Zone	3
Team Id	NM2023TMID00678
Project Title	Dissecting the Digital Landscape : A Comprehensive Analysis of Social Media Projects
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Year	4th Year
Department	Artificial Intelligence & Data Science
Team size	4
Team Leader	SivaSree S
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1. INTRODUCTION

Project Overview

On Facebook,its history,evolution,and the existing body of knowledge regarding its impact on individuals and society.Explore academic papers,industry

Exports,case srudies and revenue streams and how it has adapted to changing user demands and technological advancements.Analyze the user experience,engagement

Patterns and role of algorithmic content curation on platform.

1.1 Purpose

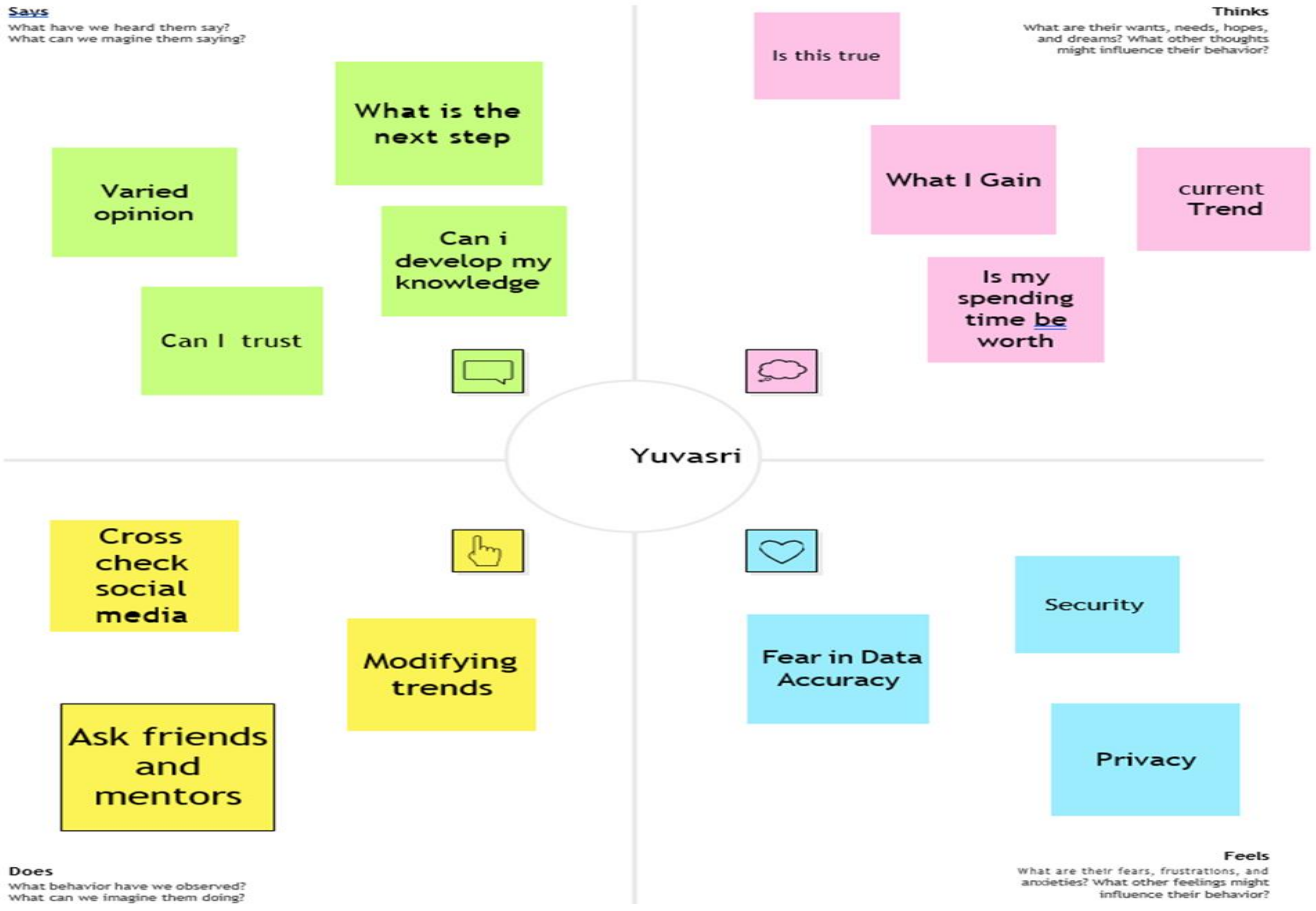
Understanding Facebook's Platform: The analysis aims to provide a deep understanding of Facebook as a social media platform. This includes examining its features, functionalities, user demographics, and engagement patterns. By understanding the platform's evolution and core components, the project seeks to uncover the intricacies of Facebook's digital landscape.Investigating User Behavior and Psychology: By studying user behavior on Facebook, the project aims to uncover the psychological and sociological factors that influence individuals' interactions and engagement. Understanding how users navigate Facebook, consume content, and interact with others can provide insights into their motivations, preferences, and the impact of algorithmic content curation.Assessing Societal Impact: Facebook's impact on society and communities is significant. The analysis aims to evaluate both the positive and negative implications of Facebook's influence. This includes studying its role in connecting individuals, fostering communities, enabling activism, as well as examining issues such as the spread of misinformation, echo chambers, and the potential impact on mental health and well-being.

