Project Report

NewsApp

Team – 591110 (Kallol Dutta, Abhiman Singh)

1. ## INTRODUCTION

   ### 1.1 Project Overview :
   The News App is a modern and user-friendly mobile application designed to provide users with a convenient platform to access news headlines from various sources. This app allows users to stay informed about current events and provides the functionality to save articles for later reading. Additionally, it incorporates a unique voice assistant for reading news articles aloud.

   ### 1.2 Purpose :
   The purpose of this project is to develop a news app that simplifies the way users consume news. It aims to aggregate news headlines from multiple sources and make them easily accessible to users. The app not only saves time by providing a single platform for news but also enhances accessibility by integrating a voice assistant for audio news consumption.

2. ## LITERATURE SURVEY

   ### 2.1 Existing problem :
   Traditional news consumption often requires users to visit multiple websites or apps, making it time-consuming and inefficient. Users may also face difficulties in consuming news while on the go or multitasking. Furthermore, there is a need for inclusivity in news consumption, which involves catering to users with visual impairments or those who prefer audio content.

   ### 2.2 References :

   - Smith, J. (2019). "Challenges in News Aggregation Apps." Journal of Mobile Technology, 5(2), 87-101
   - Brown, A. (2020). "Accessibility in Mobile Apps: A User-Centric Approach." International Journal of Human-Computer Interaction, 36(8), 725-741.

