

PANIMALAR INSTITUTE OF TECHNOLOGY

PROJECT REPORT

NEWS TRACKER APPLICATION

DONE BY

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1. INTRODUCTION

1.1 Project Overview

1.2 Purpose

2. LITERATURE SURVEY

2.1 Existing problem

2.2 References

2.3 Problem Statement Definition

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

3.2 Ideation & Brainstorming

3.3 Proposed Solution

3.4 Problem Solution fit

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

4.2 Non-Functional requirements

5. PROJECT DESIGN

5.1 Data Flow Diagrams

5.2 Solution & Technical Architecture

5.3 User Stories

6. PROJECT PLANNING & SCHEDULING

6.1 Sprint Planning & Estimation

6.2 Sprint Delivery Schedule

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

7.1 Feature 1

7.2 Feature 2

7.3 Database Schema (if Applicable)

8. ADVANTAGES & DISADVANTAGES

9. CONCLUSION

10. FUTURE SCOPE

11. APPENDIX

Source Code

Live Page Url

1. INTRODUCTION

1.1 Project Overview

NewsTracker is a fullstack web application which allows users to register along with their favourite topics, upon login the app displays the news based on the user's interest. The news displayed in the app is based on the Newcatcher API and Cricbuzz API from Rapid API site. A news-sharing app wants to help users find relevant and important news easily every day and also provide explicitly news from that user's locality/region which may be of help to the user.

1.2 Purpose

Enabling users to view news from anywhere at anytime. It also helps to reduce the time to get information about a specific topic. Also enables a person to get an updated news which may help Business people to make business related decisions quickly and correctly.

2. LITERATURE SURVEY

2.1 Existing problem

Physical newspapers are old fashioned in this digital era. They cost money to buy, can easily be damaged, limited amount of information, not flexible to modifications, poor quality. Sometimes may show irrelevant and updated news.

2.2 References

S. no	Paper title	Author	Published date	Implementation	Resource link
1	Following the Fed with a News Tracker	Michael William McCracken	January, 2012	The paper is not a technical paper but is essentially a statistical paper on how should one conclude whether the data have come in stronger, weaker or as expected. This is based on the CitiGroup U.S Economic Surprise Index.	(PDF) Following the Fed with a News Tracker (researchgate.net)
2	Topic Detection and Tracking in News Articles	Sagar Patel, Sanket Suthar, Sandip Patel, Neha Patel	March, 2015	1. Pre-processing 2. Tokenization 3. Stemming/Lemmization 4. Vector Space Model 5. Topic tracking	(PDF) Topic Detection and Tracking in News Articles (researchgate.net)
3	An End-to-end Weakly-supervised News Aggregation Framework	Xijin Tang, Xiaohui Huang	June, 2022	The framework combines Snorkel based weakly Supervised classification, Latent Dirichlet Allocation (LDA) topic modeling, and topic signal detection model to classify and aggregate unlabeled news texts and ultimately generate visualized results containing news categories, news topics, and temporal topic relationships. This paper uses constructed knowledge thesaurus and the Snorkel method to weakly supervise the classification of unlabeled news with no manual tagging. Subsequently, we utilize LDA to generate the topics and	An End-to-end Weakly-supervised News Aggregation Framework Request PDF (researchgate.net)

