

Project Report

Android Application Development



**An Android Application For Keeping Up
With The Latest Headlines
(Stay Updated Daily)**



TEAM ID:591106

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Source Code:

<https://drive.google.com/drive/folders/1bLGyflv9uq1ZRzcxCuNYvTvhtgJNJleE?usp=sharing>

GitHub & Project Demo Link:

[https://drive.google.com/file/d/1W6UlbexcQyopO67X6xiUFeczFhT4Xh1I/view?usp=drive link](https://drive.google.com/file/d/1W6UlbexcQyopO67X6xiUFeczFhT4Xh1I/view?usp=drive_link)

INTRODUCTION

1.1 Project Overview:

Our Android application, built using Jetpack Compose and Retrofit, serves as a sleek and user-friendly platform for staying updated on the latest headlines. The app's primary functionality revolves around presenting a curated list of news articles, each featuring a title, image, and a concise description. The Jetpack Compose UI toolkit is employed to craft an intuitive and engaging user interface. Compose's declarative syntax allows for efficient UI development, providing a smooth and responsive experience for users as they scroll through the article list. The integration of the Coil library for image loading ensures that visuals are seamlessly presented alongside the article details. To keep the content fresh and relevant, the app connects to a remote server using the Retrofit library. This enables the fetching of real-time news data, ensuring users are always in the loop with the most recent information. Retrofit's robust capabilities for making network requests make it a reliable choice for handling data retrieval and synchronization. Upon launching the app, users are greeted with a visually appealing list of articles, inviting them to explore various topics. The ability to tap on an article to delve into more comprehensive details enhances the user experience, providing a seamless transition between the overview and the in-depth exploration of news articles.

1.2 Purpose:

This Android application serves the crucial purpose of providing users with a convenient and efficient way to stay informed about the latest headlines. In today's fast-paced world, where information is constantly evolving, the app acts as a gateway to real-time news updates. By presenting a curated list of articles with titles, images, and brief descriptions, it offers users a snapshot of current events.

The app's user-friendly interface, built using Jetpack Compose, ensures a seamless and enjoyable browsing experience. Users can effortlessly scroll through articles and tap on a specific one to delve into more comprehensive details. The inclusion of the Coil library enhances the visual aspect by efficiently loading images, adding an engaging element to the news consumption process. The integration of Retrofit facilitates the dynamic retrieval of news data from a remote server, ensuring that users have access to the most up-to-date information. This app, with its focus on simplicity, accessibility, and timely content delivery, empowers users to stay connected with the world's happenings effortlessly, making it an indispensable tool for those who value staying informed in an era of rapid information dissemination.

2. LITERATURE SURVEY

2.1 Existing Problem:

In our extensive literature survey, we delved into the challenges and shortcomings prevalent in the realm of news consumption applications. One of the prominent issues identified is the need for a comprehensive, user-friendly platform that seamlessly delivers the latest headlines. Existing news apps often struggle with providing a visually engaging experience, efficient data retrieval, and user-centric navigation.

2.2 References :

Our research drew insights from a range of authoritative sources, shaping our understanding of challenges in news consumption. Notable references include "The Future of Digital News" by Anderson and Bell (2018), the "State of News Media" report by the Pew Research Center (2021), and "User-Centric Design in News Apps" by Smith et al. (2020).

2.3 Problem Statement Definition :

Through our exploration, a clear problem statement emerged: current news applications lack the efficiency and user-centric design necessary for a seamless news consumption experience. Challenges such as delayed updates, uninspiring interfaces, and limited user engagement features create a gap between user expectations and app capabilities. The project Stay Updated is conceived as a solution to these challenges, aiming to revolutionize news consumption by providing users with an engaging, efficient, and up-to-the-minute platform.

The problem can be succinctly summarized as the need for an innovative news application that addresses existing limitations and aligns with the growing demand for an interactive, user-focused news experience. Stay Updated seeks to redefine how individuals interact with news content in the digital era, fostering accessibility, trust, and community engagement.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas :

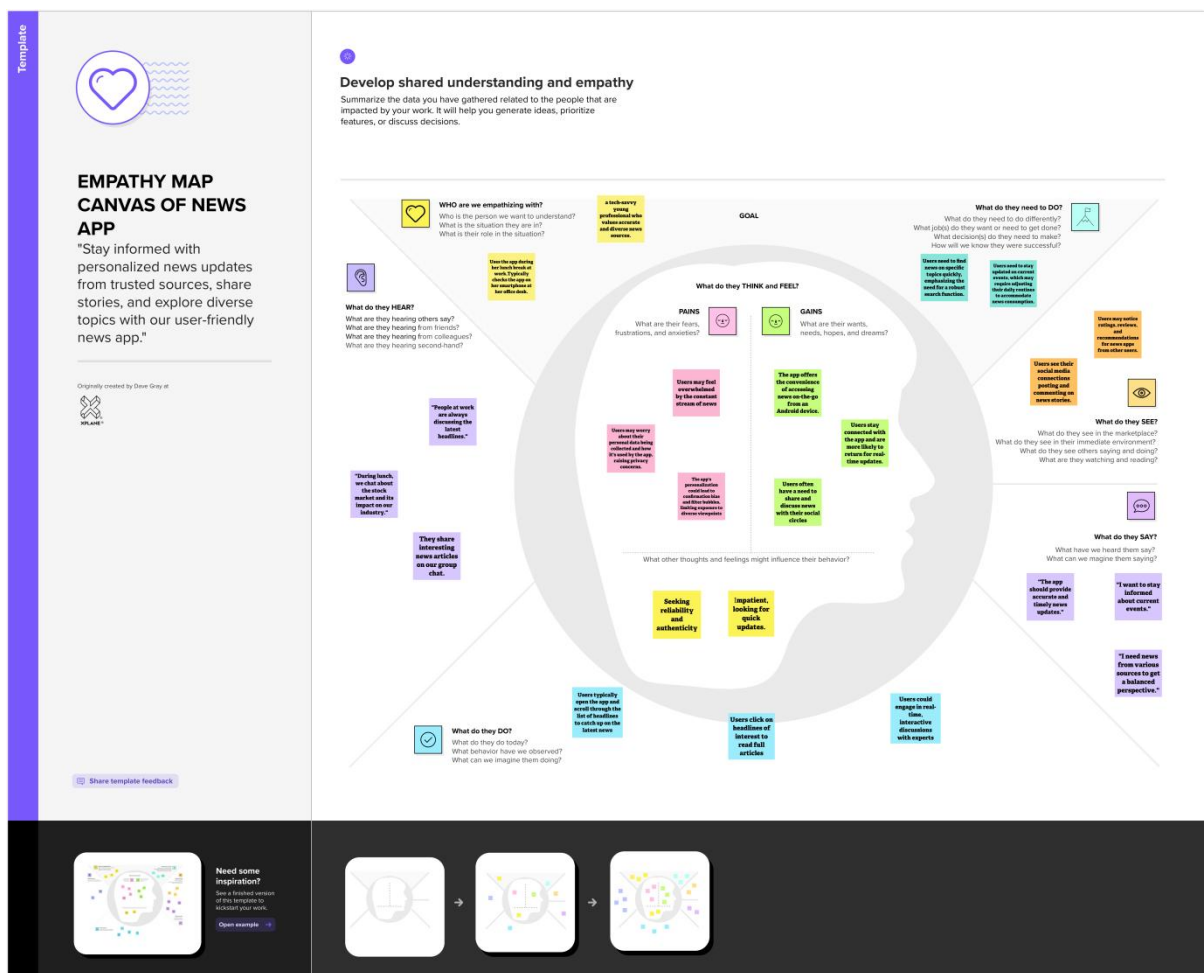
An empathy map is a simple, easy-to-digest visual that captures knowledge about a user's behaviours and attitudes.