2. IDEATION AND PROPOSED SOLUTION

2.1 Problem statement definition

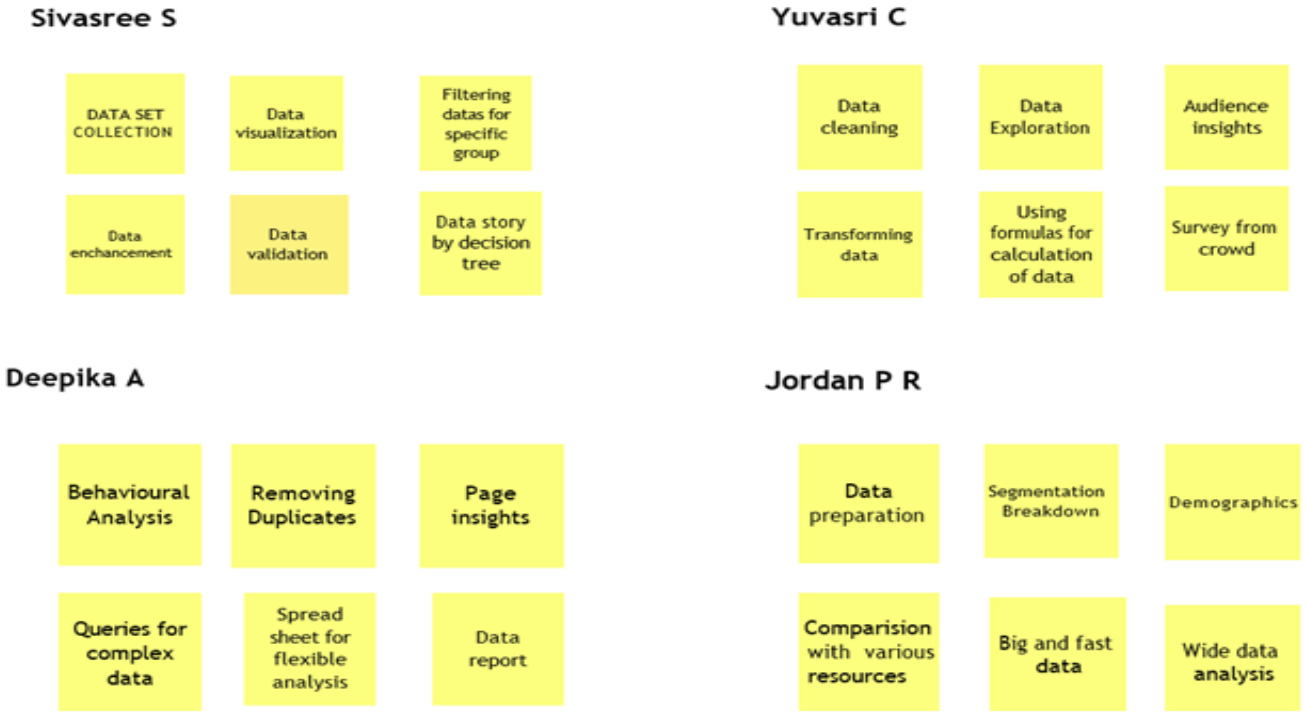
In the age of digital communication, social media has emerged as a powerful platform that shapes public discourse, influences consumer behavior, and drives societal trends. However, the landscape of social media is vast and ever-changing, making it challenging for individuals, businesses, and policymakers to comprehend its complexities and harness its potential effectively. Therefore, the problem at hand is to conduct a comprehensive analysis of social media, dissecting its various platforms, algorithms, user behaviors, and impacts, in order to provide actionable insights. To develop a comprehensive analysis for facebook datas to achieve the goal of identifying trends, patterns,and user behaviour,essential for Facebook to optimize its media-related features, as well as to enhance user engagement and satisfaction on the platform.

