



Zone

3

Team Id

NM2023TMID00678

Project Title

Dissecting the Digital Landscape : A  
Comprehensive Analysis of Social Media  
Projects

Submitted to

IBM

Year

4<sup>th</sup> Year

Department

Artificial Intelligence & Data Science

Team size

4

Team Leader

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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 studies 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.

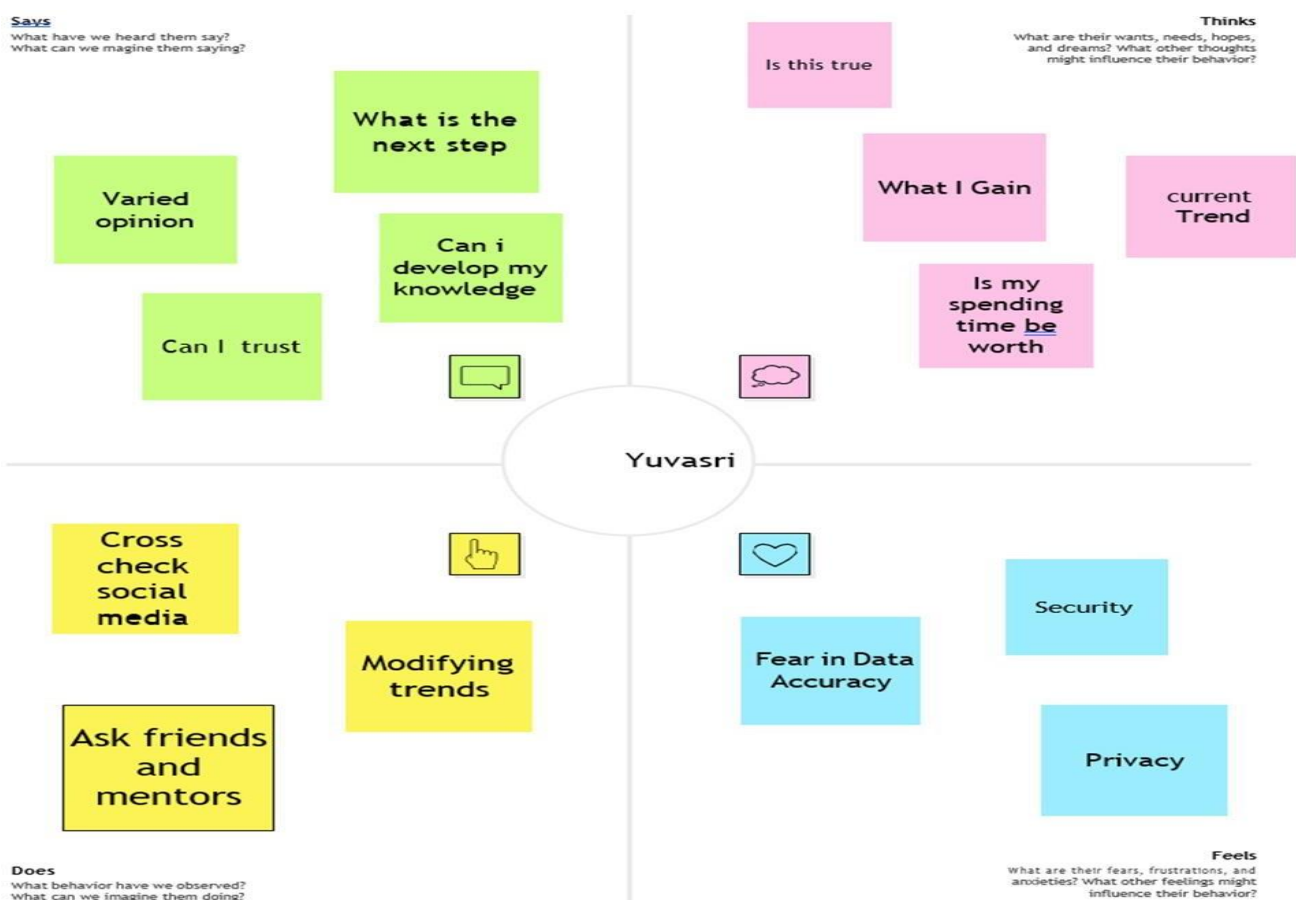
**Assessing Societal Impact:** Facebook's impact on society and communities is significant. The analysis aims to evaluate both the positive and negative implications of Facebook's influence. This includes studying its role in connecting individuals, fostering communities, enabling activism, as well as 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.

