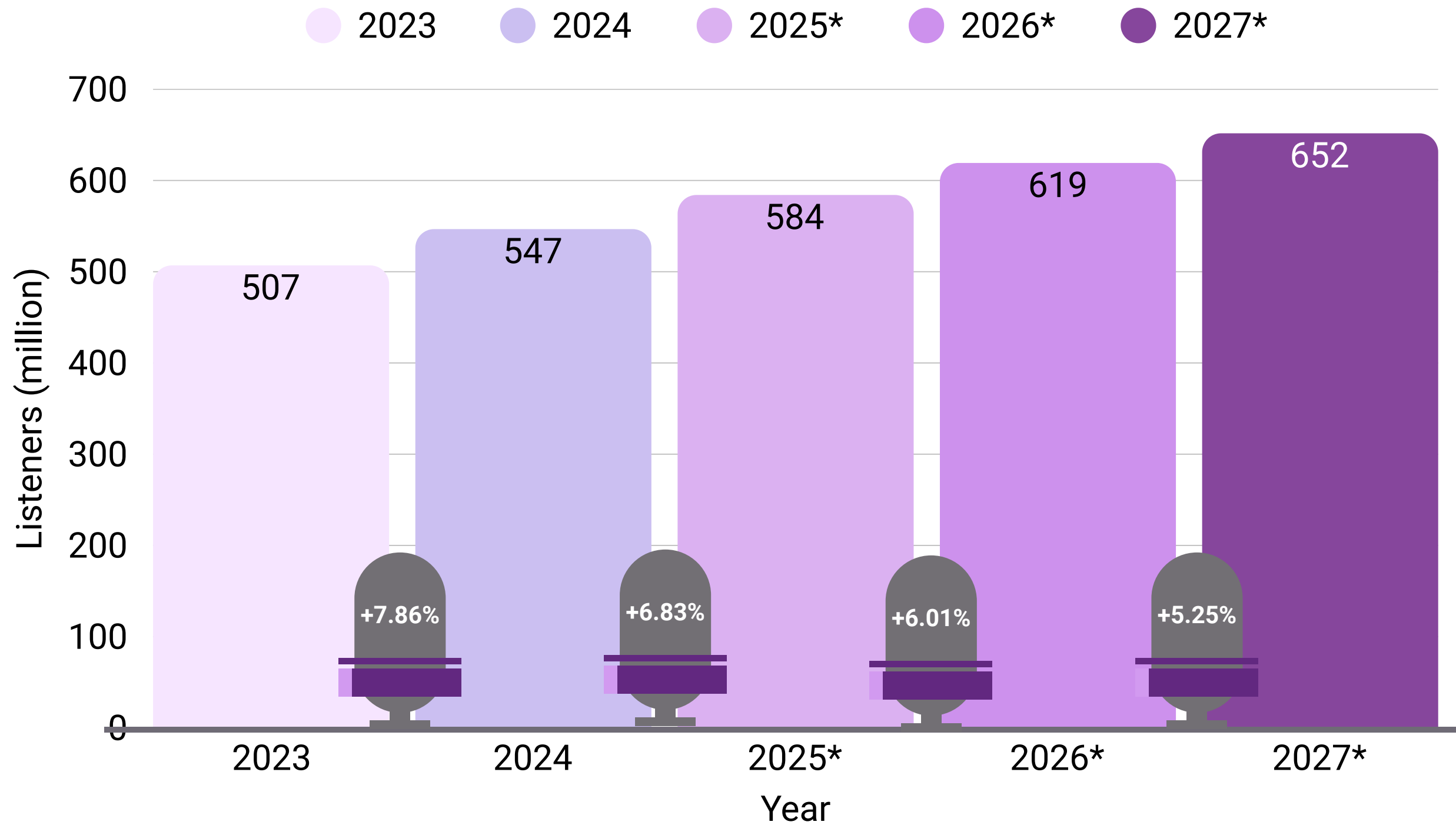
2

4

Future Work



Podcast Listeners Worldwide



Introduction

1.



Subscriptions



2.



Recommendations



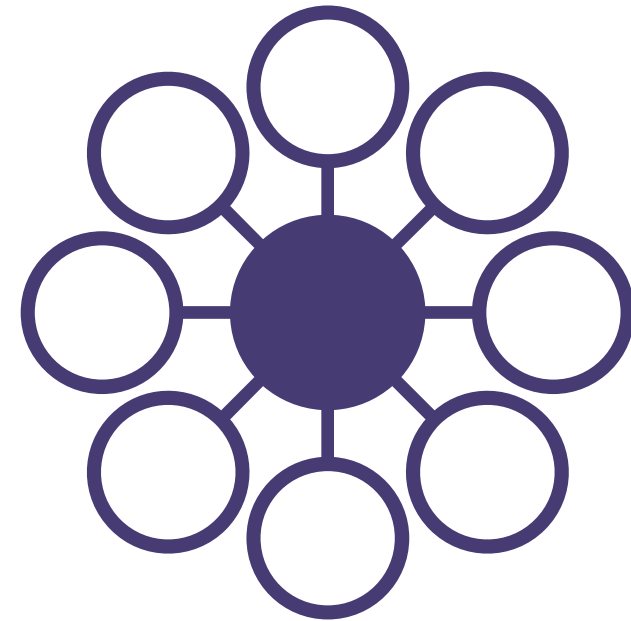
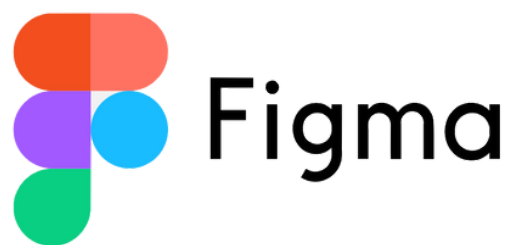
ATHENA



Technologies



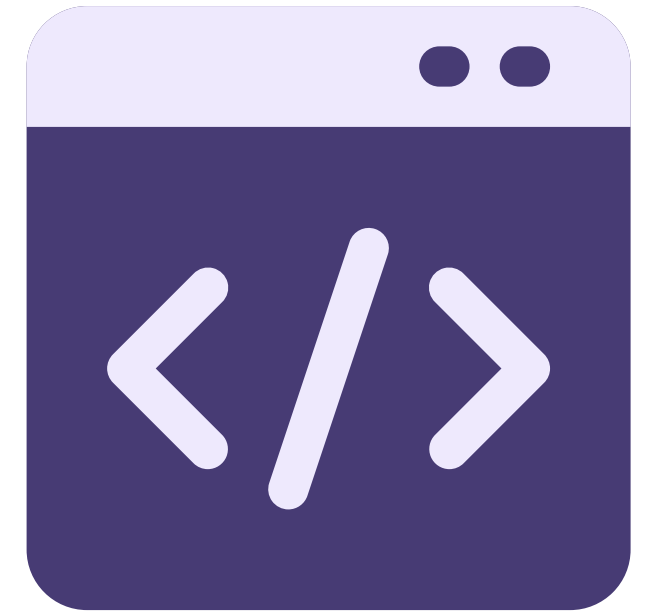
UI/UX



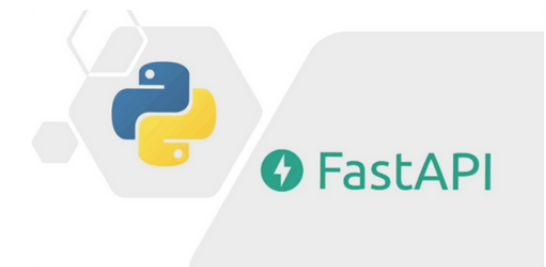
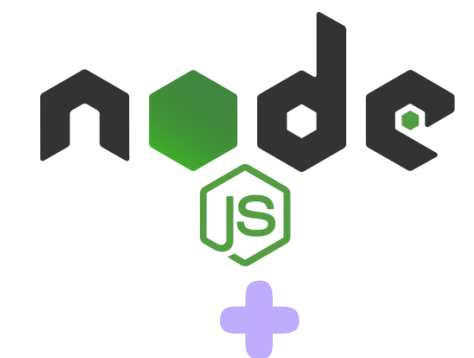
Frontend



DataBase



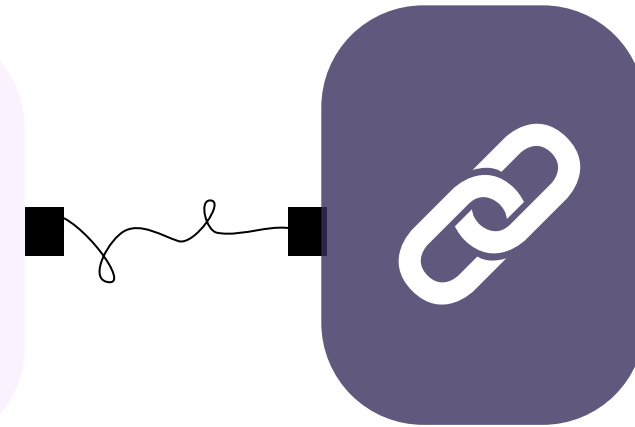
Backend



Technologies

External APIs

- OpenAI Whisper
- OpenAI GPT
- OpenAI Moderation

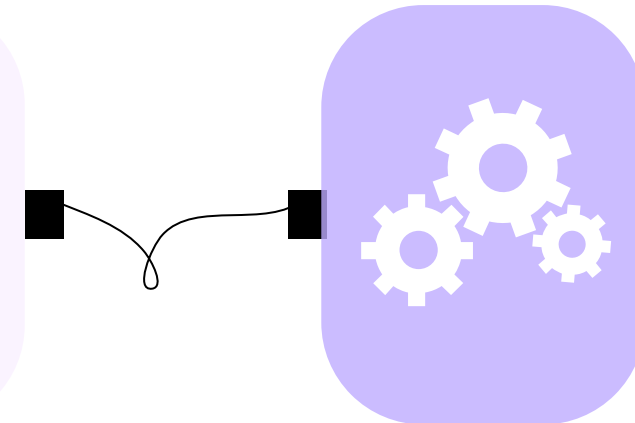


Backend Utilities

- `dotenv`, `jsonwebtoken`, `bcrypt`
- `cors`

Microservices (FastAPI)

- Recommender system (TF-IDF + `scikit-learn`)
- Audio matcher (Dejavu)

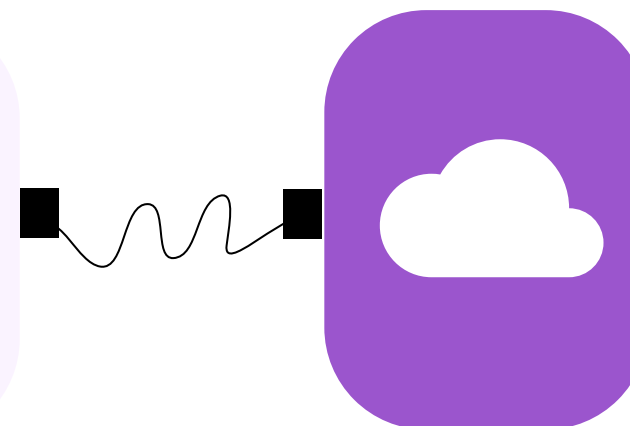


Server & Runner

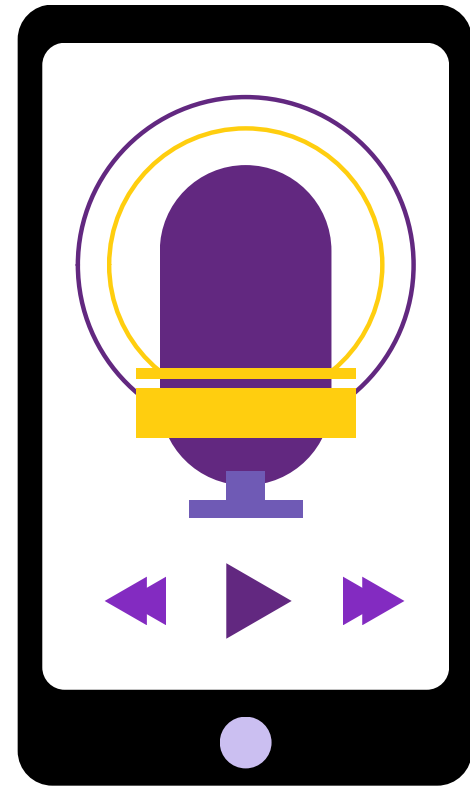
- `Uvicorn` (ASGI server for FastAPI)

Media & Audio Processing

- `Clouinary` (storage\streaming)
- `yt-dlp` (YouTube audio extraction)
- `multer`, `streamifier`, `fluent-ffmpeg`



User Roles



Regular Users

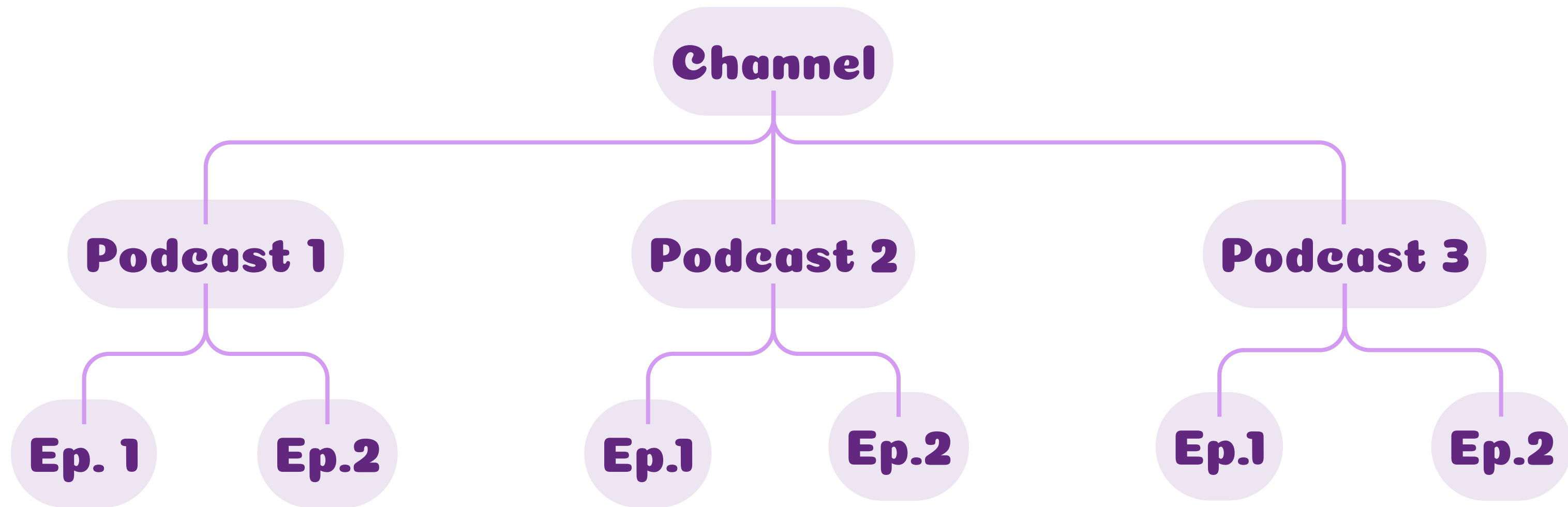
Channels

Admin



Admin Dashboard

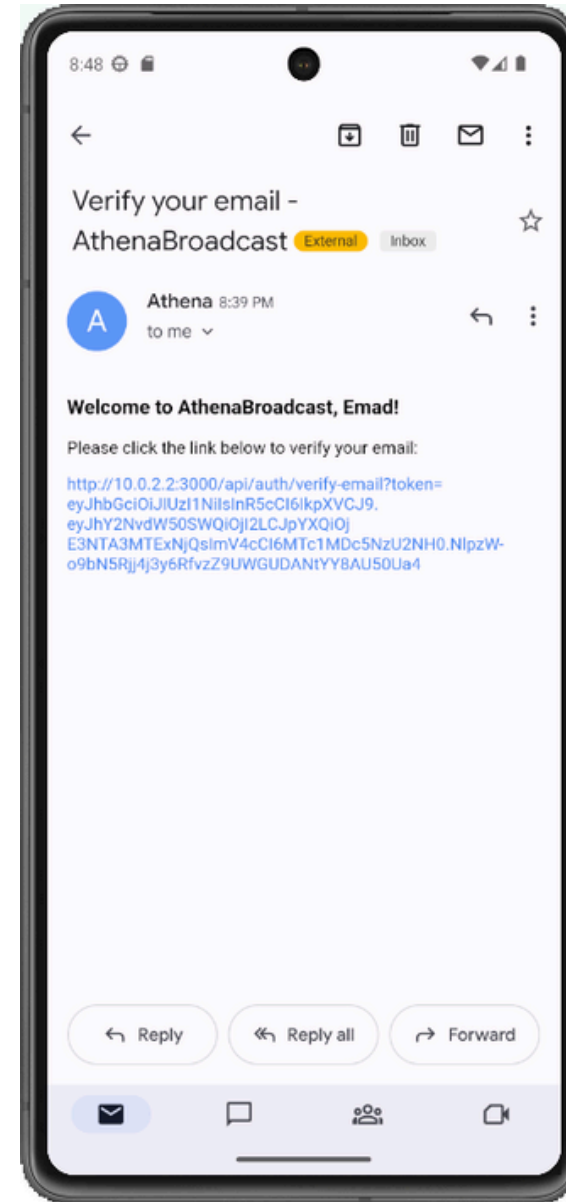
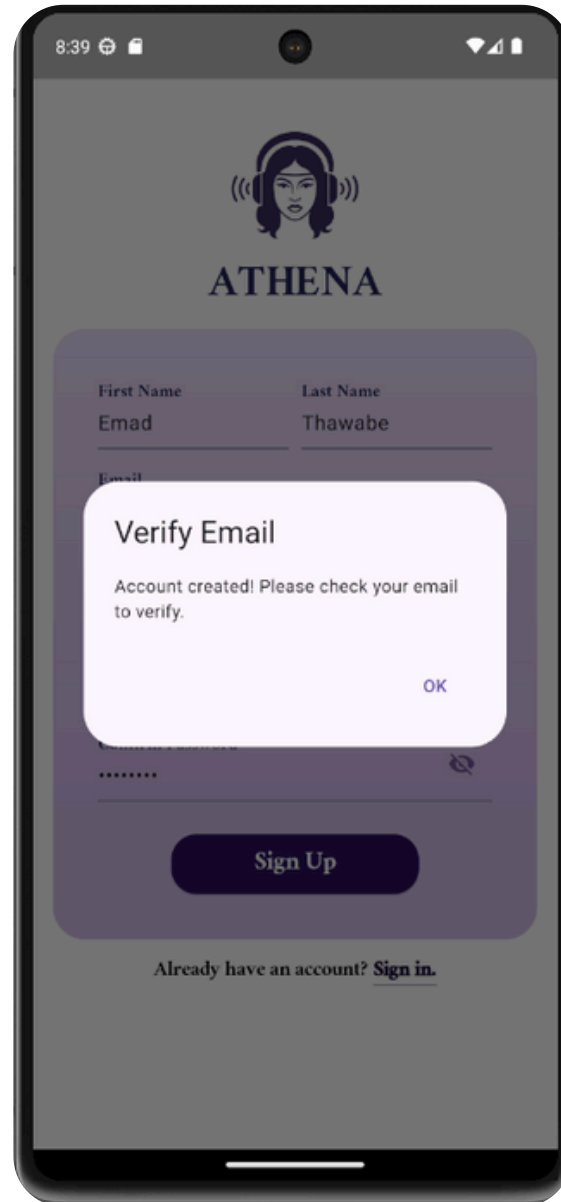
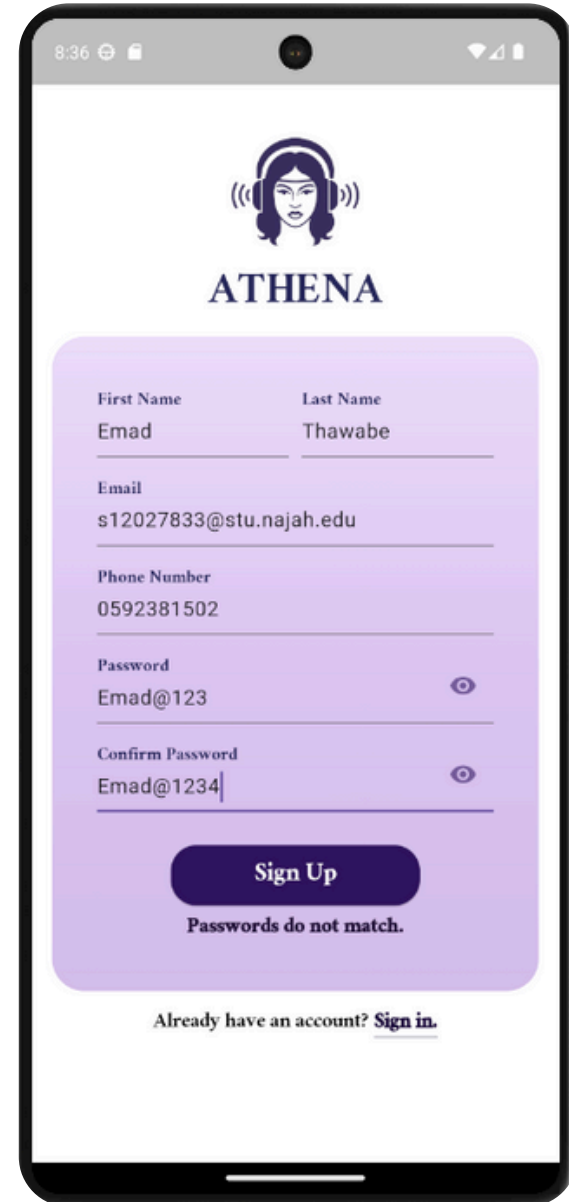
listening structure