2.2 Empathy map canvas



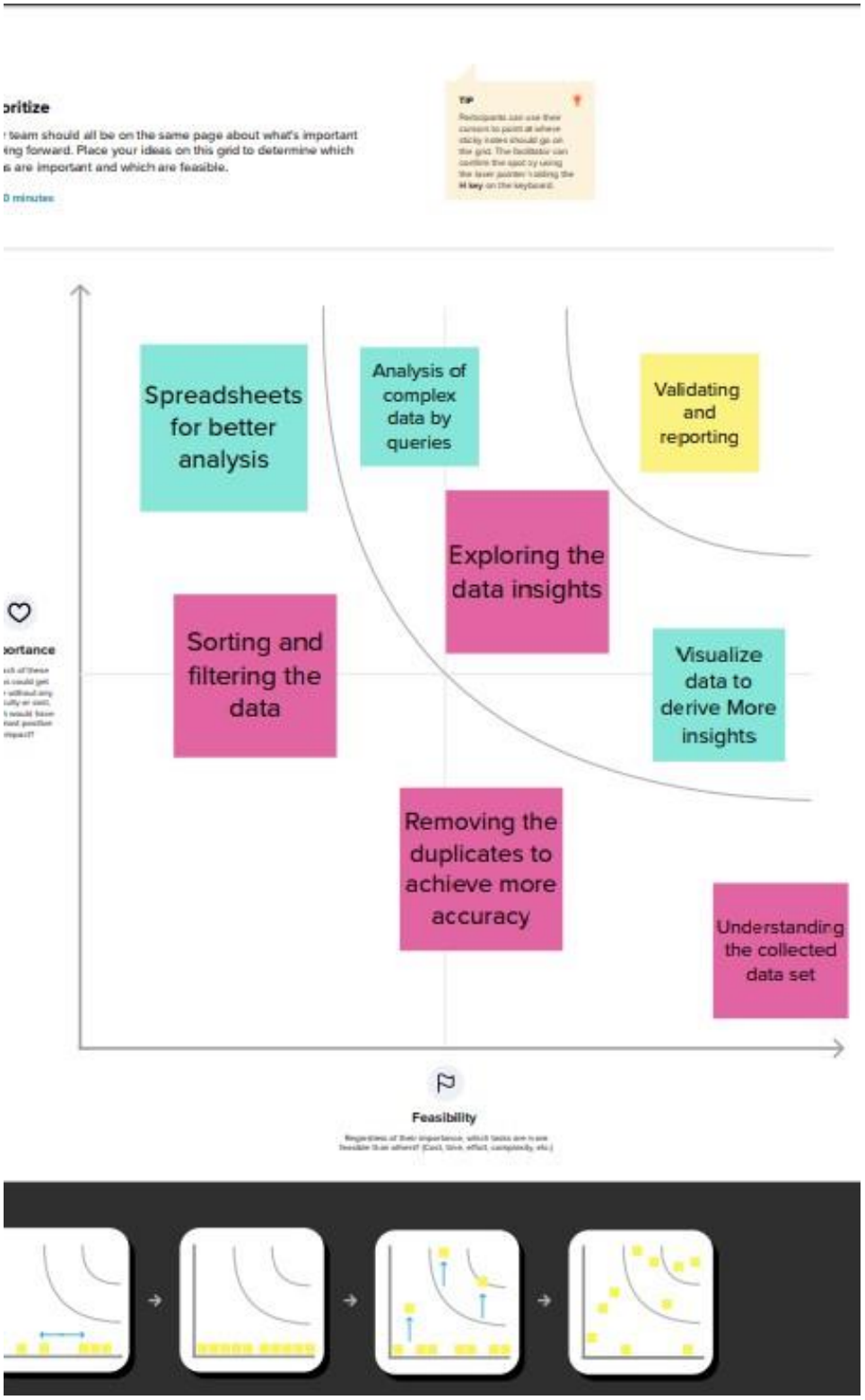
2.3 Ideation and Brainstorming

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



Step-2: Brainstorm, Idea Listing and Grouping

Step-3: Idea Prioritization



2.4Proposed solution

Proposed Solution Template:

