

EchoTune:

Stay in tune with the broader world.

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Introduction

People naturally possess various identities, shaped by their interests, cultures, and races. Fostering an environment that embraces these diverse identities is crucial for promoting a rich and creative society. News and media play a significant role in shaping and transmitting the shared experiences, beliefs, and values that connect us.

However, the recommendation system of online content that influences how users see the world can be biased towards content representing the main trends or dominant group, giving it more prominence in search results compared to others. This bias can be based on factors like culture, gender (Otterbacher, et al., 2017), or race (Noble, 2018). Furthermore, currently, content recommenders often focus on getting users to click on articles, rather than helping them develop a well-rounded understanding or wider explorations. This can cause content that confirms the user's existing beliefs, which creates a "filter bubble" effect (Pariser, 2011). Without exposure to diverse content representing different cultures and interests, people may feel excluded from online content. This lack of diversity can even lead to the erosion of identities, as people might abandon their unique hobbies and identities if they can't find similar voices online.

Therefore, while passively consuming social media feeds can be convenient, some people take a more proactive approach. They use search engines with specific keywords or switch between different news sources to ensure the diversity of viewpoints and the news relevant to the specific area that they are interested in. This can help reduce bias and jump out of the filter bubbles from the recommenders, but it also requires a significant effort that can be discouraging.

Project Goal

To address this, we're developing a mobile application that empowers users to efficiently and effectively stay informed on their interests with diverse sources.

Target Users

We're targeting office workers (like product managers, engineers, or finance professionals). These busy professionals rely on curated information diets – social media, podcasts, and targeted news feeds – to stay informed on key industry topics. This keeps them feeling knowledgeable and helps them make informed decisions. Outside of work, they have other passions, like following the latest sneaker drops and keeping up with all things Taylor Swift. Consuming content about these casual topics allows them to relax while multitasking, like doing housework or driving. They use their spare minutes to learn about these interests but prefer to keep their professional and personal listening experiences separate.

Current Alternatives

Currently our target users employ a few major ways for information consumption as relying on a single source can be biased. However, it requires them to switch between different sources of information and is overwhelmed by a lot of noise. Furthermore, due to the filter bubbles mentioned earlier, it limits their exposure to the specific needs of underrepresented users.

1. **Social Media:** User through his behavior on the platforms and some level of proactive actions has trained his social media feed (primarily Twitter) to recommend the content he is more likely to consume. However, there is still a fair amount of noise to signal segregation that the user needs to do in

sorting through the relevant stack on social media. Additionally, social media is an infinite scroll, so the user never feels that they are really caught up.

2. **Podcast:** This allows the user to go deep on certain topics. They capture more depth than breadth. Because of the conversation format it becomes easier to engage with the content in the background, while engaging in other activities, However, they may not always be able to engage with the full length content depending on time constraints.
3. **Proactive Searching:** The user proactively searches for the topics that they are interested in, and read the content on the web. They search the content directly on google. There are certain websites that they consider trustworthy and comprehensive, and usually consume content from those.
4. **News aggregation mobile apps:** SmartNews, InShorts, Feedly. These apps are mostly reading based and users can select publishers, websites and topics they are interested in staying on top of. Each of these have their own set of shortcomings. SmartNews and Inshorts focus on topics and publishers, instead of user identities. Also, InShorts is focussed only in India. Also, these 2 are focussing on only news publishers, however, the interesting information can come from anywhere - youtube videos, podcasts, newsletters. Feedly allows the user to select multiple sources, but is not focussing on summarizing and user identities. Also, none of these focus on seamlessly transitioning experience between audio, and visual for information consumption.

Pain points

1. Multiple identities = Multiple sources

Active news consumers have multiple interests and go to multiple sources for it.

2. Fragmented Consumption

People consume news and other content interstitially in small pockets of time.

3. Audio and Noise

Audio is well liked but requires high investment (long podcasts) with a risk of irrelevant content.

Value Proposition

Based on those 3 key insights, we were able to identify 3 How Might We questions to frame the problem and inspire our designs.

- 1. Aggregation:** Enabling users to cater to multiple identities that they hold, that govern the kind of information they are interested in.
- 2. Short Form:** Enabling users to consume short form audio based on their interests.
- 3. Low Effort & No Noise:** Enabling users to discover updated and relevant information about the things that they are interested in.