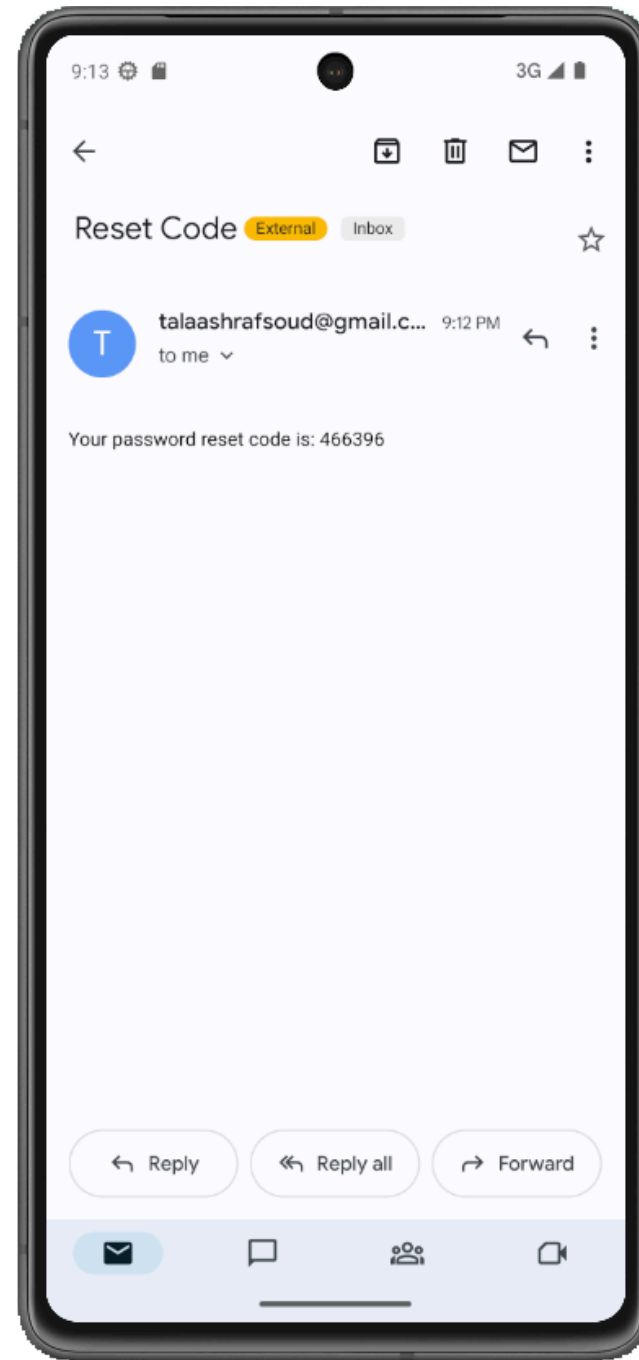
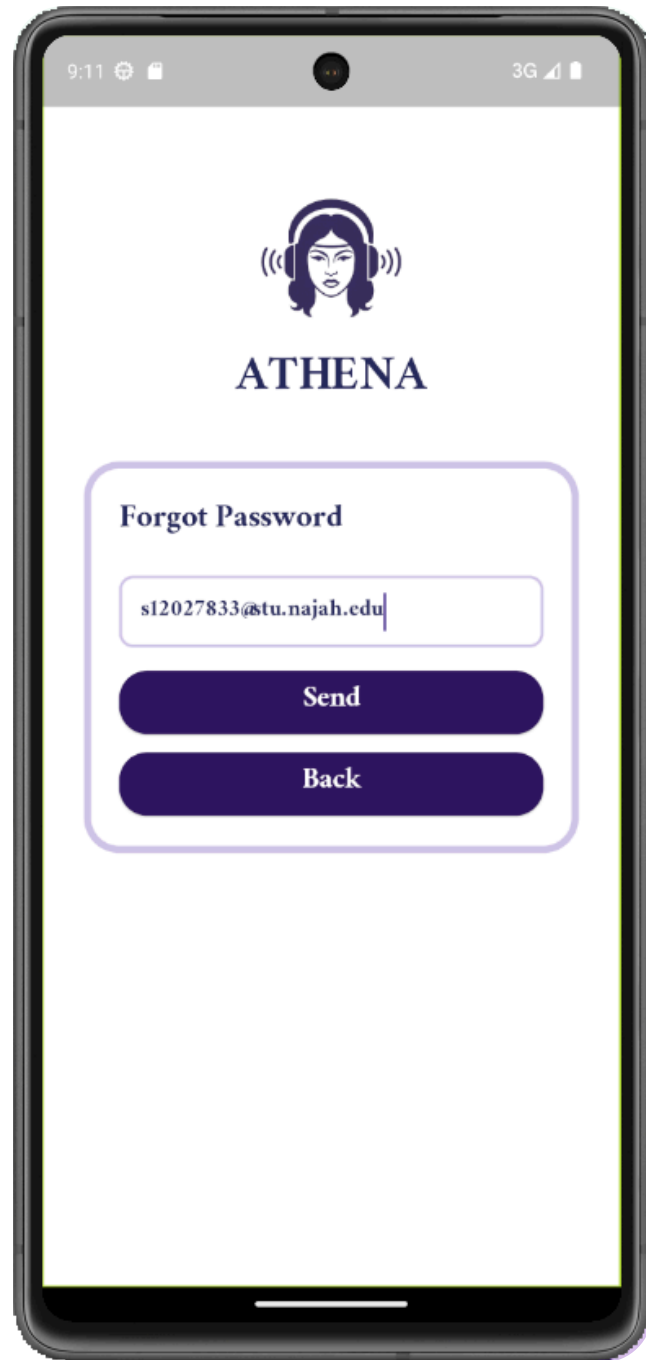
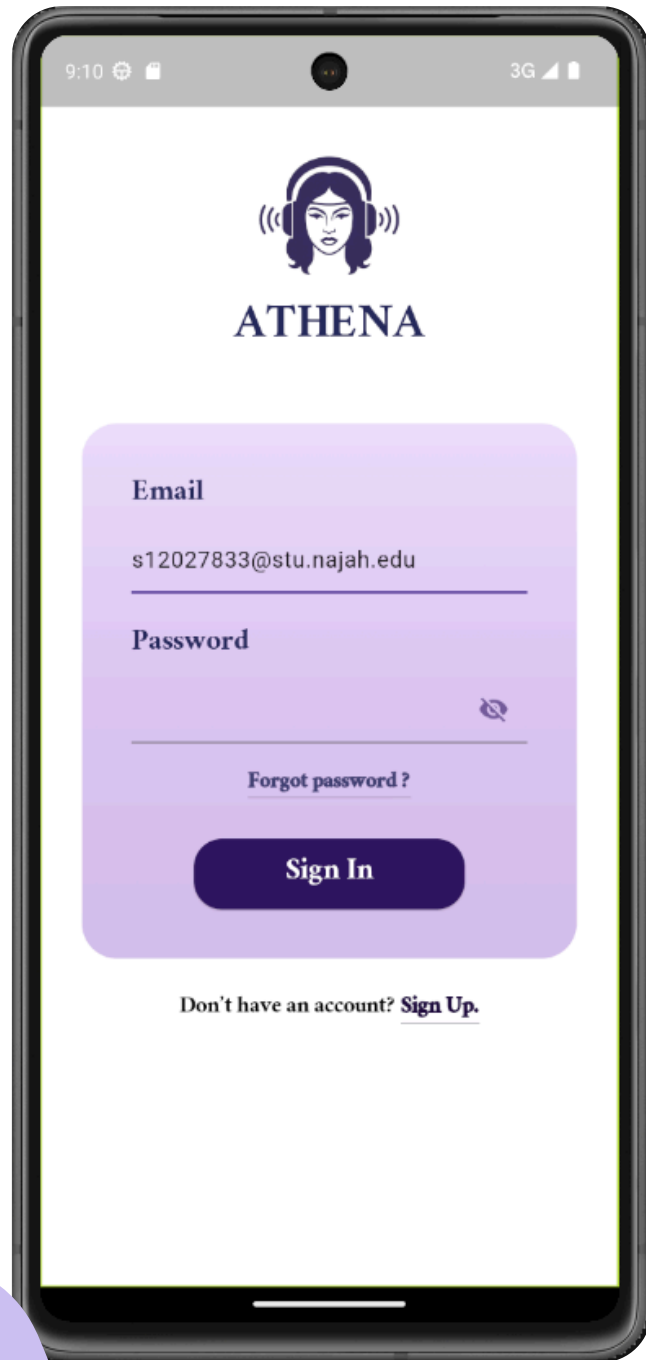
User App

Sign Up



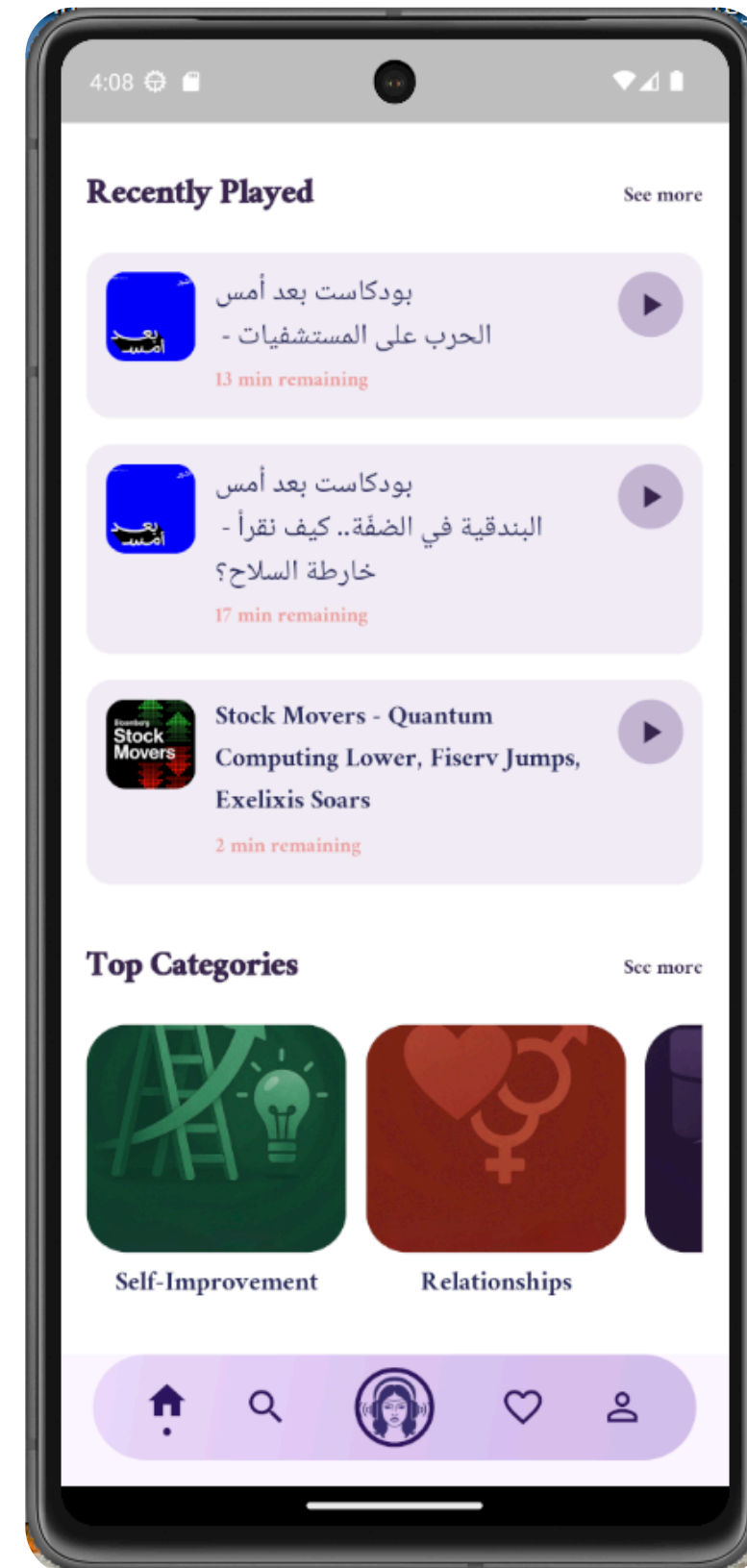
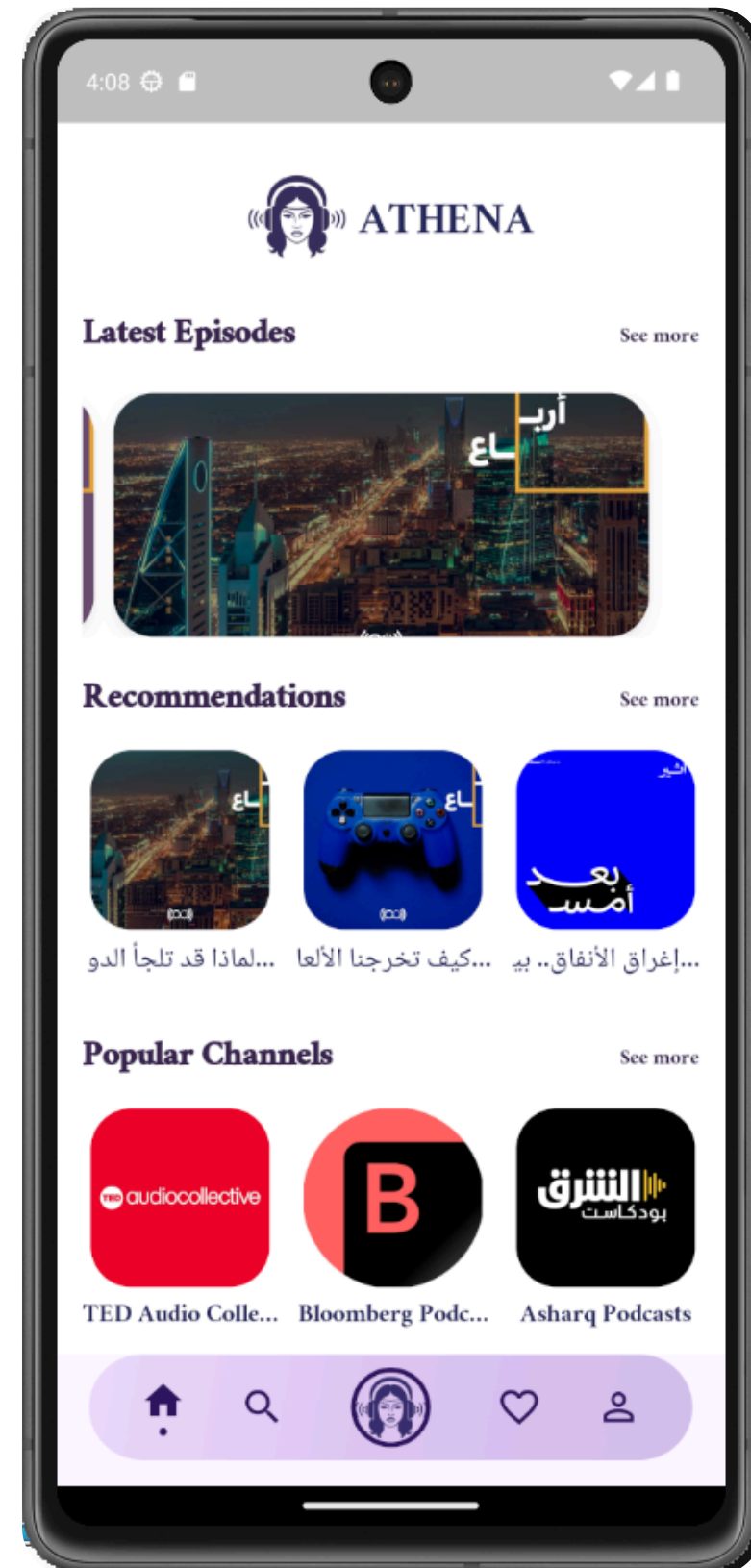
- JWT for secure authentication
- CORS handling
- Password hashing using bcrypt
- Verification Email

Reset Password

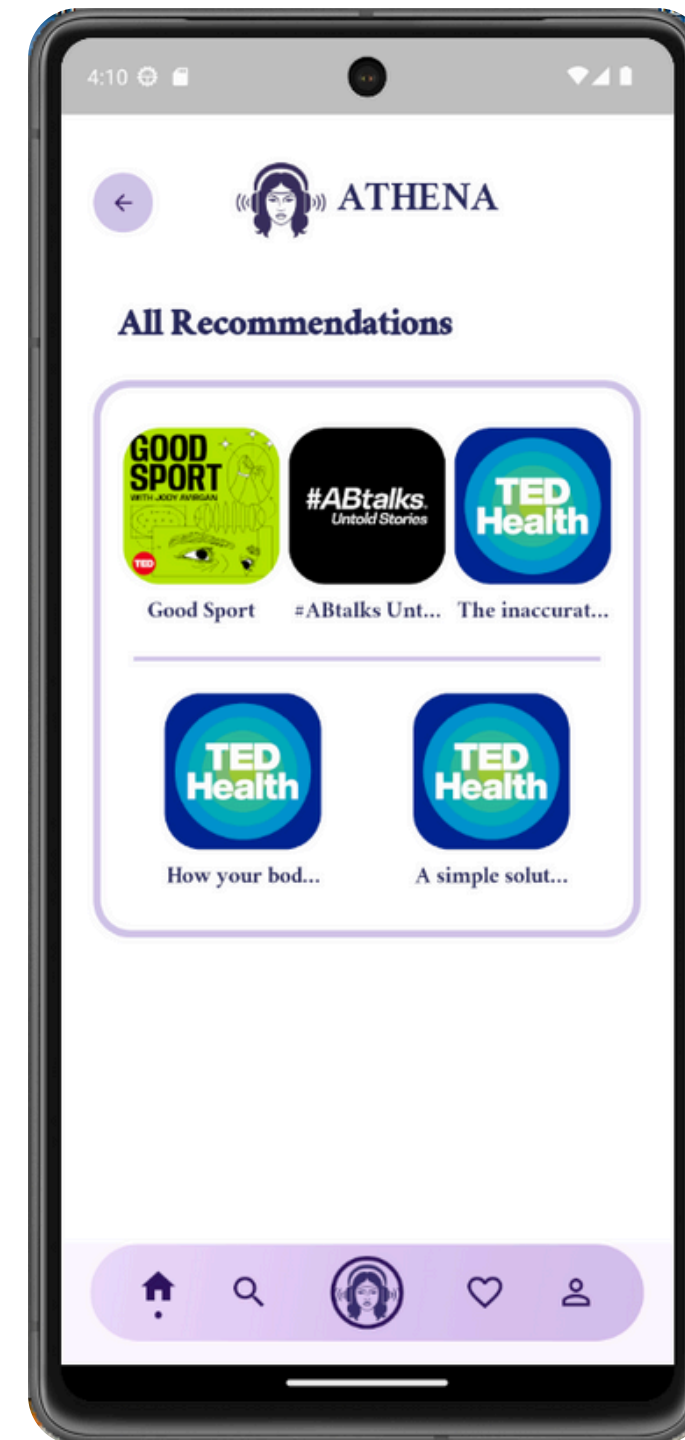


One-time 6-digit reset code, randomly generated and expires in 15 minutes.

