



WELCOME!

B.Tech CSE II

APPLIED DATABASE MANAGEMENT SYSTEM
BCSC0014

AGENDA

Introduction

Faculty Team

Objective

Syllabus

Outcome

Application Areas

Hands On

Reference Books

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INTRODUCTION

Database Management System (DBMS)

A database management system (DBMS) is a software package designed to define, manipulate, retrieve and manage data in a database.

Some DBMS examples include:

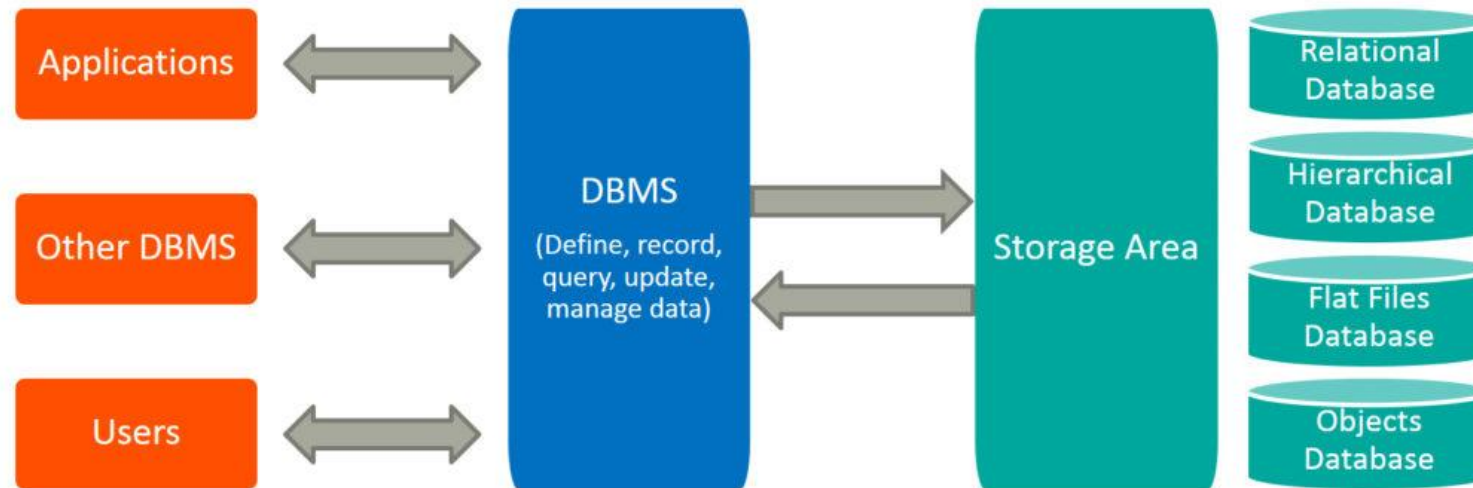
- MySQL
- SQL Server
- Oracle
- dBASE
- FoxPro