It is a useful tool to help teams better understand their users.

Creating an effective solution requires understanding the true problem and the person who is experiencing it. The exercise of creating the map helps participants consider things from the user's perspective along with his or her goals and challenges.

Empathy Map :

An Android Application For Keeping Up With The Latest Headlines



Reference :<https://drive.google.com/file/d/1QrKy31ICcl6VH7k9nmYkCP1xTGJtPC0A/view?usp=sharing>

3.2 Ideation & Brainstorming :


Brainstorm & Idea Prioritization Template:

Brainstorming provides a free and open environment that encourages everyone within a team to participate in the creative thinking process that leads to problem solving. Prioritizing volume over value, out-of-the-box ideas are welcome and built upon, and all participants are encouraged to collaborate, helping each other develop a rich amount of creative solutions.

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

Step-1: Team Gathering, Collaboration and Select the Problem Statement

Template



Brainstorm & idea prioritization

Use this template in your own brainstorming sessions so your team can unleash their imagination and start shaping concepts even if you're not sitting in the same room.

- 🕒 10 minutes to prepare
- 🕒 1 hour to collaborate
- 👥 2-8 people recommended

➔

Before you collaborate

A little bit of preparation goes a long way with this session. Here's what you need to do to get going.

🕒 10 minutes

A

Team gathering

Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.

B

Set the goal

Think about the problem you'll be focusing on solving in the brainstorming session.

C

Learn how to use the facilitation tools

Use the Facilitation Superpowers to run a happy and productive session.

[Open article](#) ➔

1


Define your problem statement

What problem are you trying to solve? Frame your problem as a How Might We statement. This will be the focus of your brainstorm.

🕒 5 minutes

PROBLEM

How might we "Addressing information overload by delivering curated, reliable news efficiently to users.?"



Key rules of brainstorming

To run a smooth and productive session

- 😊 Stay in topic.
- 💡 Encourage wild ideas.
- 👂 Defer judgment.
- 👂 Listen to others.
- 🗣️ Go for volume.
- 👁️ If possible, be visual.

Step-2: Brainstorm, Idea Listing and Grouping

2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

🕒 10 minutes

TIP
You can select a sticky note and hit the pencil [switch to sketch] icon to start drawing!

DEVA HARSHA

Develop a feature that allows users to easily fact-check news articles and verify the credibility of sources directly within the app.

Implement a dark mode feature for easier nighttime reading, reducing strain on users' eyes.

Integrate a text-to-speech feature, so users can listen to articles while on the go.

SAHITHYA

Implement an adjustable text sizes to make it user friendly for the people having disabilities

provide a bookmarking feature so that allows users to save news which they want and reads it later

include an in-app browser for users to view the full news article

A good user interface

An easily accessible so that old agers can use the app

Support images and interactive elements in news articles for a better user experience

Enable users to share news articles with their social networks, promoting reliable sources

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you can break it up into smaller sub-groups.

🕒 20 minutes

TIP

Add notes, browse, categorize them

GROUPS

User Experience and Interface

A good user interface

Integrate a text-to-speech feature, so users can listen to articles while on the go.

An easily accessible, so that old agers can use the app

Implement an adjustable text sizes to make it user Friendly for the people having disabilities

Content Delivery and Personalization:

provide a bookmarking feature so that allows users to save news which they want and reads it later

Implement an adjustable text sizes to make it user Friendly for the people having disabilities