Home Page

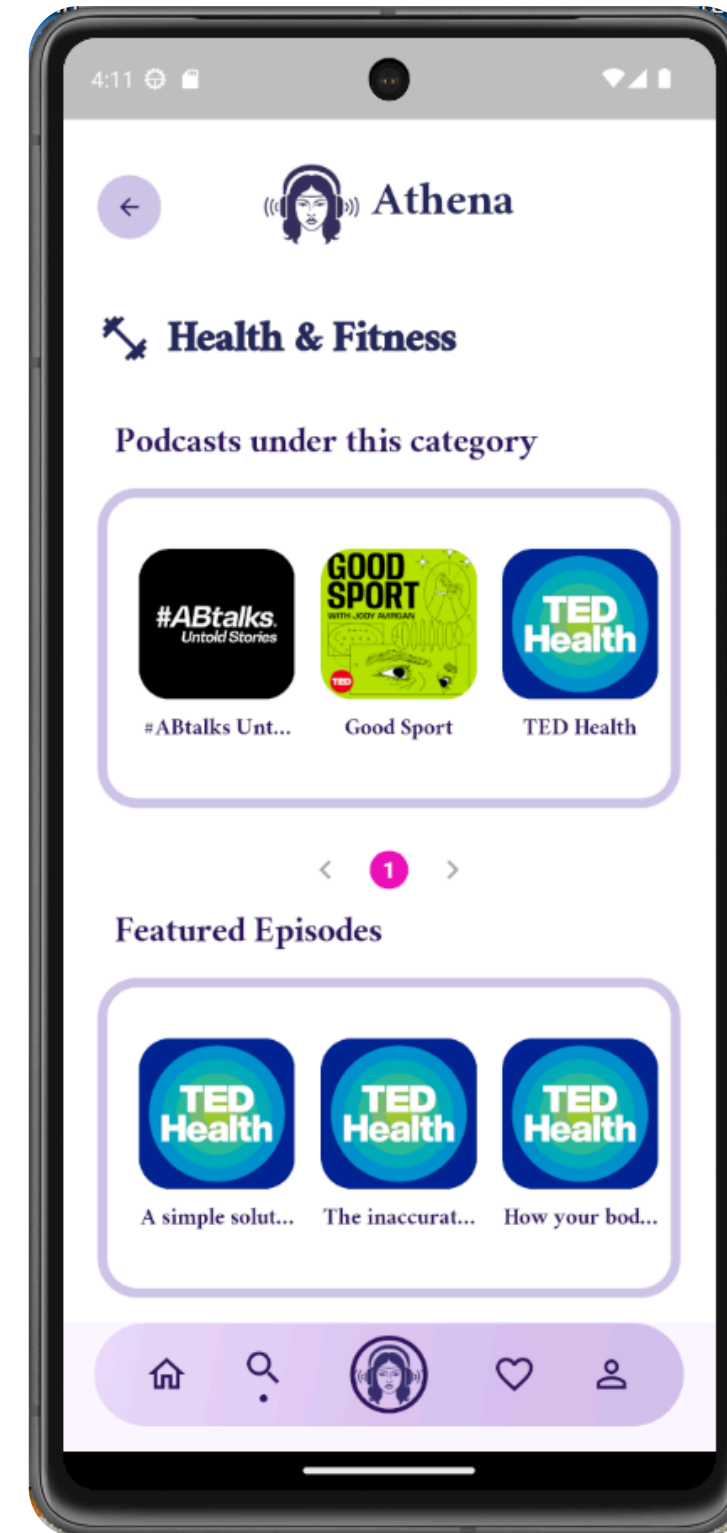
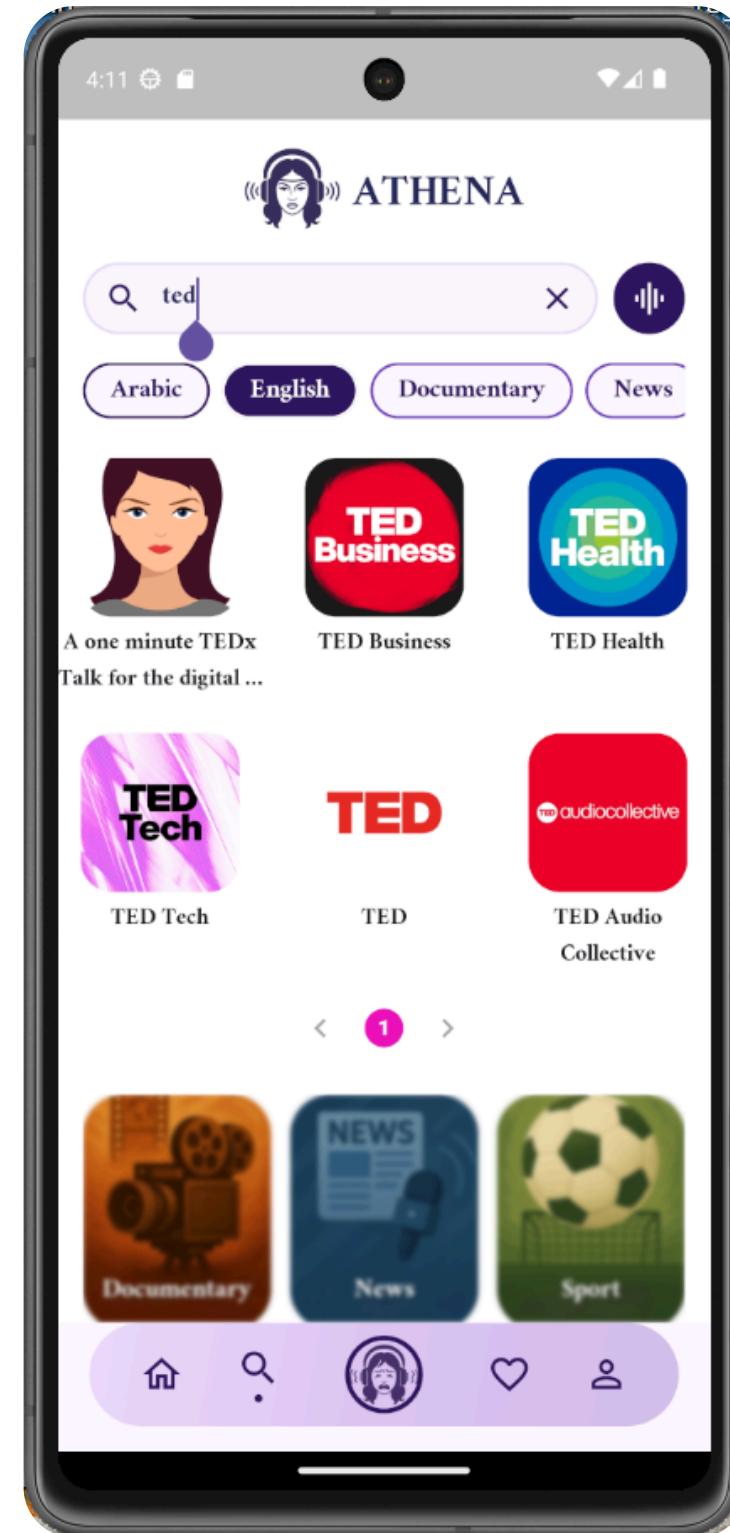


Recommendations



- FastAPI (Python microservice)
- TF-IDF + cosine similarity using scikit-learn
- Inputs: user mood, interests, and activity history
- Provides personalized episode and podcast suggestions

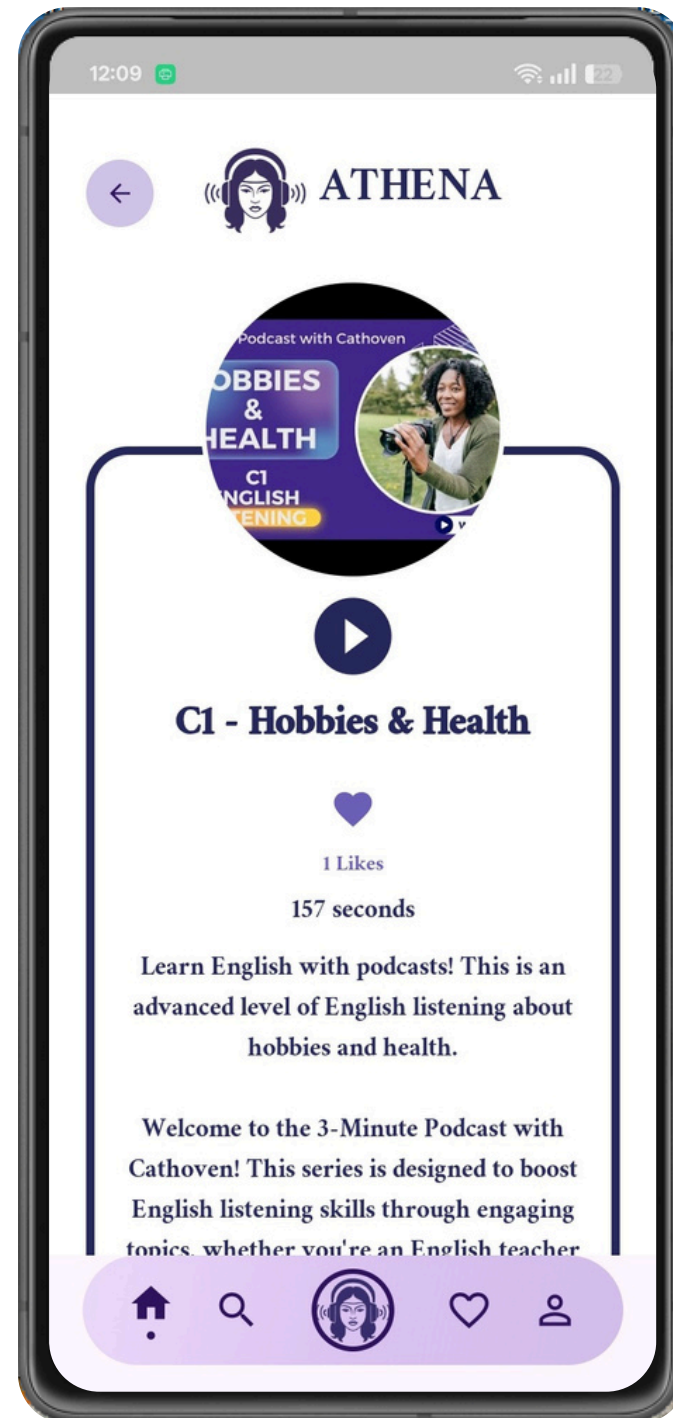
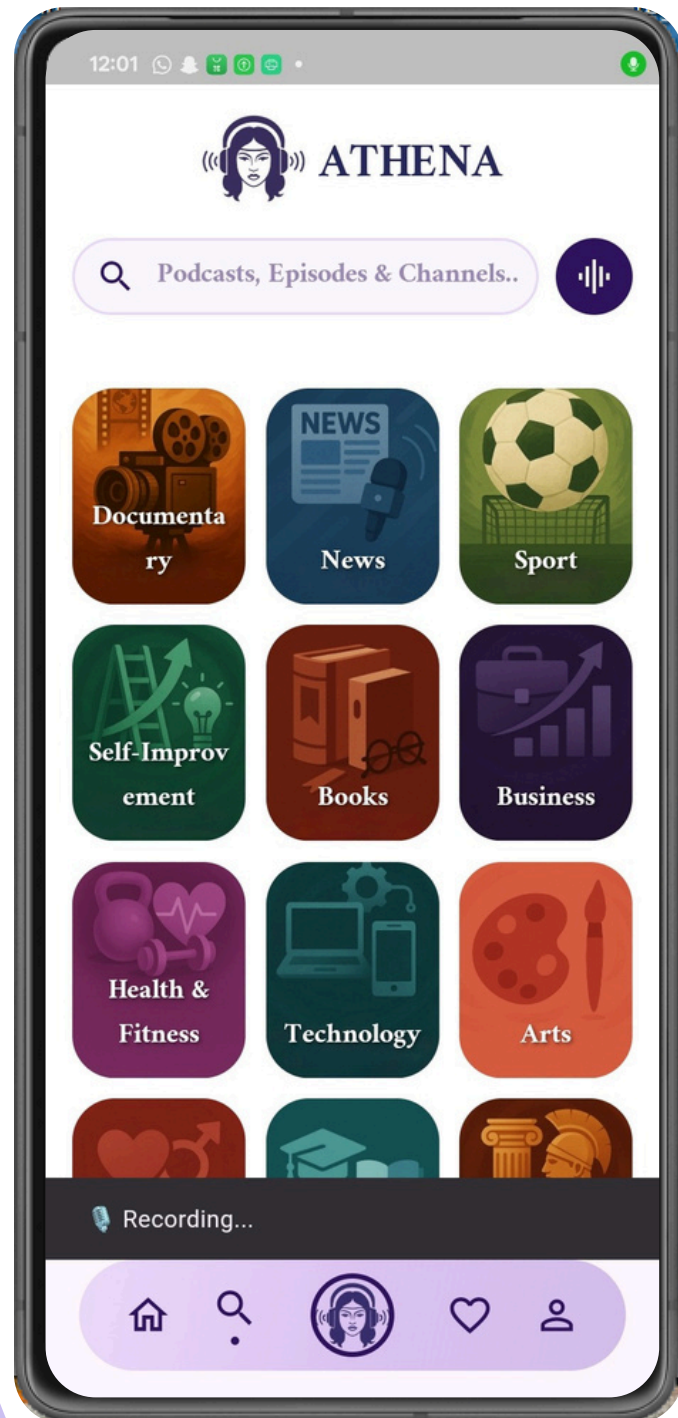
Search Page



**-Search by name
(channel,
podcast,
episode)**

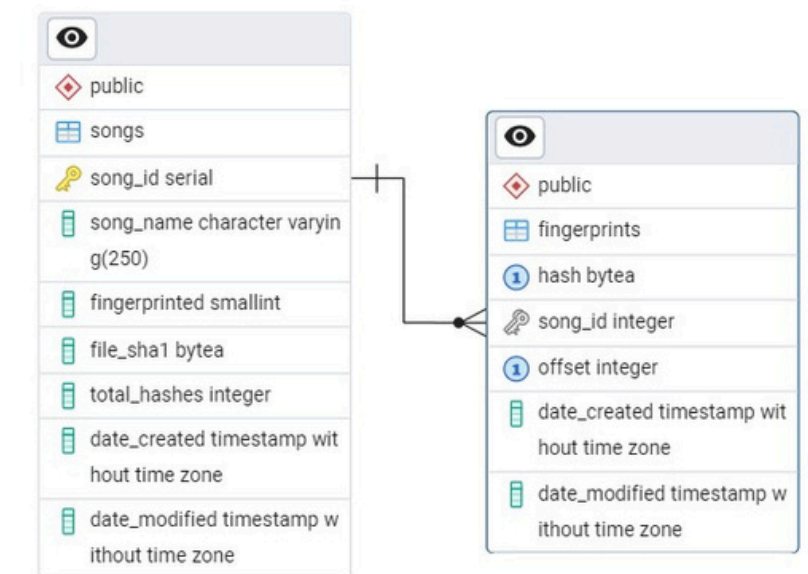
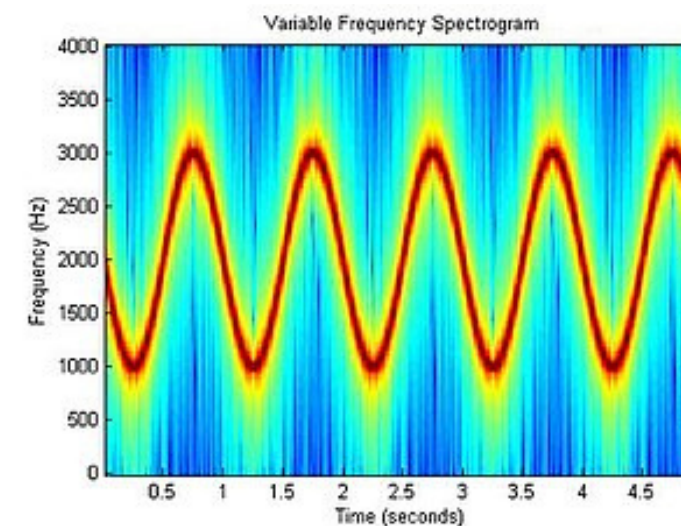
**-Filter by
language or
category**

Shazam

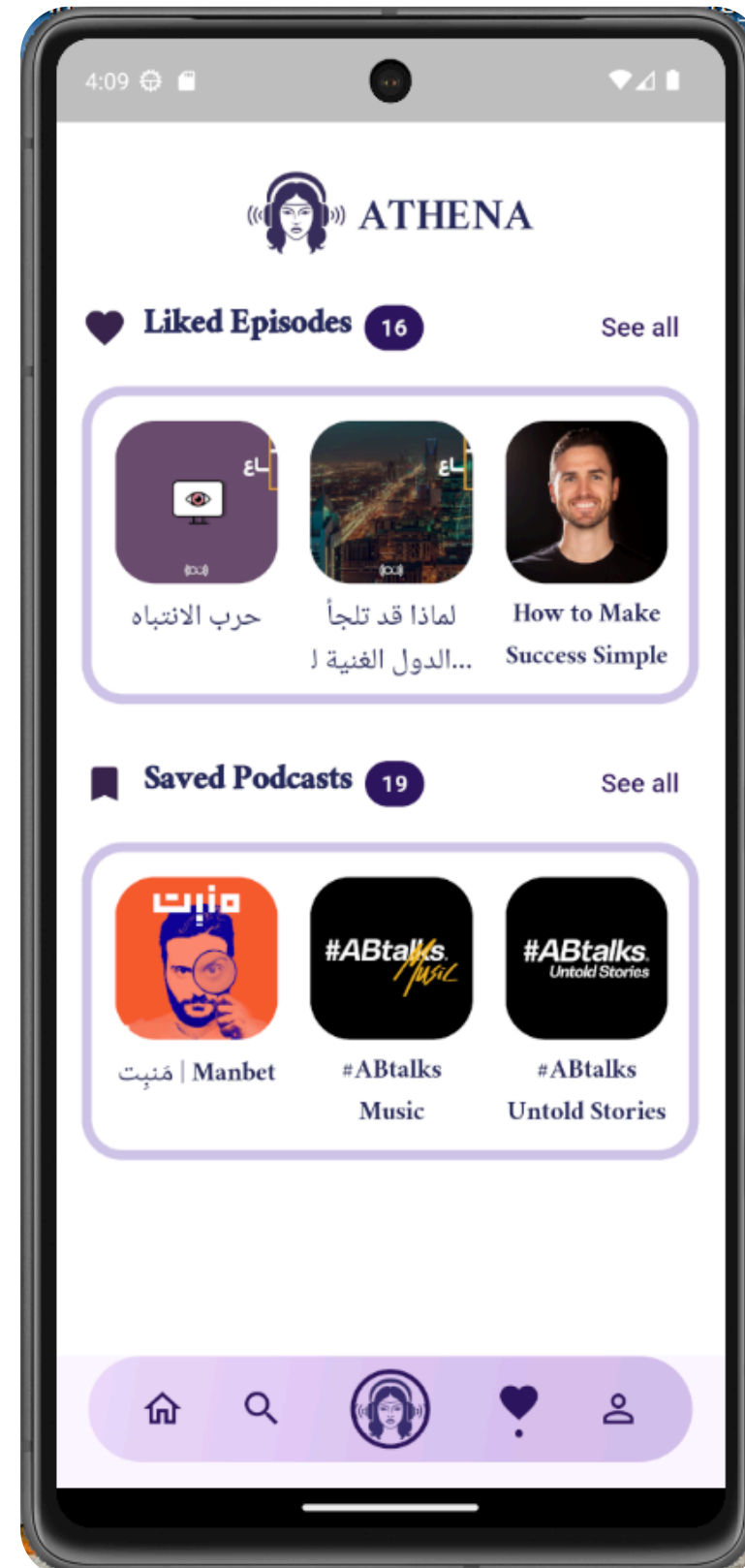
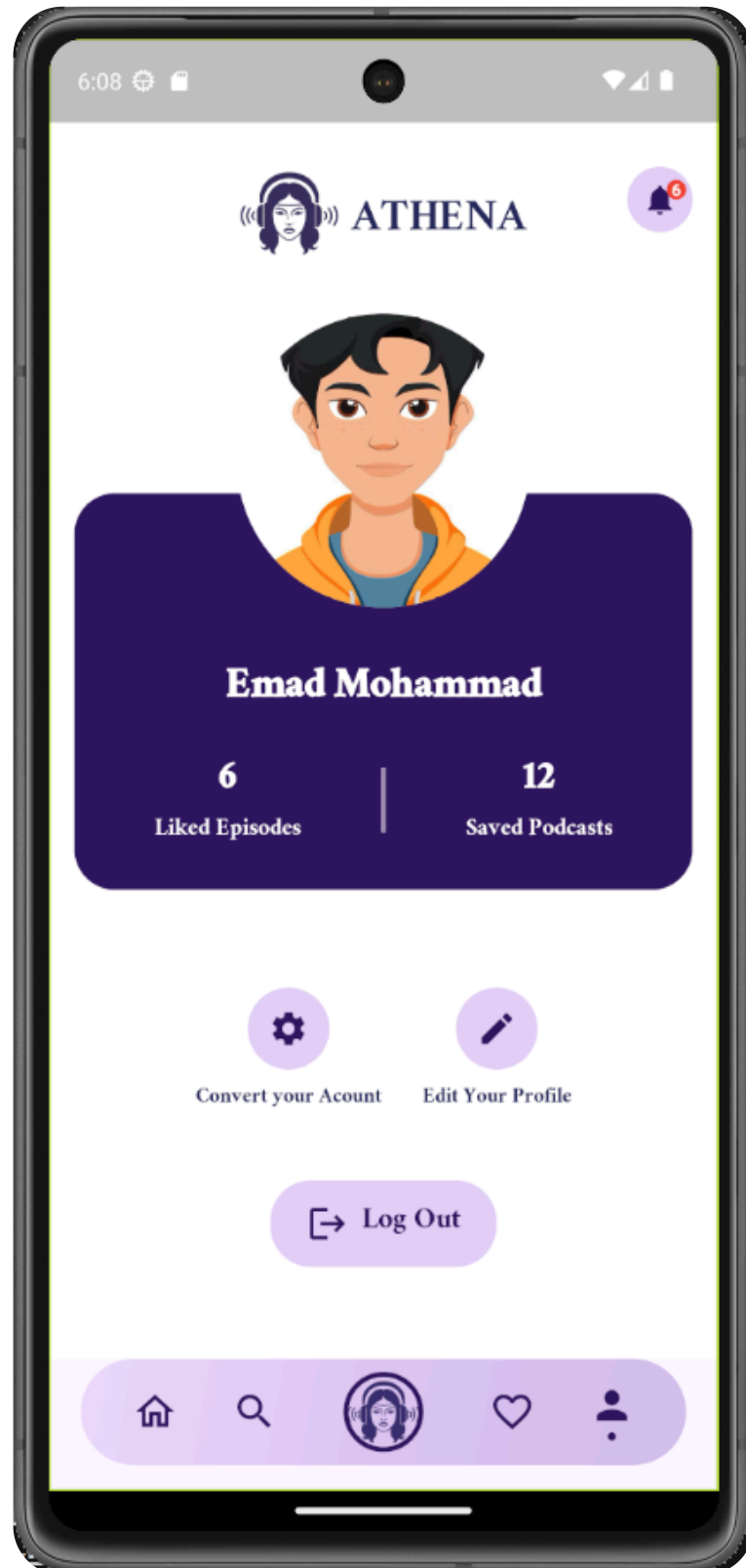


Audio Fingerprinting
- FastAPI (Python microservice) using Dejavu
-Fingerprint generated when channel uploads an episode.