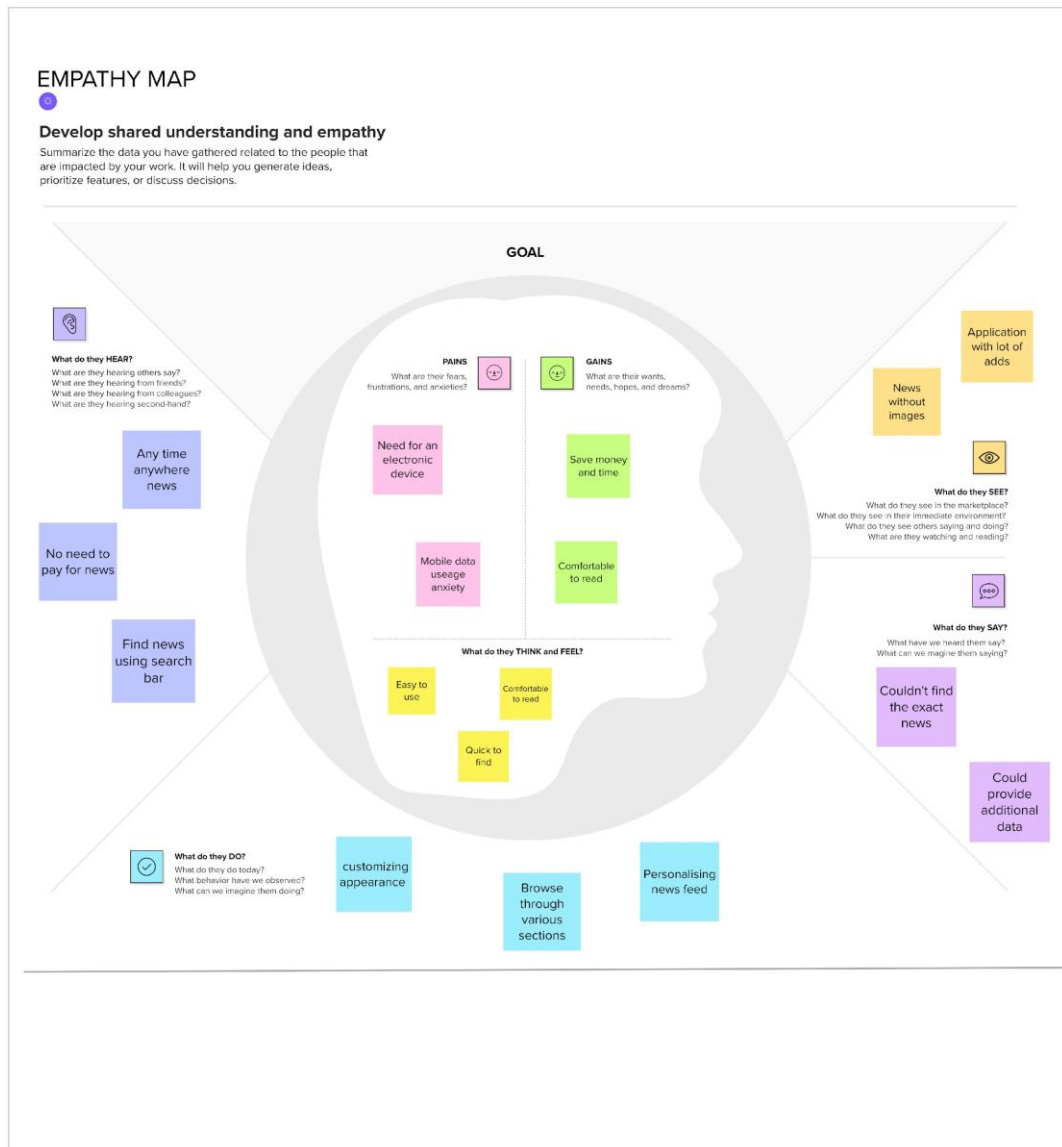
				obtain the signal value of each topic based on the topic signal detection function. Finally, we establish the temporal topic relationships and get the visualized results of news aggregation.	
4	Exploring mobile news reading interactions for news app personalisation	Marios Constantinides ,John Dowell , David Johson, Sylvain Malacria	August, 2015	<ol style="list-style-type: none"> 1. Identification of news reader types 2. Interaction logging and classification study 3. Deployment and data collection 4. Predicting News reader types 5. Adaptive UI 	(PDF) Exploring mobile news reading interactions for news app personalisation (researchgate.net)
5	Innovative Application For News Tracker	Dr.C.K.Gomathy, Dr.V.Geetha, Peddireddy Abhiram, Marios Constantinides	September, 2020	This paper aimed at developing an online news management system that is of information to either a college. Online news management system provides a simple interface for maintenance of college information. The creation management of accurate, up-to-date information regarding to college. The main objective for developing this project is provide all the functionality related to latest news and it tracks.	(PDF) The Innovative Application for News Management System (researchgate.net)