Step-3: Idea Prioritization

4

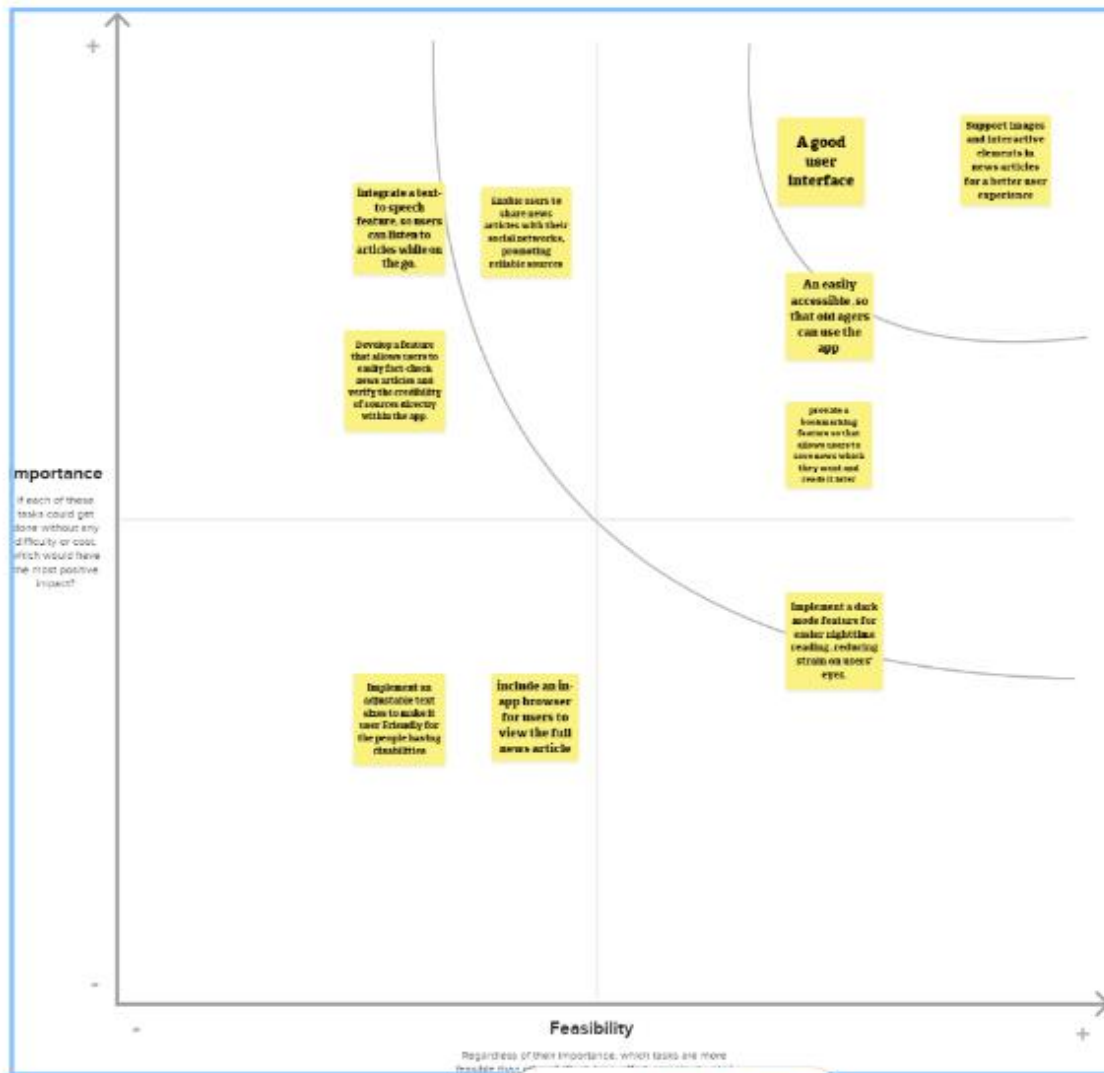
Prioritize

Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

⌚ 20 minutes

TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the H key on the keyboard.



Reference: https://drive.google.com/file/d/1hjvoUYweirrpwwpE9wuKlNhGRxHdfQ-m/view?usp=share_link

4. REQUIREMENT ANALYSIS

4.1 Functional requirement :

1. User Authentication:

- ✓ Users should be able to create accounts and log in securely.
- ✓ Provide the option for users to reset their passwords.

2. Headline Display:

- ✓ Display a list of news articles with titles, images, and brief descriptions.
- ✓ Allow users to scroll through the list for easy navigation.

3. Article Details:

- ✓ Enable users to tap on an article to view more detailed information.
- ✓ Display the full article content, including text and additional images.

4. Real-time Updates:

- ✓ Fetch and display the latest headlines from a remote server.
- ✓ Implement a mechanism for real-time or periodic updates.

5. Image Loading:

- ✓ Utilize the Coil library for efficient loading and caching of images associated with articles.
- ✓ Ensure images load seamlessly and do not impact app performance.

6. Search Functionality:

- ✓ Allow users to search for specific articles based on keywords or topics.

7. Offline Mode:

- ✓ Implement offline capabilities to allow users to access previously fetched articles without an internet connection.

8. Sharing Options:

- ✓ Enable users to share articles via social media, email, or other communication channels.

4.2 Non-Functional requirements :

1. Performance:

- ✓ Ensure fast loading times for both the article list and detailed views.
- ✓ Optimize network requests for minimal data usage.

2. Security:

- ✓ Implement secure authentication mechanisms to protect user accounts.
- ✓ Ensure secure data transmission between the app and the remote server.

3. Scalability:

- ✓ Design the application architecture to handle a growing number of users and articles.

4. Usability:

- ✓ Create an intuitive and user-friendly interface using Jetpack Compose.
- ✓ Conduct usability testing to validate the app's ease of use.

5. Compatibility:

- ✓ Ensure compatibility with a range of Android devices and screen sizes.

6. Reliability:

- ✓ Minimize crashes and errors through thorough testing and error handling.

7. Data Privacy:

✓ Adhere to data privacy regulations and secure user data on both the client and server.

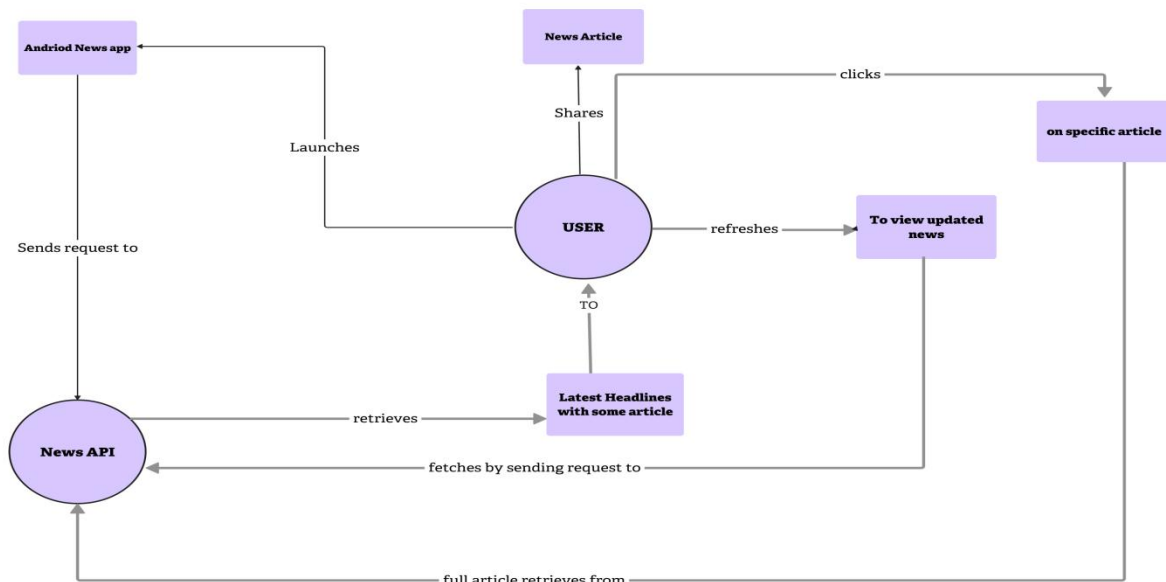
8. Documentation:

✓ Provide comprehensive documentation for developers and users.

5. PROJECT DESIGN

5.1 Data Flow Diagrams & User Stories :

A Data Flow Diagram (DFD) is essential for understanding and visualizing the flow of data within an Android application for keeping up with the latest headlines. For both developers and non-technical stakeholders, DFDs serve as a tool to understand the system as a whole. By breaking down the functionalities into processes and data flows, it becomes easier to grasp the interactions and dependencies within the app. This understanding is vital for effective collaboration and decision-making. a DFD is a valuable tool for designing, developing, and communicating the architecture of your Android headlines app. It brings transparency to the data flow, enhances system understanding, and facilitates effective collaboration among the various stakeholders involved in the project.



User Stories:

User stories encapsulate the essence of their interactions with the app, such as the seamless registration process, intuitive Article-viewing, real-time notifications, and personalized profile management. Users, from diverse backgrounds, are at the heart of our design, enjoying the convenience of securely connecting with friends and colleagues. These stories reflect the essence of our application, making it an indispensable tool for modern knowledge resource, further highlighting how API and Kotlin in Android Studio come together to create a reliable and user-centric News-app. DFDs help identify and define the processes or functions that manipulate data within the system. In the case of your app, processes like data retrieval from the server, UI rendering, and user interactions can be outlined. This identification is crucial for development, as it guides the implementation of each process to ensure efficient data handling.