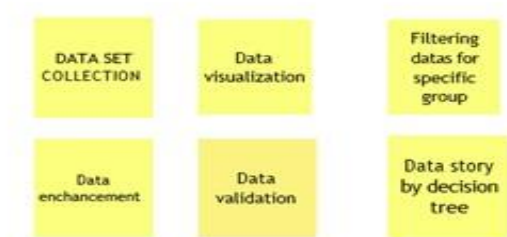
### 2.2 Empathy map canvas



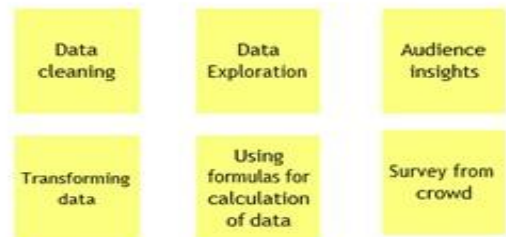
## 2.3 Ideation and Brainstorming

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

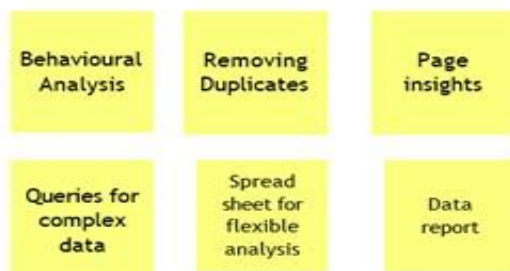
Sivasree S



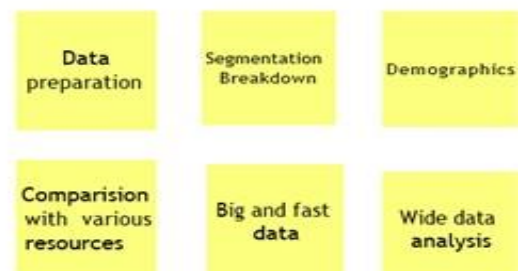
Yuvasri C



Deepika A



Jordan P R



### Step-2: Brainstorm, Idea Listing and Grouping



## Step-3: Idea Prioritization

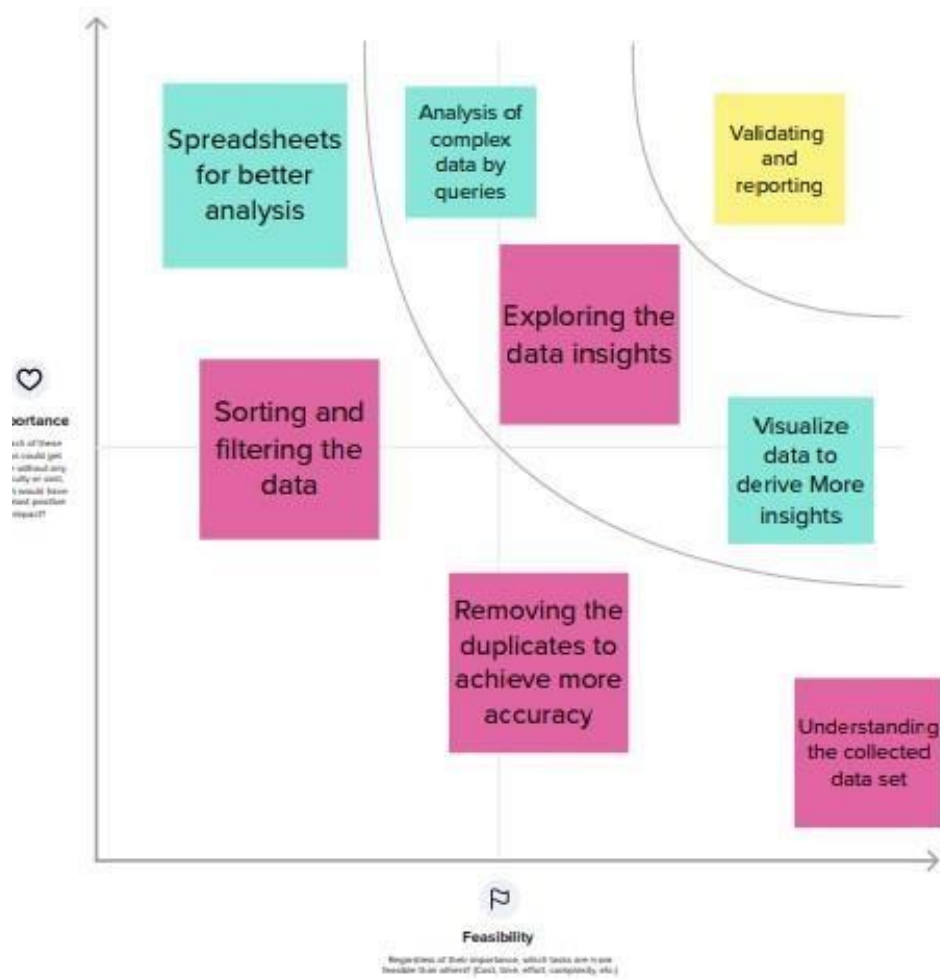
### Prioritize

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

10 minutes

#### TIP

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



## 2.4 Proposed 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<br>Registration through Gmail |
| FR-2   | User Confirmation             | Confirmation via Email<br>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:

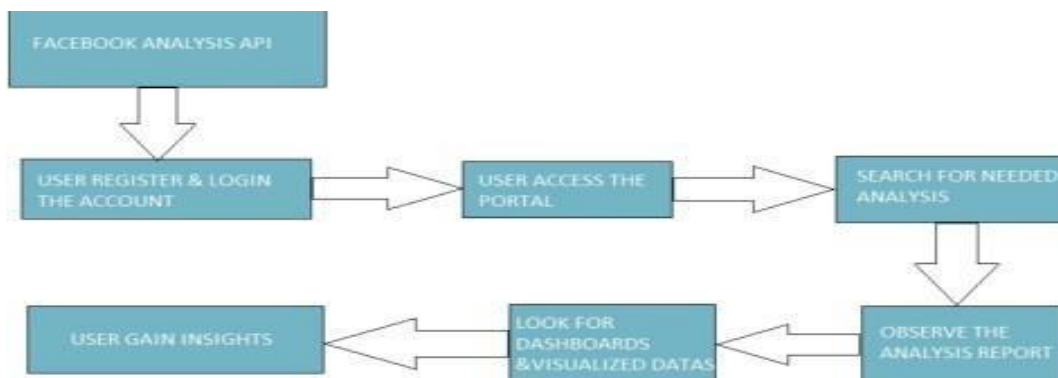
Following are the non-functional requirements of the proposed solution.