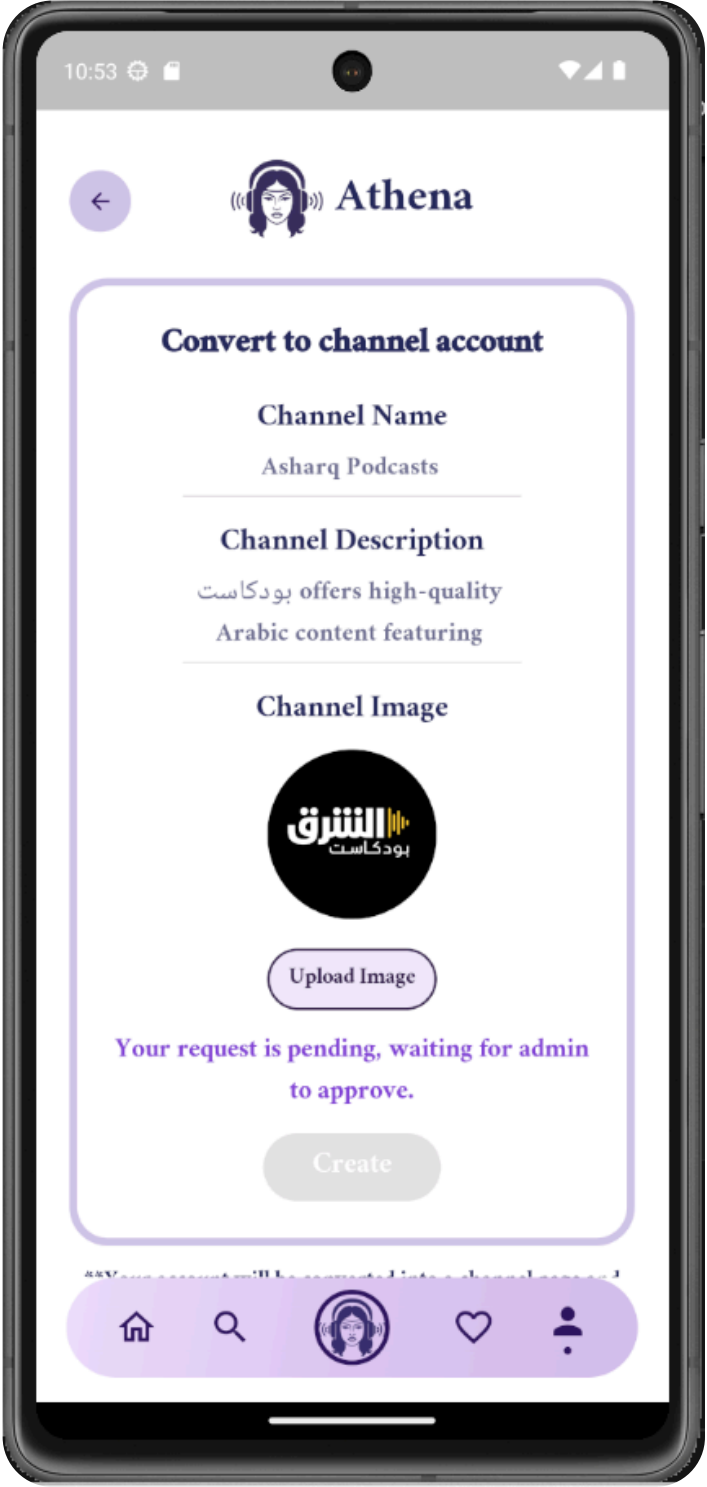
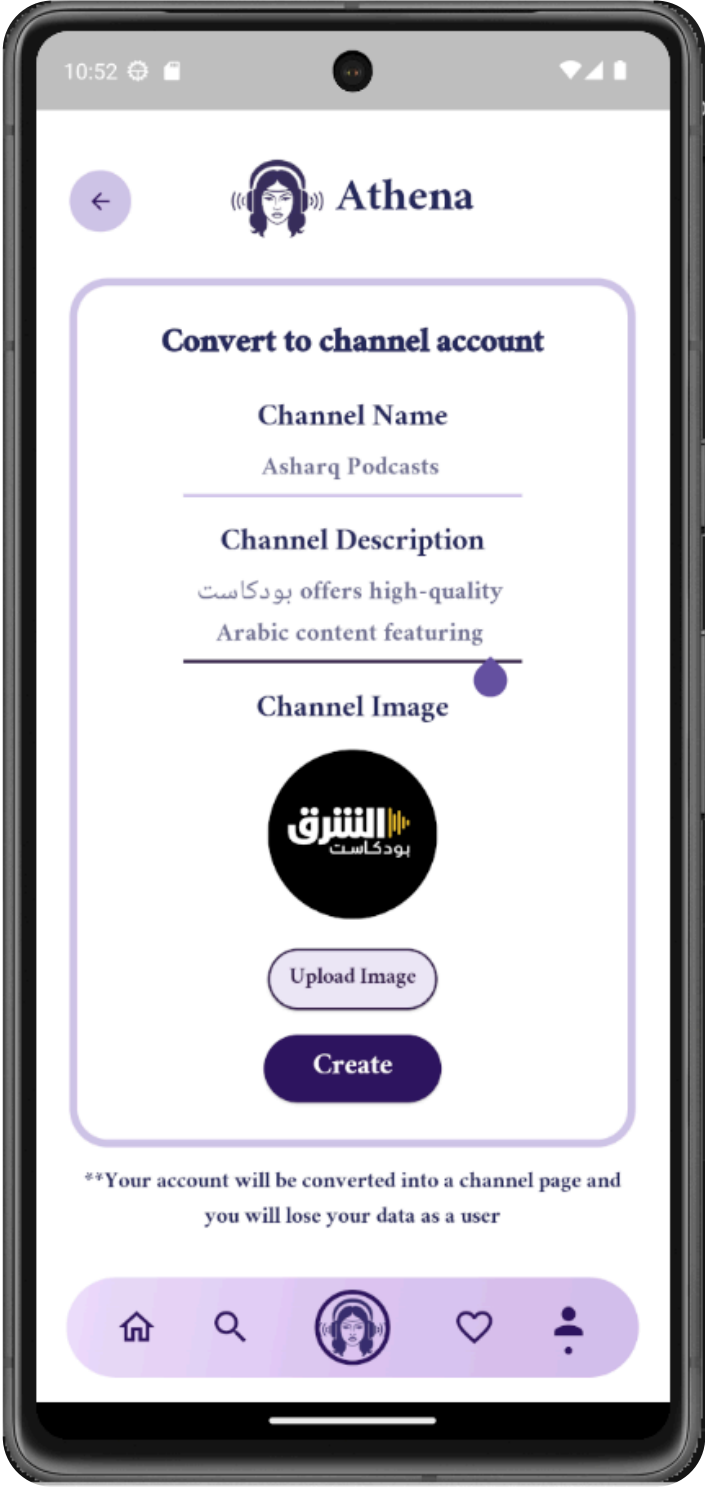
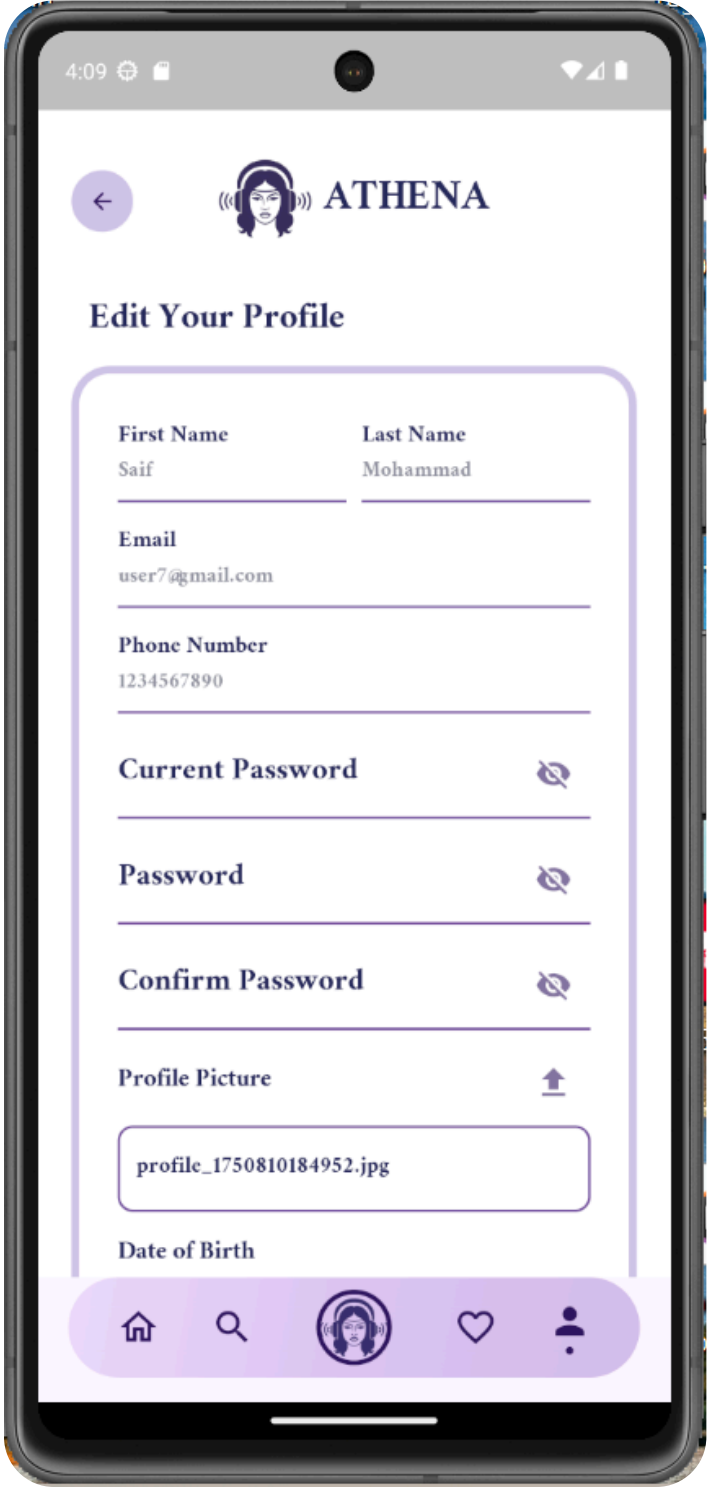
- 1. Convert Audio to Spectrogram**
- 2. Find Peaks**
- 3. Create Hashes (Fingerprint)**
- 4. Store in Database**
- 5. Matching Process**



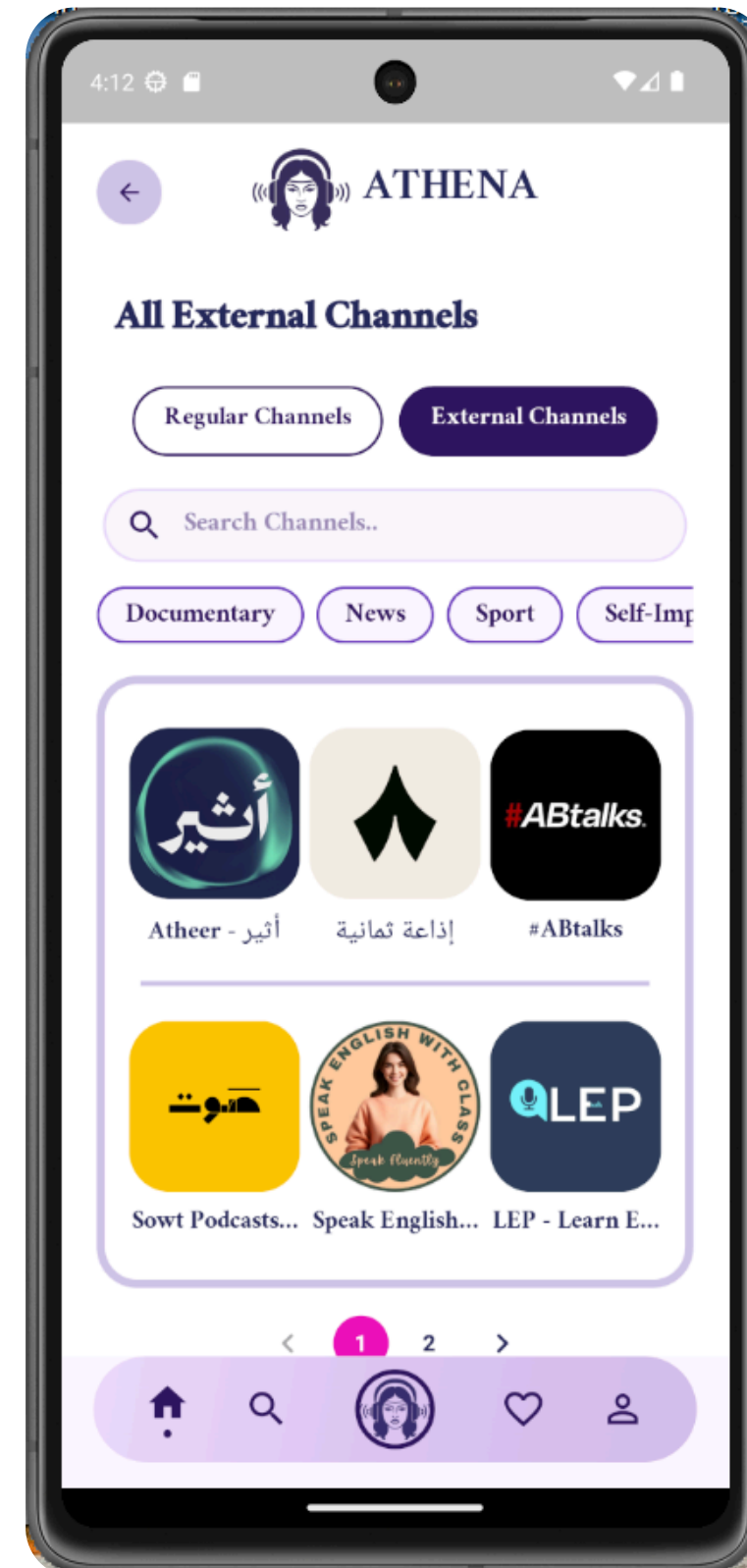
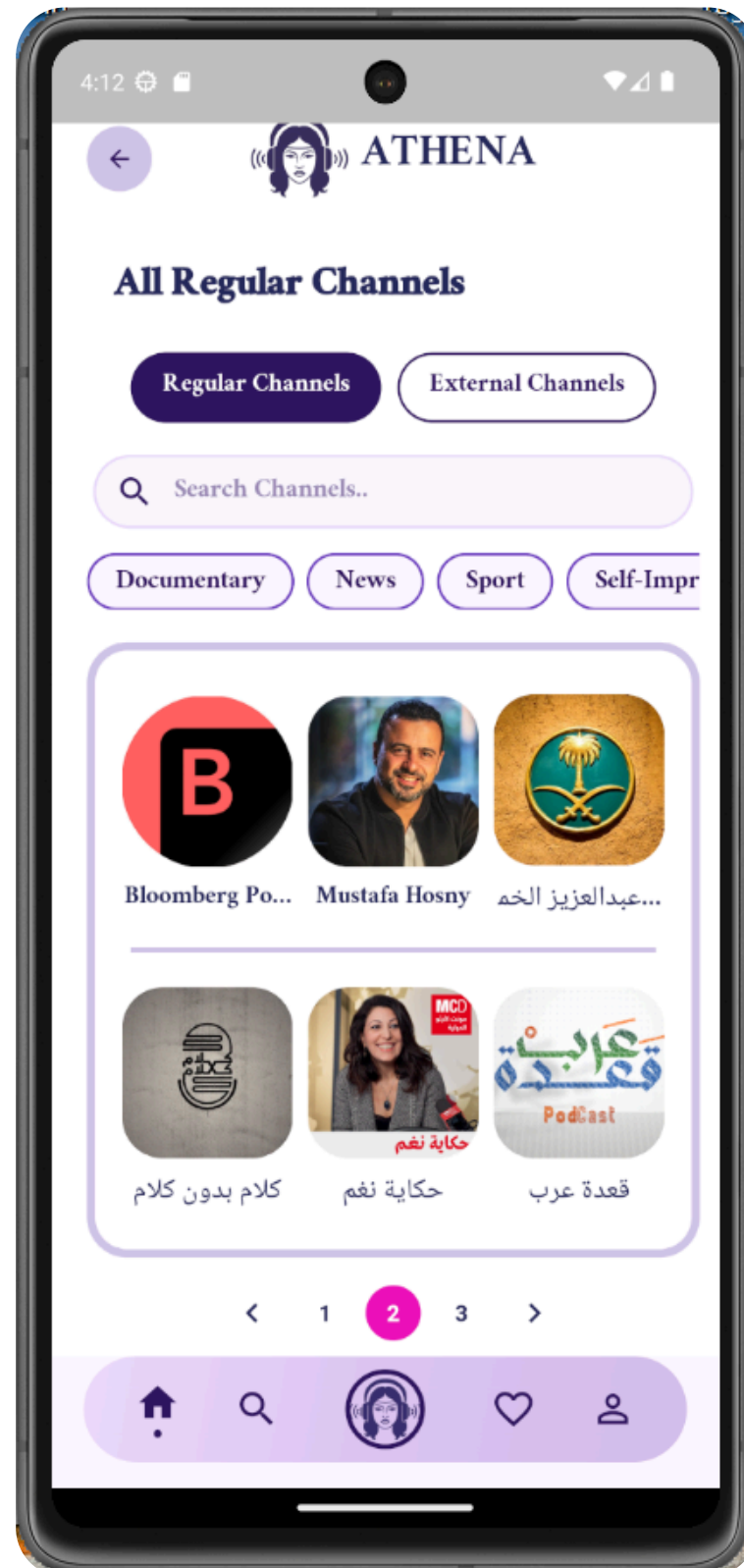
Profile page & Notifications