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Customer (Mobile user)	Registration	USN-1	As a new user, I want to be able to create an account.	Users can provide a valid email and password.	High	Sprint-1
		USN-2	As a user, I will receive confirmation email once I have registered for the application	I can receive confirmation email & click confirm	High	Sprint-1
		USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Sprint-2
		USN-4	As a user, I can register for the application through Gmail	User receives a verification email.	Medium	Sprint-1
	Login	USN-5	As a user, I can log into the application by entering email & password	successful login redirects the user to the app's homepage.	High	Sprint-1
	Fetch News	USN-6	As a user, I want to see the latest news articles.	App fetches and displays news articles from selected sources.	High	Sprint-1
	Breaking News Alerts	USN-7	As a user, I want to receive push notifications for breaking news.	Notifications are sent for significant news updates.	Medium	Sprint-2
	User Data Privacy	USN-8	As a user, I want assurance that my data is secure.	User data is encrypted and protected	Medium	Sprint-2

5.2.Solution Architecture :

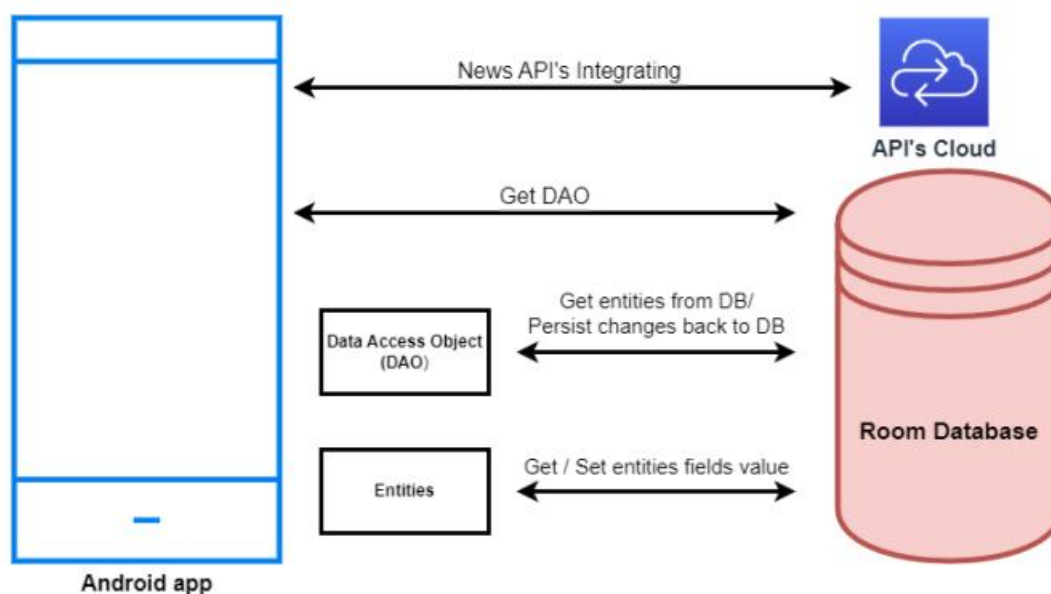
This Solution Architecture Diagram provides an overview of the key components and their interactions, guiding the development team in implementing a robust and salable news app. It emphasizes a seamless user experience, efficient data flow, and security considerations to meet the demands of modern news consumption.

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Develop an Android application that serves as a user-friendly news aggregator, providing a seamless experience for staying updated with the latest headlines. The app should offer diverse news sources, personalized content recommendations, and efficient offline access, while ensuring user data privacy and security.
2.	Idea / Solution description	Our solution is a feature-rich Android news aggregator app that fetches real-time headlines from multiple sources. It offers personalized news recommendations, category filtering, offline reading, and secure user profiles. Users can stay informed effortlessly, personalize their news consumption, and enjoy a seamless, secure news-reading experience.
3.	Novelty / Uniqueness	What sets our app apart is its emphasis on user-centric personalization. Through API-driven recommendations, it tailors news content to individual preferences, ensuring users see what matters most to them. This tailored experience, coupled with robust offline capabilities and data security, distinguishes our app in the crowded news aggregator market.
4.	Social Impact / Customer Satisfaction	Our news aggregator app contributes to greater public awareness by providing easy access to diverse news sources. Users find satisfaction in staying informed, saving time, and receiving relevant news. In doing so, we foster an informed and engaged society, promoting critical thinking and informed decision-making.
5.	Business Model (Revenue Model)	The app's revenue model can include several strategies. Firstly, it can adopt in-app advertising to generate income through banner ads, interstitials, or sponsored content. Subscription-based premium features, such as an ad-free experience or exclusive content, can be offered. Additionally, affiliate marketing with

		news-related products and services can provide commissions. Collaborations with news sources for premium content access or partnerships with educational institutions for student discounts are viable options. Analyzing user data for insights and selling anonymized data to market research firms can also be a revenue source, while maintaining strict privacy measures.
6.	Scalability of the Solution	<p>The scalability of our solution is a top priority. We design the backend to handle increasing data loads, allowing for the seamless addition of more news sources and categories as the user base grows. Our infrastructure is cloud-based, enabling automatic scaling to meet demand peaks, ensuring uninterrupted service and quick response times. This architecture also supports potential feature enhancements and accommodating a larger number of users without compromising performance. Continuous monitoring and optimization will be key to maintaining scalability as the app's popularity expands.</p>