INTRODUCTION

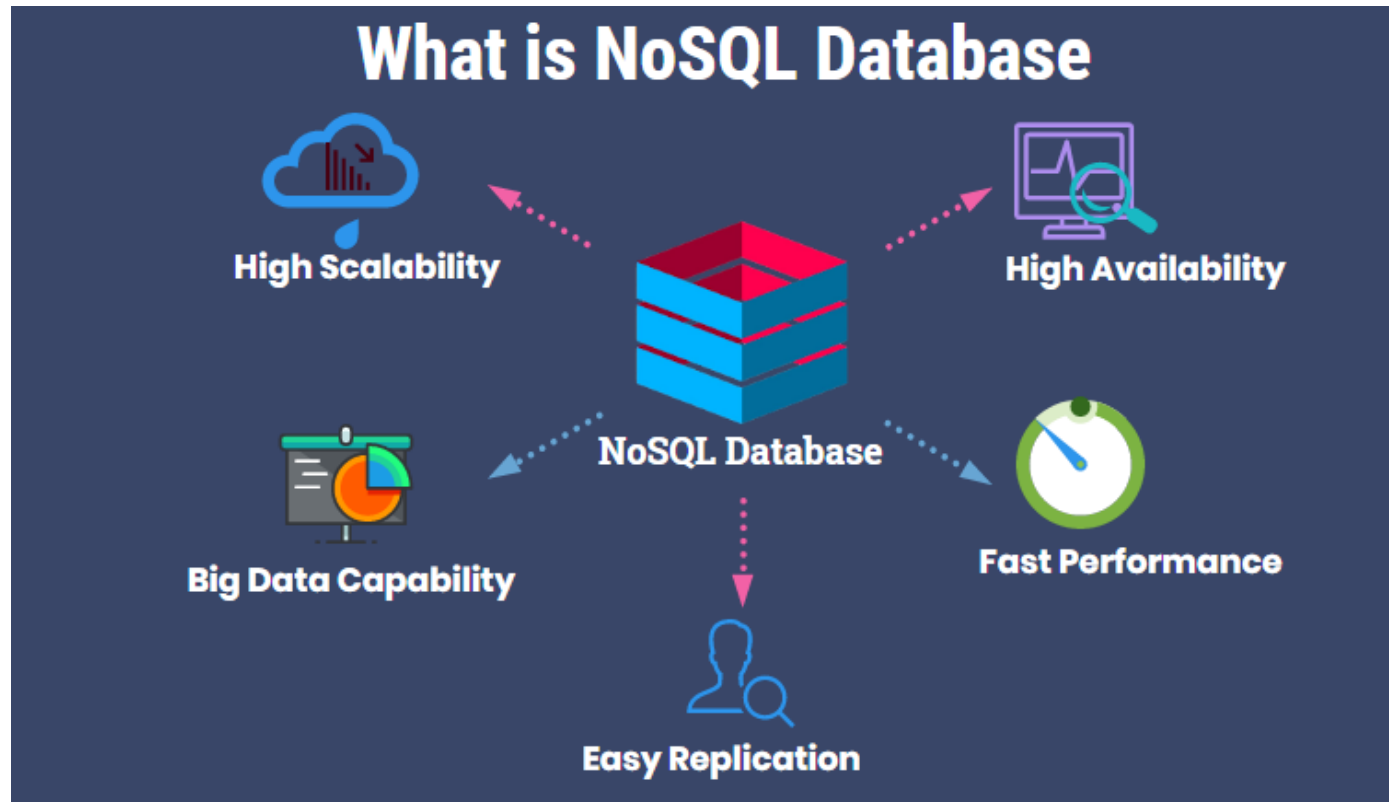


INTRODUCTION

Database Management System



INTRODUCTION



INTRODUCTION



FACULTY TEAM



Dr. Nitin Tyagi
Assistant Professor



Dr. Neeraj Gupta
Assistant Professor

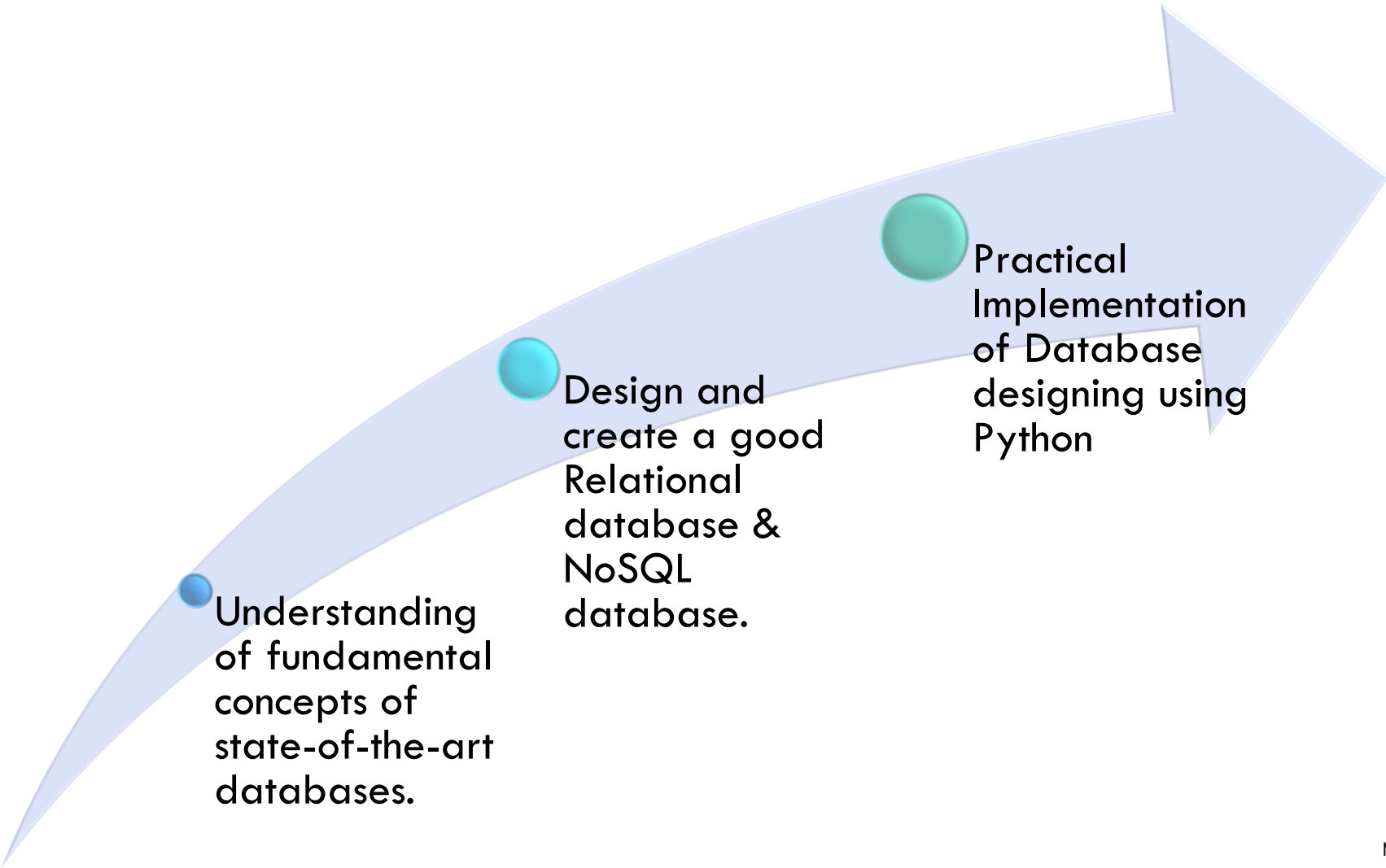


Ms. Gunjan Bhartiya
Assistant Professor



Mr. Rishi Agrawal
Assistant Professor

OBJECTIVE



Understanding of fundamental concepts of state-of-the-art databases.

Design and create a good Relational database & NoSQL database.

Practical Implementation of Database designing using Python

SYLLABUS

Module

I

Introduction: An Overview of Database Management System, Database System Vs File System, Database System Concept and Architecture, Data Model Schema and Instances, Data Independence, Database Language and Interfaces (DDL, DML, DCL), Database Development Life Cycle (DDLC) with Case Studies.

Data Modeling Using the Entity-Relationship Model: ER Model Concepts, Notation for ER Diagram, Mapping Constraints, Keys, Specialization, Generalization, Aggregation, Reduction of an ER Diagram to Tables, Extended ER Model.

Relational Data Model and Language: Relational Data Model Concepts, Integrity Constraints, Entity Integrity, Referential Integrity, Keys Constraints, Domain Constraints, Relational Algebra.