S.No.	Parameter	Description
1.	Problem Statement (Problem to be solved)	analyse the complex datasets of the social media
2.	Idea / Solution description	Using analysis tool to explore and visualize datasets to gain insights
3.	Novelty / Uniqueness	Using nine basic principles of design will produce categorized & five phase involved visualization
4.	Social Impact / Customer Satisfaction	Interactive dashboards & well defined data stories will achieve the goal
5.	Business Model (Revenue Model)	Subscription-based model for clients.They will pay a recurring amount to view and access the platform
6.	Scalability of the Solution	Distributed Processing across varied datasets improve scalability

3.REQUIREMENT ANALYSIS

3.1 Functional requirement

Following are the functional requirements of the proposed solution.

FR No.	Functional Requirement (Epic)	Sub Requirement (Story / Sub-Task)
FR-1	User Registration	Registration through Form Registration through Gmail
FR-2	User Confirmation	Confirmation via Email Confirmation via OTP
FR-3	User Dashboard	data extraction
FR-4	User Dashboard	data exploration
FR-5	User Dashboard	Visualization about specific data
FR-6	User Dashboard	Gaining Better Insights in respective domain

3.2 Non-functional Requirement

Non-functional Requirements:

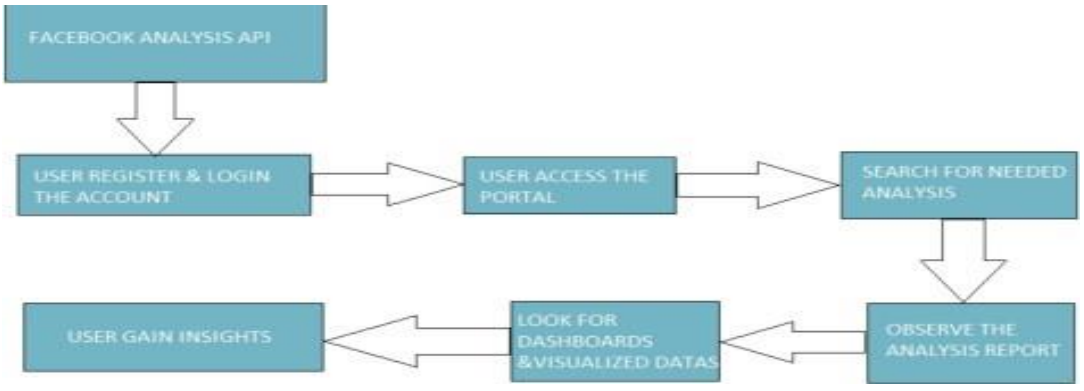
Following are the non-functional requirements of the proposed solution.

FR No.	Non-Functional Requirement	Description
NFR-1	Usability	Users can easily understand the environment and access it,their requirements will be achieved
NFR-2	Security	Access permission for the particular system information changed by data administrator
NFR-3	Reliability	The system must perform without failure in 97 percent of use cases.
NFR-4	Performance	Supporting 5000 users per hour must provide 1 minute or less system response time
NFR-5	Availability	The web dashboard will be available for the users 99.98 percent of the time every month
NFR-6	Scalability	The system must be scalable enough to support 1,000,000 visits at the same time

4. PROJECT DESIGN

4.1 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



4.2 Solution and Technical Architecture

Technical Architecture:

The Deliverable shall include the architectural diagram as below and the information as per the table1 & table 2