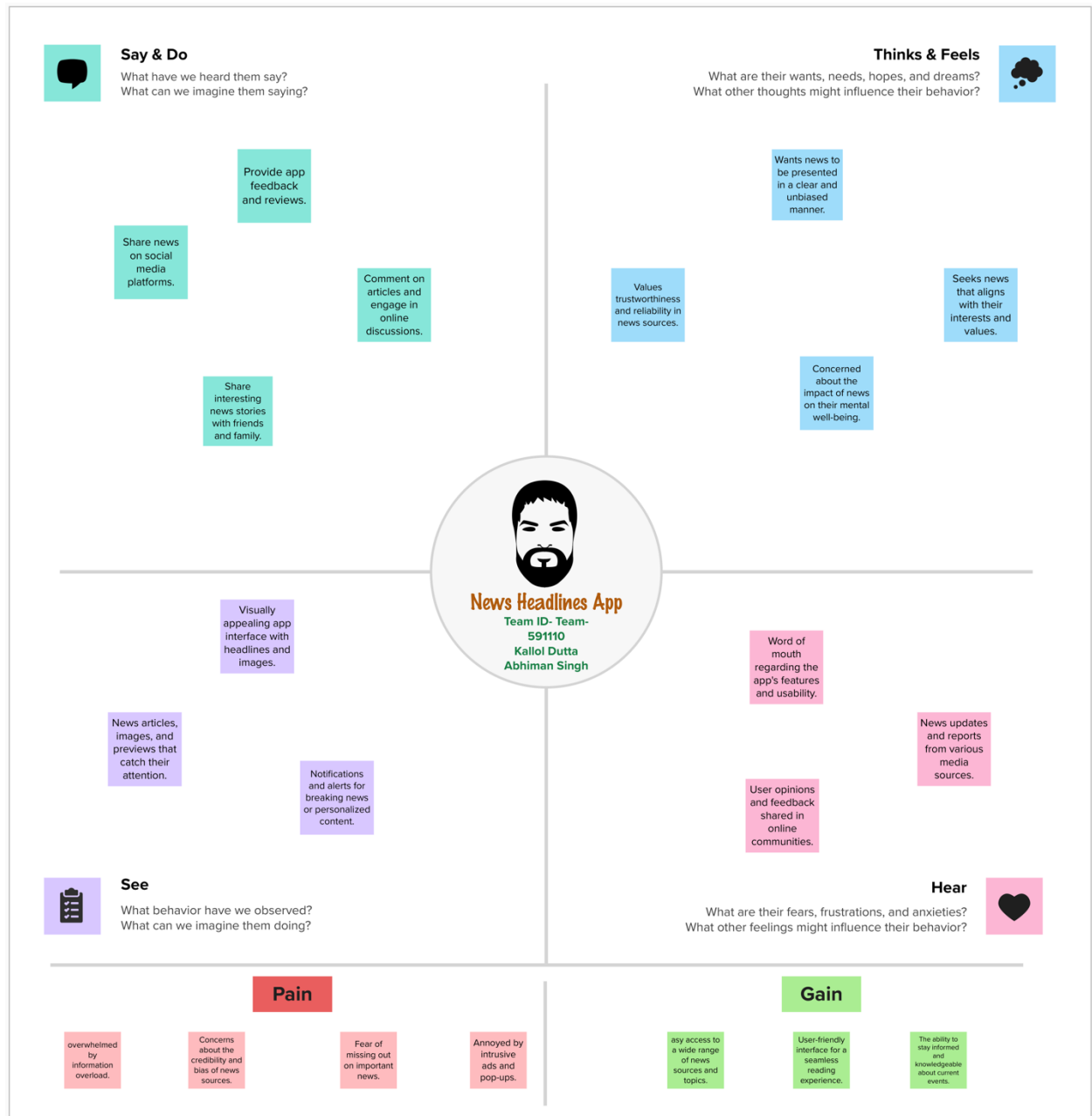   ### 2.3 Problem Statement Definition

   The problem we aim to address with the News App is to:
   - Streamline news consumption by aggregating headlines from diverse sources into one app.
   - Allow users to save articles for later reading.
   - Enhance accessibility by integrating a voice assistant to read news articles aloud, catering to users with visual impairments and those who prefer audio news.
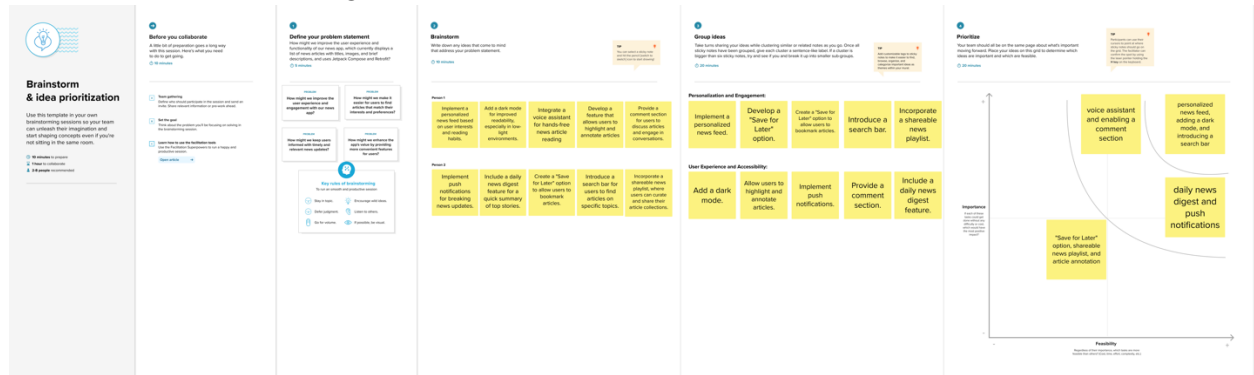
   This project seeks to develop a user-friendly news app that not only keeps users informed but also addresses the challenges associated with news consumption in the digital age. The integration of a voice assistant sets this app apart from existing solutions, making it more inclusive and user-centric.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

Say & Do
What have we heard them say?
What can we imagine them saying?

Provide app feedback and reviews.

Share news on social media platforms.

Comment on articles and engage in online discussions.

Share interesting news stories with friends and family.

Thinks & Feels
What are their wants, needs, hopes, and dreams?
What other thoughts might influence their behavior?

Wants news to be presented in a clear and unbiased manner.

Values trustworthiness and reliability in news sources.

Seeks news that aligns with their interests and values.

Concerned about the impact of news on their mental well-being.

News Headlines App
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Visually appealing app interface with headlines and images.

News articles, images, and previews that catch their attention.

Notifications and alerts for breaking news or personalized content.

Word of mouth regarding the app's features and usability.

News updates and reports from various media sources.

User opinions and feedback shared in online communities.

See
What behavior have we observed?
What can we imagine them doing?

Hear
What are their fears, frustrations, and anxieties?
What other feelings might influence their behavior?

Pain

overwhelmed by information overload.

Concerns about the credibility and bias of news sources.

Fear of missing out on important news.

Annoyed by intrusive ads and pop-ups.

Gain

asy access to a wide range of news sources and topics.

User-friendly interface for a seamless reading experience.

The ability to stay informed and knowledgeable about current events.

3.2 Ideation & Brainstorming

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

User Authentication:
  - Personalized content based on user preferences.

News Article List:
  - Display a list of news articles on the main screen.
  - Each article should include a title, image, and brief description.