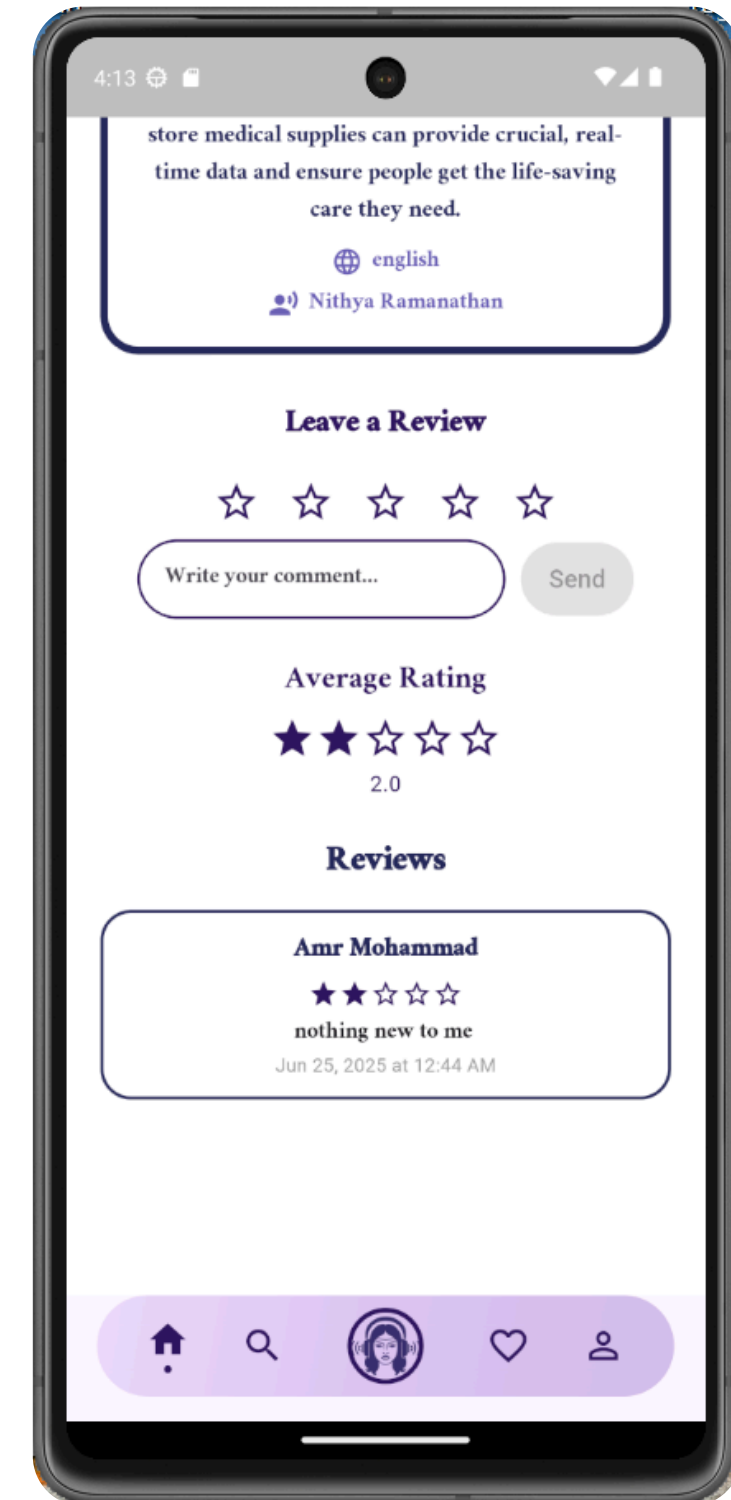
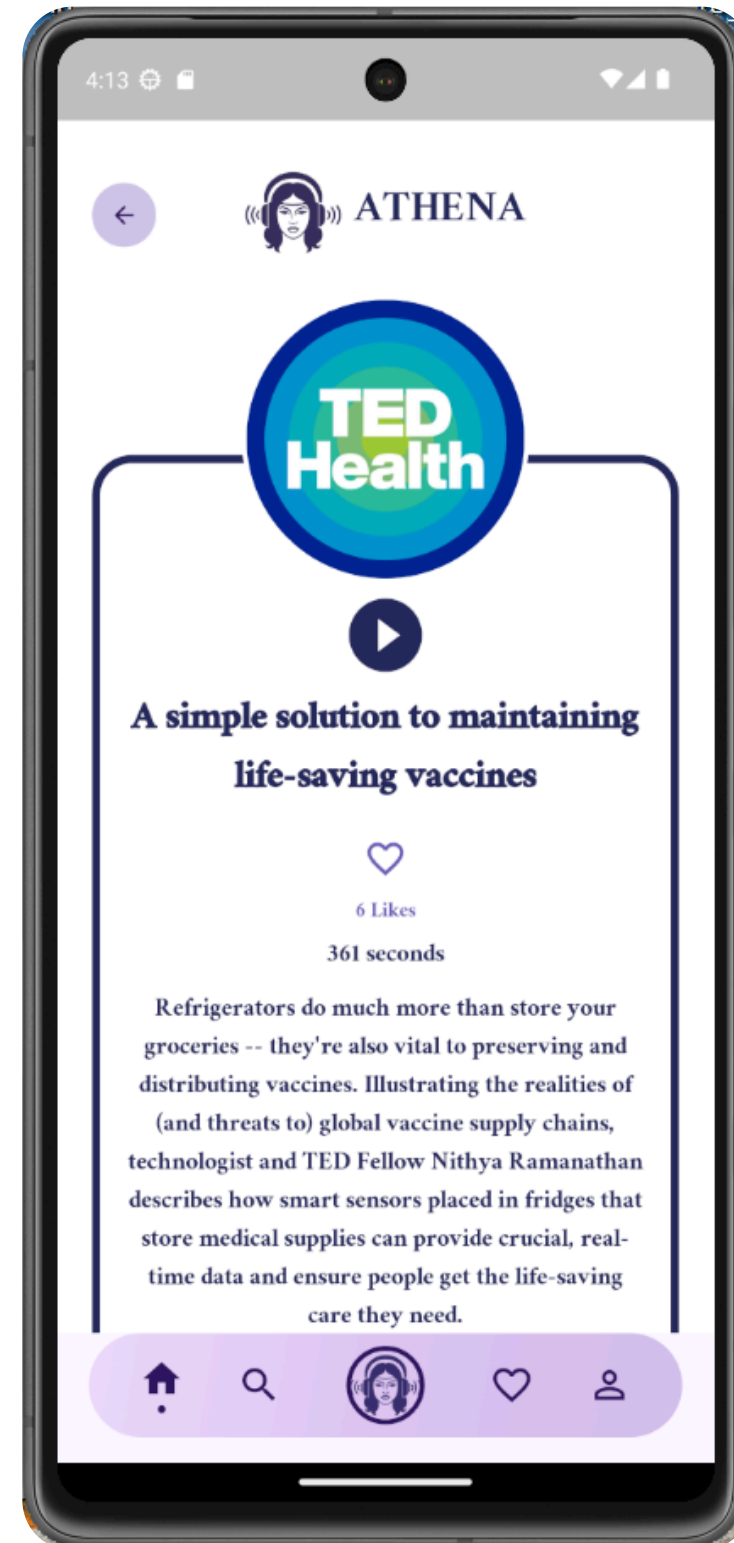
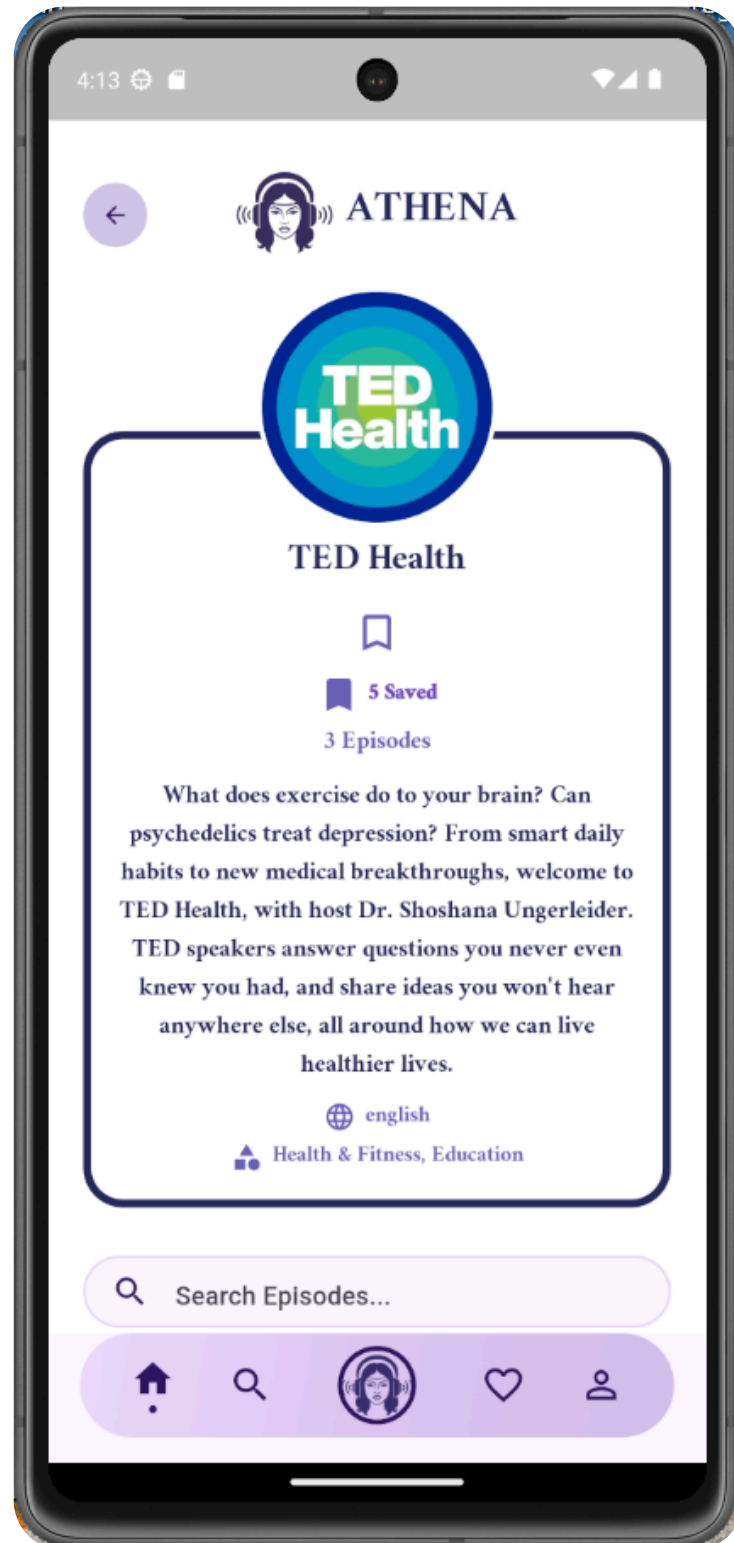
Profile page



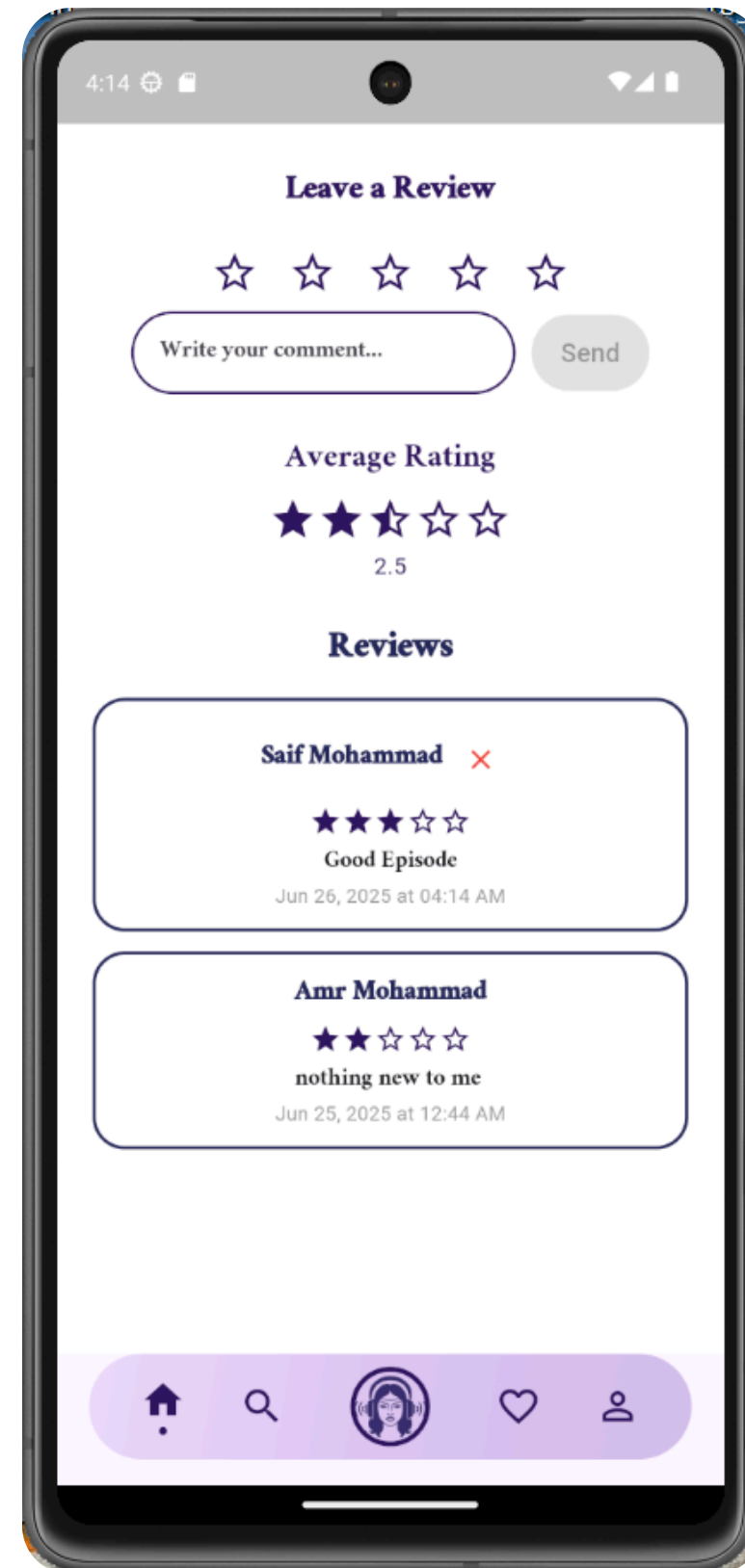
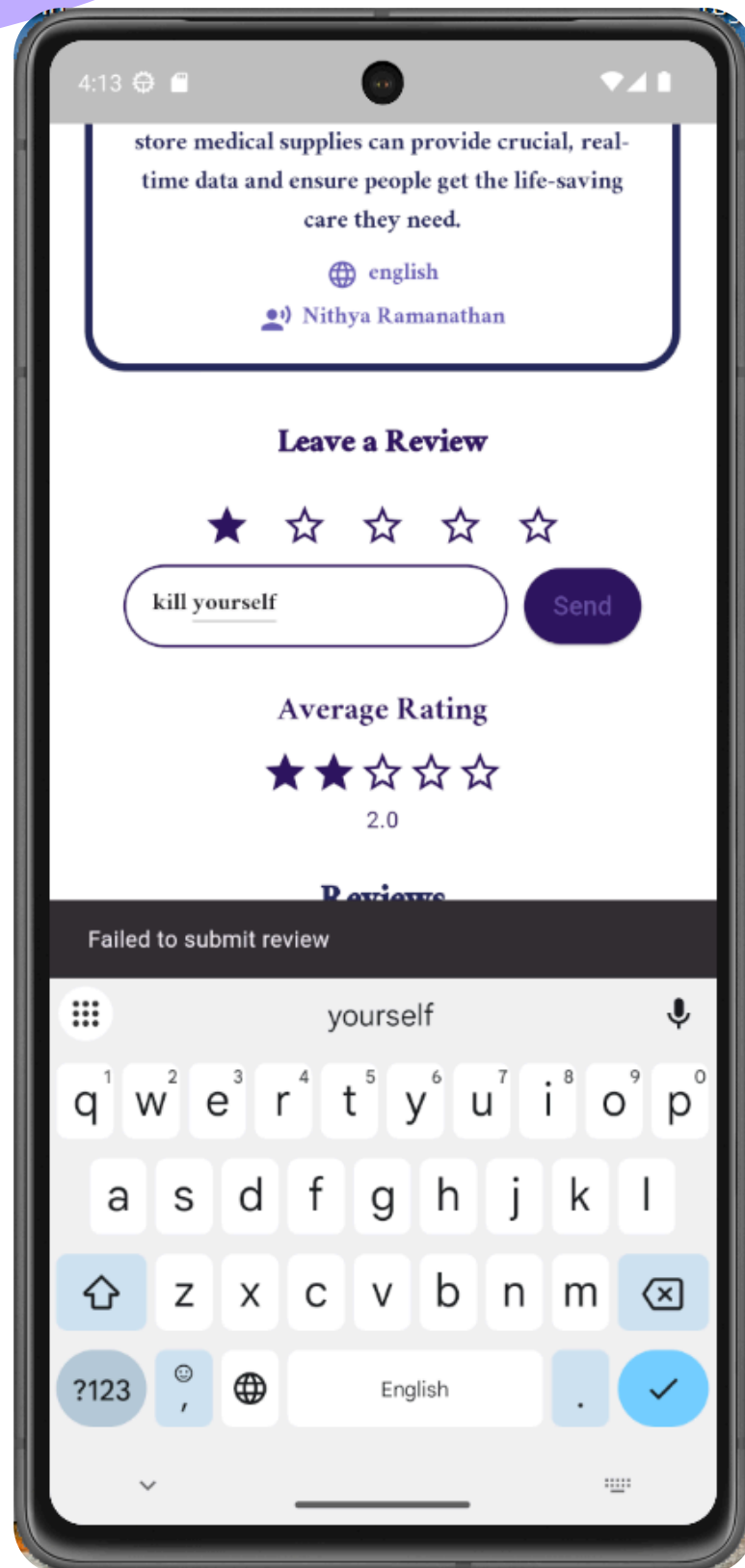
Regular & External Channels



Podcast & Episode pages



Reviews



- Uses OpenAI Moderation API (NLP-based)
- Powered by a classification model
- Detects: hate speech, harassment, violence, sexual & toxic content
- Custom blacklist for sensitive words

Listen Page



Ad Insertion

- Fetches appropriate ads based on episode and user
- Injects audio ads during playback

Transcription(Whisper)

- OpenAI Whisper performs automatic speech recognition (ASR)

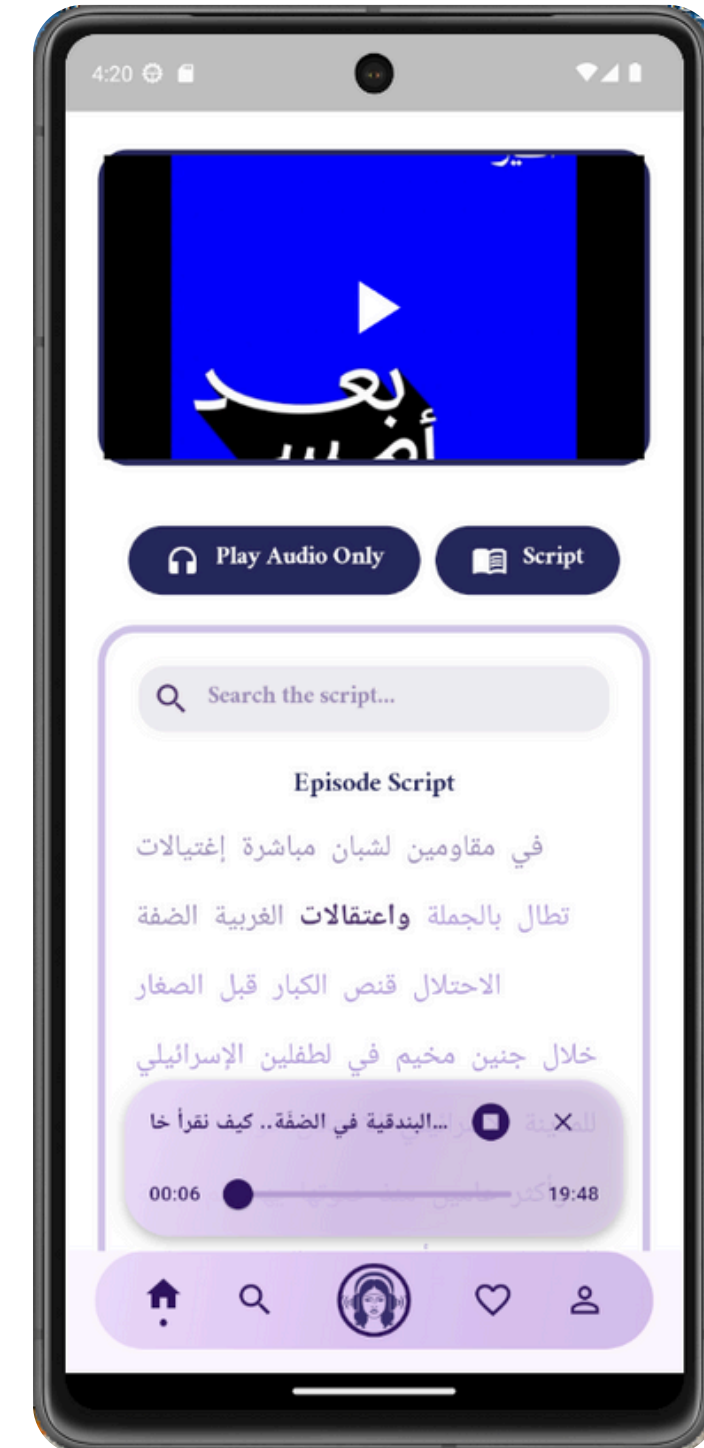
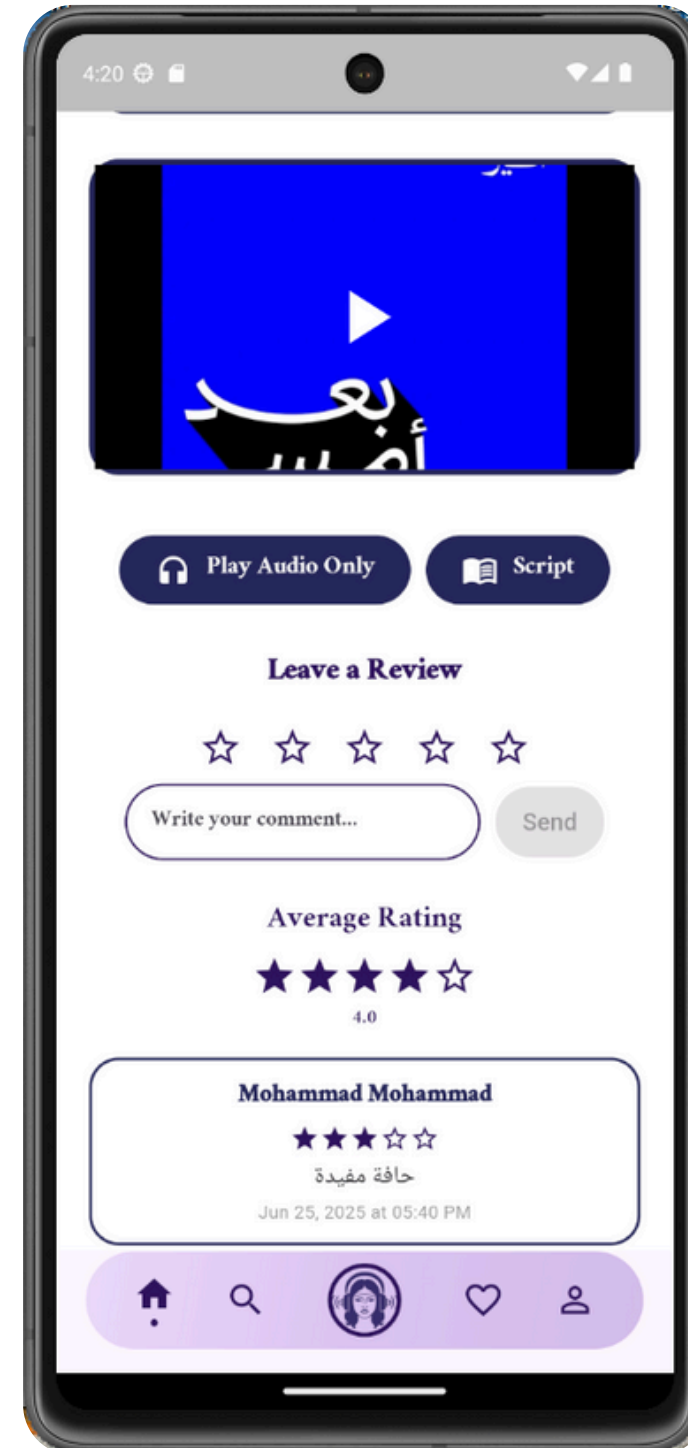
- Supports multiple languages
- Returns full script + word-level timestamps (JSON format)