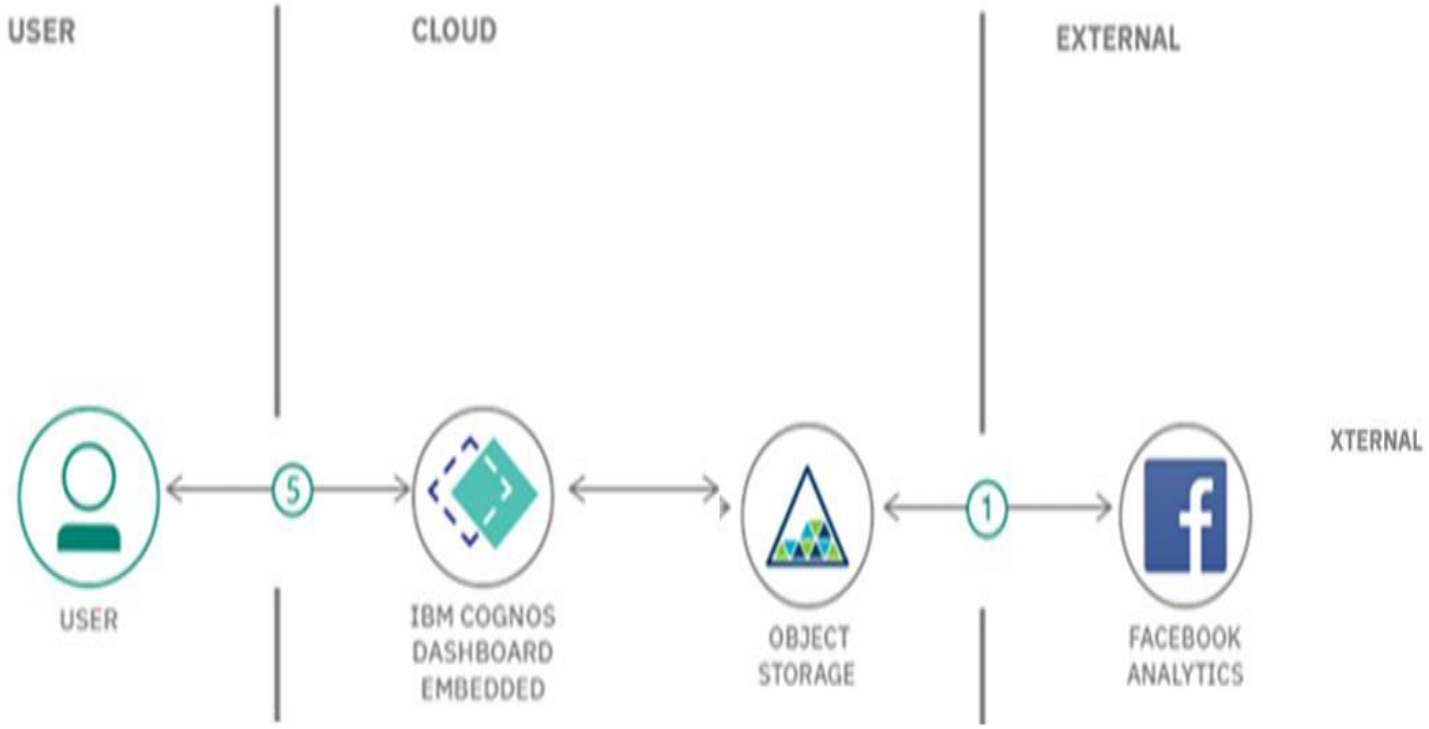


Table-1 : Components & Technologies:

S.NO	Component	Description	Technology
1.	User Interface	Web User Interface	HTML, CSS, JavaScript
2.	Application Logic-1	Visualization of current trends of facebook by analysing its data	Data analytics
3.	Database	Data Type, Configurations etc.	SQL
4.	Cloud Database	Database Service on Cloud	IBM DB2, IBM Cloudant etc.
5.	File Storage	File storage requirements	Local Filesystem.
6.	External API-1	Purpose of External API used in the application	Facebook API.
7.	External API-2	Purpose of External API used in the application	IBM cognos analytics
8.	Infrastructure (Server / Cloud)	Application Deployment on Local System / Cloud Local Server Configuration: Cloud Server Configuration :	Local Server.

Table-2: Application Characteristics:

S.No	Characteristics	Description	Technology
1.	Open-Source Frameworks	Simplicity and efficient	Flask
2.	Security Implementations	Access permission for the particular system information changed by data administrator	SHA-256
3.	Scalable Architecture	The system must be scalable enough to support 1,000,000 visits at the same time	Cloud computing platform
4.	Availability	The web dashboard will be available for the users 99.98 percent of the time every month	Cloud infrastructure
5.	Performance	Supporting 5000 users per hour must provide 1 minute or less system response time	Content delivery Networks

4.3 User Stories

User Type	Functional Requirement (Epic)	User Story Number	User Story / Task	Acceptance criteria	Priority	Team Member
Customer (Mobile 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	Sivasree
	Login	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	Yuvasri Kalpana
	Dashboard	USN-3	As a user, I can register for the application through Facebook	I can register & access the dashboard with Facebook Login	Low	Deepika
		USN-4	As a user, I can register for the application through Gmail		Medium	Jordan
		USN-5	As a user, I can log into the application by entering email & password		High	Sivasree
Customer (Web user)	Login	USN-6	As a web user, login to the portal and observe the data		Medium	Yuvasri