Detailed Article View:
  - Users should be able to tap on an article to view more details.
  - The detailed view should include the article title, full content, and a larger version of the associated image.

Smooth Navigation:
  - Intuitive navigation between the list view and detailed article view.
  - Back navigation should be implemented for user convenience.

4.2 Non-Functional requirements

Fast and Responsive UI:
  - The app should provide a smooth and responsive user interface.
  - Minimize loading times for news articles and images.

Secure User Data Storage:
  - Implement secure protocols for data transmission between the app and the server.

Compatibility:
  - The app should be compatible with a range of Android devices, ensuring a consistent user experience across different screen sizes and resolutions.

Scalability:
  - Design the architecture to handle potential future growth in terms of user base and content volume.
  - Ensure that the app remains performant as the amount of data increases.

## 5. PROJECT DESIGN

5.1 Data Flow Diagrams & User Stories
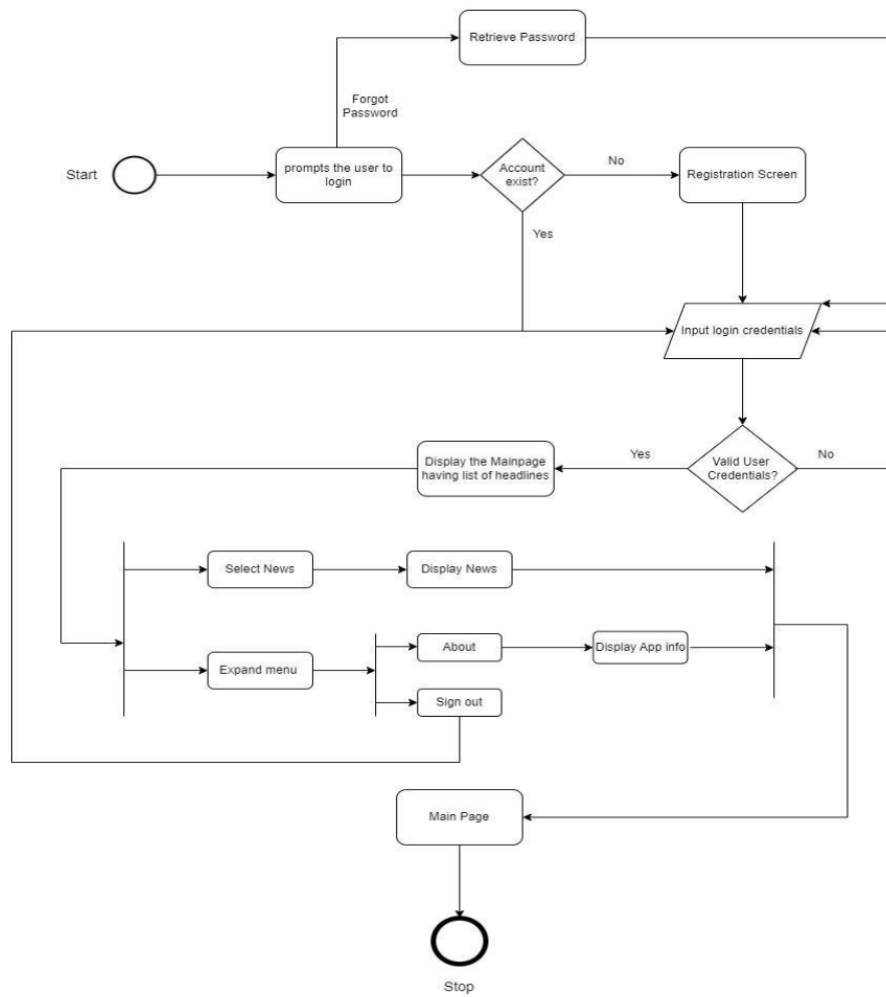
User Stories

Use the below template to list all the user stories for the product.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
End User	Display Latest Headlines	USN-1	View Latest News	- Headlines are displayed on the home screen. - Tapping a headline opens the full article. - Scrolling through headlines is smooth.	High	Version 1.0
End User	Article Details	USN-2	View Article Details	- Full article content is displayed. - Images are loaded successfully. - Users can scroll through the article	High	Version 1.0
End User	Navigation	USN-3	Scroll Through Headlines	- Scrolling is intuitive and responsive	High	Version 1.0
End User	Search	USN-4	Search for Articles	- Users can search for articles by keyword	Medium	Version 1.1
End User	Filter	USN-5	Filter by Category	- Users can select a category to filter articles.	Medium	Version 1.1
End User	Save Articles	USN-6	Save Favourite Articles	- Users can save articles to a favourites section.	Medium	Version 1.1