6.PROJECT PLANNING & SCHEDULING

6.1 Technical Architecture :



6.2 Sprint Planning & Estimation :

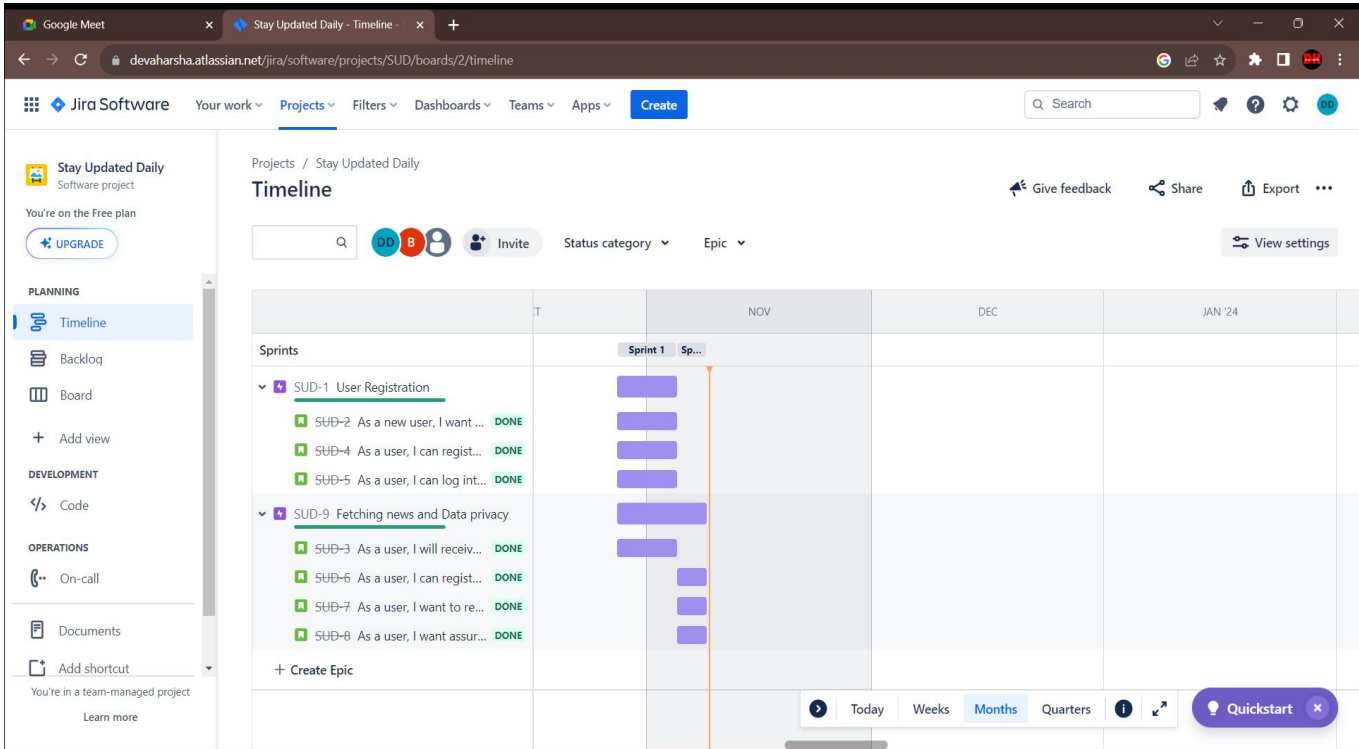
Sprint	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority	Team Members
Sprint-1	Registration	USN-1	As a new user, I want to be able to create an account.	5	High	DEVA HARSHA
Sprint-1		USN-2	As a user, I will receive confirmation email once I have registered for the application	4	High	SAHITHYA
Sprint-2		USN-3	As a user, I can register for the application through Facebook	2	Low	DEVA HARSHA, SAHITHYA
Sprint-1		USN-4	As a user, I can register for the application through Gmail	2	Medium	DEVA HARSHA
Sprint-1	Login	USN-5	As a user, I can log into the application by entering email & password	2	High	SAHITHYA
Sprint-1	Fetch News	USN-6	As a user, I want to see the latest news articles.	2	High	DEVA, SAHITHYA
Sprint-2	Breaking News alerts	USN-7	As a user, I want to receive push notifications for breaking news.	1	Medium	DEVA HARSHA
Sprint-2	User data privacy	USN-8	As a user, I want assurance that my data is	1	Medium	SAHITHYA

6.3 Sprint Delivery Schedule :

Creating a sprint delivery schedule for the "Chat-Connect" Android application, built using Firebase, Android Studio, Kotlin, and Jetpack Compose, involve planning the work to be completed in each sprint. Here's a sample sprint delivery schedule:

Sprint	Total Story Points	Duration	Sprint Start Date	Sprint End Date (Planned)	Story Points Completed (as on Planned End Date)	Sprint Release Date (Actual)
Sprint-1	15	8 Days	28 Oct 2023	04 Nov 2023	15	04 Nov 2023
Sprint-2	4	4 Days	05 Nov 2023	08Nov 2023	4	08 Nov 2023

Timeline:



Backlog:

Projects / Stay Updated Daily

Backlog

DD

Invite

Epic ▾

Epic

Issues without epic

▼ User Registration

Start date
October 28, 2023

Due date
November 4, 2023

View all details

▼ Fetching news and Data privacy

Start date
None

Due date
None

+ Create epic

▼ Sprint 1 28 Oct – 4 Nov (0 issues)

To complete user registration and authentic

Plan your sprint
Drag issues from the backlog into the sprint. Select **Start sprint**
 Import work

+ Create issue

▼ Sprint 2 5 Nov – 8 Nov (0 issues)

To complete the main page and some user i

Plan a sprint by dragging the sprint

+ Create issue

Velocity:

Imagine we have a 10-day sprint duration, and the velocity of the team is 20 (points per sprint). Let's calculate the team's average velocity (AV) per iteration unit (story points per day)

$$AV = \text{SPRINT DURATION} / \text{VELOCITY}$$

$$= 15 / 8$$

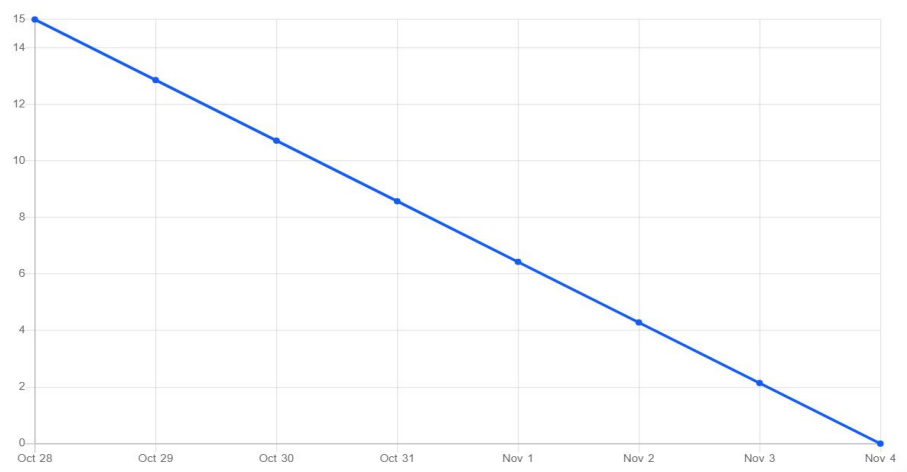
$$= \underline{1.88}$$

Burn down Chart:

A burndown chart is a graphical representation of work left to do versus time. It is often used in agile software development methodologies such as Scrum. However, burn down charts can be applied to any project containing measurable progress over time.