Chatbot



A GPT-based assistant

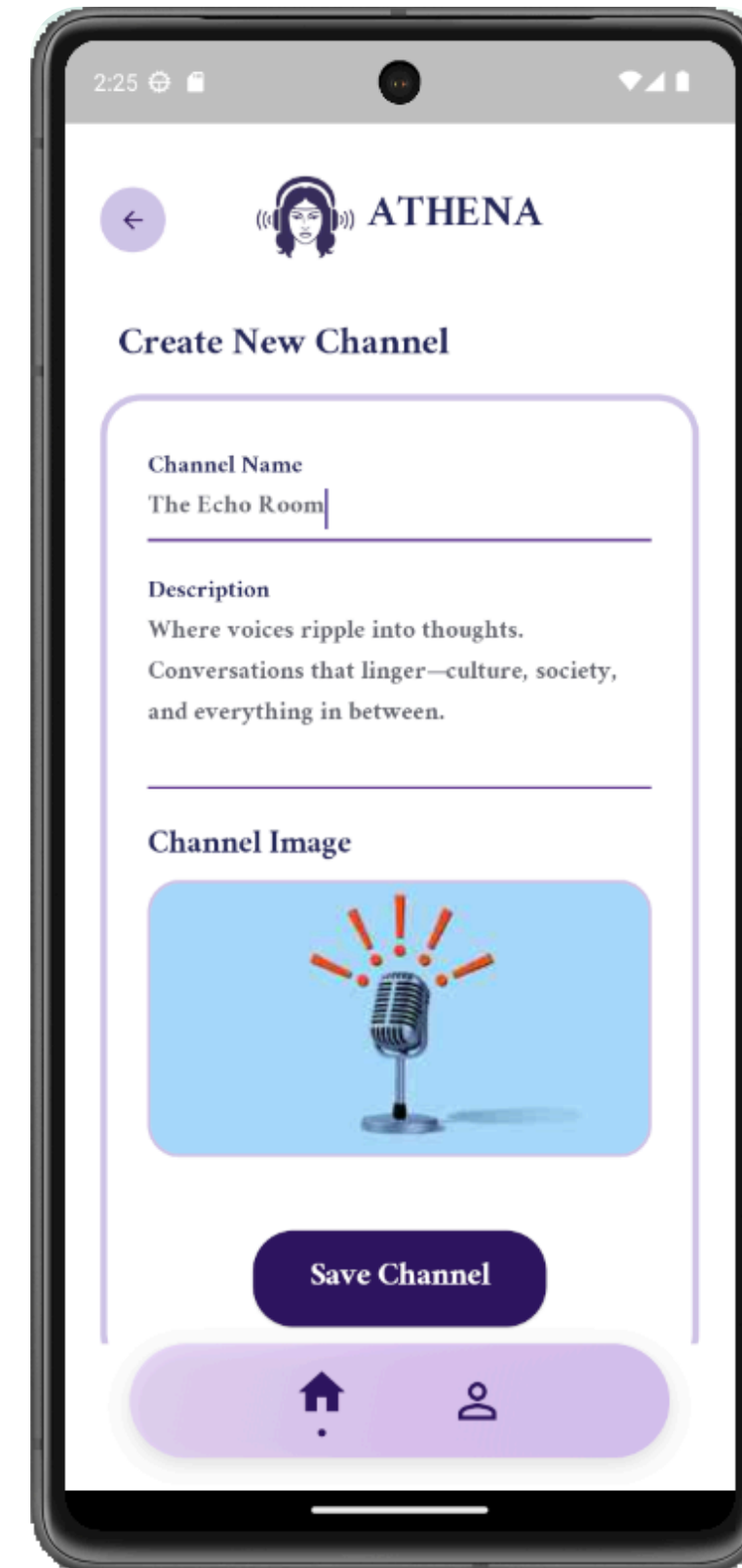
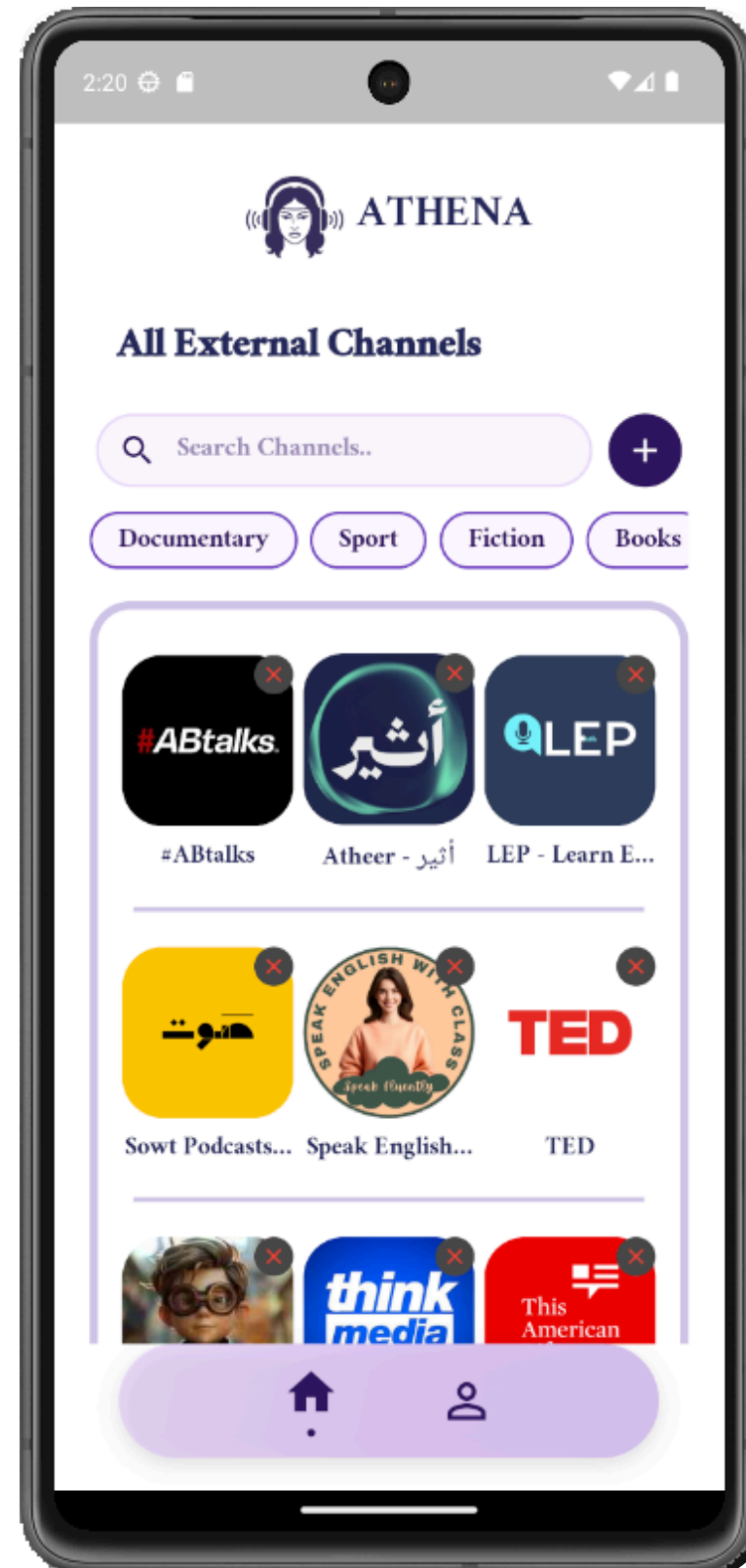
External Episode





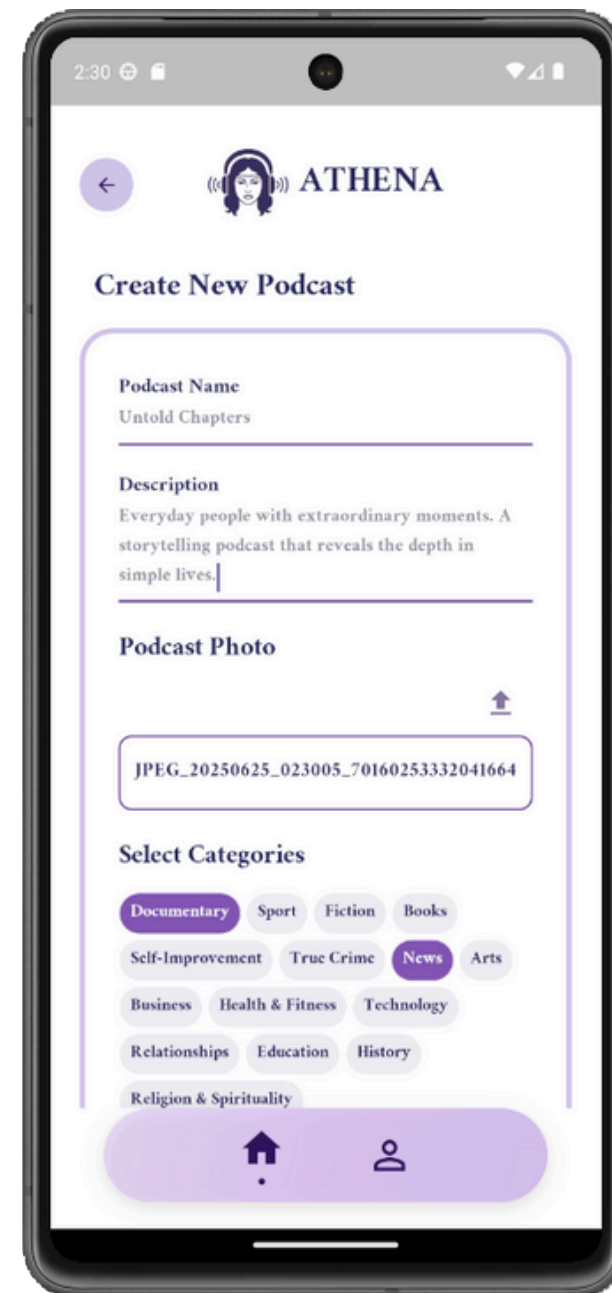
Admin & Channel Apps

Admin Home Page

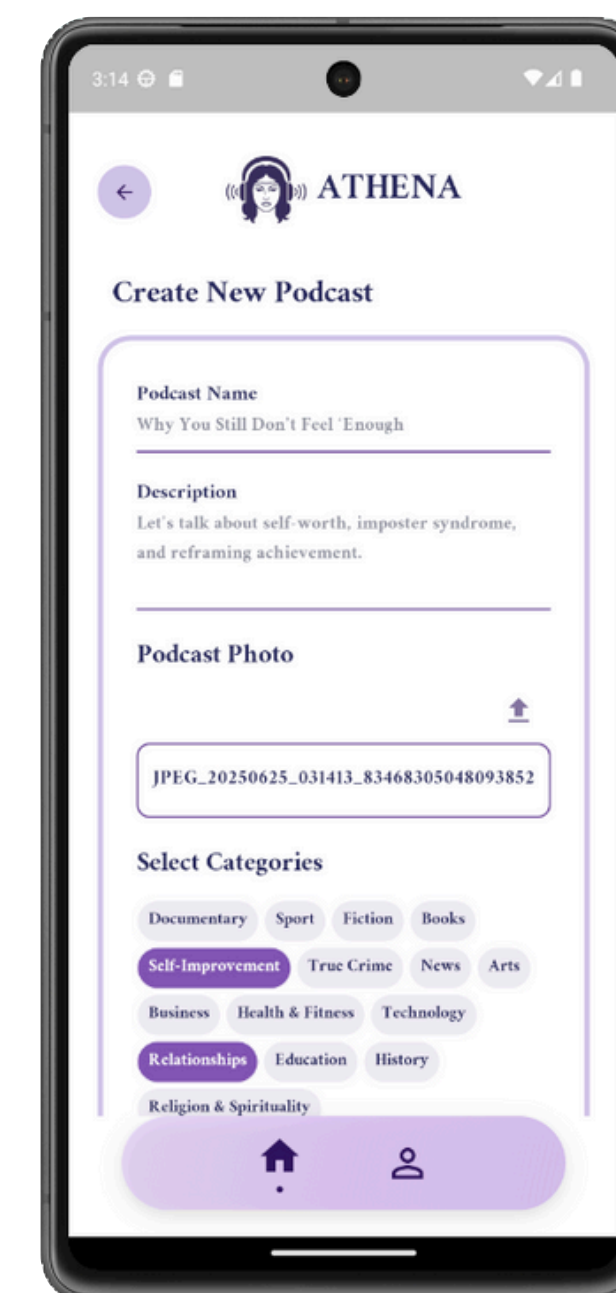
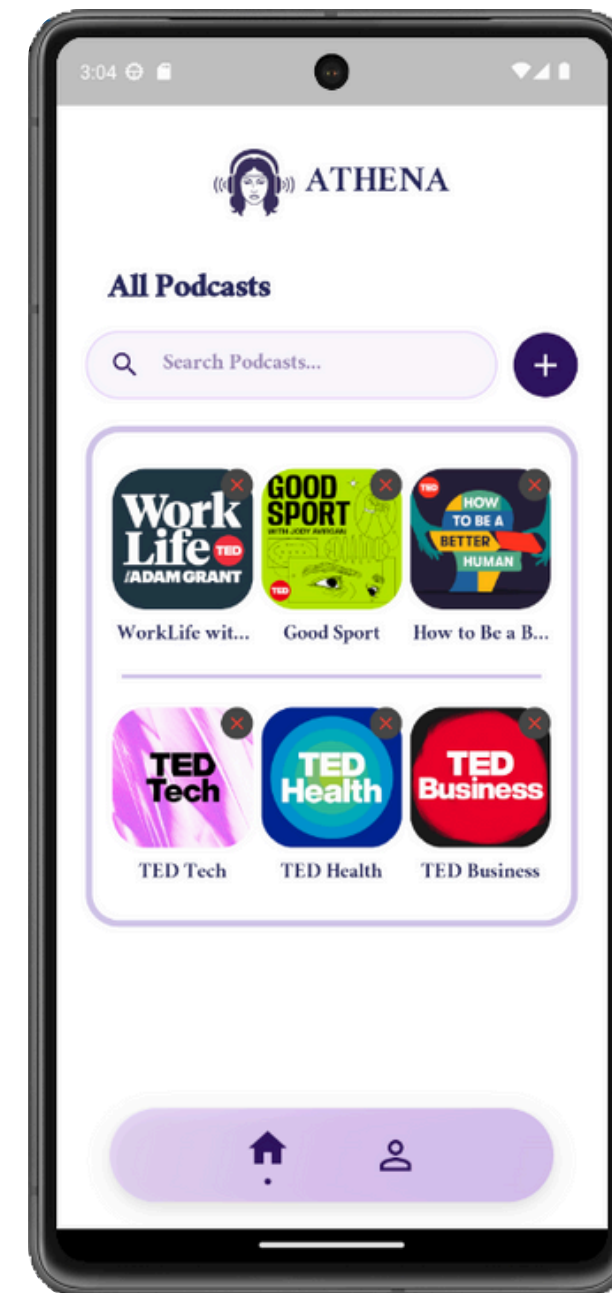


podcasts page

Admin



Channel

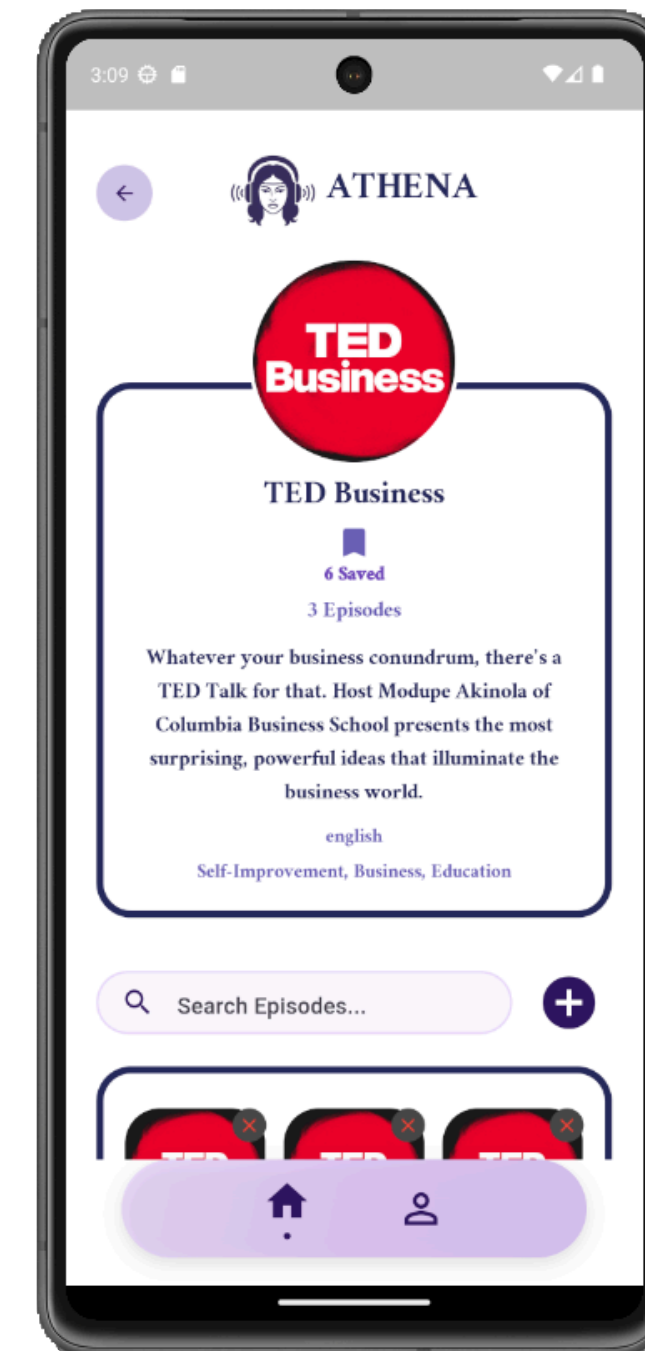


podcast page

Admin



Channel





New Episode

Admin

Channel

2:43

ATHENA

Create New Episode

Episode Name
The Taxi Driver Who Saved a Life

Episode Image
JPEG_20250625_024136_37172420975178586-

Description
A late-night ride turns into an unforgettable moment between a stranger and a driver in Amman.

YouTube Link
state=ive&vld=cid:8f6b03e9,vid:1a1WgON49E,st:0

Language
English

Speakers (comma-separated)

Home | Profile

2:44

JPEG_20250625_024136_37172420975178586-

Description
A late-night ride turns into an unforgettable moment between a stranger and a driver in Amman.

YouTube Link
https://www.youtube.com/watch?v=1a1WgON49E

Language
English

Speakers (comma-separated)

Release Date
2025-06-08

Uploading... It may take a few minutes.

Save Episode

Home | Profile

3:26

ATHENA

Create New Episode

Episode Name
The Woman Who Waited 40 Years

Episode Image
JPEG_20250625_032601_60152023048491226

Audio File
للغناء قصة_ع الحلوة والمرّة.mp3

Description
A heart-wrenching tale of love, loss, and letters that never came. A story of patience and what it truly means to wait.

Language
English

Home | Profile

3:27

Audio File
للغناء قصة_ع الحلوة والمرّة.mp3

Description
A heart-wrenching tale of love, loss, and letters that never came. A story of patience and what it truly means to wait.

Language
English

Speakers (comma-separated)

Release Date
2025-06-03

Uploading... It may take a few minutes.