Solution

Echotune is an app that provides personalized news consumption in an audio format. It allows users to create their own audio feeds by entering prompts about their learning topic. For each topic, Echotune takes these goals for collecting relevant news and summarizes it into a daily briefing for the user to catch up with the latest news. If something raises users' interest, they can easily access the original article for a deeper dive.

Echotune also allows users to provide feedback on their briefings. Over time, the app will learn their preferences and tailor the content to their specific needs. Additionally, users can create separate channels for different topics, ensuring recommendations stay relevant to each one. This approach empowers users to have more control over content diversity, shifting the decision-making power partially from the app to themselves.

User Flow

Sign Up

Email

Password

Sign Up

OR

Join as a guest

Already have account? [Sign in](#)

Login

Users first log in into the application.

← Back

What do you want to stay informed about?

I wanna keep up with Nike sneaker releases, especially the Air Jordans

Select up to 5 keywords

Nike ×

Sneaker ×

Air Jordans ×

release

subtopics

subtopics

subtopics

subtopics

subtopics

subtopics

subtopics

subtopics

subtopics

+ Add

Creating audio feeds by prompting

Users can create their own audio news feeds by entering keywords or topics they're interested in learning about. The system then takes the input and expands it into a wider range of search terms to ensure we capture all the relevant news articles.

← Back

Congratulations!

You created your first podcast



SneakersnStuff

Keep up with Nike sneaker releases, especially the Air Jordans

Now available daily

→ Continue

Daily consumption

For each topic, Echotune takes these goals for collecting relevant news and summarizes it into a daily briefing for the user to catch up with the latest news.

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76



Picked for you



Sneakers

Stock

Blockchain



Nike's Senior Designer Talks About New Air Jordan XXXI

Jan 29, 2024

New York Times + 4 more >




The A
Blue"
Jan 29
New Y

Readers will be able to cop this limited "University of Oregon" Nike Air Max 1 this Saturday, March 30, exclusively at Flight Club's Los Angeles, Miami, and New York locations. The sneaker retails for \$350. Proceeds from the sales will



