Project Report

TEAM ID : PNT2022TMID35356

PROJECT:

NEWS TRACKER APPLICATION

1. INTRODUCTION

1.1 Project Overview

NewsTracker is a full-stack web application which allows users to register along with their favorite topics, upon login the app displays the news based on the user's interest. The news displayed in the app is based on the News 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 of help to the user. Users can save their interested articles and further recommendations are made using the saved articles.

1.2 Purpose

Enabling users to view news from anywhere at any time. It also helps to reduce the time to get information about a specific topic. Also enables a person to get 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

a) Topic detection and tracking in News Articles

Digital news continues to evolve, encouraged by various innovations in recent time, from groundbreaking new technologies like virtual reality and automated reporting to experiments on social platforms that have altered campaign coverage. Topic detection and tracking is challenging topic in information retrieval technology that can be used in the text mining. In topic detection we finding the most important topics in a collection of news articles. Topic detection is an unsupervised task and topic tracking is supervised task. We are going to use agglomerative clustering to create topic clusters and KNN classifier for tracking topics. To identify the serious news, we identify the clusters that fall into same category.
The main purpose of research is to identify interesting events happens in the world. Analysts are continuously trying to identify latest news and stories from very large sources of information that arrives daily. So for journalist it is easy to understand and identify actual events. The objective is to decompose topics is to extract the events which never seen before and combine them which represents same news stories. The scope of the research is text in news articles obtained from the various newspaper websites. Text mining utilizes techniques from the field of data mining, combines methodologies from various other areas such as categorization, information retrieval, clustering, summarization, information extraction, computational linguistics, concept linkage and topic tracking.
https://www.researchgate.net/publication/315657099_Topic_Detection_and_Tracking_in_News_Articles

b) Exploring mobile news reading interactions for news app personalization

MobileHCI '15: 17th International Conference on Human-Computer Interaction with Mobile Devices and Services,

August 2015 As news is increasingly accessed on smartphones and tablets, the need for personalizing news app interactions is apparent. The research paper reports results of 3 studies addressing key issues in the development of adaptive news app interfaces. Users' news reading preferences and behaviors were first surveyed; analysis revealed three primary types of reader. Implementation and deployment of an Android news app that logs users' interactions with the app was done. The news app used the logs to train a classifier and showed that it is able to reliably recognize a user according to their reader type. The alternative, adaptive user interfaces for each reader type was evaluated. The evaluation demonstrates the differential benefit of the adaptation for different users of the news app and the feasibility of adaptive interfaces for news apps. The feasibility of recognizing patterns of news reading interactions and evaluated three adaptive interface designs for different news reader types were researched and established It was also shown that from their interaction log, a specific user can be recognized as one of three kinds. The reader types emerging from the online survey are well defined and distinct. The evaluation of the three variant interfaces suggested that different news reader types need different user interfaces. The paper demonstrated a method for monitoring users' news reading behavior and inferring news reader type from it.

https://www.researchgate.net/publication/299870645_Exploring_mobile_news_reading_interactions_for_news_app_personalization

c) A Systematic Review on the Profiling of Digital

News Portal for Big Data Veracity Digital news portals have been one of the most important news sources for Internet users. However, the way it is written depends on the direction of the content. One approach to news reporting is through manipulative writing. Such method of writing has created a number of adverse outcomes such as political unrest, slander and negative perception towards the particular organization, personnel, and country. It is important for readers to choose and select news portal that is reporting positively and to neglect portals which practice manipulative writing approach for their own gains or causing negative impact

towards the community. The aim of this study is to structure and analyzed the literature related to data veracity research that can be used to the profile of digital news portal. The method that has been used in this paper is to classify and define data veracity; a systematic literature review is a conduct. It includes journal and conference proceedings. The results come out with objectives in data veracity, the structure of research topics, research trends with publications and framework veracity model validated. This paper provides a complete review of literature related to profiling digital news portal in data veracity.

https://pdf.sciencedirectassets.com/280203/1-s2.0-S1877050915X00366/1-s2.0-S1877050915036157/main.pdf

d) NEWSPAPER APPS FOR TABLETS AND SMARTPHONES IN DIFFERENT MEDIA SYSTEMS: A COMPARATIVE ANALYSIS TERESA NOZAL CANTARERO University of A Coruña, Spain ANA GONZÁLEZ-NEIRA University of A Coruña, Spain ELENA VALENTINI Sapienza University of Rome, Italy