| 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

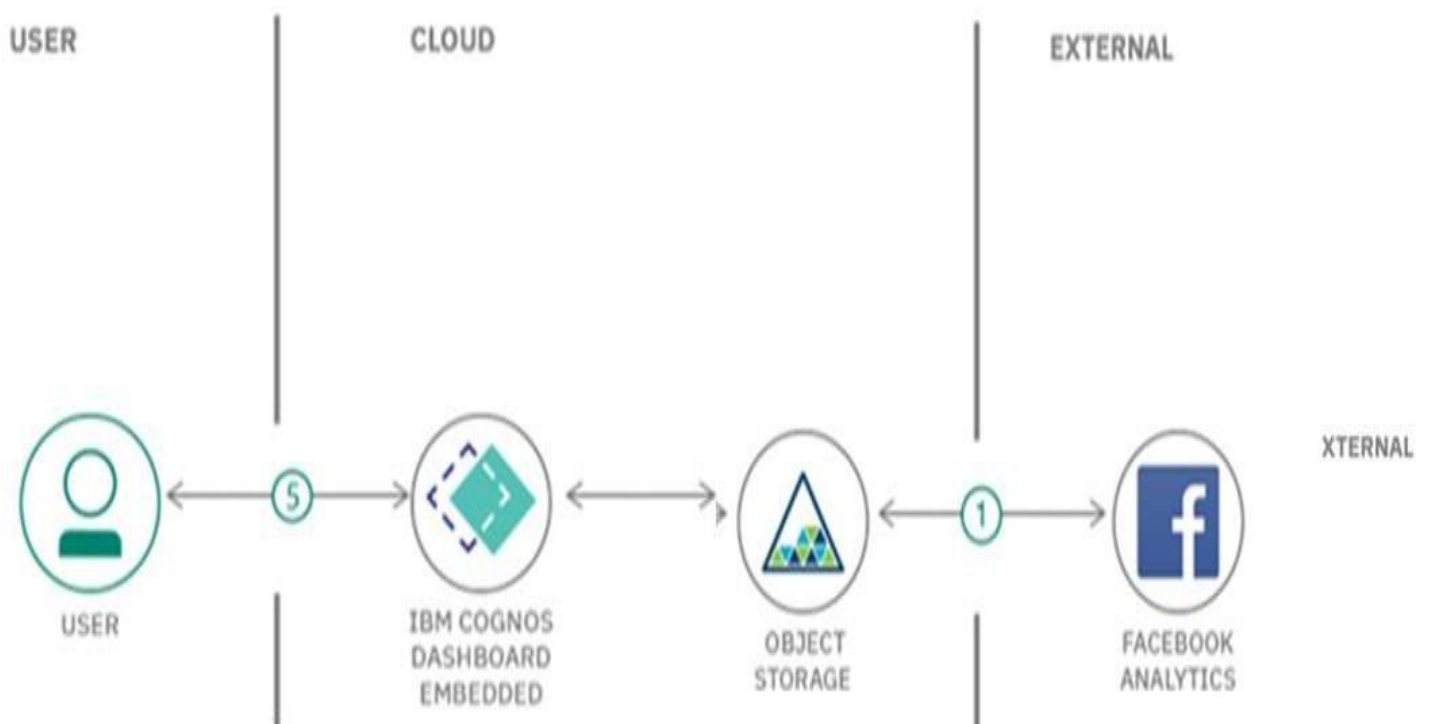




Table-1 : Components &amp; Technologies:

Press **Esc** to exit full screen

| 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<br>Local Server Configuration:<br>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 <u>users</u> 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 Metrics:

