



# **RDBMS Syllabus**

**DURATION – 2 MONTHS**

**MODE OF TRAINING – OFFLINE/ONLINE**

# RDBMS

- **Introduction to RDBMS**
- **What is a Database?**
- **What is DBMS and RDBMS?**
- **Advantages and disadvantages of DBMS/RDBMS**
- **Database Models: Hierarchical, Network, Relational**
- **RDBMS Terminologies: Tables, Tuples, Attributes, Keys, Relationships**

# RDBMS

- **Entity-Relationship (ER) Model**
- **Entities and Attributes**
- **Entity Sets and Relationship Sets**
- **Types of Attributes (Simple, Composite, Derived, Multivalued)**
- **Keys (Primary, Foreign, Super, Candidate)**
- **ER Diagrams and Symbols**
- **Converting ER Diagram to Tables**
- **Generalization, Specialization, Aggregation**

# RDBMS

- **Relational Model**
- **Relational Schema**
- **Relational Algebra (Select, Project, Join, Union, Intersection, Difference, Cartesian Product)**
- **Relational Calculus**
- **Domain and Tuple Relational Calculus**

- **SQL – Structured Query Language**
- **Introduction to SQL**
- **Data Definition Language (DDL): CREATE, ALTER, DROP**
- **Data Manipulation Language (DML): INSERT, UPDATE, DELETE**
- **Data Query Language (DQL): SELECT, WHERE, GROUP BY, HAVING, ORDER BY**
- **Data Control Language (DCL): GRANT, REVOKE**
- **Transaction Control Language (TCL): COMMIT, ROLLBACK, SAVEPOINT**
- **Joins: INNER, LEFT, RIGHT, FULL OUTER**
- **Subqueries and Nested Queries**
- **Views**
- **Indexes**

# RDBMS

- **Normalization**
- **Purpose of Normalization**
- **Anomalies (Insertion, Deletion, Update)**
- **Functional Dependencies**
- **1NF (First Normal Form)**
- **2NF, 3NF, BCNF (Boyce-Codd Normal Form)**
- **4NF and 5NF (Advanced - Optional)**
- **De-normalization**

# RDBMS

- **Transaction Management & Concurrency Control**
- **Transactions and ACID Properties**
- **States of a Transaction**
- **Serializability**
- **Concurrency Problems: Lost Update, Dirty Read, Non-repeatable Read, Phantom Read**
- **Locking Mechanisms (Shared, Exclusive, Two-Phase Locking)**
- **Deadlock and Prevention**

# RDBMS

- **Database Security & Integrity**
- **Integrity Constraints: NOT NULL, UNIQUE, CHECK, DEFAULT, PRIMARY KEY, FOREIGN KEY**
- **Access Control**
- **Authentication and Authorization**
- **Backup and Recovery**



# RDBMS

- **Tools and Platforms**
- **MySQL**
- **SQL Server**
- **Oracle**
- **PostgreSQL**
- **SQLite**

# Key Feature

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- **Trainer with 12+ Years of Experience**
- **200 hours of high-quality course**
- **Best Quality Training**
- **Live Project Experience**
- **Demo Lectures are available**
- **In-depth Course Contents**
- **100 % Placement Assistance**
- **Internship support**

# Orange Itech Offer You



# THANK YOU

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