This paper proposes a comparative analysis of the newspaper apps developed for tablets and smartphones within different media systems. It studies the multi-mediality, interactivity and commercialization models adopted by newspaper publishers and journalists for these apps. The theoretical framework embraces two main topics: the media system models, starting from Hallin and Mancini's proposal, and the characteristics of the media systems, particularly in the countries selected for this sample, focusing on the digital and mobile media scenario. In order to collect comparable data from a common source, we have selected indicators from Reuters Institute Digital News Report 2016. The total number of app versions analyzed came to 148 (81 for smartphones and 67 for tablets) from 20 newspapers in 10 different countries. One conclusion is that newspapers' commitment to the tablet and smartphone in general tends to be conservative and far from independent of pre-existing print and web-based media. The paper shows how media systems have become more complex in the digital scenario, in which apps are an important, but not exclusive, aspect. So it is necessary to take into account trends in news globalization and 'convergent journalism'. Finally this research confirms that cross-platform management and multichannel strategies are still weak, which has consequences for the innovation of app editions.

e) Impact of Smartphone News Apps on Print Media

News magazine being an important part of the Print Media industry has so far been affected by World Wide Web and currently by the Smartphone Apps. They have just entered the industry with great

promises and potential. This paper focuses on the impact of news apps on the news magazines will provide an opportunity to understand how readers look at both technology and decide on using them. The study used a survey method by questionnaire distributed by both direct and online mode. A conceptual model with Twin TAM framework was proposed for the study as the research requires considering two technologies simultaneously. Usefulness and Ease of Use of both technologies has an influence on attitude towards News Apps and Print Media respectively. Positive attitude towards print media creates more dissonance in presence of Attitude towards News Apps. Apparently, if the attitude is positive then the dissonance will be more in case of print magazine. Also, reverse is the case of news apps. Finally, dissonance is found to reduce the intention to use News Apps. This paper provides implication to print media industry based on previous cases.
https://www.researchgate.net/publication/274732286_Impact_of_Smartphone_News_Apps_on_Print_Media_-_A_Twin_TAM_Framework

