# SNS COLLEGE OF ENGINEERING

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## Department of Artificial Intelligence and Data Science

**Course Name – 23ITB204-Modern Database Management Systems**
**II Year / III Semester**

**Topic - NO SQL Databases**

Introduction

- NoSQL stands for not only SQL.

- It is nontabular database system that store data differently than relational tables. There are various types of NoSQL databases such as document, key-value, wide column and graph.

- Using NoSQL we can maintain flexible schemas and these schemas can be scaled easily with large amount of data`

Need

The NoSQL database technology is usually adopted for following reasons -ut

1) The NoSQL databases are often used for handling big data as a part of fundamental architecture.

2) The NoSQL databases are used for storing and modelling structured, semi- structured and unstructured data.

3) For the efficient execution of database with high availability, NoSQL is used.

4) The NoSQL database is non-relational, so it scales out better than relational databases and these can be designed with web applications.

5) For easy scalability, the NoSQL is used.

Features

1) The NoSQL does not follow any relational model.

2) It is either schema free or have relaxed schema. That means it does not require specific definition of schema.

3) Multiple NoSQL databases can be executed in distributed fashion.

4) It can process both unstructured and semi-structured data.

5) The NoSQL have higher scalability.

6) It is cost effective.

7) It supports the data in the form of key-value pair, wide columns and graphs.

# Comparison between RDBMS and NoSQL

| S.No | RDBMS | NoSQL |
|---|---|---|
| 1. | The relational database system is based on relationship among the tables | It is non-relational database system. It can be used in distributed environment |
| 2. | It is vertically scalable | It is horizontally scalable |
| 3. | It has predefined schema | It does not have schema or it may have relaxed schema |
| 4. | It uses SQL to query the database | It uses unstructured query language |
| 5. | It is a table based database | It is document based, graph based or key-value pair |
| 6. | It emphasizes on ACID properties (Automicity, Consistency, Isolation and durability) | It follows Brewers CAP theorem (Consistency, availability and partition tolerance) |
| 7. | Schema is fixed or rigid | Schema is dynamic |
| 8. | Pessimistic | Optimistic |
| 9. | Examples. MySQL, Oracle, PostgreSQL | Examples : MangoDB, BigTable, Redis |

# THANK YOU