Database Design & Normalization: Functional Dependencies, Primary Key, Foreign Key, Candidate Key, Super Key, Normal Forms, First, Second, Third Normal Forms, BCNF, 4th Normal Form, 5th Normal Form, Lossless Join Decompositions, Non Redundant Cover, Canonical Cover, MVD and JDs, Inclusion Dependence.

SYLLABUS

Module II

Transaction Processing Concept: Transaction System, Testing of Serializability, Serializability of Schedules, Conflict & View Serializable Schedule, Recoverability, Recovery from Transaction Failures, Log Based Recovery, Deadlock Handling.

Concurrency Control Techniques: Concurrency Control, Locking Techniques for Concurrency Control, 2PL, Time Stamping Protocols for Concurrency Control, Validation Based Protocol.

Distributed Database: Introduction of Distributed Database, Data Fragmentation and Replication.

NoSQL System: RDBMS vs NoSQL, BASE properties, Key-value, Columnar, Document and Graph-Based database, Introduction of MongoDB, Cassandra, Neo4j and Riak.

Database Programming using Python: Database connectivity, Retrieving Data from Database, Parameters Passing, Executemany Methods, Cursor Attributes, Invoke Stored Procedures, Invoke Stored Functions.

OUTCOME

Identify the basic concepts

Apply relational database theory and be able to *describe* relational algebra expression for queries.