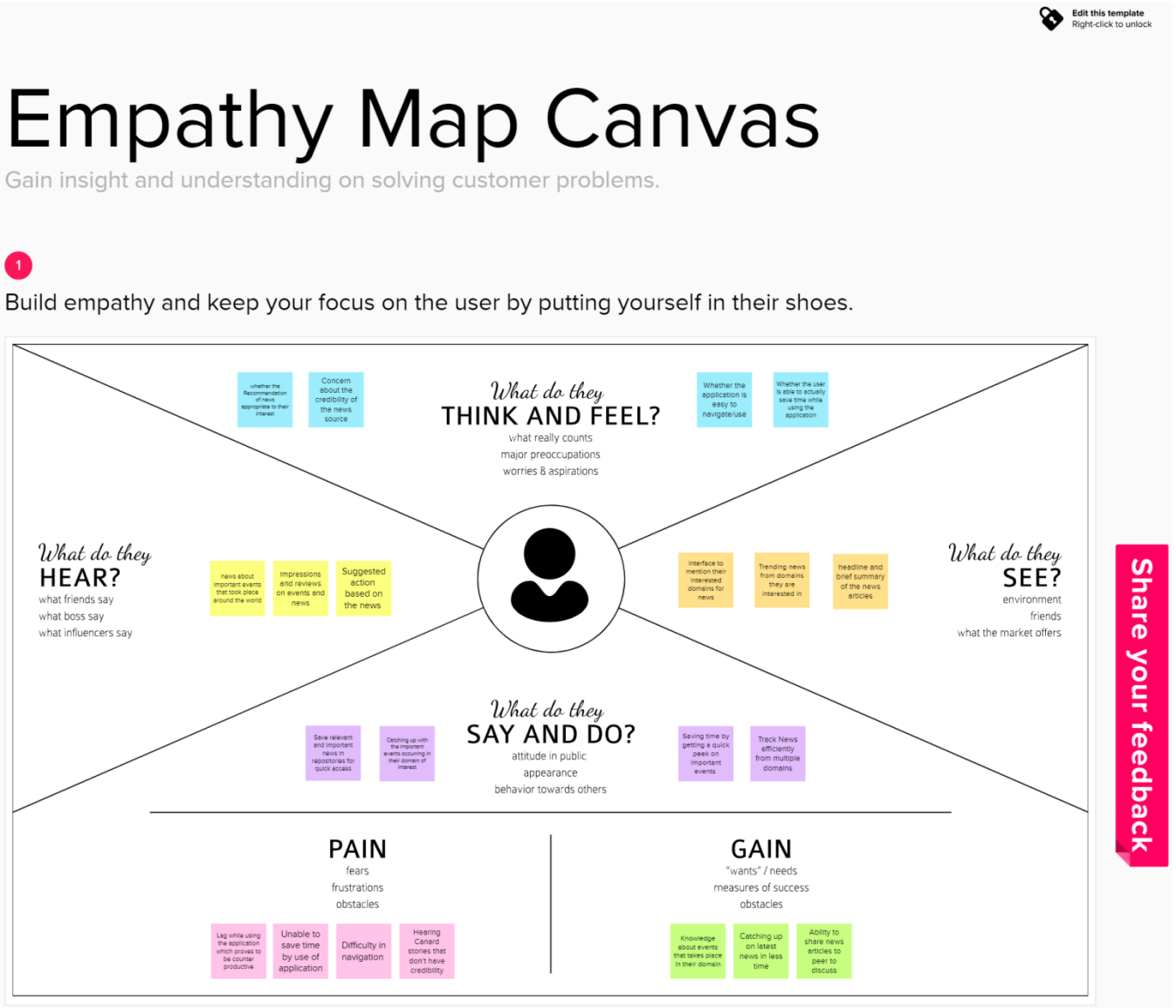
2.3 Problem Statement Definition

Most people don't go through the news on a regular basis unless something really important happens around the world or in their field of interest. Traditional newspapers and news channels do the job but it takes a lot of time and is not feasible to use at all places. News Tracker application allows users to get a quick glimpse of the news which is personalized towards the user interest.

Who does the problem affect?	Working individuals, students and anyone who is not able to catch up with daily news
What are the boundaries of the problem?	Recommended news is not personalized towards each user's interest
What is the issue?	People not following the news because it is time consuming and its inability to sate user's interest
When does this issue occur?	When news is flooded with elaborate and unnecessary details about the incidents.
Where is the issue occurring?	In traditional media forms like newspaper and TV
Why is it important that we fix the problem?	Fixing this problem would help people catch up with the daily incidents without spending a lot of time.