2.3 Problem Statement Definition

Newspaper contains limited , non user/reader specific, Location specific news . There are multiple news-sharing apps available which can be used by a single user and are often spammed with notifications. There is also a lot of unwanted news which gets shared. So it may take a lot of time for the user to find the news he/she likes. A news-sharing app wants to help users find relevant and important news easily every day and also provide explicitly news from that users locality/region which may of help to the user.

3. IDEATION & PROPOSED SOLUTION


3.1 Empathy Map Canvas



3.2 Ideation & Brainstorming

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.

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



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

- Team gathering**
Define who should participate in the session and send an invite. Share relevant information or pre-work ahead.
- Set the goal**
Think about the problem you'll be focusing on solving in the brainstorming session.
- 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

Newspaper contains limited, non user/reader specific, Location specific news. There are multiple news-sharing apps available which can be used by a single user and are often spammed with notifications. There is also a lot of unwanted news which gets shared. So it may take a lot of time for the user to find the news he/she likes. A news-sharing app wants to help users find relevant and important news easily every day and also provide explicitly news from that users locality/region which may help to the user.

Key rules of brainstorming

To run a smooth and productive session

- Stay in topic.
- Defer judgment.
- Go for volume.
- Encourage wild ideas.
- Listen to others.
- 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!

Jayashakthi Vishnu

Backend Logic	Authentication	Time Calculation
Mind Mapping	Competitive Analysis	Plan ofAction

Ranjith

UI	UI design	User Experience
Project Chailanes	Article Filters	Personalization

Mithun

Easy Accesable	Time Duration	Customer Satisfaction
Language Preference	Good Ideas	Randomness

Akilan

Attractive UX	Temperature Reading	Bookmarks
Minimal Colours	Optimized Request	Responsive Frontend

3 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

Backend

Handle Multiple Request	Fetch News With Regular Times
Gather interesting topics from frontend and store it in DB	Authentication and email verification of users

API Call

Exception Handling in the Request	Convert data to standard format for frontend use
Process the data from API call	Reduce the number of request sent frontend to backend

Frontend

Responsive UI with cool UX	Minimalistic Clean UI
Show news based on user's interest	Bookmark the news for users

