**Real world use cases to use NOSQL DB in each industry**

**1. Retail Industry**

**Use Case: Product Catalogue Management**

**Explanation:**

Retailers like Amazon or Walmart manage massive product catalogues with millions of items. Each product may have different attributes (e.g., electronics vs. clothing), and the structure of these items varies significantly.

* **Why NoSQL**: NoSQL databases, especially **document-based** ones like MongoDB or Couchbase, allow flexible schemas. This makes it easy to store and query products with varying attributes.
* **Benefits**:
  + Easily handle changes in product structure (e.g., new fields).
  + Faster updates and querying for real-time search.
  + Scales horizontally to accommodate growth in product inventory.

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**2. Banking Industry**

**Use Case: Real-time Fraud Detection**

**Explanation:**

Banks need to analyse massive volumes of transaction data in real time to detect fraudulent behaviour (e.g., unusual spending patterns).

* **Why NoSQL**: **Wide-column stores** like Cassandra are great for handling high-speed, write-heavy workloads across distributed systems.
* **Benefits**:
  + High write throughput to process transactions as they happen.
  + Time-series data modelling for behaviour analysis.
  + Scalable architecture to support growing transaction volumes.

Note: NoSQL is used alongside traditional RDBMS for analytics and real-time use cases, not as a replacement for core financial systems.

**3. Social Media**

**Use Case: User Profile & Activity Feed Management**

**Explanation:**

Social media platforms like Facebook or Instagram need to manage billions of user profiles, connections, and real-time feeds.

* **Why NoSQL**: **Graph databases** like Neo4j or **document stores** like MongoDB are commonly used.
  + Graph DBs are ideal for modelling complex relationships (e.g., friends, followers).
  + Document DBs store semi-structured profile and post data.
* **Benefits**:
  + Real-time recommendations (friends, content).
  + Flexible and fast updates to profile data and activity logs.
  + Efficient retrieval of newsfeeds based on user behaviour and relationships.

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**4. Education**

**Use Case: Learning Management Systems (LMS) and Student Analytics**

**Explanation:**

Modern LMS platforms (e.g., Coursera, Khan Academy) collect data on student progress, content interaction, and course feedback.

* **Why NoSQL**: A mix of **document stores** and **key-value stores** allows storing unstructured data such as assignments, assessments, session logs, and interactive content.
* **Benefits**:
  + Custom data per student (adaptive learning paths).
  + Fast analytics on engagement and performance.
  + Schema flexibility supports evolving educational content

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