-02:30

5:13



The Air Jordan "Military Blue" Returns May 2024

Jan 29, 2024

Gathered from

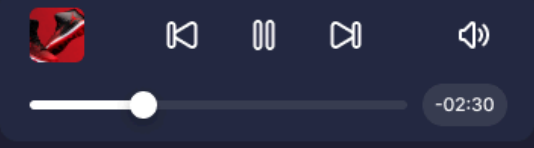
RESULTS IN 2027

Sneaker Bar Detroit ↗

How to Buy the Air Jordan 4 "Military Blue" Releasing May 4th

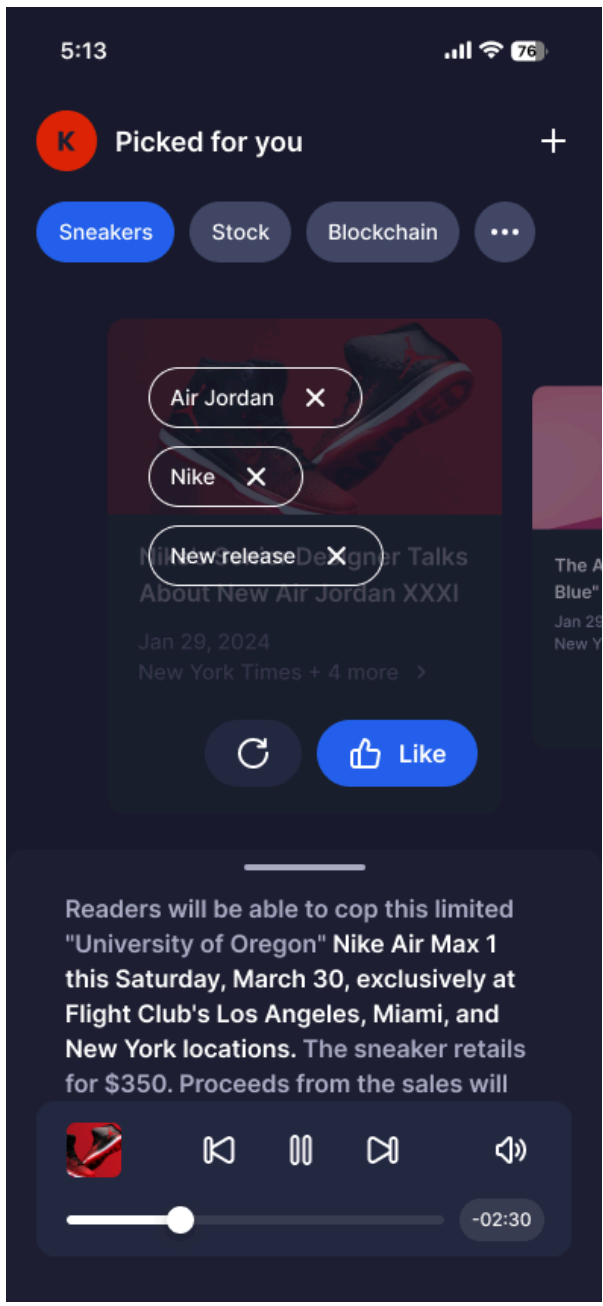
Various ↗

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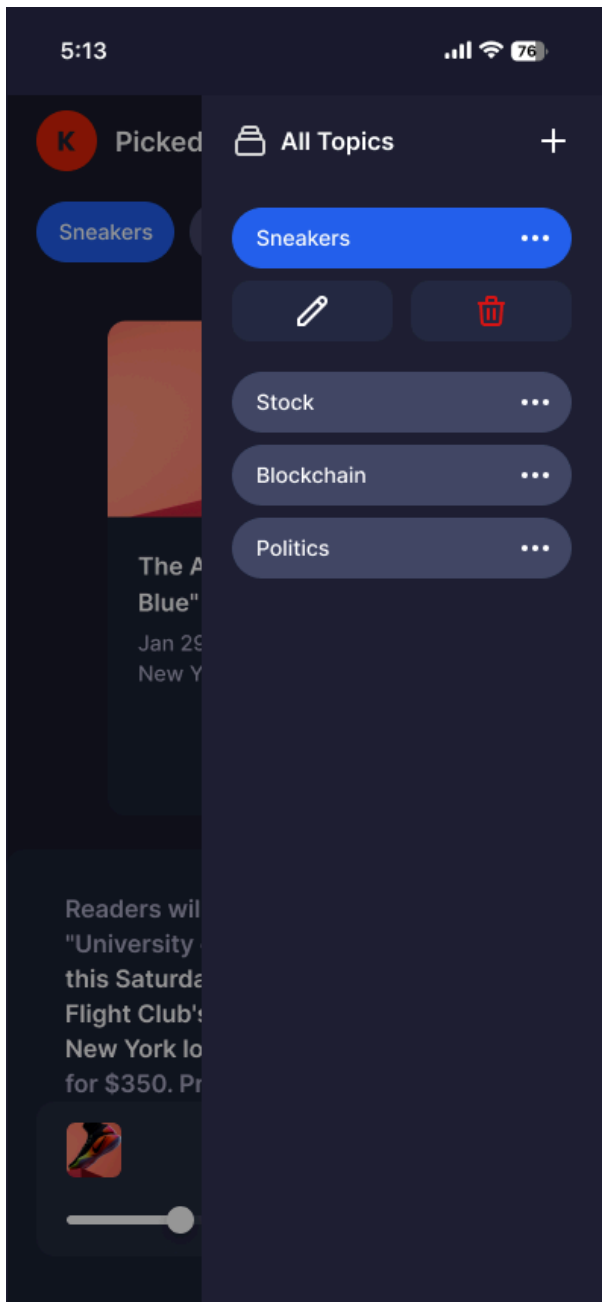
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Tracking back to the source articles
If something raises users' interest, they can easily access the original article for a deeper dive.



