1.1P: Reflection on Data-driven information Systems around you

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Introduction

In this report, I will reflect on Three data-driven systems that I frequently use in my daily life. These systems have become an essential part of my daily routine and have significantly impacted the way I live, learn, and engage with the outside world. The three systems I will be discussing are;

1. Social Media Platform (e.g., Facebook, Instagram)
2. Navigation Application (e.g., Google Maps)
3. Email Client (e.g., Gmail)

Data-Driven Information Systems in Everyday Life

In the rapidly evolving fast-paced technological world, data-driven information systems have become an entangled part of our daily lives. These systems ranging from social media platforms such as Facebook, and Instagram to Navigation tools like google maps and Email clients such as Gmail, play a pivotal role in shaping the way we live, engage, communicate, and access information.

The present era of this digital world is undergoing an unheard-of surge in data generation and consumption. Social media platforms like Facebook and Instagram have significantly altered the way we communicate and build and develop relationships with people, which has prompted us to share our thoughts and ideas on a worldwide scale. Navigation applications like Google Maps, have revolutionized the way we navigate and explore the physical world, providing real-time GPS-based location-based services and directions. Email clients like Gmail have dramatically changed the way we communicate with individuals around the globe. One of the first pieces of communication technology that enabled real-time global communication was email.

As users of these kinds of data-driven information systems, we deal with a huge amount of data daily. These systems leverage user-generated data, machine learning algorithms, and data analytics to ensure that users experience enhanced user engagement. However, as reliance on these systems grows, there also comes an urgent need to address the risks, concerns, and issues related to data security and privacy. In an age where data is considered the new currency, understanding the inner workings of these information systems becomes imperative

Throughout this report, we will discuss deeply into data-driven information systems, exploring the data they use, how you use that data and what would happen if that data was not available to us, how that data in our daily lives, the entities responsible for generating, capturing, storing and managing the data and potential risks, concerns and issues that arise related to data security and privacy.

1. **Social media platforms**.

1.1 What is a social media platform system and what sort of data it uses?

- Social media sites like Instagram and Facebook are web-based application that enables users to connect, communicate and share content and information online. There are billions of social media users globally daily. These websites gather information such as name, age, gender, location, and contact details along with user-generated content such as posts, videos, and comments. In addition, through likes, shares, and even clicks, it gathers information on user interaction. Interests and preferences.

1.2 How do we use the data on social media? What would happen if that data was not available to you?

- We utilize these data to establish new connections, reconnect with former friends, share and provide updates about our lives, engage with people's content, maintain current relationships, promote their business or project, to participate in discussions on different topics. The data collected by the platform helps personalize my experience by showing content relevant to my interests and suggesting connections with people I may know. If these data weren't available, our experiences on the platform would be generic and uninteresting. The absence of personalized content might reduce our interest in using the platform and limit its overall usefulness.

1.3 Who/how/where the data is generated, captured, stored, and managed in social media?

- The data on social media platforms are generated by users when they create accounts and upload information and content. The platform collects this information through various interactions and activities and contents; like Engagements: clicks, comments, shares, the account's reach, impressions and video views, follower count and growth over time, profile visits, brand sentiments, social share of voice, Demographic data: age, gender, location, language, behaviors, etc. Social networks keep their server farms in data centers co-located and large databases governed by the platform's parent company and are subject to their data management policies and security protocols. The platform's administrators and data protection teams are in charge of managing the data.

1.4 Risks/concerns around the security and privacy of the data in social media.

- According to a recent survey, 81% of Americans say they're concerned about their privacy on social networking sites. Yet, the privacy risks of using social media are a nightmare that most users choose to ignore until it becomes a reality. The social media platform has faced numerous concerns regarding the security and privacy of user data. Instances of data breaches and unauthorized access to user information have raised concerns about the safety of personal data on these platforms. Sometimes a user's data can be misused and manipulated. Ensuring robust security measures, obtaining explicit user consent for data usage, and being transparent about handling practices are crucial steps to address these risks.

2. Navigation Application

2.1 What is a Navigation Application system and what sort of data it uses?

- Real-time GPS-based navigation and location services are offered by navigation apps like Google Maps. The data used by the application uses the user's location, destination, search history, and preferred route as data.

2.2 How do we use the data in a navigation app? What would happen if that data was not available to you?

- We use navigational software to calculate trip times, discover local locations, and receive directions. We can choose the best route based on traffic conditions and get precise guidance with the help of the app's data. Without this information, we would have to rely on old-fashioned paper maps or ask for directions, which could be less or not effective at all and result in navigational errors.

2.3 Who/how/where the data is generated, captured, stored, and managed in the navigation application?

- The data is generated when we use the navigation application to search for places by entering them and enabling our current location for improved search. Google Maps captures and stores these data in the device we use and they collect and store our location and navigation data in their servers and satellites to provide the best Maps experience for everyone. For example, when Google collects our navigation data, this will improve the accuracy of traffic data for all users.

2.4 Risks/concerns around the security and privacy of the data in a navigation application.

- The main concern about using a navigation application is that our location can be monitored. It is necessary to be tracked for correct navigation, there is also a risk involved with it when the data fall into the wrong hands. After that, our data may be utilized against us by spying on us at our location which raises privacy concerns. So, to prevent such events, we should review and manage location-sharing settings on our devices to limit data sharing to trusted sources.

3. Email Client

3.1 What is an Email client system and what sort of data it uses?

- An email client such as Gmail, is a software application that is used to access, manage and send emails. It provides users with a user interface that allows them to browse and organize their email messages. Email clients can be independent or mobile applications. The data used by this application are the user's email address, email contents, IP addresses, and timestamps. Email content contains both data: the text and other media being communicated.

3.2 How do we use the data in an email client? What would happen if that data was not available to you?

- We use email clients' data to communicate with family, friends, and coworkers both personally and professionally. The data stored in the email client allows us to retrieve previous conversations, organize crucial messages and make sure to keep it organized. If these data aren't available to us, we would lose access to all our prior emails and contacts, making it difficult to carry on our professional and personal communication effectively.

3.3 Who/how/where the data is generated, captured, stored, and managed in an email client?

- All the email we send and receive is stored on Google's email cloud server. The data is generated when we send or receive emails through the email client then Google collects and stores them. Gmail uses TLS (Transport Layer Security) as a standard to keep our emails secure. There's no need to worry – most email providers support TLS. Google manages these data in secure data centers, and its privacy policies outline how they handle and protect user data.

3.4 Risks/concerns around the security and privacy of the data in an email client.

- The primary risks associated with email clients are unauthorized access, that is our emails get accidental exposure, phishing, getting hacked, data loss in the cloud, data manipulation of sensitive info, insider threats, and many more. To mitigate such risks, we can use strong passwords, avoid credential sharing, and do Data masking and identity access management.

Conclusion

Data-Driven information systems are becoming a necessary part of our daily lives, offering convenience, personalization, and insight information. While these systems offer tremendous benefits, they also come with inherent risks including data security and privacy concerns. Developers and companies behind these systems must prioritize data security, transparency, and user consent to ensure that users can take advantage of these applications without jeopardizing their privacy and personal information. As users, we must prioritize data protection and transparency to encourage trust with users and ensure a safe and secure online experience.

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