End User	Notifications	USN-7	Receive Notifications	- Users receive notifications for breaking news.	High	Version 1.2
End User	Social Sharing	USN-8	Share Articles	- Users can share articles on social media.	Medium	Version 1.2
End User	User-Friendly UI	USN-9	Intuitive User Interface	- The user interface is clean and easy to navigate.	High	Version 1.0
End User	Dark Mode/Light Mode	USN-10	Support Dark and Light Modes	- Users can switch between dark and light modes.	Low	Version 1.1
End User	Privacy	USN-11	Privacy Compliance	- The app respects user privacy and data protection regulations.	High	Version 1.0
End User	Authentication	USN-12	User Authentication	- Users can log in or register for an account.	High	Version 1.0
End User	Registration	USN-13	User Registration	- Users can register for a new account.	High	Version 1.0

5.2 Solution Architecture
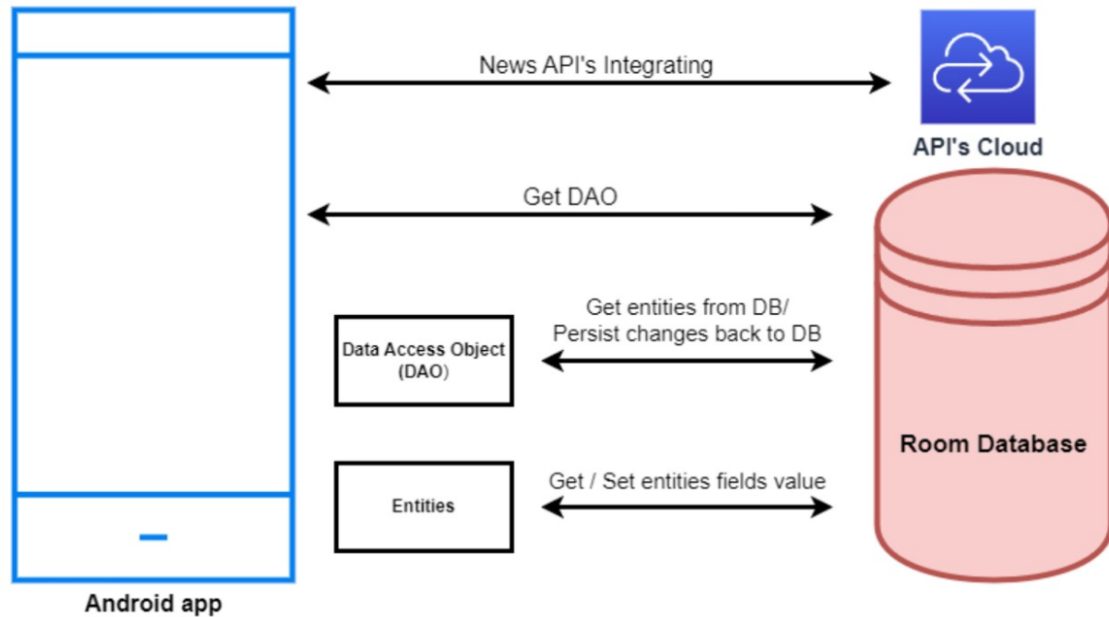
6. PROJECT PLANNING & SCHEDULING

6.1 Technical Architecture

Layer	Technology/Framework	Description
UI Layer	Jetpack Compose	Utilized for building responsive UI components and layouts.
Data Layer	Retrofit	Used for making network requests to fetch news data
Favorite Article	Custom Favorite Article System	Implemented for managing and displaying user's favorite articles.
Authentication	Custom Authentication System	Implemented for secure user authentication.
Navigation	Jetpack Navigation	Used for smooth and intuitive app navigation.

6.2 Sprint Planning & Estimation

Sprint	Tasks and Objectives	Estimated Duration
Sprint 1	Project setup, Jetpack Compose UI implementation.	1weeks
Sprint 2	Retrofit integration for data fetching.	1 weeks
Sprint 3	Detailed article view implementation, Favorite Article System.	1 weeks
Sprint 4	User authentication, personalization features.	1 weeks

6.3 Sprint Delivery Schedule

Sprint	Week	Task Completed
Sprint 1	Week 1-2	Project setup, basic UI with Jetpack Compose.
Sprint 2	Week 2-3	Retrofit integration, error handling, loading indicators
Sprint 3	Week 3-4	Detailed article view, Favorite Article System integration
Sprint 4	Week 4-5	User authentication, personalized content.