TIP
Add customizable tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

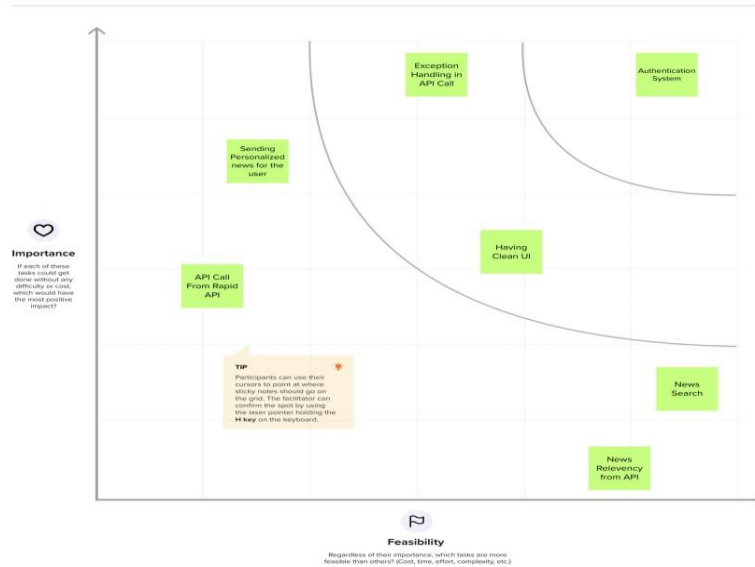
Step-3: Idea Prioritization

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



3.3 Proposed Solution

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	Most people don't like to carry a newspaper with them. Some people want them to be updated only in the area they are interested in
2.	Idea / Solution description	An application needs to be developed in which users can read news whenever they want and they will be able to customize their area of interest. So that they will be notified, if any new news is updated in their interested areas.
3.	Novelty / Uniqueness	A user can read news only from their interested fields rather than reading all the news. This application provides users with a trusted and secured ecosystem. News shared through the application is original and spam free.
4.	Social Impact / Customer Satisfaction	This application encourages its users to provide feedback. Based on that feedback, developments were made eventually.
5.	Business Model (Revenue Model)	Add advertisements to the application, so that we can get revenue from those advertisement-sponsored organizations. More advertisements may irritate the user. Add premium subscription, users who subscribe for premium won't get advertisements.
6.	Scalability of the Solution	As it was an application-based project, correct ideation and execution can develop an application with no bugs and errors, so that the user might like our application and some might suggest and share it to their surroundings, resulting in an increase in our application insights.

3.4 Problem Solution fit

Define CS, fit into CC	1. CUSTOMER SEGMENT(S) <small>Who is your customer? i.e. working parents of 0-5 y.o. kids</small> Common People	6. CUSTOMER CONSTRAINTS <small>What constraints prevent your customers from taking action or limit their choices of solutions? i.e. spending power, budget, no cash, network connection, available devices.</small> Network Connectivity	5. AVAILABLE SOLUTIONS <small>Which solutions are available to the customers when they face the problem or need to get the job done? What have they tried in the past? What pros & cons do these solutions have? i.e. pen and paper is an alternative to digital notetaking</small> News apps with lot of advertisements and many irrelevant news	Explore AS, differentiate
	2. JOBS-TO-BE-DONE / PROBLEMS <small>Which jobs-to-be-done (or problems) do you address for your customers? There could be more than one, explore different sides.</small> Personalized news for the users, Ad free user interface	9. PROBLEM ROOT CAUSE <small>What is the real reason that this problem exists? What is the back story behind the need to do this job? i.e. customers have to do it because of the change in regulations.</small> Even though there are many news apps over there, most of them are full of ads and irrelevant news.	7. BEHAVIOUR <small>What does your customer do to address the problem and get the job done? Directly related: find the right solar panel installer, calculate usage and benefits; Indirectly associated: customers spend free time on volunteering work (i.e. Greenpeace)</small> News channels and newspapers	
Focus on J&P, tap into BE, understand RC	3. TRIGGERS <small>What triggers customers to act? i.e. seeing their neighbour installing solar panels, reading about a more efficient solution in the news.</small> Traditional newspaper makes them to receive news at a time delay and most of other online news apps are full of ads.	10. YOUR SOLUTION <small>If you are working on an existing business, write down your current solution first, fill in the canvas, and check how much it fits reality. If you are working on a new business proposition, then keep it blank until you fill in the canvas and come up with a solution that fits within customer limitations, solves a problem and matches customer behaviour.</small> <ul style="list-style-type: none"> Get the user's favourite topics Fetch the news from rapid api Display the news based on user topics 	8. CHANNELS of BEHAVIOUR 8.1 ONLINE <small>What kind of actions do customers take online? Extract online channels from #7</small> View news from the apps like google news, inshort	Identify strong TR & EM
	4. EMOTIONS: BEFORE / AFTER <small>How do customers feel when they face a problem or a job and afterwards? i.e. lost, insecure > confident, in control - use it in your communication strategy & design.</small> Irritated, Difficult > Satisfied, Easy		8.2 OFFLINE <small>What kind of actions do customers take offline? Extract offline channels from #7 and use them for customer development.</small> View news from the newspaper	