5. CODING AND SOLUTIONING

5.1 Feature 1

The features of the existing system are including a user login creator to provide user interface, student performance analyser, student development card, achieved credit, passing criteria card and wise student performance attribute card. Providing the online interface for students, faculty etc. Increasing the efficiency of school record management. Decrease time required to access and deliver student records. To make the system more secure. Decrease time spent on non-value-added tasks.The proposed system that we are going to develop will be used as the chief performance system for helping the organization in managing the whole database of the student studying in the organization. Therefore, it is expected that the database would perform functionally all the requirements that are specified.

5.2 Feature 2

The proposed system provides the student an easy and accurate data about projects and academic percentages. Students can view all the information in just one click which saves a lot of time and effort. The proposed system maintains a database to store all the information. In this system, there is no chance of losing data. Adding and searching the information is very easy which does not take much time and physical effort.We developed a website to analyze and generate report of students based on the curriculum that represents student's academic performance. We have developed the system such that, it will automatically parse data onto the database from excel file, which will in return reduce time consumption of analysis of data.

For these we used HTML, CSS, PHP, my SQL and java script. After teacher logins into system, data is been fetched dynamically through the database. For here, parsing is done using PHP Excel. It is an inbuilt library for PHP to fetch data from excel files over or within network. We hope to accelerate the analysis by developing the analysis system. It provides assistance to teachers and administrator to track record of each student, subject and department by using various techniques such sort

6. RESULTS

Performance Metrices:

User Growth and Reach:

- **Monthly Active Users (MAUs):** The total number of unique users who engage with Facebook on a monthly basis.Daily Active Users (DAUs): The total number of unique users who engage with Facebook on a daily basis.
- **User Demographics:** Analyze the breakdown of users by age, gender, location, and other relevant demographics to understand the platform's reach.

User Engagement: Time Spent on Platform: Average time users spend on Facebook per session or per day.

- **Daily Active Usage:** The frequency and duration of users' daily interactions with the platform.
- **Post Interactions:** Number of likes, comments, shares, and reactions on posts to gauge user engagement with content.

Content Performance:

- **Impressions:** The number of times content is displayed on users' screens.
- **Click-Through Rate (CTR):** The percentage of users who click on a post or ad after seeing it.
- **Virality:** The rate at which content is shared and reaches a wider audience.

Advertising Effectivenes:

- **Ad Impressions:** The number of times ads are displayed to users
- **Click-Through Rate (CTR):** The percentage of users who click on an ad after seeing it.
- **Conversion Rate:** The percentage of users who take a desired action (e.g., making a purchase) after clicking on an ad.

User Satisfaction and Sentiment:

- **User Surveys:** Conduct surveys to measure user satisfaction, sentiment, and feedback regarding their experience on Facebook.

- **Net Promoter Score (NPS):** Measure the likelihood of users recommending Facebook to others.

7. ADVANTAGES AND DISADVANTAGES

Advantages

In-depth Understanding: Conducting a comprehensive analysis allows for a deep understanding of Facebook as a social media platform. It enables researchers to gain insights into its features, functionalities, and user behaviors, providing a holistic view of the platform.

Insights into User Behavior: The analysis helps uncover the motivations, preferences, and behaviors of Facebook users. Understanding how users interact with the platform can inform marketing strategies, content creation, and user engagement initiatives.

Identification of Societal Impact: By examining Facebook's societal impact, the analysis can shed light on the positive aspects of the platform, such as connecting individuals and fostering communities. It can also highlight negative implications, such as the spread of misinformation or potential effects on mental health, helping develop strategies to mitigate these challenges.

Privacy and Data Protection Assessment: Analyzing Facebook's privacy practices and data protection policies allows for a critical evaluation of how user data is handled. It provides an opportunity to identify potential risks and suggest improvements to safeguard user privacy.

Disadvantages

Limited Data Access: Conducting a comprehensive analysis of Facebook requires access to substantial amounts of data, which may not be readily available or accessible. Limited data access can hinder the depth and breadth of the analysis, impacting the reliability and validity of the findings.

Privacy Concerns: Analyzing Facebook's privacy practices and data usage raises privacy concerns for users. The collection and analysis of user data must be conducted responsibly

and ethically to ensure privacy rights are respected.