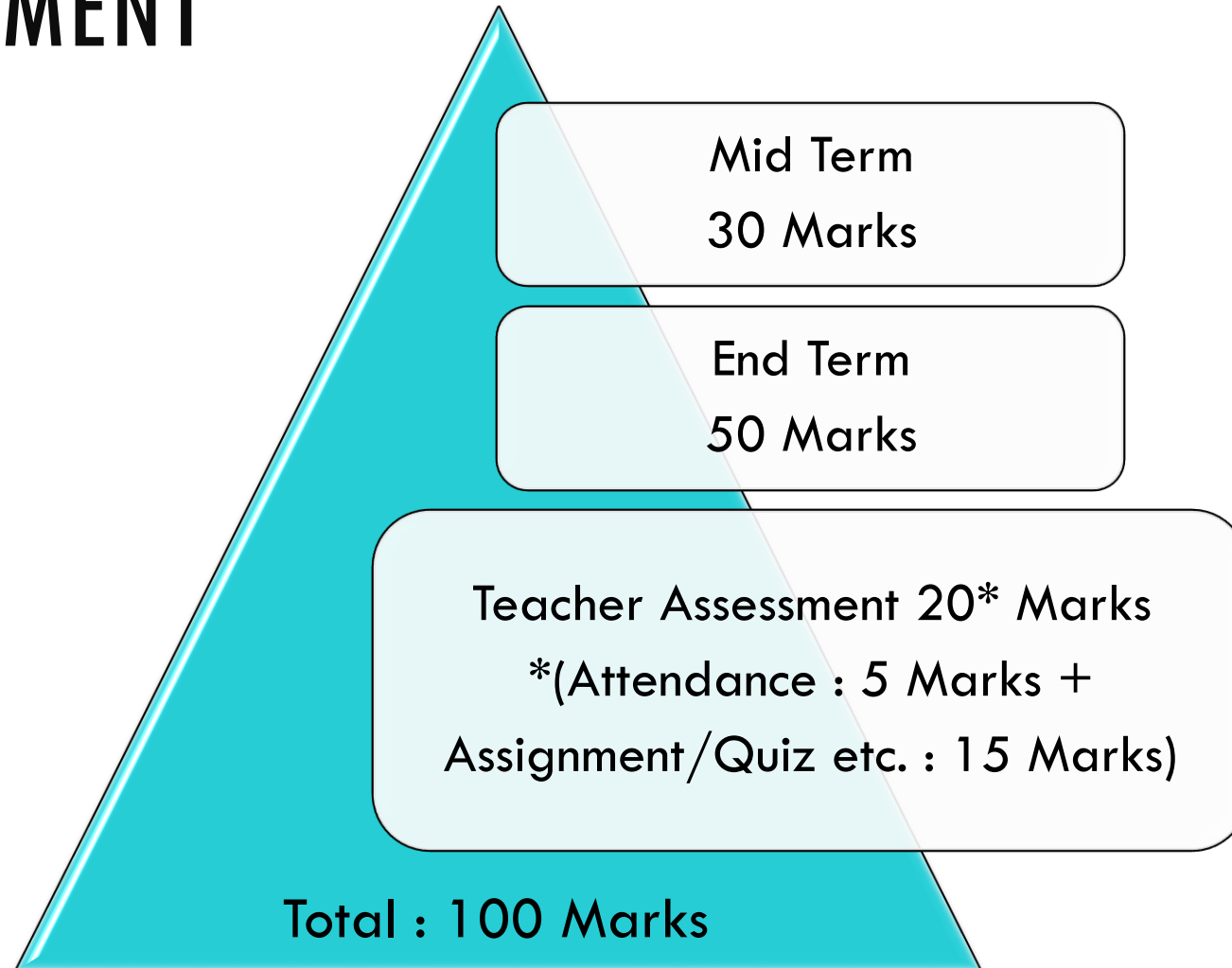
Recognize and *identify* the use of normalization and functional dependency technique used in database design

Apply and *relate* the concept of transaction, concurrency control and recovery in database.

Identify various NoSQL databases system

Apply database concepts using Python programming.