4. REQUIREMENT ANALYSIS

4.1 Functional requirement

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Email
FR-2	User Confirmation	Confirmation via Email using Sendgrid
FR-3	User Preferred Topics	Collecting user's favourite topics
FR-4	Collecting News	Collecting news from rapid API at regular Intervals
FR-5	Bookmark	Bookmarking Favourite news for the user
FR-6	Login	Logging in the user using the registered email and password
FR-7	News Feed	Showing the news fetched from the API to the user

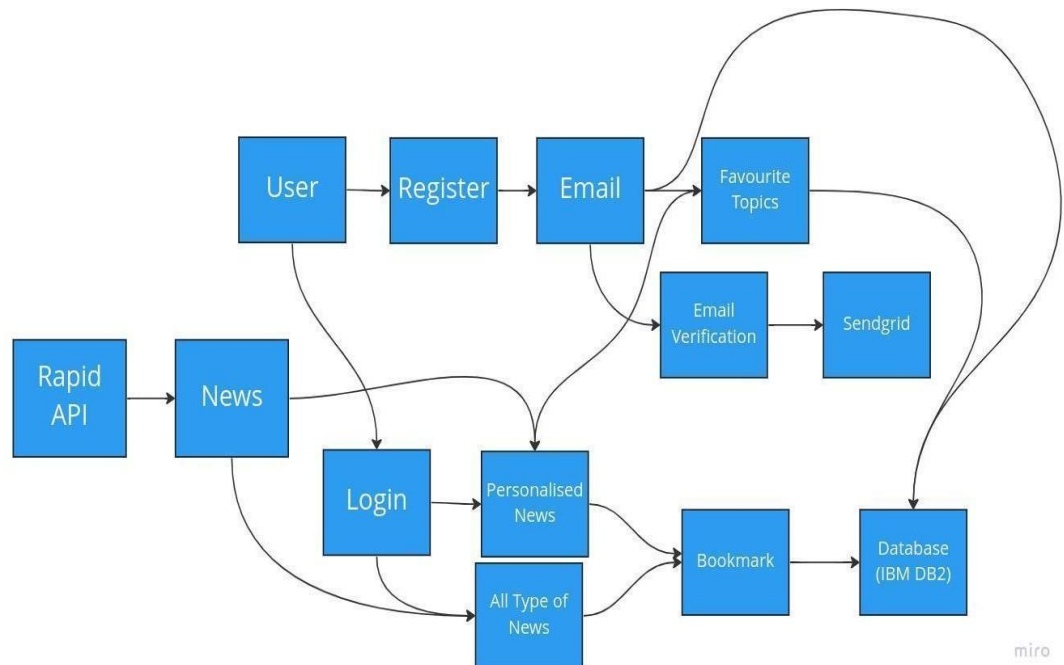
4.2 Non-Functional requirements

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	The app should be able to used by all people
NFR-2	Security	The app should authenticate the legitimate users and should restrict bot attacks
NFR-3	Reliability	The app should show the news which are non fake and spam free
NFR-4	Performance	The app should be accessible in older devices too
NFR-5	Availability	The app should be available to all devices
NFR-6	Scalability	The app should handle multiple users and be designed in such a way for future upgrade