Bias and Generalization: There is a risk of bias in the analysis, particularly when interpreting user behavior or societal impact. Generalizing findings to the entire user base may overlook individual differences and cultural nuances, leading to incomplete or inaccurate conclusions.

Evolving Landscape: The digital landscape, including Facebook, is continually evolving, with frequent updates, changes in user behavior, and emerging challenges. A comprehensive analysis may face difficulties in keeping up with the pace of change, making it challenging to capture the most up-to-date insights.

8. CONCLUSION

In conclusion, the comprehensive analysis of Facebook has provided a nuanced understanding of the platform's advantages, disadvantages, and potential areas for improvement. By recognizing the impact and complexities of Facebook in the digital landscape, we can work towards a more responsible, inclusive, and transparent social media ecosystem. Facebook has the opportunity to evolve and address the challenges identified, fostering an environment that prioritizes user privacy, content integrity, and the well-being of its users and society as a whole.

However, the analysis has also revealed several disadvantages and challenges associated with Facebook. Privacy concerns have emerged as a significant issue, with users expressing worries about data collection, sharing, and targeted advertising. The spread of misinformation, filter bubbles, and echo chambers has raised questions about the platform's impact on public discourse and societal cohesion. Content moderation remains a complex task, with the challenge of addressing fake news, hate speech, and harmful content while maintaining freedom of expression.

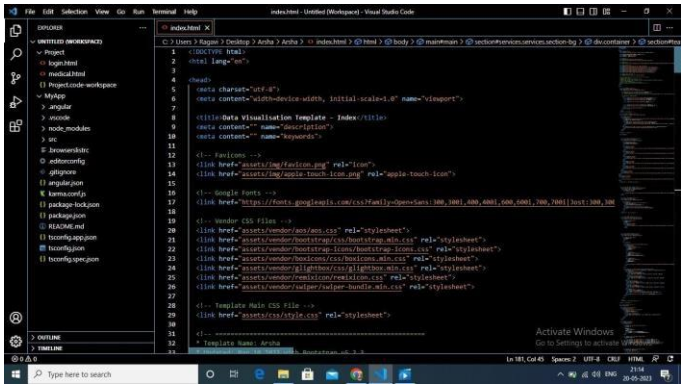
9.FUTURE WORK

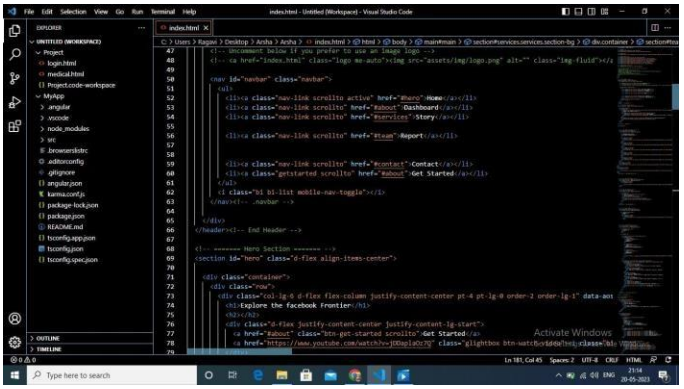
Emerging Platforms: As new social media platforms continue to emerge, conducting comprehensive analyses of these platforms will be essential. Exploring their features, user behaviors, and societal impact can provide insights into the evolving digital landscape and inform strategies for users, businesses, and policymakers.

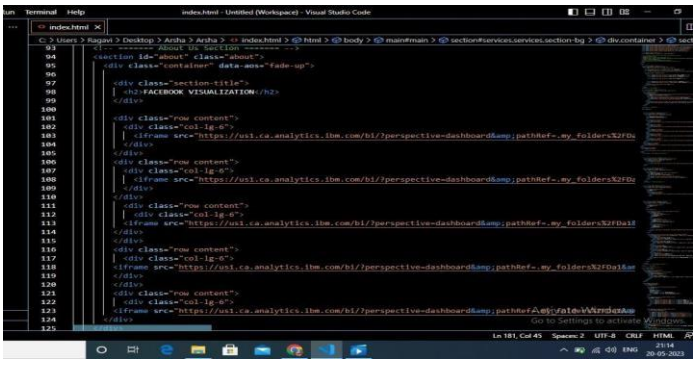
User Privacy and Data Protection: Given the increasing concerns around user privacy and data protection, future research can delve deeper into understanding user perceptions, expectations, and preferences regarding their privacy on social media. Examining the effectiveness of privacy settings, data sharing practices, and user awareness can guide the development of privacy-centric policies and features.