### 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 Effectiveness:

- **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.

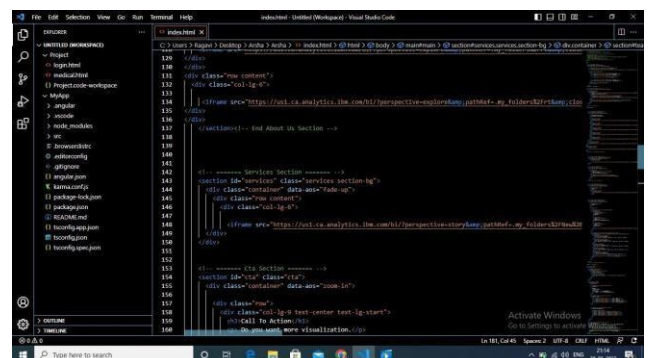
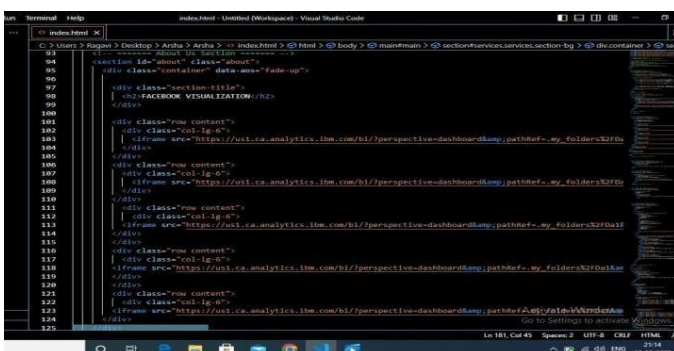
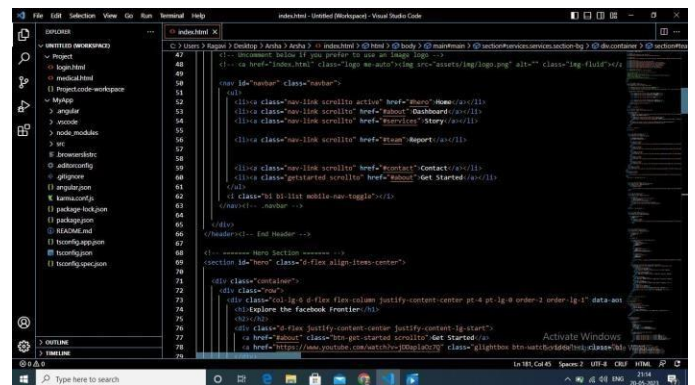
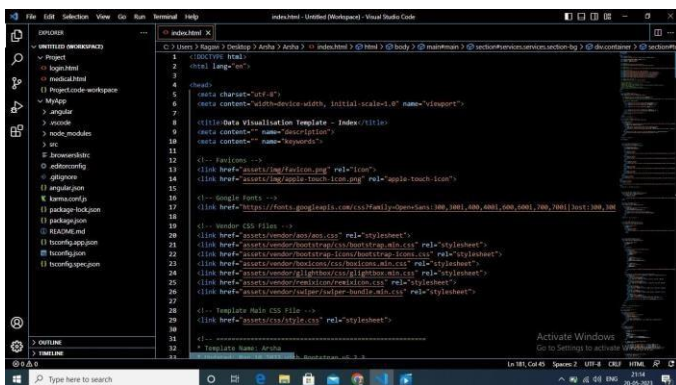
## 9. FUTURE WORK

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.