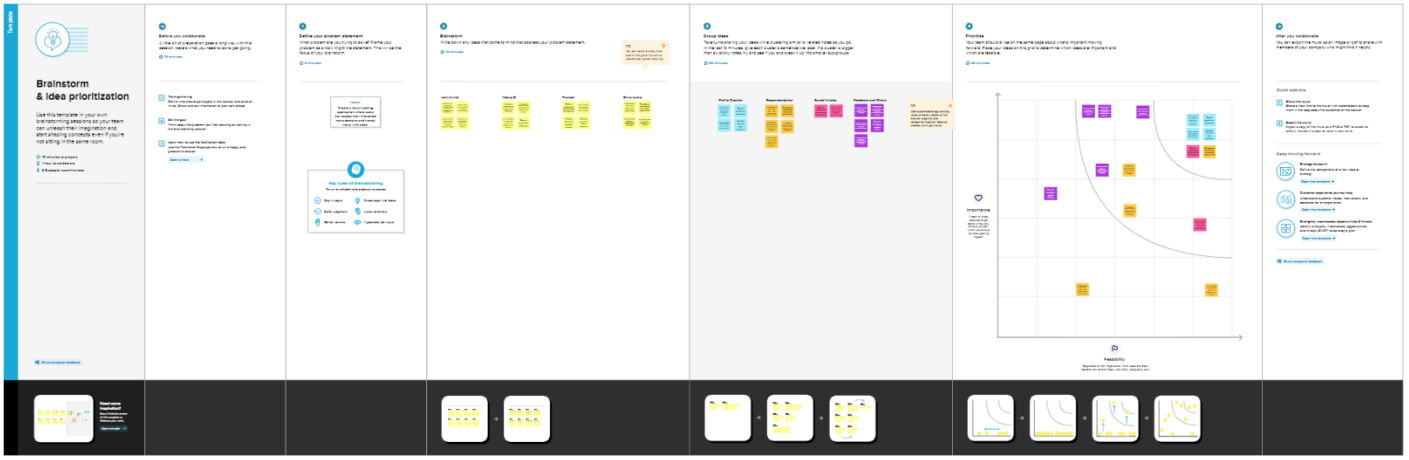
3. IDEATION & PROPOSED SOLUTION

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 solution



4. REQUIREMENT ANALYSIS

4.1 Functional requirement

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	The user is asked to register by filling a form in the web-app.
FR-2	User Confirmation	The user receives an email to confirm and activate account
FR-3	User Login	The user can login using designated Username and Password formed during registration
FR-4	Provide Interests	The user is made to provide interests to update recommendations
FR-4	Home Page	The home page consists of a dashboard which displays news articles according to recommendations.
FR-5	Saved Articles Page	The users are allowed to save articles they are interested in to view and read these at a later time.
FR-6	Tracker Page	Shows the news elaborately when the NEWS Headline of the Home page is clicked.

4.2 Non-Functional requirements

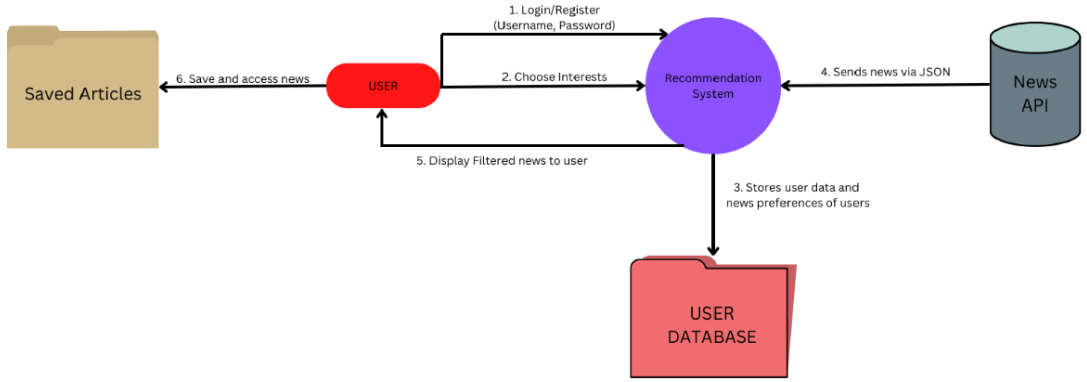
FR No.	Non-Functional Requirement	Description
NFR-1	**Usability**	Our website is used to Read News and gain Knowledge according to user's interest with a user friendly Interface.
NFR-2	**Security**	User can only login with their own username and password. CAPTCHA is provided. Users can change their passwords only via email confirmation. Their data and interests are not available to public.
NFR-3	**Reliability**	Our Website delivers the reliable content only from NEWS API.
NFR-4	**Performance**	It is a high performable App with friendly User Interfaceand shares lot of information without any Issues. To ensure consistent performance, the load balancer is used with the docker.
NFR-5	**Availability**	Service is always available with the help of load balancing. The application works well in any browser, any device.
NFR-6	**Scalability**	Docker and Kubernetes are used to accommodate scalability. Kubernetes allows users to horizontally scale the total containers used based on the application requirements, which may change over time.