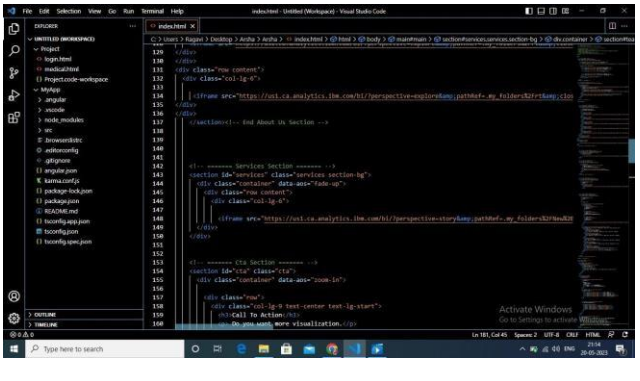
Algorithmic Transparency and Bias: Investigating the algorithms and recommendation systems used by social media platforms is crucial. Research can focus on understanding the impact of algorithms on content exposure, user experiences, and potential biases in content recommendations. Enhancing transparency and addressing algorithmic biases can help promote a fair and diverse social media environment.

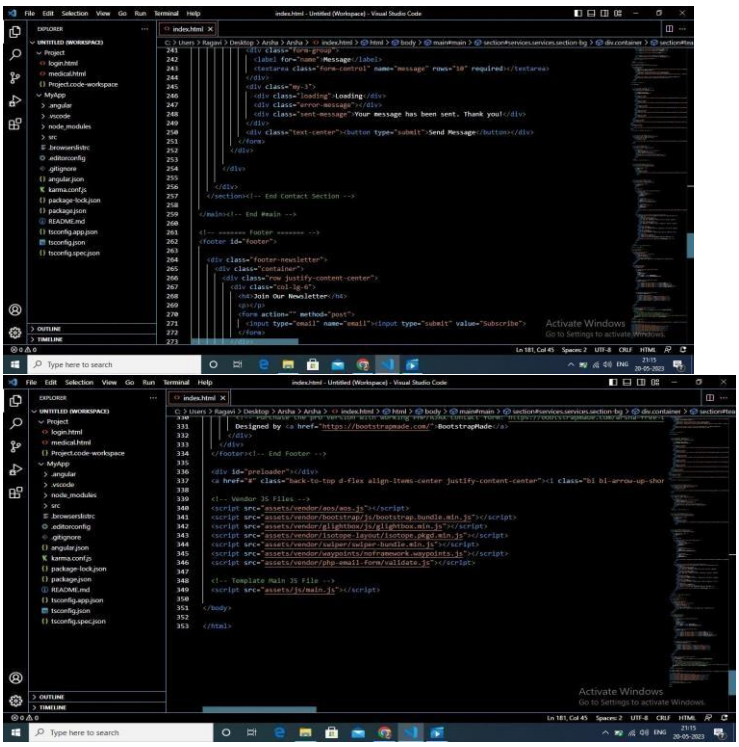
SOURCE CODE



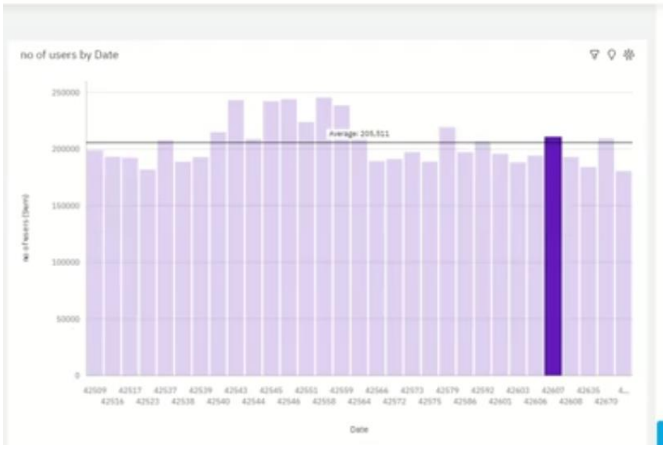








RESULT



Github and Project Video Demo link

Video Link: https://youtu.be/0rS8WMChC-A?si=LY7QZbJRwHyIcTAz

Github Link: https://github.com/SSivasree/NM-SEMESTER-VII.git