MY LEARNING JOURNEY INDATABASE MANAGEMENT & DATA MINING (SEMESTER 1)

TITLE SLIDE

COURSE OVERVIEW

RELATIONAL VS. NON-RELATIONAL DATABASES

SQL OPERATIONS – CRUD, JOINS, AGGREGATIONS

PROJECT 1 – STUDENT CRUD USING JAVA & MYSQL

PROJECT 2 – SALES ANALYTICS USING SQL

HADOOP & BIG DATA CONCEPTS

BASICS OF DATA MINING & APRIORI ALGORITHM

TOOLS USED: MYSQL, ORACLE, HADOOP, JAVA

WHAT I LEARNED \ THANK YOU

What I Learned – Database Management & Data Mining

Semester 1 | M.Sc. Big Data Analytics

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COURSE OVERVIEW

- Understanding databases – relational & non-relational
- Performing SQL operations using Oracle/MySQL
- Exploring data mining techniques
- Implementing CRUD operations and analytics using Java + SQL
- Hands-on with Hadoop & Big Data tools

DATABASE MODELS

- Relational Model – Tables, Primary/Foreign Keys
- Non-Relational – NoSQL, GraphDB, MongoDB
- ER/EER Diagrams
- Normalization (1NF to 3NF)

SQL CONCEPTS & DEMO

- DDL: CREATE, ALTER, DROP
- DML: INSERT, UPDATE, DELETE
- Aggregate functions: SUM, AVG, COUNT
- Joins: INNER, LEFT, RIGHT
- Group By, Order By

PROJECT 1 – STUDENT DATABASE CRUD (JAVA + MYSQL)

- CLI-based app to manage student data
- Java JDBC used to connect to MySQL
- Supports Create, Read, Update, Delete operations
- SQL table: id, name, marks
- Sample output displayed via console

PROJECT 2 – SALES ANALYTICS (SQL)

- SQL queries for business insights
- Total sales by product
- Monthly revenue calculation
- Data stored in MySQL
- Visual summary of key insights

DATA MINING INTRODUCTION

- Knowledge Discovery from Data (KDD)
- Data preprocessing & cleaning
- Apriori Algorithm for Association Rule Mining
- Basic clustering & classification (theory overview)

HADOOP & BIG DATA ECOSYSTEM

- Introduction to Hadoop HDFS
- Tools: Hive, Sqoop, Pig
- MapReduce – concept only
- Brief on MongoDB & GraphDB as big data tools

TOOLS & TECHNOLOGIES USED

- Java (JDK 8), MySQL 8, JDBC
- Oracle SQL (optional)
- RDBMS & NoSQL examples
- IDEs: IntelliJ, MySQL Workbench
- References: Silberschatz, Jiawei Han, Hadoop Docs

KEY TAKEAWAYS

- Built full-stack Java + SQL applications
- Understood SQL for analytics
- Learned basics of big data frameworks
- Gained hands-on data mining exposure
- Real-world application of database systems

Thank You

- Questions?
- Let’s connect: LinkedIn | GitHub | Email