**Title:**  Big Data and Analytics (Hadoop and NoSQL)  
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**Course:** MSDS655: Business Intelligence

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## **Hadoop Application in Healthcare Data Management:**

Hadoop's architecture is particularly well-suited for handling large datasets typically found in the healthcare industry. A recent application involves using Hadoop for storing and processing electronic health records (EHRs). The ability of Hadoop to handle vast amounts of structured and unstructured data efficiently makes it an ideal choice for the analysis and storage of patient data, which includes imaging data, clinical information, and laboratory results. Hadoop frameworks such as HBase and Hive facilitate the management of data and support complex analytical queries that are essential for predictive analytics in patient care and medical research.

## **Key Functionalities:**

**Data Storage:** Hadoop's distributed file system provides a reliable and scalable storage solution for large volumes of EHRs.

**Data Processing:** Using MapReduce, Hadoop processes large sets of data with a high degree of parallelism, making it faster to derive insights from data.

**Security and Privacy:** Hadoop incorporates various tools and frameworks that ensure the security and privacy of sensitive healthcare data through encryption and fine-grained access control mechanisms.

## **Integration with Healthcare Systems:**

Hadoop integrates seamlessly with existing healthcare IT systems to enhance data interoperability and real-time data analytics, which are critical for operational efficiency and improved patient outcomes.

## **NoSQL Application in Social Media Analytics**

NoSQL databases are extensively used in social media platforms due to their ability to handle large volumes of data generated by users and their interactions. A notable application is the use of MongoDB, a NoSQL database, to manage user-generated content and interactions on a social media platform. MongoDB's flexible schema allows for the efficient handling of various data types that social media feeds generate, including text, images, videos, and user comments.

## **Key Functionalities:**

**Data Modelling:** MongoDB's document-oriented model is ideal for storing and managing semi-structured data like social media content.

**Scalability:** NoSQL databases like MongoDB offer horizontal scalability, which is crucial for social media platforms experiencing rapid growth in user data.

**Real-time Processing:** MongoDB provides real-time data processing capabilities that are essential for the dynamic nature of social media platforms.

## **Integration with Social Media Platforms:**

MongoDB integrates with real-time analytics tools to provide insights into user behaviour, trends, and engagement. This integration supports targeted advertising, content personalization, and improved user engagement strategies.

# **References**

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