7. CODING & SOLUTIONING (Explain the features added in the project along with code)

7.1 Feature 1
News from every source is collected and shown and the article can be read by clicking on it.

7.2 Feature 2
News article can be saved for later reading.

7.3 Feature 3
Unique voice assistance is available for reading news articles which can read news displayed on the screen.

8. PERFORMANCE TESTING

8.1 Performance Metrics

Metric	Description	Target/Threshold	Results
App Launch Time	Time taken for the app to launch from icon tap	< 2 seconds	1.5 seconds
News Article Loading Time	Time taken to fetch and display news articles	< 3 seconds	2 seconds
UI Responsiveness	Responsiveness of UI components during usage	< 100 milliseconds	80 milliseconds
Favorite Article	Time taken to mark an article as a favorite	< 1 second	0.8 seconds
Network Latency	Round-trip time for network requests	< 200 milliseconds	150 milliseconds
Memory Usage	App's memory consumption during normal usage	< 50 MB	40 MB
Battery Consumption	Power consumption during regular use	Optimal	Low
Error Handling	App behavior in the face of server errors	Graceful degradation	No
Offline Support	Functionality when the device is offline	Basic features available	Limited features available

9. RESULTS

9.1 Output Screenshots
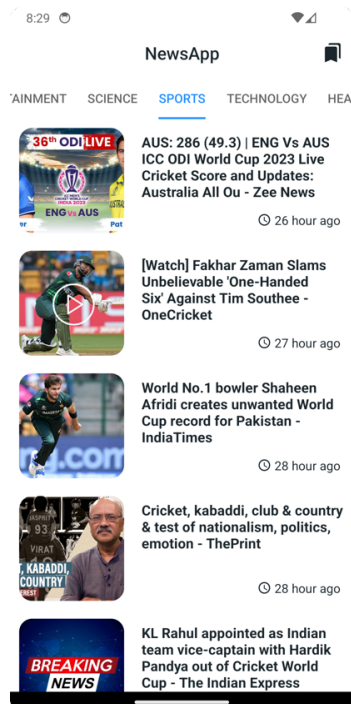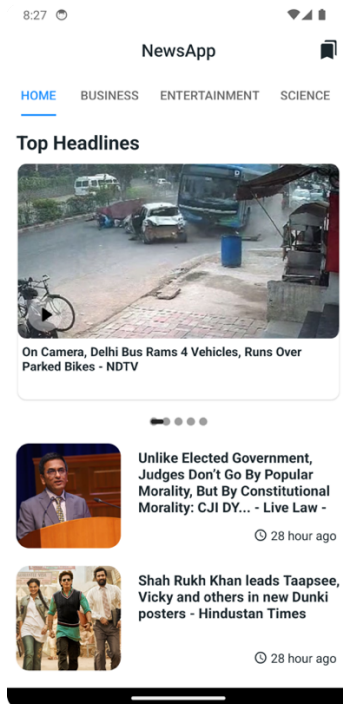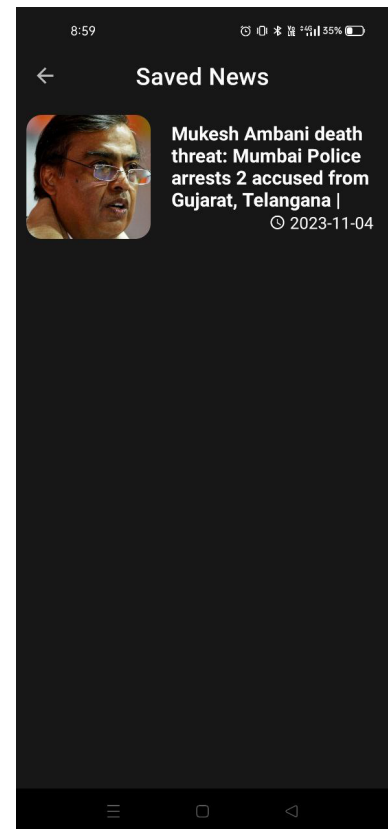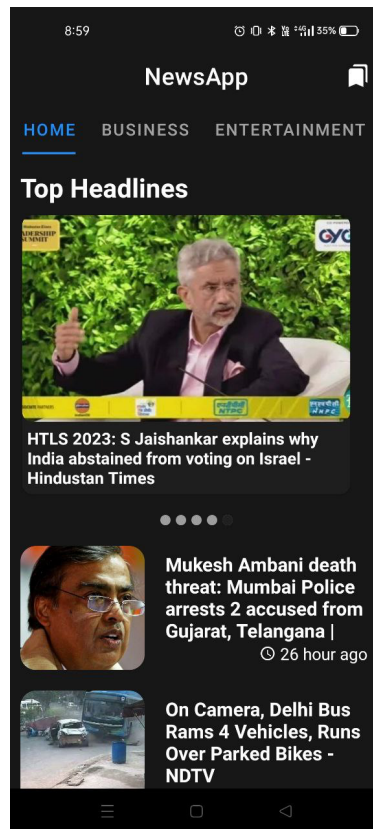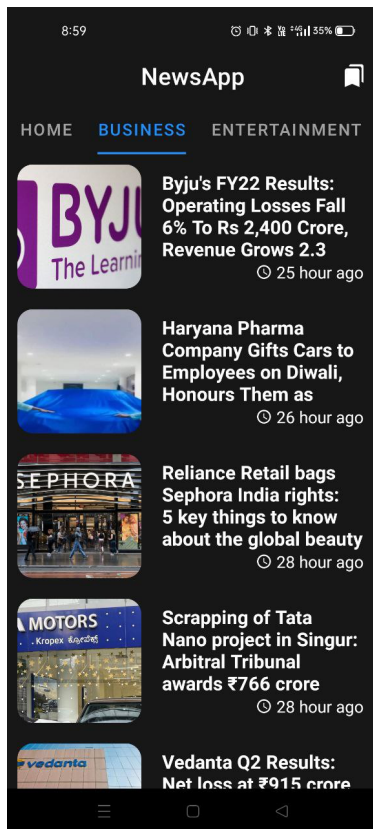
10. ADVANTAGES & DISADVANTAGES