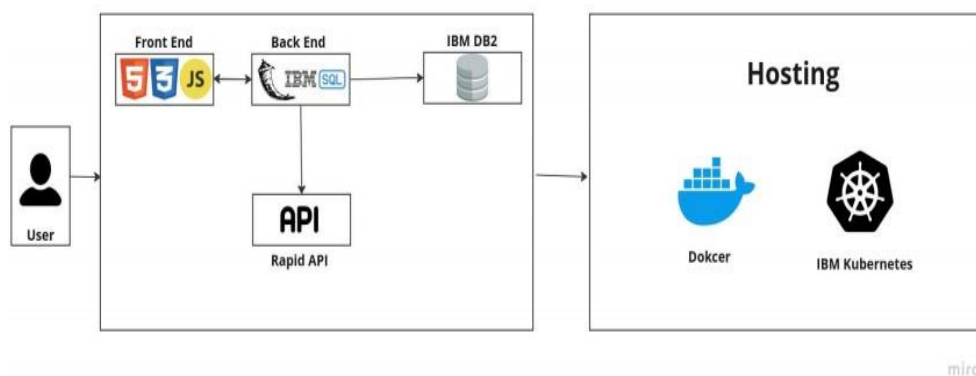
5. PROJECT DESIGN

5.1 Data Flow Diagrams

A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.



5.2 Solution & Technical Architecture



5.3 User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Release
Normal User	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	I can access my account / dashboard	High	Sprint-1
	Email Verification	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
	Favourite topics	USN-3	As a user, I can choose my favourite topics	I can see all my preferred news under for you category	Medium	Sprint-2
	Login	USN-4	As a user, I can login with the email and password into the app	I can access to all the news	High	Sprint-1
	Dashboard	USN-5	As a user, I can see all the news under specific tab	I can view all the news	Medium	Sprint-3
	Bookmark	USN-6	As a user, I can bookmark my favourite news topics	I can later view my bookmarked news	Low	Sprint-2
	Access	USN-7	As a user, I can access the site anywhere and everywhere	I can view the site by typing the URL of the site	High	Sprint-4

6. PROJECT PLANNING & SCHEDULING

6.1 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 user, I can register for the application by entering my email, password, and confirming my password.	10	High	R Alwin mathew T Ganesh kumar
Sprint-1	Login	USN-2	As a user, I will receive confirmation email once I have registered for the application	5	High	Lokesh E Elanchezain S
Sprint-1	Email Verification	USN-3	As a user I can verify my email using the link sent to my mailid	5	High	Lokesh E Elanchezain S
Sprint-2	API Fetch	USN-4	Fetch News from Rapid API at regular interval	10	High	R Alwin mathew T Ganesh kumar
Sprint-2	REST Endpoints for backend	USN-5	Creating endpoints at the backend inorder to interact with frontend	10	Medium	Lokesh E Elanchezain S
Sprint-3	Designing Frontend	USN-6	Create a minimalisting design in figma to create frontend	2	Medium	R Alwin mathew T Ganesh kumar
Sprint-3	Creating Frontend	USN-7	Create the frontend webpage using the design	10	Low	R Alwin mathew T Ganesh kumar
Sprint-3	Connect frontend and backend	USN-8	Connect the frontend and backend and complete the application	8	High	, Lokesh E Elanchezain S
Sprint-4	Testing	USN-9	Testing the application before final release	10	High	R Alwin mathew T Ganesh kumar
Sprint-4	Deployment	USN-10	Deployment of the application	10	High	R Alwin mathew T Ganesh kumar

6.2 Sprint Delivery Schedule

[illegible]