5. PROJECT DESIGN

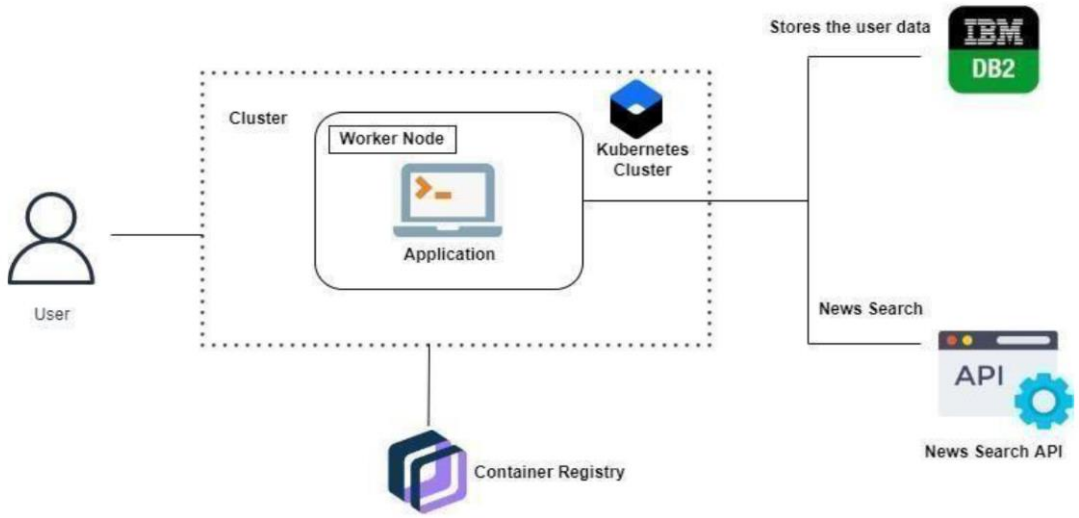
5.1 Data Flow Diagrams

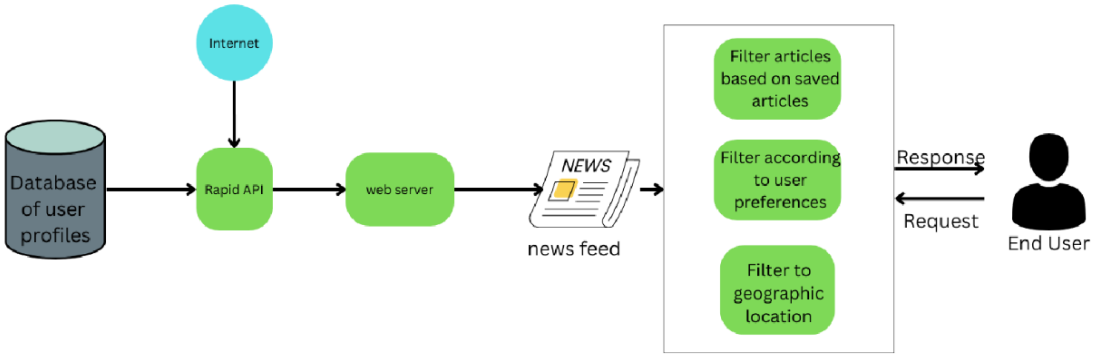
A Data Flow Diagram (DFD) is a traditional visual representation of the information flows within a system. A neat and clear DFD can depict the right amount of the system requirement graphically. It shows how data enters and leaves the system, what changes the information, and where data is stored.