Optimizing content by feedback

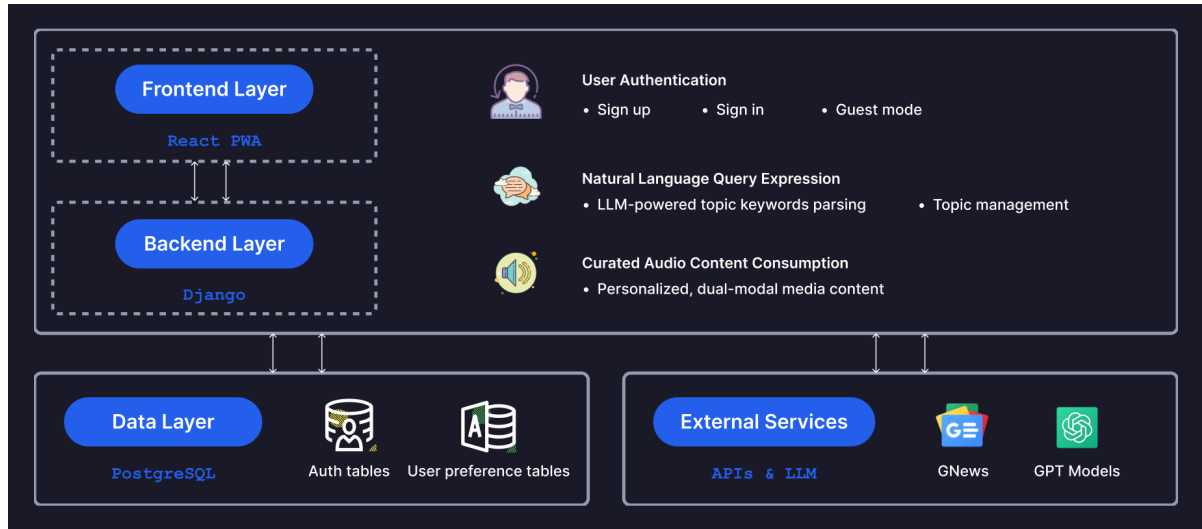
The system also allows users to provide feedback on their briefings. Over time, the app will learn their preferences and tailor the content to their specific needs.



Manage leaning topics

Users can create separate channels for different topics, ensuring recommendations stay relevant to each one.

Technical Architecture



The Frontend Layer is responsible for the user interface and is built using React and Progressive Web App (PWA) technologies. PWAs enable web applications to deliver an app-like experience, including offline functionality, push notifications, and seamless integration with the user's device.

The Backend Layer is developed using the Django framework. It acts as the intermediary between the frontend and the data layer, handling business logic and data processing. Django's robust architecture and extensive library support facilitate efficient development and maintenance of the backend services.

Our data layer is powered by PostgreSQL, a robust and scalable open-source relational database management system. It stores authentication-related data (auth tables) and user preference data (user preference tables). These tables ensure secure authentication and enable the personalization of content based on user preferences. External services include GNews API and Openai API.

These together form the core of our product. The functionalities provided include user authentication, Natural Language Query Expression, topic management, and curated audio generation.

We utilize the Django authentication system and store the user authentication details in auth tables. Once logged in, the user is allowed to enter a natural language query as a learning goal/topic. This query is processed and 10 keywords are generated based on relevance, of which the user can select a maximum of 5.

These keywords are then sent to the GNews API to fetch articles based on their publication date and relevance. A topic name (hashtag) is generated based on the learning goal. The selected keywords are stored in the user preferences table. Finally, once articles are received, coherent summaries are generated and stored in the local storage. TTS is used to generate audio and stored in the device. Both the summaries and the audio are cached for quick access once the user revisits them.

The seamless integration of these components enables a comprehensive user experience, where users can express their learning goals or interests in natural language, which are then processed and used to curate and deliver relevant audio and visual content. The architecture also incorporates user authentication, preference management, and leverages external services and APIs for data and language model functionality.

Users Validation

We tested our initial version of the app (MVP) with a group of users. This helped us identify which new features and technical improvements should be prioritized for future development. To learn more about our plans for the future, please see the following section on future work.