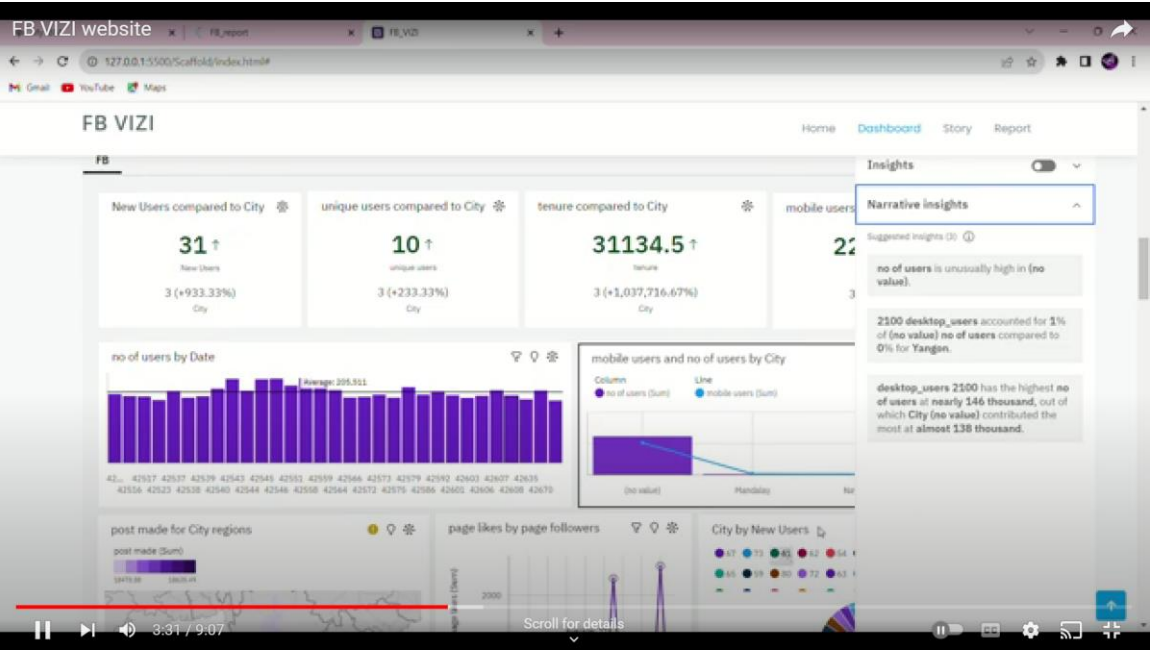
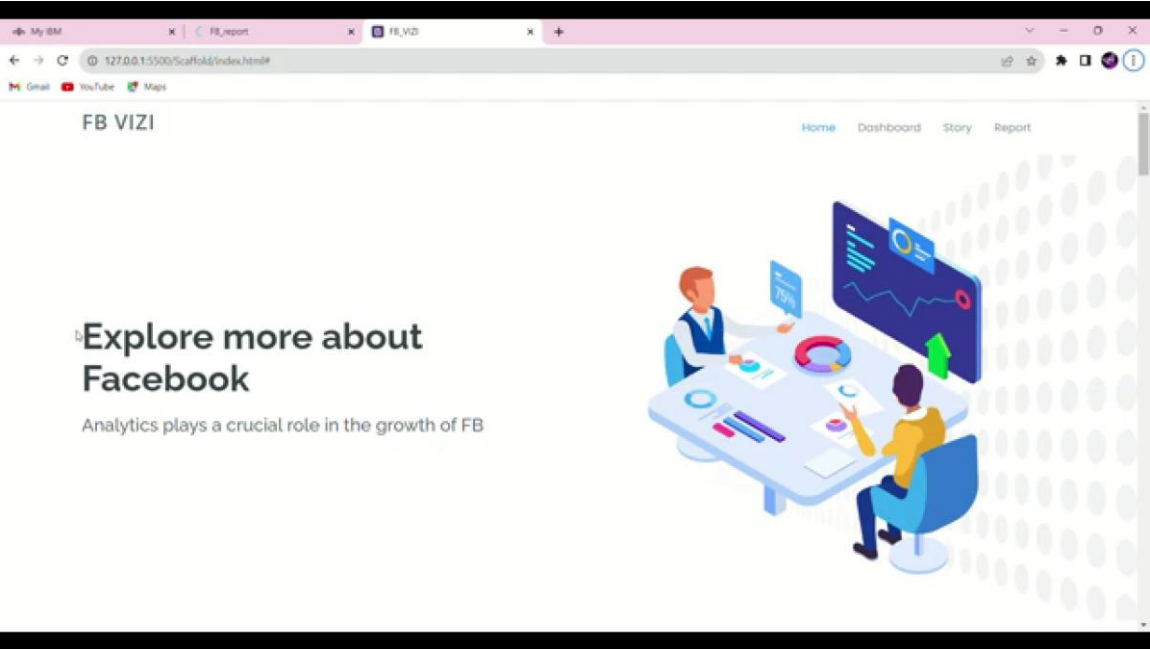
Algorithmic Transparency and Bias: Investigating the algorithms and recommendation systems used by social media platforms is crucial. Research can focus on understanding the impact of algorithms on content exposure, user experiences, and potential biases in content recommendations. Enhancing transparency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