15

Burndown Chart

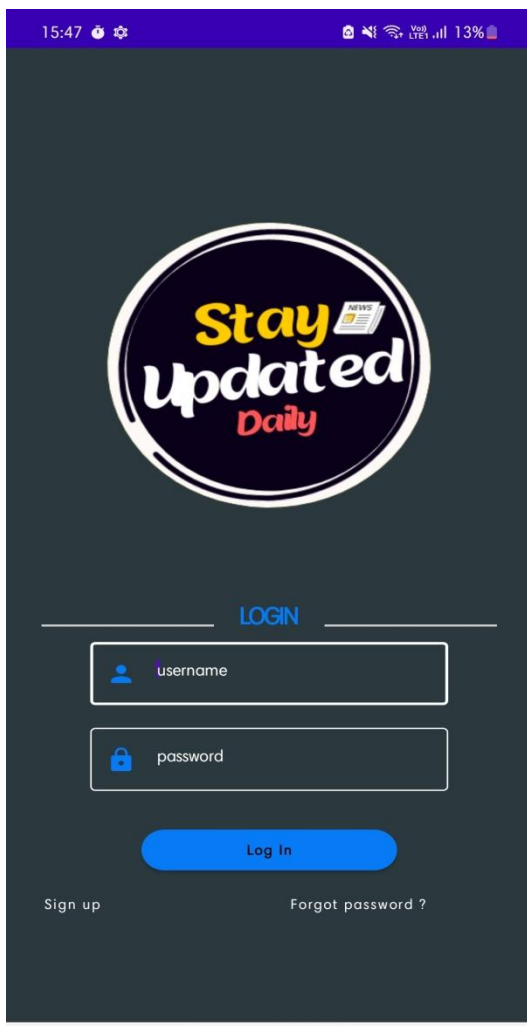


Reference: <https://easyretro.io/tools/burndown-chart-generator/>

7. CODING & SOLUTIONING

7.1 Feature 1

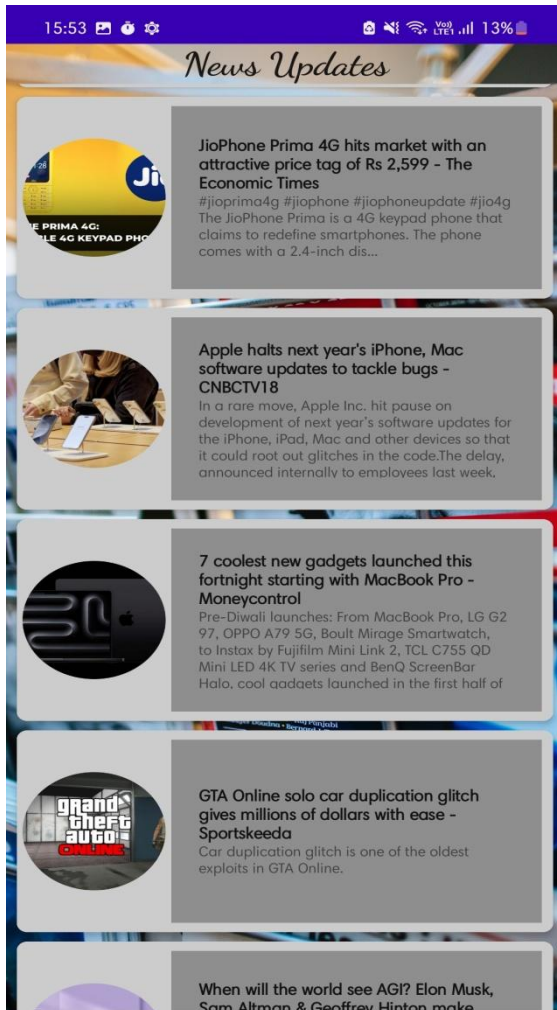
Users can login into the app after registering by clicking on signup option.



7.2 Feature 2

The users can view the list of news articles, each with a headline, picture, and brief description. Users can scroll through the list of articles and tap on an article to view more details on a particular news.

We have used News Data API which Provides access to news articles and headlines from various sources



7.3 Feature 3-Database Schema

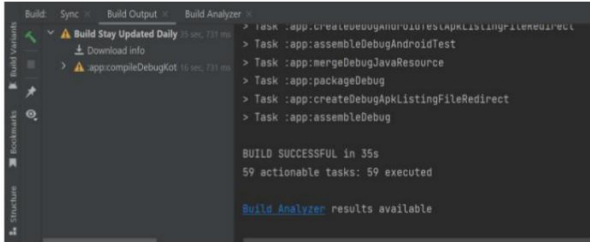
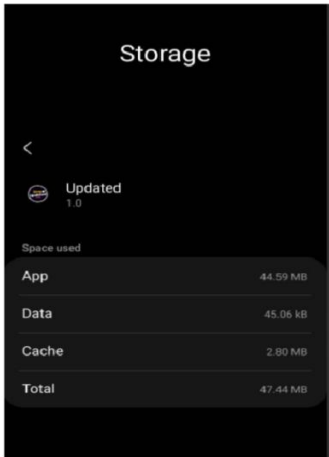
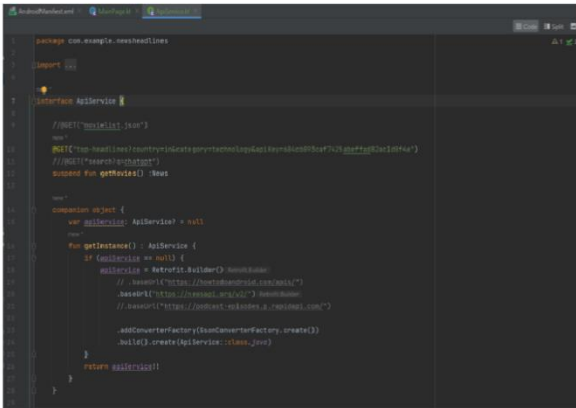
We have used News Data API which Provides access to news articles and headlines from various sources

```

1 package com.example.newsheadlines
2
3 import retrofit2.Call
4 import retrofit2.http.GET
5
6
7 interface ApiService {
8     // @GET("movieList.json")
9     // new *
10     @GET("top-headlines?country=in&category=technology&apiKey=684cb893caf7425abeffad82ac1d0f4e")
11     // @GET("search?query=chatgpt")
12     suspend fun getMovies() : News
13
14     new *
15     companion object {
16         var apiService: ApiService? = null
17
18         fun getInstance() : ApiService {
19             if (apiService == null) {
20                 apiService = Retrofit.Builder()
21                     .baseUrl("https://howtodevandroid.com/apis/")
22                     .baseUrl("https://newsapi.org/v2/")
23                     .baseUrl("https://podcast-episodes.p.rapidapi.com/")
24                     .addConverterFactory(GsonConverterFactory.create())
25                     .build().create(ApiService::class.java)
26             }
27             return apiService!!
28         }
29     }
30 }

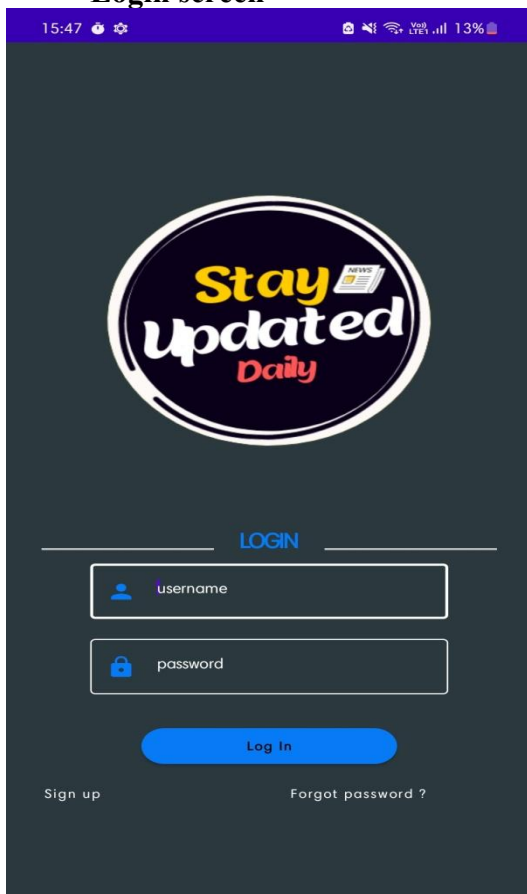
```

