# DATA ANALYTICS LAB RECORD

**Exercise 1: Big Data Concepts and Business Use Cases.**

**Aim :** To study the basic concepts of Big Data, understand its characteristics, analyze the limitations of conventional systems, and identify business use cases of Big Data.

**Steps:**

1. **Identify the characteristics of Big Data (5Vs).**
    - **Volume**: Refers to the huge amount of data generated from sources like social media, sensors, transactions, etc.
    - **Velocity**: Speed at which data is generated, processed, and analyzed in real time.
    - **Variety**: Different forms of data such as structured, semi-structured, and unstructured data.
    - **Veracity**: Quality, accuracy, and trustworthiness of data.
    - **Value**: Useful insights and benefits extracted from data for decision-making.

2. **Study limitations of conventional systems.**
    - Traditional databases cannot handle very large volumes of data efficiently.
    - Limited scalability for growing data needs.
    - Poor performance in real-time data processing
    - Inability to process unstructured and semi-structured data.
    - High cost of storage and maintenance.

3. **Analyze business domains and map Big Data use cases.**

| S.NO | Name of Business Domain | Its Use Cases |
|---|---|---|
| 1. | Healthcare | Patient monitoring, disease prediction, medical image analysis |
| 2. | Banking and Finance | Fraud detection, risk analysis, customer behavior analysis. |
| 3. | Retail | Recommendation systems, demand forecasting, customer segmentation |
| 4. | Transportation | Traffic prediction, route optimization, fleet management. |
| 5. | Social Media | Sentiment analysis, trend detection, targeted advertising. |

## 4. Summary.

- Big Data enables efficient handling of massive, fast, and diverse data.
- Overcomes limitations of traditional data processing systems.
- Helps organizations make data-driven decisions.
- Improves business efficiency, customer experience, and operational performance.

**Result** :

Hence the concepts of Big Data, its characteristics, limitations of conventional systems, and business use cases were studied and analyzed successfully.