DATA FLOW DIAGRAM



5.2 Solution and Technical Architecture





5.3 User Stories

USER STORIES

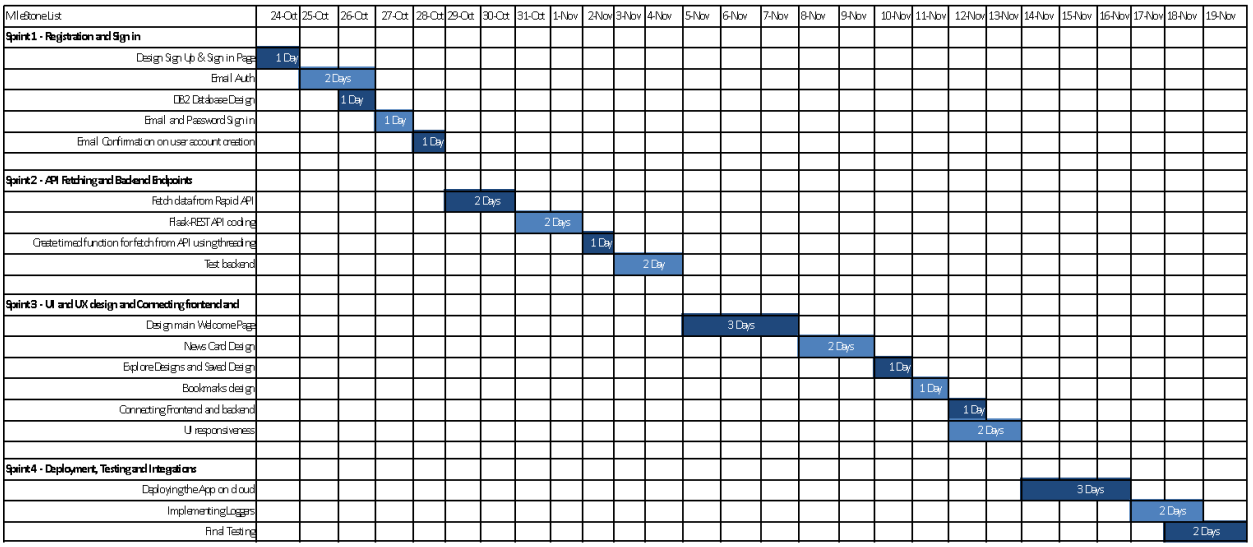
User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Story Points	Priority
Customer (web user)	Registration	USN-1	As a user, I can register for the application by entering my email, password, and confirming my password.	10	High
		USN-2	As a user, I will receive confirmation email once I have registered for the application	4	Medium
	Login	USN-3	As a User, i can login using email id and password	4	Medium
	Dashboard	USN-4	As a User, I can enter his preferences of news the first time he/she logs into the application	10	High
		USN-5	As a user, I can go through filtered new according to my wish	8	High
		USN-6	As a user, I can log out of the application	3	low

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	Praveen, Neeraj
Sprint-1	Login	USN-2	As a user, I will receive confirmation email once I have registered for the application	5	High	Lalit, Shiva
Sprint-2	Designing Frontend	USN-3	Create a minimalisting design to create frontend	2	Medium	Neeraj
Sprint-2	Creating Frontend	USN-4	Create the frontend webpage using the design	10	Low	Shiva, Praveen
Sprint-3	Connect frontend and backend	USN-5	Connect the frontend and backend and complete the application	8	High	Lalit, Neeraj, Shiva
Sprint-4	Testing	USN-6	Testing the application before final release	10	High	Praveen, Lalit
Sprint-4	Deployment	USN-7	Deployment of the application	10	High	Shiva, Lalit, Neeraj, Praveen

6.2 Sprint Delivery Schedule



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

7.1 Feature 1 - Filter News according to preferences

```
def home(request):

    if not request.user.is_authenticated:
        return redirect('/login')

    country = None
    category = None
    arr1 = request.GET.get('category')
    arr2 = request.GET.get('country')

    if arr1 is not None:
        category, country = arr1.split(',')
        print("category : ", category, "   country : ", country)

    elif arr2 is not None:
        country, category = arr2.split(',')

    customer = Customer.objects.get(user = request.user)
    if country is None:
        country = 'us'
    if category is None:
        category = customer.recent_category

    url = f"https://newsapi.org/v2/top-headlines?country={country}&category={category}&apiKey={API_KEY}"
    response = requests.get(url)
    data = response.json()
    articles = data['articles']

    return render(request, 'home.html', {
        'articles' : articles,
        'data' : data,
        'country' : country,
        'category': category,
        'customer' : customer
    })
```

7.2 Feature 2 – access saved articles

```python
def save_article(request, cust_id):
    ######## put record into Article model and get the id of the article
    url = request.GET.get('url', False)
    total_splits = len(url.split('~'))
    if total_splits is not 7:
        return redirect('/')

    url1, url2, author, publishedAt, description, title, category = url.split('~')

    a = Article(
        title = title,
        url = url1,
        desciption = description,
        urlToImage = url2,
        author = author,
        publishedAt = publishedAt
    )
    a.save()

    ######## put record into SavedArticle model with the customer id and article id
    c = Customer.objects.get(user = request.user)
    c.recent_category = category
    c.save()

    print("Recent Category is ", c.recent_category)

    s = SavedArticle(
        customer = c,
        article = a
    )

    s.save()

    return redirect('/')


def delete_saved_article(request, saved_article_id, cust_id):
    instance = SavedArticle.objects.get(id=saved_article_id)
    instance.delete()
    str = '/saved_articles/'+ cust_id
    return redirect(str)
```

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 favorite 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.