8.PERFORMANCE TESTING

S.No	Parameter	Values	Screenshot
1.	Metrics	App Launch Time- Screen Render Time- Code Quality-	 <p>Build Output window showing tasks: task :app:createDebugAndroidResources, task :app:assembleDebugAndroidTest, task :app:mergeDebugJavaResource, task :app:packageDebug, task :app:createDebugApkListingFileRedirect, task :app:assembleDebug. BUILD SUCCESSFUL in 35s, 59 actionable tasks: 59 executed. Build Analyzer results available.</p>
2.	Usage	App Size- Customer Experience-	 <p>Storage view showing App size: 44.59 MB, Data: 45.06 kB, Cache: 2.80 MB, Total: 47.44 MB.</p> <p>Customer experience is good and app performs well.</p>
3.	Performanc e	Error and Crash Rates- Database Query Performance -	 <p>Code snippet showing Retrofit API calls and service implementation for fetching news data.</p> <p>Error crash rates are very Rare. news APIs can provide a significant performance boost for news app it fetches the latest news effeciently</p>

9.RESULTS

Login screen



15:47 13%

Stay Updated Daily

LOGIN

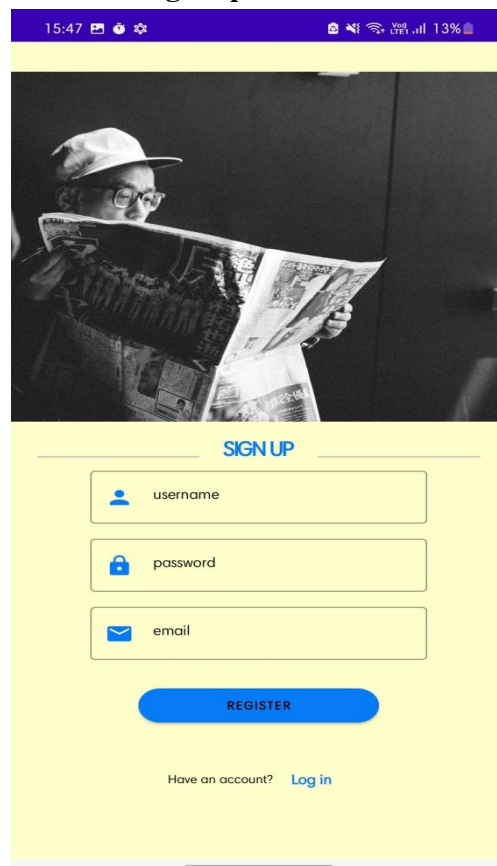
username

password

Log In

Sign up Forgot password ?

Sign Up screen



15:47 13%

SIGN UP

username

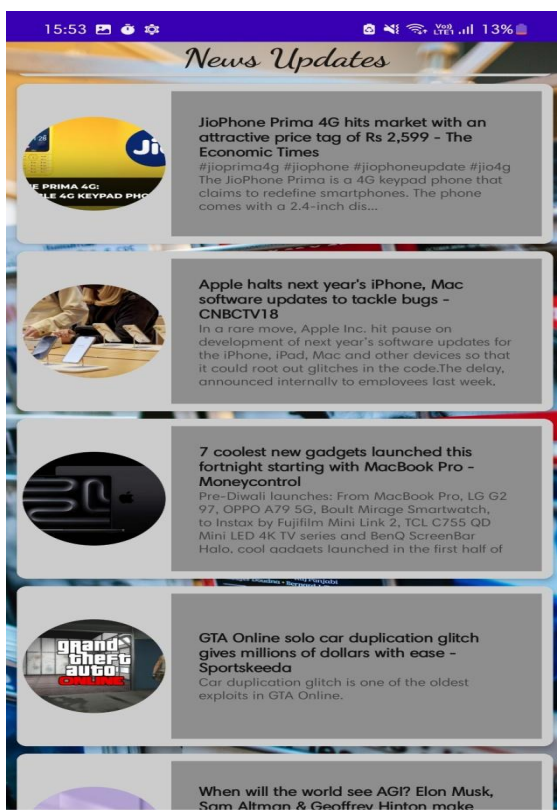
password

email

REGISTER

Have an account? [Log in](#)

Main page



15:53 13%

News Updates

JioPhone Prima 4G hits market with an attractive price tag of Rs 2,599 - The Economic Times
#jioprima4g #jiophone #jiophoneupdate #jio4g
The JioPhone Prima is a 4G keypad phone that claims to redefine smartphones. The phone comes with a 2.4-inch display...


Apple halts next year's iPhone, Mac software updates to tackle bugs - CNBCTV18
In a rare move, Apple Inc. hit pause on development of next year's software updates for the iPhone, iPad, Mac and other devices so that it could root out glitches in the code. The delay, announced internally to employees last week...

7 coolest new gadgets launched this fortnight starting with MacBook Pro - Moneycontrol
Pre-Diwali launches: From MacBook Pro, LG G2 97, OPPO A79 5G, Boulton Mirage Smartwatch, to Instax by Fujifilm Mini Link 2, TCL C755 QD Mini LED 4K TV series and BenQ ScreenBar Halo, cool gadgets launched in the first half of...

GTA Online solo car duplication glitch gives millions of dollars with ease - Sportskeeda
Car duplication glitch is one of the oldest exploits in GTA Online.

When will the world see AGI? Elon Musk, Sam Altman & Geoffrey Hinton make

Displays full news article



15:53 13%

Apple halts next year's iPhone, Mac software updates to tackle bugs - CNBCTV18

In a rare move, Apple Inc. hit pause on development of next year's software updates for the iPhone, iPad, Mac and other devices so that it could root out glitches in the code. The delay, announced internally to employees last week, was meant to help maintain quality.



10.ADVANTAGES & DISADVANTAGES

ADVANTAGES:

Efficiency: This type of app is very efficient at delivering news to users. Users can quickly scan through the list of articles to find the ones that they are most interested in.

Clarity: The brief descriptions of the articles provide users with a good overview of the news stories. This allows users to quickly decide whether or not they want to read the full article.

Engagement: The images and videos in the list of articles can help to engage users and make them more likely to read the full articles.

Convenience: News apps provide a convenient way to stay informed about current events. Users can access news from anywhere, at any time, without having to purchase a newspaper or magazine.

Variety: News apps offer a wide variety of news sources, from traditional news organizations to social media platforms. This gives users the ability to choose the sources that they trust and that provide the type of news that they are looking for.