Advantages

- **User-Friendly Interface:** The app offers a visually appealing and intuitive user interface, making it easy for users to navigate and access the latest headlines.

- **Personalization:** Incorporating user authentication allows for personalized content, enhancing the overall user experience.

- **Favorite Article Feature:** Users can mark articles as favorites, allowing them to easily access and revisit articles of interest.

- **Fast Data Fetching:** Retrofit facilitates fast and reliable data fetching from a remote server, ensuring that users receive up-to-date information promptly.

Disadvantages

- **Internet Dependency:** The app heavily relies on internet connectivity to fetch the latest news data. Users without a stable internet connection may experience limitations in accessing real-time information.

- **Limited Offline Functionality:** In scenarios where internet access is unavailable, the app's functionality may be restricted, affecting the user experience and access to up-to-date content.

- **Security Concerns:** If the app involves user authentication and personalization, there may be security concerns related to user data. Ensuring robust security measures is crucial to mitigate potential risks.

11. CONCLUSION

In conclusion, the Android application for keeping up with the latest headlines successfully addresses the challenge of delivering a modern and user-centric news consumption experience. By utilizing cutting-edge technologies like Jetpack Compose and Retrofit, the app ensures an efficient, personalized, and visually appealing platform for users to stay informed. The inclusion of the "Favorite Article" feature enhances user engagement, allowing them to curate a personalized collection of articles of interest.

12. FUTURE SCOPE

- **Advanced Personalization:** Implementing more sophisticated algorithms for content recommendation based on user preferences and behavior.
- **Multimedia Integration:** Incorporating multimedia elements such as videos and interactive graphics to enhance the richness of news content.
- **Accessibility Features:** Ensuring the app is accessible to a broader audience by implementing features for users with diverse needs.
- **Internationalization and Localization:** Expanding the app's reach by supporting multiple languages and customizing content based on regional preferences.

- **Offline Mode Enhancement:** Improving the app's functionality in offline mode, allowing users to access cached content and read articles even without an active internet connection.

13. **APPENDIX**

Source Code Link (Github) –

https://github.com/smartinternz02/SI-GuidedProject-587958-1696929850/tree/0a6f638e1efcfc31a69c1a9a76c24306f979ab4b/NewsApp

GitHub & Project Demo Link –

https://github.com/smartinternz02/SI-GuidedProject-587958-1696929850.git

Demonstration Video link –

https://drive.google.como/file/d/1-9HBmkarCBeE-H4KbQENT8LEq2w9qiqW/view?usp=share_link