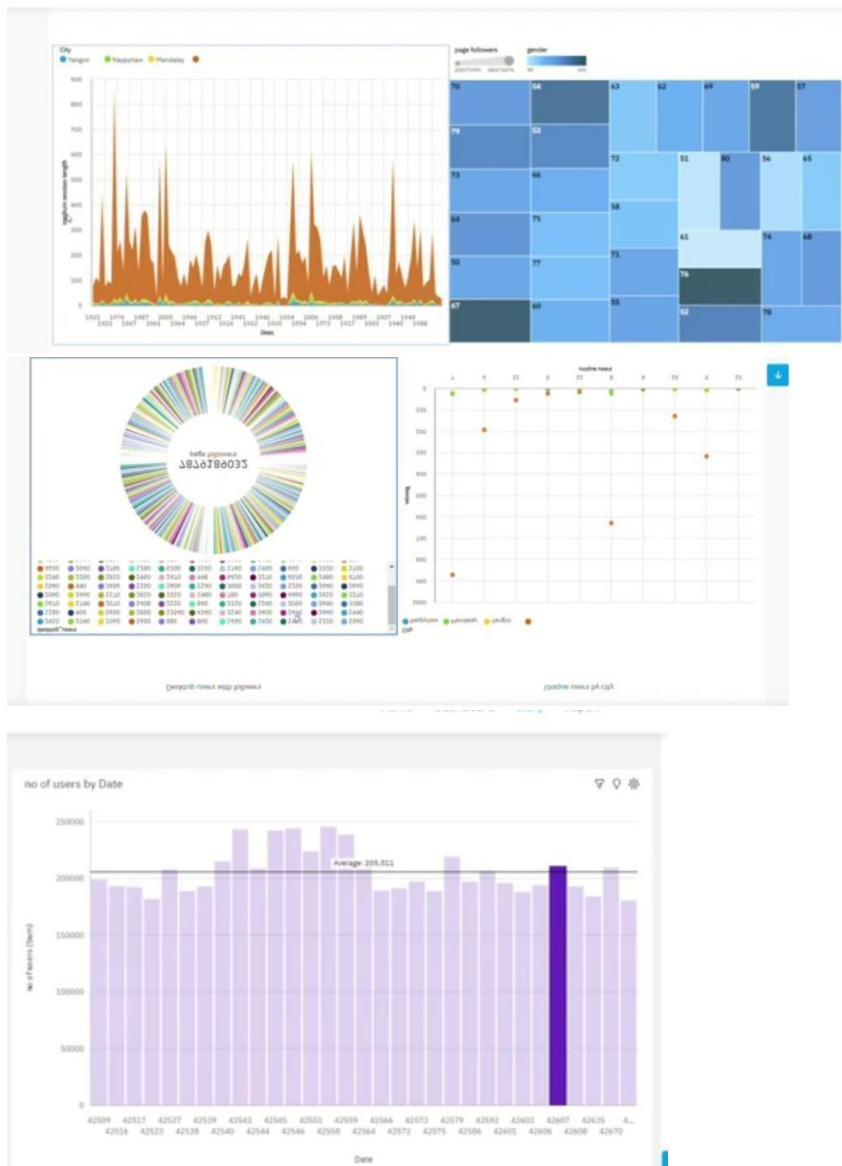
## SOURCE CODE





# RESULT





## Github and Project Video Demo link

Video Link: <https://youtu.be/OrS8WMChC-A?si=LY7QZbJRwHyICtAz>

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