Save Episode

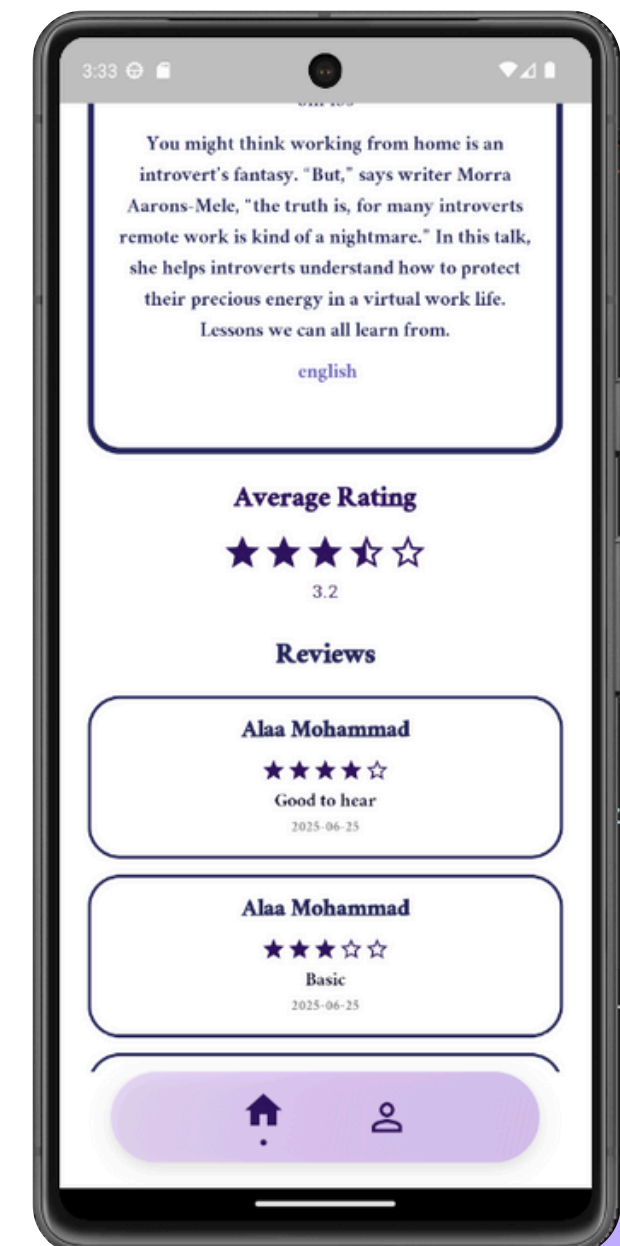
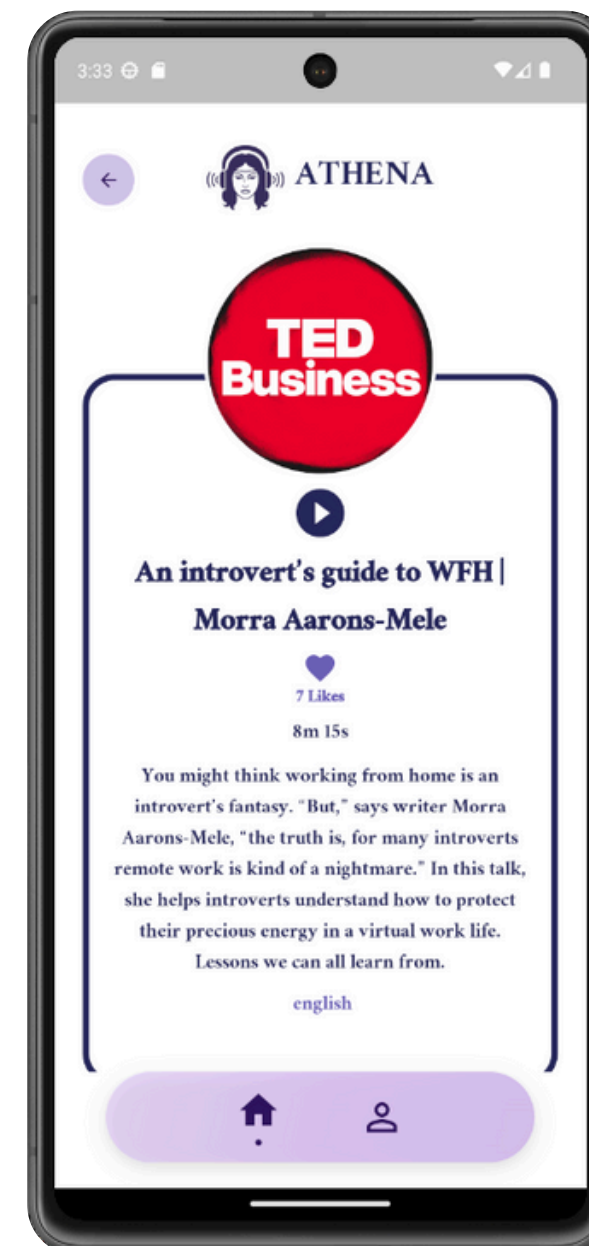
Home | Profile

Episode page

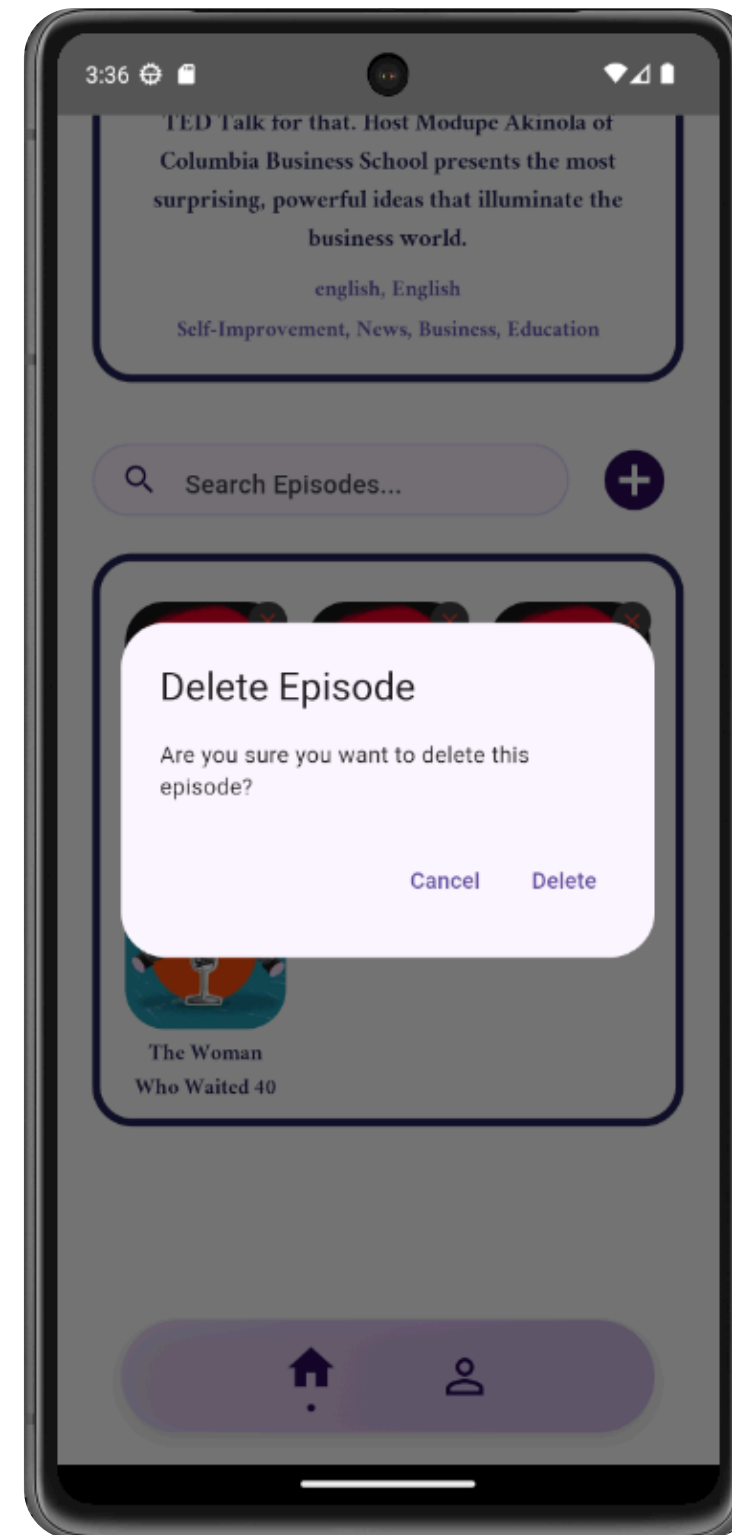
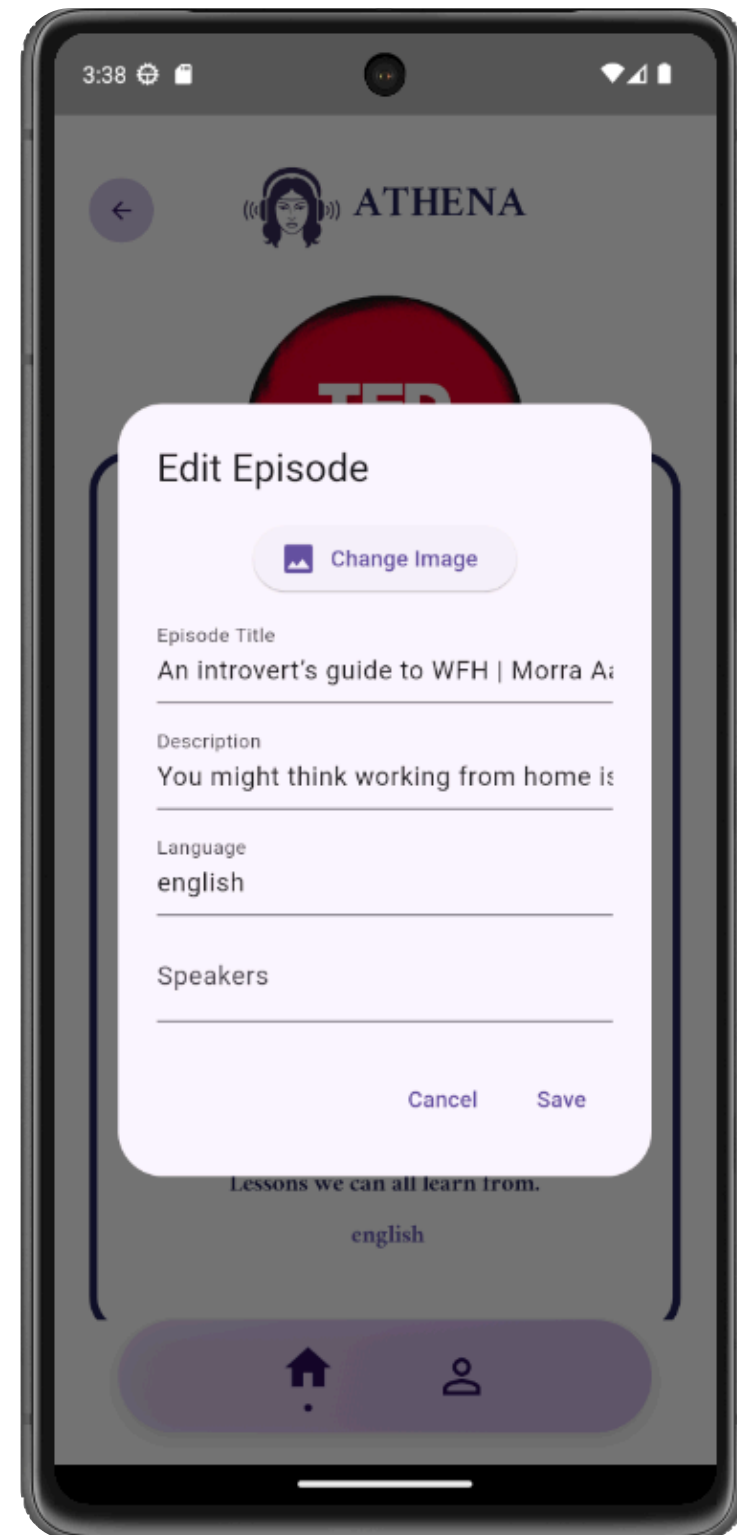
Admin



Channel



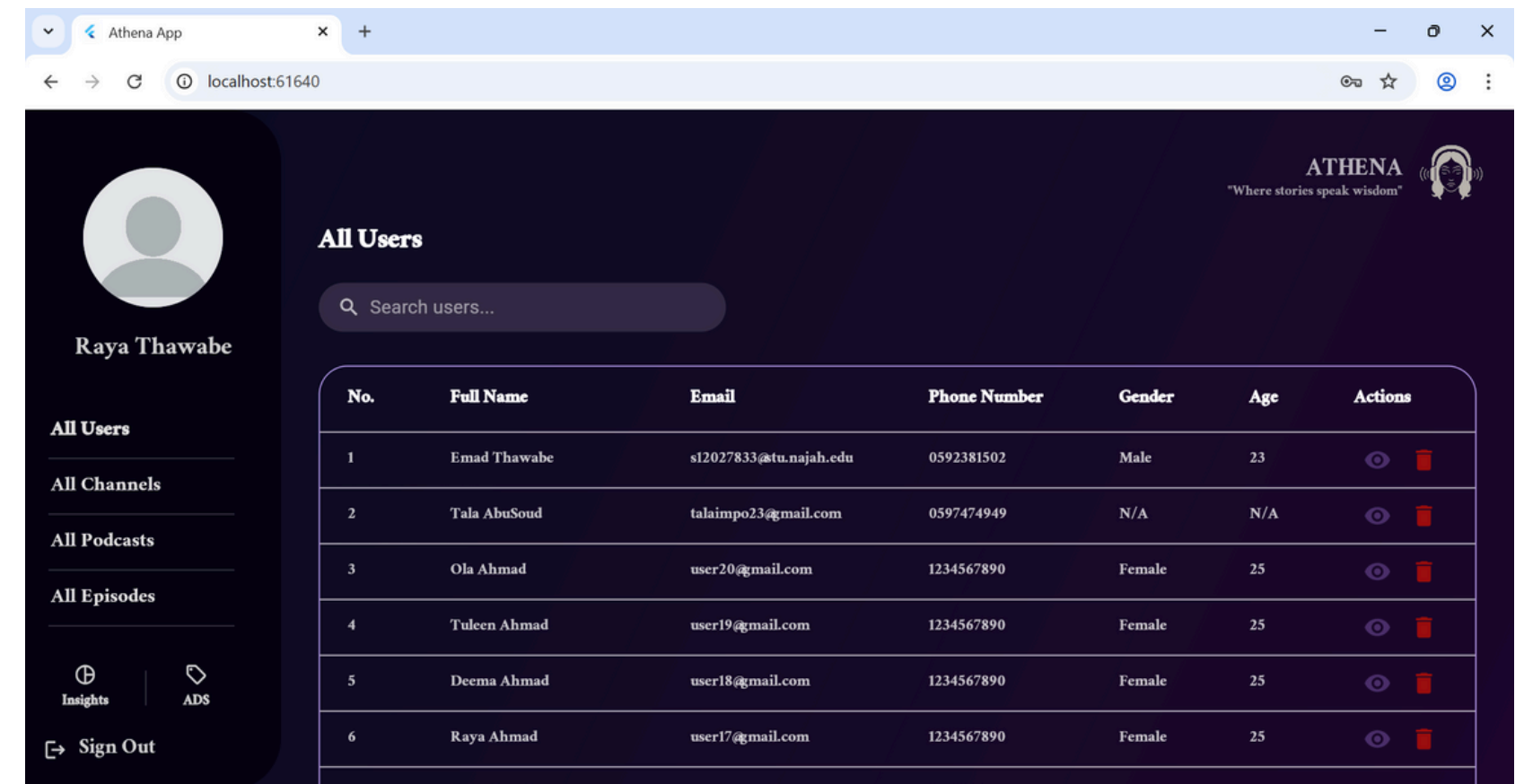
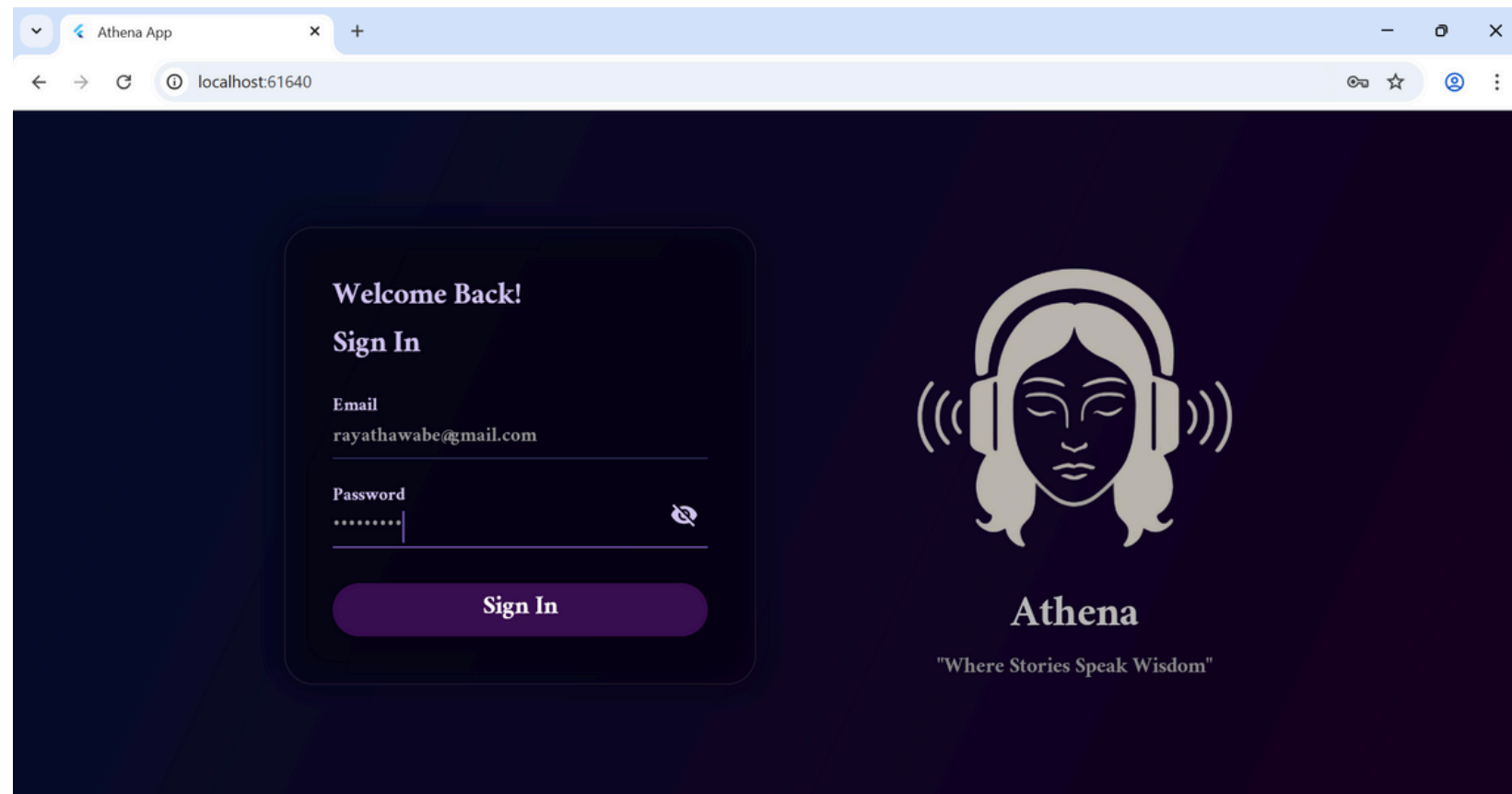
Edit & Delete





Admin Dashboard

Sign In & Tables



Channel Approve And Reject

Athena App localhost:3000/api/admin/ads/ localhost:61640

ATHENA "Where stories speak wisdom"

Raya Thawabe

All Users

All Channels

All Podcasts

All Episodes

Insights ADS

Sign Out

| | | | | | | | | |
|----|----------------------|------------------------|--|---|---------|----------|--------|--|
| 5 | عبدالعزيز الخمعلي | chan6@gmail.com | بودكاستر وصانع محتوى متخصص في... القضايا الغامضة والتحقيقات | 2 | Regular | Approved | | |
| 6 | Mustafa Hosny | chan5@gmail.com | مصطفى حسني داعية إسلامي مصري... ...ولد في محافظة | 4 | Regular | Approved | | |
| 7 | The Mindset Mentor | chan4@gmail.com | The Mindset Mentor- podcast is designed for anyone... | 1 | Regular | Approved | | |
| 8 | TED Audio Collective | chan3@gmail.com | The TED Audio Collective channel features podcasts for... | 6 | Regular | Approved | | |
| 9 | Bloomberg Podcasts | chan2@gmail.com | Bloomberg Podcasts brings you the best video and... | 1 | Regular | Approved | | |
| 10 | Asharq Podcasts | chan1@gmail.com | Asharq Podcasts الشرق بودكاست offers high-quality Arabic... | 1 | Regular | Approved | | |
| 11 | TechTalk | s12027754@tu.najah.edu | A channel about the latest in tech and... | 1 | Regular | Approved | | |
| 12 | testchannel | user1@gmail.com | thi is for test the convection | 0 | Regular | Approve | Reject | |
| 13 | قعدة عرب | chan11@gmail.com | جلسات بودكاست عفوية تناقش مواضيع اجتماعية وثقافية من | 0 | Regular | Approve | Reject | |
| 14 | فلسفة بدون تفلسف | chan10@gmail.com | بودكاست يبسط الفلسفة ويربطها بواقعنا العربي المعاصر | 0 | Regular | Approve | Reject | |

Athena App localhost:63505

ATHENA "Where stories speak wisdom"

Raya Thawabe

All Users

All Channels

All Podcasts

All Episodes

Insights ADS

Sign Out

| | | | | | | | | |
|----|----------------------|------------------------|--|---|---------|----------|--|--|
| 8 | Mustafa Hosny | chan5@gmail.com | مصطفى حسني داعية إسلامي مصري... ...ولد في محافظة | 4 | Regular | Approved | | |
| 9 | The Mindset Mentor | chan4@gmail.com | The Mindset Mentor- podcast is designed for anyone... | 1 | Regular | Approved | | |
| 10 | TED Audio Collective | chan3@gmail.com | The TED Audio Collective channel features podcasts for... | 6 | Regular | Approved | | |
| 11 | Bloomberg Podcasts | chan2@gmail.com | Bloomberg Podcasts brings you the best video and... | 1 | Regular | Approved | | |
| 12 | Asharq Podcasts | chan1@gmail.com | Asharq Podcasts الشرق بودكاست offers high-quality Arabic... | 1 | Regular | Approved | | |
| 13 | TechTalk | s12027754@tu.najah.edu | A channel about the latest in tech and... | 1 | Regular | Approved | | |
| 14 | Channel test | user17@gmail.com | testing the channel | 0 | Regular | Rejected | | |
| 15 | Channel test | user19@gmail.com | testing the channel | 0 | Regular | Rejected | | |
| 16 | testchannel | user1@gmail.com | thi is for test the convection | 0 | Regular | Rejected | | |
| 17 | فلسفة بدون تفلسف | chan10@gmail.com | بودكاست يبسط الفلسفة ويربطها بواقعنا العربي المعاصر | 0 | Regular | Rejected | | |

User, Channel, podcast & Episode Info

User Details

Raya Thawabe

All Users
All Channels
All Podcasts
All Episodes

Insights ADS Sign Out

User Reviews

Oil and Defense Stocks Rise; Fiserv Stablecoin Pop 2025-06-25
★ ★ ★ ★ ★
disliked

Airlines Lower, Energy Stocks Up, Defense Declines 2025-06-25
★ ★ ★ ★ ★
disliked

Listening Time by Category

| | |
|------------------|-----|
| History | 17% |
| Books | 7% |
| Business | 5% |
| Technology | 12% |
| Education | 7% |
| Self-Improvement | 12% |
| News | 14% |
| Arts | 4% |
| Fiction | 4% |
| Documentary | 10% |

Liked Episodes: 13
Saved Podcasts: 11

Podcast Details

Raya Thawabe

All Users
All Channels
All Podcasts
All Episodes

Insights ADS Sign Out

بودكااست بعد أمس

أثير - أثير

بعد أمس، بودكااست يومي من "أثير"، يزود المستمع بما يحتاج لمعرفة عن القضايا الراهنة بطريقة حكاية تجمع بين الإثراء والتشويق

Channel Type: external
Arabic, english

Category/ies of This podcast: History

Count of Episodes in this podcast: 4
Number of users who saved this podcast: 4

List of Episodes

إغراق الأنفاق - بين المستحيل والممكن

البندقية في الضفة - كيف نقرأ خارطة السلاح؟

الحرب على المستشفيات

testisode

Channel Details

Raya Thawabe

All Users
All Channels
All Podcasts
All Episodes

Insights ADS Sign Out

Bloomberg Podcasts

Bloomberg Podcasts brings you the best video and audio programming from Bloomberg. Watch for news and analysis on the stories making headlines in business, technology and financial markets.