ASSESSMENT



APPLICATION AREAS

Railway Reservation System

Banking

Universities and colleges

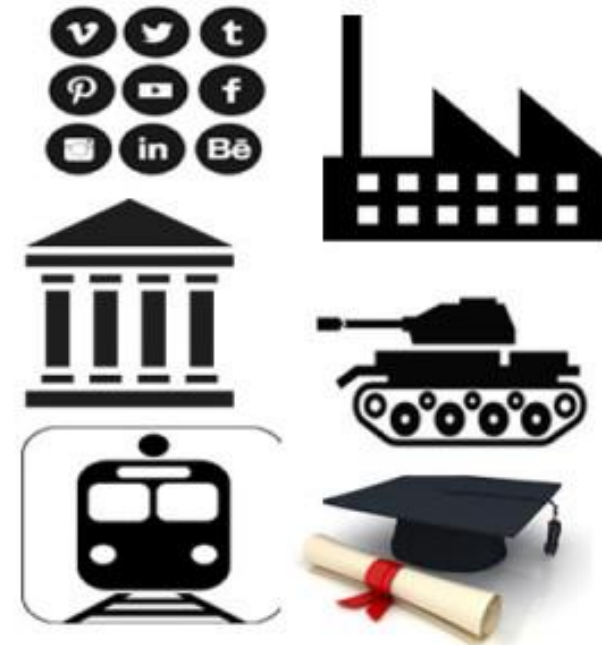
Credit card transactions

Social Media Sites

Telecommunications

Online Shopping

Manufacturing



HANDS ON

DBMS

ORACLE[®]
DATABASE

MySQL[™]

NoSQL Databases

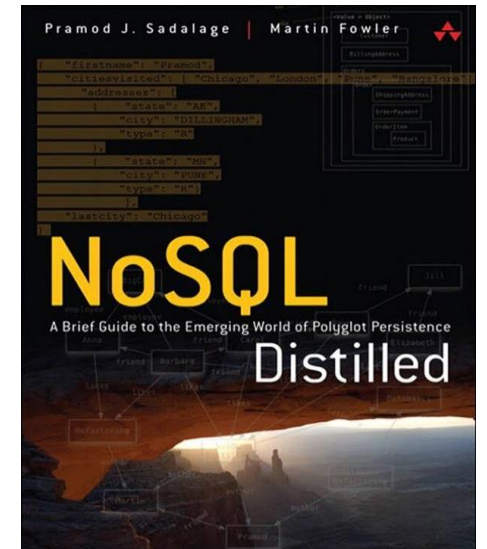
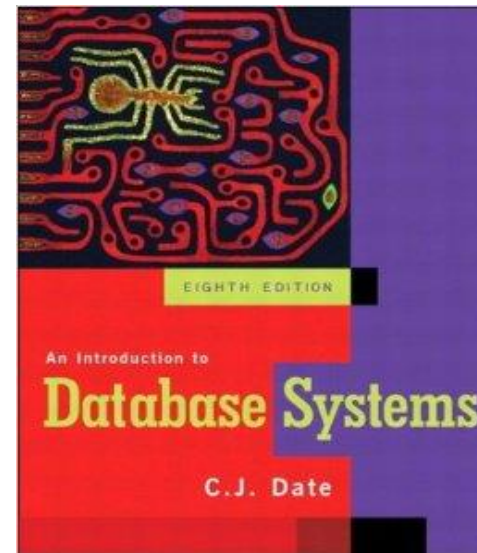
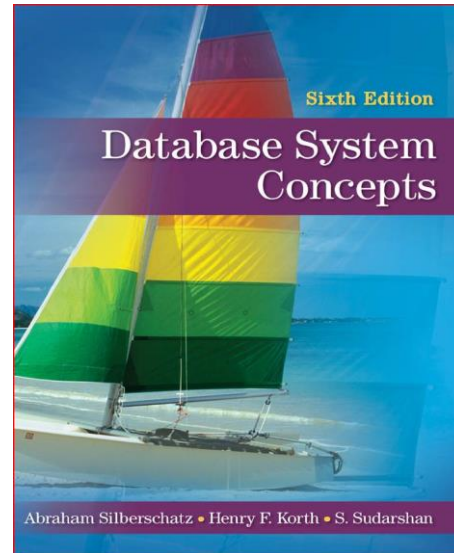
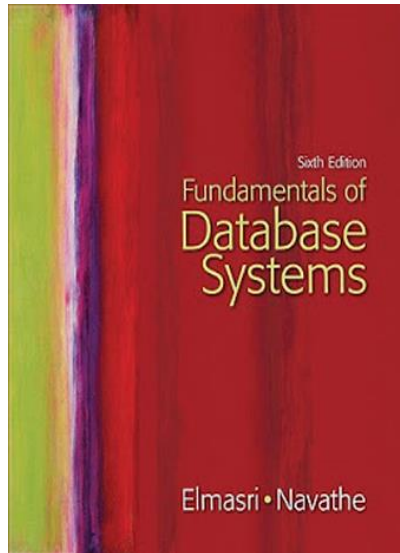
 **mongoDB**[®]


cassandra

 **neo4j**

 **riak**

REFERENCE BOOKS





Keep Learning
Keep Growing