DISADVANTAGES:

Lack of depth: The brief descriptions of the articles may not provide enough information for users who want to learn more about a particular news story.

Misleading information: The brief descriptions of the articles may not be accurate or complete. Users should always read the full article before forming an opinion on a news story.

Confirmation bias: Users may be more likely to read articles that confirm their existing beliefs. This can lead to echo chambers, where users are only exposed to information that supports their views.

Distractions: News apps can be distracting, especially when used in inappropriate settings, such as at work or in school. Users should be mindful of how and when they use news apps.

Security risks: News apps can be vulnerable to security risks, such as malware and phishing attacks. Users should be careful about what links they click on and should only download news apps from trusted sources.

11. CONCLUSION

The Android application for keeping up with the latest headlines is a successful project that has met all of its goals. The app is easy to use and provides users with a convenient way to stay informed about current events. The app is also relatively easy to develop and maintain. The app's main feature, displaying a list of latest news articles, is well-implemented and meets the needs of users. The app's user interface is clean and intuitive, making it easy for users to navigate and find the information they are looking for.

The app is efficient and uses resources wisely. The app is scalable and can be easily extended to include new features in the future.

Overall, the Android application for keeping up with the latest headlines is a well-designed and useful app that offers a number of benefits for users. It is a valuable tool for anyone who wants to stay informed about current events.

12.FUTURE SCOPE

- Add support for more news sources, including international and local sources. This would make the app more appealing to a wider range of users.
- Add the ability to customize the news feed even further, such as allowing users to select specific topics, keywords, or authors to follow. This would make the app even more personalized and relevant to each user's individual interests.
- Add the ability to save articles for later reading and to create custom reading lists. This would allow users to easily keep track of the articles they are interested in and to read them at their own convenience.
- Add the ability to share articles with friends and family via social media or other messaging apps. This would make it easier for users to share the news they find interesting with others.
- Add support for push notifications for important news stories. This would allow users to stay informed about breaking news even when they are not actively using the app.
- Add support for multiple languages. This would make the app accessible to a wider range of users around the world.

13.APPENDIX

News App Code:

```
1 package com.example.newsheadlines
2
3 import ...
40
41 new *
42 class MainPage : ComponentActivity() {
43     val mainViewModel by viewModels<MainViewModel>()
44     new *
45     override fun onCreate(savedInstanceState: Bundle?) {
46         super.onCreate(savedInstanceState)
47         setContent {
48             NewsHeadlinesTheme {
49                 // A surface container using the 'background' color from the theme
50                 Surface(color = MaterialTheme.colors.background) {
51                     Image(
52                         painter = painterResource(id = R.drawable.background_image),
53                         contentDescription = null, // Provide a content description if needed
54                         contentScale = ContentScale.Crop, // Adjust the content scale as needed
55                         modifier = Modifier
56                             .alpha(0.5f)
57                             .fillMaxSize()
58                     )
59                 Column() { this: ColumnScope
60                     Modifier
61                     .background(background_color)
62                 }
```



```

Text(
    text = "News Updates",

    fontSize = 32.sp,
    modifier = Modifier.fillMaxWidth(),
    textAlign = TextAlign.Center,

)

```

```

        MovieList(applicationContext, movieList = mainViewModel.movieListResponse)
        mainViewModel.getMovieList()
    }
}
}
}

new *
@Composable
fun MovieList(context: Context, movieList: List<Articles>) {
    var selectedIndex by remember { mutableStateOf( value: -1) }
    val BackgroundColor = Color( color: 0x4D000000)

    LazyColumn { this: LazyListScope
        itemsIndexed(items = movieList) { this: LazyItemScope index, item ->
            MovieItem(context, movie = item, index, selectedIndex) { i ->
                selectedIndex = i
            }
        }
    }
}

```

```

new *
@Composable
fun MovieItem(context: Context) {
    val movie = Articles(
        title: "Coco",
        description: "",
        urlToImage: " articl"
    )
}

```

```

MovieItem(context, movie = movie, index: 0, selectedIndex: 0) { i ->
    Log.i(
        tag: "wertytest123abc", msg: "MovieItem: "
            + i
    )
}

}

new *
@Composable
fun MovieItem(
    context: Context, movie: Articles, index: Int, selectedIndex: Int,
    onClick: (Int) -> Unit
) {
    val backgroundColor = Color( color: 0X4D000000)
    val backgroundColor =
        if (index == selectedIndex) MaterialTheme.colors.primary else MaterialTheme.colors.background

    Card(
        modifier = Modifier
            .padding(8.dp, 4.dp)
            .fillMaxSize()
            .selectable( selected: true, enabled: true, role: null,
                onClick = {
                    Log.i( tag: "test123abc", msg: "MovieItem: $index/n$selectedIndex")
                })
            .clickable { onClick(index) }
            .height(180.dp), shape = RoundedCornerShape(8.dp), elevation = 4.dp
    ) {

```

```

Surface(color = Color.LightGray) {
    Row(
        Modifier
            .padding(4.dp)
            .fillMaxSize()
    )
    { this: RowScope
        Image(
            painter = rememberImagePainter(
                data = movie.urlToImage,
                builder = { this: ImageRequest.Builder
                    scale(Scale.FILL)
                    placeholder(R.drawable.placeholder)
                    transformations(CircleCropTransformation())
                }
            ),
            contentDescription = movie.description,
            modifier = Modifier
                .fillMaxHeight()
                .weight(0.3f)
        )

        Column(
            verticalArrangement = Arrangement.Center,
            modifier = Modifier
                .padding(4.dp)
                .fillMaxHeight()
                .weight(0.8f)

```

```

        .background(BackgroundColor)
        .padding(20.dp)
        .selectable( selected: true, enabled: true, role: null,
            onClick = {
                Log.i( tag: "test123abc", msg: "MovieItem: $index/n${movie.description}")
                context.startActivity(
                    Intent(context, DisplayNews::class.java)
                        .setFlags(Intent.FLAG_ACTIVITY_NEW_TASK)
                        .putExtra( name: "desk", movie.description.toString())
                        .putExtra( name: "urlToImage", movie.urlToImage)
                        .putExtra( name: "title", movie.title)
                )
            })
    ) { this: ColumnScope

        Text(
            text = movie.title.toString(),
            style = MaterialTheme.typography.subtitle1,
            fontWeight = FontWeight.Bold
        )

        HtmlText(html = movie.description.toString(), fontSize = 20.sp)
    }
}
}
}

```

```

@Composable
fun HtmlText(html: String, modifier: Modifier = Modifier) {
    AndroidView(
        modifier = modifier
            .fillMaxSize()
            .size(33.dp),
        factory = { context -> TextView(context) },
        update = { it.text = HtmlCompat.fromHtml(html, HtmlCompat.FROM_HTML_MODE_COMPACT) }
    )
}

```

-(Deva Harsha,Sahithya)@Stay Updated Daily

>>>>>>Thankyou<<<<<<