Future Work

Feature expansion

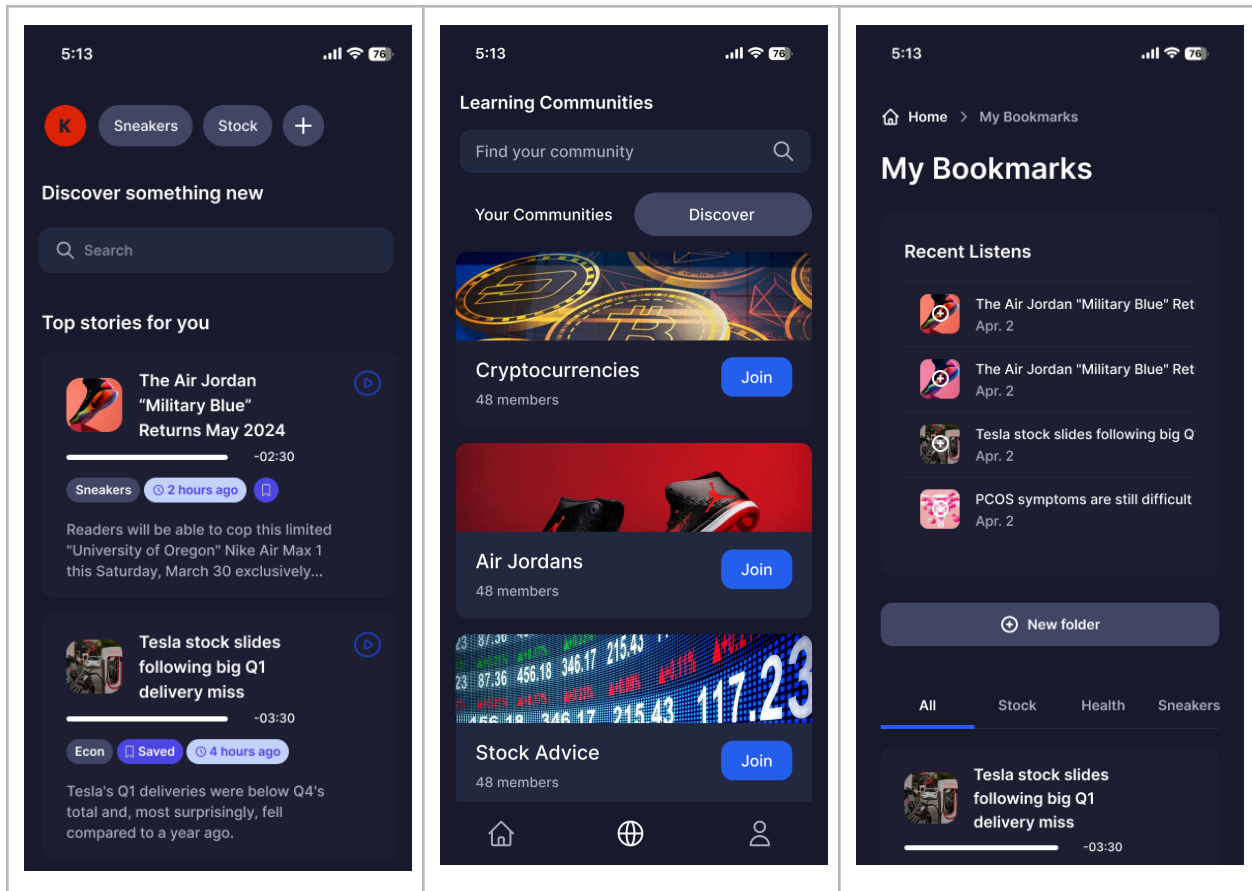
We don't want users to be confined to their initial interests. Echotune will actively recommend diverse content, leveraging the power of our community to expose users to new perspectives. We'll also encourage users to explore broader and deeper learning topics inspired by their peers.

we have several ideas to enhance our application. Firstly, we would like to add a Discover page, where users can search for topics of interest and explore suggested audio files. This feature aims to increase the user's ability to discover relevant information effortlessly.

Secondly, we're exploring the creation of a Community page, providing a space for users to engage with like-minded individuals. Here, users can participate in discussions about learning goals, share insights, and connect with others who share their interests.

Lastly, we're considering the implementation of a Bookmarks page, allowing users to save audio files into folders for later viewing and sharing with others. This feature will provide users with a convenient way to organize and revisit content that resonates with them.

<p>Discovery Page The discover page allows users to search for topics of interest and view suggested audio files.</p>	<p>The community page The community page allows users to engage with others who have similar interests. On the community page, users are able to engage in discussions about learning goals and popular briefings.</p>	<p>Bookmark Folders The bookmarks page allows users to save audio files into folders to view later and share with others.</p>
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Performance Improvements

We want the latest information from GNews and our product relies heavily on LLM. With LLM, results could get out of hand really quickly. We plan to reduce latency for better user experience. We also want to improve the scalability of our product and optimize costs related to these APIs and managing a larger customer base. Enabling offline reading capabilities is also a priority for a better overall experience.

Source Diversity and Bias

We currently rely on GNews API, but we want to expand our source list to include RSS Feeds, newsletters, research articles and journals, and possibly social media. Integrating these diverse sources will provide users with a broader range of content and enable early access notifications. Later, after integration, we would allow users to select the sources they prefer and provide them with more relevant content.

Finally, the project aims to thoroughly investigate and mitigate potential AI-induced biases, ensuring fair and unbiased content delivery.