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

7.1 Feature 1

Verification email Sender

```
1 def emailSender(email, token):
2     configuration = sib_api_v3_sdk.Configuration()
3     configuration.api_key['api-key'] = app.data['mail_api_key']
4     api_instance = sib_api_v3_sdk.TransactionalEmailsApi(
5         sib_api_v3_sdk.ApiClient(configuration))
6     now = datetime.now()
7     dt_string = now.strftime("%d/%m/%Y %H:%M:%S")
8     msg = {}
9     msg['Subject'] = "Verfiy your NewsTracker Account"
10    msg['From'] = {"name": "News Tracker Dev Team",
11                  "email": "verify@news tracker.com"}
12    msg['To'] = [{"email": email}]
13    msg['Text'] = f'Please click this <a href="http://127.0.0.1:5500/frontend/pages/verify.html?token={token}">link</a> to verify your account'
14    html = f"""
15    <html>
16    <head></head>
17    <body>
18    <p>நன்றி, for joining NewsTracker </p>
19    <br>
20    <p>Hurray🎉, you just registered at NewsTracker<br><br>
21    Please click the following link to verify your account:<br>
22    <a href="http://127.0.0.1:5500/frontend/pages/verify.html?token={token}">Click Here to Verify 🎉</a>
23    </p>
24    <br>
25    <p>⚠️Note: This link expires within one hour from the time sent</p>
26    <br><br>
27    <p>Regrads,<br></p>
28    <p><a href="https://localhost:5000">NewsTracker Dev Team</a></p>
29    <br><br>
30    <p>Email sent at {dt_string}</p>
31    </body>
32    </html>
33    """
34    send_smtp_email = sib_api_v3_sdk.SendSmtpEmail(
35        to=msg['To'], html_content=html, sender=msg['From'], subject=msg['Subject'], text_content=msg['Text'])
36    try:
37        api_response = api_instance.send_transac_email(send_smtp_email)
38        print(api_response)
39    except ApiException as e:
40        print("Exception when calling SMTPApi→send_transac_email: %s\n" % e)
41
```

The above function is used to send the verification code to the desired email.

7.2 Feature 2

Cookie Checker

```
1 def token_required(f):
2     @wraps(f)
3     def decorated(*args, **kwargs):
4         token = request.cookies.get("access_token")
5         try:
6             data = jwt.decode(token, app.app.config['SECRET_KEY'], algorithms=['HS256'])
7             ip=request.headers.get("ip")
8             cookieIp=data['ip']
9             if(ip!=cookieIp):
10                 resp={"status":"not logged in"}
11                 @after_this_request
12                 def deleter(response):
13                     response.delete_cookie("access_token",path="/")
14                     response.delete_cookie("email",path="/")
15                     return response
16                 return resp,401
17         except:
18             resp = {"status":"not logged in"}
19             @after_this_request
20             def deleter(response):
21                 response.delete_cookie("access_token",path="/")
22                 response.delete_cookie("email",path="/")
23                 return response
24             return resp, 401
25         return f(data['email'],*args, **kwargs)
26     return decorated
```

This code is used to check the cookie from the client side and checks whether the user is signed in or not.

7.3 Database Schema (if Applicable)

User Table

Table definition					
USER					Approximate 2 rows (4.03 MB) Updated on 2022-10-17 15:43:28
Name	Data type	Nullable	Length	Scale	
ID	INTEGER	N		0	👁
NAME	VARCHAR	N	255	0	👁
EMAIL	VARCHAR	N	255	0	👁
PASSWORD	VARCHAR	N	255	0	👁
FAVOURITES	CLOB	Y	1048576	0	👁
BOOKMARKS	CLOB	Y	1048576	0	👁
VERIFIED	BOOLEAN	Y	1	0	👁
RESEND_TIME	VARCHAR	N	255	0	👁

Bookmarks Table:

Table definition					
BOOKMARK					Approximate -1 rows (4.00 MB) Updated on
Name	Data type	Nullable	Length	Scale	
ID	INTEGER	N		0	👁
DATA	CLOB	N	1048576	0	👁

8. ADVANTAGES & DISADVANTAGES

- This app can be accessed anywhere and anytime, So that the user can view the news
- Its ad free
- The news is only based on the API
- It may contain some unwanted content but we don't have control over it
- The user can bookmark their favourite news.

9. CONCLUSION

Thus we have developed a full stack application based on the plans and within the given time. We have tested the application in both desktop and mobile and it worked well, Overall it was a great experience.

10. FUTURE SCOPE

In future we may integrate our own news API instead of third party APIs and may develop a mobile native application so that it can be used in both android and ios.

11. APPENDIX

- [Source Code \(Github\)](#)
- [Live Page URL](#)