Channel Type: Regular
english
Joined at: 2025-06-23

Owner Details

This channel was created by a 25-year-old male named Mahmood Ahmad

Total Episodes: 6 | Total Podcasts: 1

List of Podcasts

Stock Movers

Episode Info

Raya Thawabe

All Users
All Channels
All Podcasts
All Episodes

Insights ADS Sign Out

TED Health

The inaccurate link between body ideals and health

TED Health
TED Audio Collective
Channel Type: regular

Speakers: Nancy N. Chen
Script

Refrigerators do much more than store your groceries -- they're also vital to preserving and distributing vaccines. Illustrating the realities of (and threats to) global vaccine supply chains, technologist and TED Fellow Nithya Ramanathan describes how smart sensors placed in fridges that store medical supplies can provide crucial, real-time data and ensure people get the life-saving care they need.

This is TED Health. I'm your host, Dr. Shoshana Ungerleider. We live in a media-conscious world, and everywhere you look, slim models and actresses are front and center. The waif-like female body ideal emerged in the 1970s. And since then, the societal view of a thin frame has been equated with beauty and fitness. And the consequences, like eating disorders and poor

Rating & Reviews

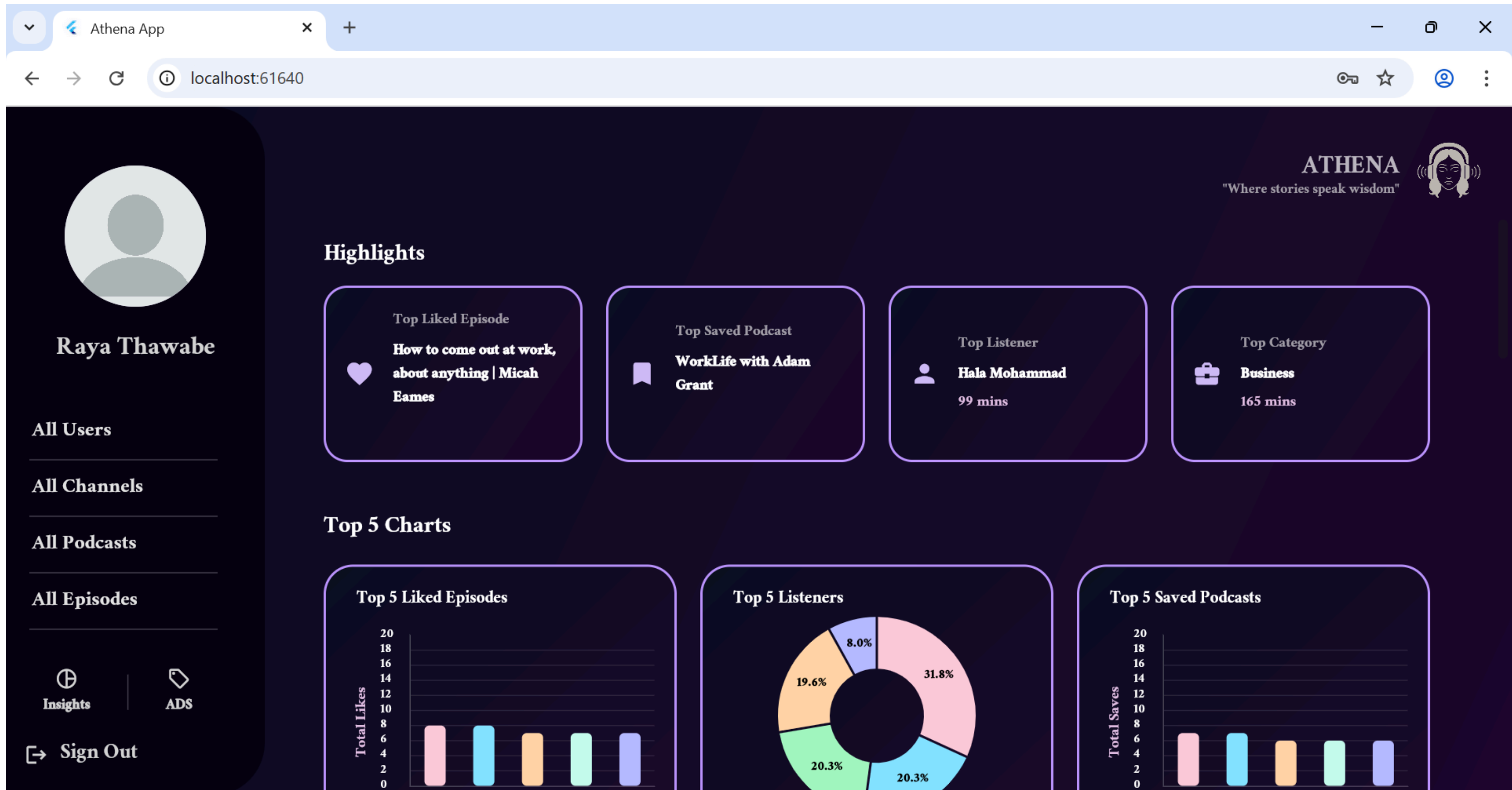
Average Rating: ★ ★ ★ ★ ★

Alsa Mohammad 2025-06-25
★ ★ ★ ★ ★
Not what i expected

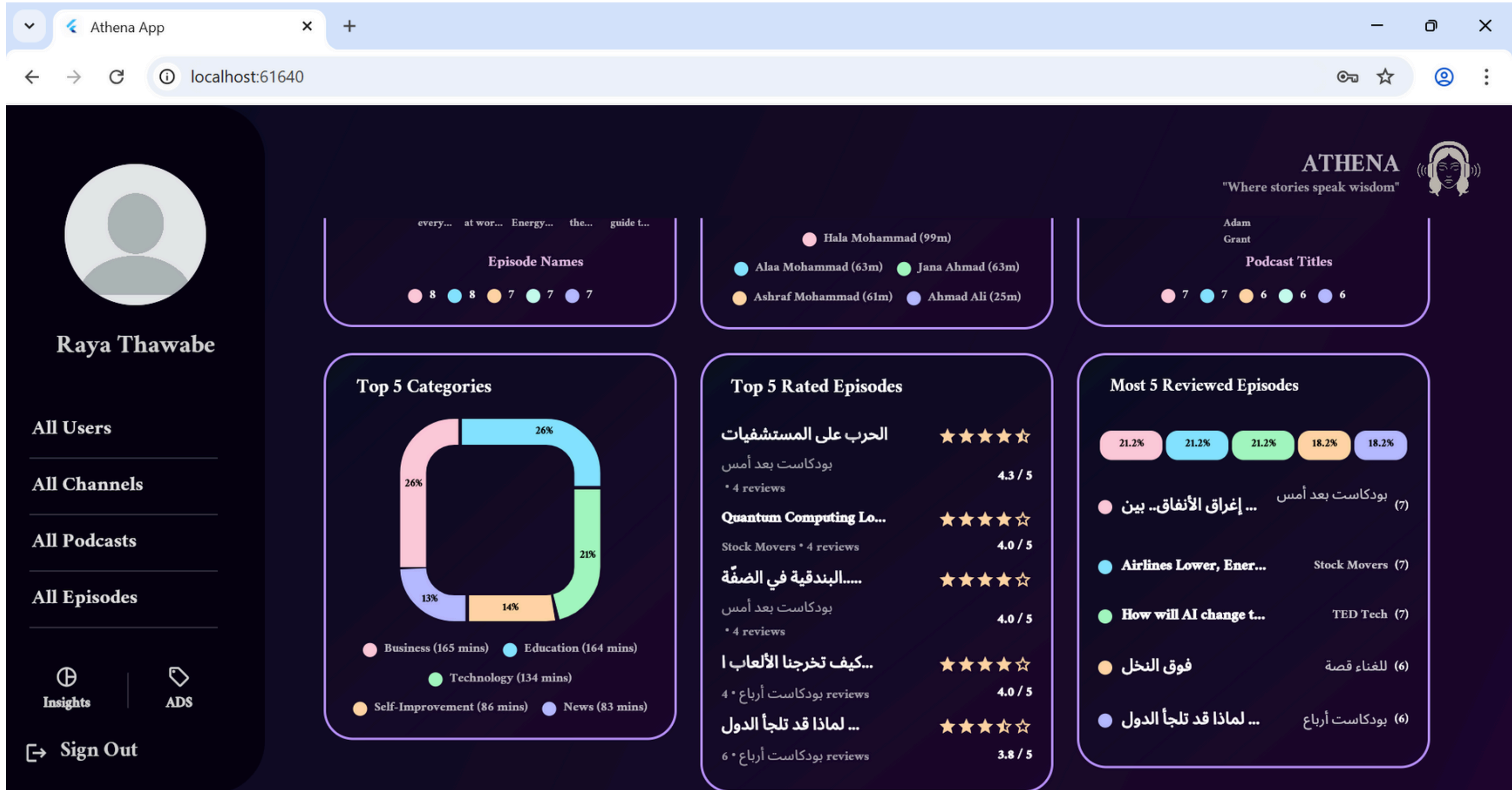
Zain Mohammad 2025-06-25
★ ★ ★ ★ ★
useful information

Amr Mohammad 2025-06-25
★ ★ ★ ★ ★
So Good!

Insights



Insights



Insights

Athena App localhost:61640

ATHENA "Where stories speak wisdom"

Raya Thawabe

All Users
All Channels
All Podcasts
All Episodes

Insights ADS Sign Out

Activity Snapshot

Most Inactive Users

| No. | Full Name | Email | Action |
|-----|--------------|-------------------------|--------|
| 1 | Emad Thawabe | s12027833@stu.najah.edu | |
| 2 | Tala AbuSoud | talaimpo23@gmail.com | |
| 3 | Ola Ahmad | user20@gmail.com | |
| 4 | Tuleen Ahmad | user19@gmail.com | |

New Users (Last Month)

| No. | Full Name | Email | Created At | Ac |
|-----|--------------|-------------------------|------------|----|
| 1 | Emad Thawabe | s12027833@stu.najah.edu | 2025-06-25 | |
| 2 | Tala AbuSoud | talaimpo23@gmail.com | 2025-06-25 | |
| 3 | Ola Ahmad | user20@gmail.com | 2025-06-24 | |
| 4 | Tuleen Ahmad | user19@gmail.com | 2025-06-24 | |

New Episodes (Last Month)

Listening Time

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| | | | | | |
|---|---------------|-----------------|----------------------|------------|--|
| 1 | testiisode | بودكاست بعد أمس | أثير - Atheer | 2025-06-25 | |
| 2 | testing ep... | TED Business | TED Audio Collective | 2025-06-25 | |
| 3 | حرب الانتب... | بودكاست أربع | إذاعة ثمانية | 2025-06-24 | |
| 4 | لماذا قد ت... | بودكاست أربع | إذاعة ثمانية | 2025-06-24 | |

32 mins

Insights


Total Counts Dashboard


| | | | | | |
|-------|----------|----------|----------|-----------------|----------------|
| Users | Channels | Podcasts | Episodes | Listening Hours | Avg Ep Minutes |
| 28 | 22 | 35 | 34 | 6h | 486.1 |

Ads Manager

Athena App x +

localhost:61640

ATHENA "Where stories speak wisdom" 




Raya Thawabe


All Users

All Channels

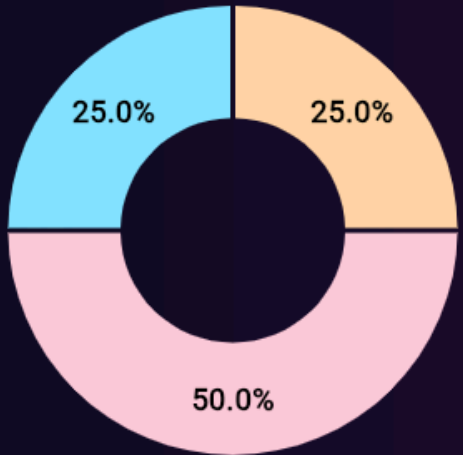
All Podcasts

All Episodes

 Insights |  ADS

 Sign Out

Top Ads



| Advertiser | Percentage |
|---------------------|------------|
| CFB | 50.0% |
| Vision6 | 25.0% |
| San Jacinto Coll... | 25.0% |
| testingads | 0.0% |

- CFB 2
- Vision6 1
- San Jacinto Coll... 1
- testingads 0

Create New Campaign

Advertiser Name: **chatcola**

Target Category: **Health & Fitness**

Maximum times per Month: **3**


Maximum times per Episode: **3**

Insert Every X Minutes: **3**

Start Date: _____ End Date: _____

Pick Audio (.mp3) 2023 Tiger TV Ad Campaign - 10 Sec.mp3

Save

All Campaigns  Download CSV

Ads Manager

The screenshot shows the Athena App interface with a dark theme. The browser address bar displays 'localhost:61640'. The main header includes the Athena logo and the tagline 'Where stories speak wisdom'. A sidebar on the left contains navigation links for 'All Users', 'All Channels', 'All Podcasts', and 'All Episodes', along with 'Insights', 'ADS', and 'Sign Out' buttons. The main content area is titled 'All Campaigns' and features a table with columns for 'No.', 'Advertiser', 'Status', 'Max/Episode', 'Insert Every', 'Target Category', 'Created At', and 'Actions'. A modal window titled 'Edit Campaign' is open, displaying the following details:

- Advertiser Name: tiger
- Max Per Month: 20
- Max Per Episode: 3
- Insert Every Minutes: 2
- Start Date (YYYY-MM-DD): 2025-05-28
- End Date (YYYY-MM-DD): 2025-06-30
- Target Category: Documentary
- Created At (YYYY-MM-DD): 2025-06-24

Buttons for 'Cancel' and 'Save' are visible at the bottom of the modal.

This screenshot shows the Athena App interface with a dark theme, displaying a 'Renew Campaign' modal. The browser address bar shows 'localhost:61640'. The main header includes the Athena logo and the tagline 'Where stories speak wisdom'. The sidebar on the left contains navigation links for 'All Users', 'All Channels', 'All Podcasts', and 'All Episodes', along with 'Insights', 'ADS', and 'Sign Out' buttons. The main content area is titled 'All Campaigns' and features a table with columns for 'No.', 'Advertiser', 'Status', 'Max/Episode', 'Insert Every', 'Target Category', 'Created At', and 'Actions'. A modal window titled 'Renew Campaign' is open, displaying the following details:

- Advertiser Name: Nike Summer Sale
- Max Per Month: 5
- Max Per Episode: 3
- Insert Every Minutes: 2
- Start Date (YYYY-MM-DD): 2025-06-09
- End Date (YYYY-MM-DD): 2025-05-31
- Target Category: Documentary
- Created At (YYYY-MM-DD): 2025-05-29

Buttons for 'Cancel' and 'Save' are visible at the bottom of the modal.





Ads Manager

Athena App | localhost:61640

ATHENA
"Where stories speak wisdom"

Download CSV

All Campaigns

| No. | Advertiser | Status | Start Date | End Date | Max/ Month | Max/ Episode | Insert Every | Target Category | Created At | Actions |
|-----|---------------------|--------|------------|------------|------------|--------------|--------------|-----------------|------------|---|
| 1 | tiger | Active | 2025-05-28 | 2025-06-30 | 20 | 3 | 2 min | Unknown | 2025-06-24 |   |
| 2 | Grand | Active | 2025-05-28 | 2025-06-30 | 20 | 3 | 1 min | Unknown | 2025-06-24 |   |
| 3 | tareeq | Active | 2025-05-28 | 2025-06-30 | 20 | 3 | | | | |
| 4 | YOUGURT | Active | 2025-05-28 | 2025-06-30 | 20 | 3 | | | | |
| 5 | CFB | Active | 2025-05-28 | 2025-06-30 | 20 | 3 | | | | |
| 6 | Vision6 | Active | 2025-05-28 | 2025-06-30 | 20 | 3 | | | | |
| 7 | San Jacinto College | Active | 2025-05-28 | 2025-06-30 | 10 | 2 | | | | |

[All Users](#)
[All Channels](#)
[All Podcasts](#)
[All Episodes](#)
[Insights](#) | [ADS](#)
[Sign Out](#)

ads_analytics.csv | 3.2 KB • Done

AutoSave Off | ads_analytics.csv

File Home Insert Page Layout Formulas Data Review View Automate Developer Add-ins Help

Clipboard Font Alignment Number Styles Cells Editing Analysis

POSSIBLE DATA LOSS Some features might be lost if you save this workbook in the comma-delimited (.csv) format. To preserve these features, save it in an Excel file format. Don't show again Save As...

| | A | B | C | D | E | F | G | H | I | J | K |
|----|----|---------------------|-------------|---------|---------|--------------|---|----------|--------|-------------|---------------------|
| | id | advertiser_name | audio_url | max_per | max_per | insert_every | mstart_date | end_date | active | total_plays | unique_usis_expired |
| 1 | 1 | Updated cleanup | https://re: | 10 | 2 | 5 | 2024-05-31T21:00:00.(2025-05-31T21:00:00) | | TRUE | 0 | 0 Yes |
| 2 | 2 | Nike Summer Sale | https://re: | 5 | 3 | 2 | 2025-06-09T21:00:00.(2025-05-31T21:00:00) | | FALSE | 0 | 0 Yes |
| 3 | 6 | clean up campaign | https://re: | 5 | 3 | 1 | 2025-05-31T21:00:00.(2025-06-30T21:00:00) | | TRUE | 0 | 0 No |
| 4 | 8 | Updated cleanup | https://re: | 10 | 2 | 5 | 2025-06-30T21:00:00.(2025-07-31T21:00:00) | | TRUE | 0 | 0 No |
| 5 | 9 | raya | https://re: | 1 | 2 | 1 | | | TRUE | 0 | 0 No |
| 6 | 10 | rayaafteredit | https://re: | 5 | 10 | 2 | | | TRUE | 0 | 0 No |
| 7 | 12 | rayatesting | https://re: | 3 | 5 | 3 | | | TRUE | 0 | 0 No |
| 8 | 25 | Nike Summer Sale | https://re: | 5 | 3 | 2 | 2025-06-08T21:00:00.(2025-05-30T21:00:00) | | TRUE | 0 | 0 Yes |
| 9 | 26 | 10sec campaign | https://re: | 5 | 3 | 1 | 2025-05-28T21:00:00.(2025-06-30T21:00:00) | | TRUE | 0 | 0 No |
| 10 | 27 | 11 sec | https://re: | 10 | 3 | 1 | | | TRUE | 0 | 0 No |
| 11 | 28 | testingads | https://re: | 30 | 3 | 1 | | | TRUE | 0 | 0 No |
| 12 | 29 | San Jacinto College | https://re: | 10 | 2 | 2 | 2025-05-28T21:00:00.(2025-06-30T21:00:00) | | TRUE | 1 | 1 No |
| 13 | 30 | Vision6 | https://re: | 20 | 3 | 1 | 2025-05-28T21:00:00.(2025-06-30T21:00:00) | | TRUE | 1 | 1 No |
| 14 | 31 | CFB | https://re: | 20 | 3 | 1 | 2025-05-28T21:00:00.(2025-06-30T21:00:00) | | TRUE | 2 | 1 No |
| 15 | 32 | YOUGURT | https://re: | 20 | 3 | 2 | 2025-05-28T21:00:00.(2025-06-30T21:00:00) | | TRUE | 0 | 0 No |
| 16 | 33 | tareeq | https://re: | 20 | 3 | 2 | 2025-05-28T21:00:00.(2025-06-30T21:00:00) | | TRUE | 0 | 0 No |
| 17 | 34 | Grand | https://re: | 20 | 3 | 1 | 2025-05-28T21:00:00.(2025-06-30T21:00:00) | | TRUE | 0 | 0 No |
| 18 | 35 | tier | https://re: | 20 | 3 | 2 | 2025-05-28T21:00:00.(2025-06-30T21:00:00) | | TRUE | 0 | 0 No |

ads_analytics

Ready Accessibility: Unavailable

Future Work

1

Add premium plans for channels and exclusive tools for premium users

2

Expand chatbot to support speech-to-text input and voice-based responses.

3

Allowing user curated lists of episodes, friend sharing, and role based admin consoles.

4

Enhancing recommendations by training machine learning models once a large volume of user interaction data is collected.





Thanks for listening

Any Questions?