Class 9

Lesson Plan

Modular (SQL)

1. Introduction to DBMS

Teaching Objectives

Students will learn about

- ☞ Understanding Database and DBMS
- ☞ What is a Relational Database?
- ☞ Keys
- ☞ Understanding SQL
- ☞ Different Types of Commands in SQL

Number of Periods	
Theory	Practical
1	2

Teaching Plan

While teaching this chapter , explain the students the use of DBMS in the industry and the reasons that it is advantageous over paper based system of recording data.

Explain the concept of database and relational database to students with examples of scenarios where we use it.

Discuss the key components of database like Fields, Records etc. with the students.

Then the students must be made aware of the difference in Query, Form, Report.

Demonstrate the students, how to create a database in MS Word using Tables.

Familiarize students with the idea of Primary key, Composite key and foreign Key and let them understand the difference using an example.

Tell the students about SQL development.

Finally summarize the features of SQL and different types of commands used in SQL(DDL, DML, TCL, DCL).

Extension

Ask the students some oral questions based on this chapter.

Q. What is Database?

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Q. Name few components of Database ?

Q What is difference between a primary key and a foreign key?

Q. What do understand by DDL, DML, TCL and DCL?

Evaluation

After explaining the chapter, let the students do the course book exercises given on Pages 11 and 12 of the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **In the Lab** section on Page 12 in the main course book. This will enhance the abilities of the students and serve as a subject enrichment activity.

Suggested Activity

Ask the students to create a database of students' marks scored in 5 subjects and their total marks.

2. Introduction to MySQL

Teaching Objectives

Students will learn about

- ☞ Installing MySQL
- ☞ Data Types in MySQL
- ☞ Creating a Database
- ☞ Creating a Table
- ☞ Modifying a Type
- ☞ Deleting a Table

Number of Periods	
Theory	Practical
2	3

Teaching Plan

Begin with the introduction of MySQL as open source DRBMS which can run on all platforms. Tell the students some of its important features as well.

Demonstrate to the students, the steps to download and install the MYSQL from its official website.

Introduce students to the Datatypes used in MySQL.

Demonstrate how to use MySQL to create a Database and a table.

Explain to the students about different types of constraints used in MySQL and demonstrate their use in the Lab.

Discuss and practically display how students can alter a table or delete a table in MySQL.

Extension

Ask the students some oral questions based on this chapter.

Q. Why MySQL is a famous RDBMS?

Q. Name some of the few Datatypes used in MySQL and also tell their use.

Q. What is the difference between Unique and Primary key constraint?

Q. How can we delete a table from the database?

Encourage students to find how SQL is used with programming languages like Python Java and R.

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 20 and 21 in the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **In the Lab** section on Page 21 in the main course book. This will enhance the abilities of the students and serve as a subject enrichment activity.

Suggested Activity

Ask the students to create a database for the upcoming picnic and all fields should include all the expenses involved like transport and food. Discuss the Tech Funda given in the chapter.

3. Handling Records in MySQL

Teaching Objectives

Students will learn about

- ☞ Inserting Records in a Table
- ☞ Retrieving Records from a Table
- ☞ Updating Records in a Table
- ☞ Deleting Records from a Table
- ☞ Using DISTINCT Clause
- ☞ Using Operators

Number of Periods	
Theory	Practical
2	4

Teaching Plan

The chapter should begin with a small example of creating a table, followed by the explanation of the steps, to be used for inserting data into the table.

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Next you should demonstrate how to retrieve data from a table using "Where" clause.

The students must then be taught about updating and deleting records in a table.

Demonstrate the use of "Distinct" clause and different types of operators like Boolean, Relational, Special operators (BETWEEN, IN, LIKE) in MySQL.

Ensure that Teachers's corner is covered by all the students.

Extension

Ask the students some oral questions based on this chapter.

Q. What is the syntax for using insert command in SQL?

Q. Why do we need "where" clause to retrieve data?

Q. What is the difference between updating and deleting a record from a table?

Q. What is the difference between '*' and '%' in "Like" operator?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 28 and 29 in the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **In the Lab** section on Page 29 and 30 in the main course book. This will enhance the abilities of the students and serve as a subject enrichment activity.

Suggested Activity

Ask students to create an arbitrary database for employees in an office using different fields and make them practice the SQL commands using all the operators learnt in this chapter.

4. More on MySQL

Teaching Objectives

Students will learn about

- Aliasing
- Performing Calculations in Queries
- Using Group By
- Using Order By
- Function

Number of Periods	
Theory	Practical
2	3

Teaching Plan

While explaining the concepts in this chapter the teacher must begin with an example table to be followed throughout the chapter.

Explain the students, the concept of aliasing and why is it useful?

Discuss the aggregate functions or grouping functions and make them understand the use of "Group By" and "having" clause.

Demonstrate the use of aggregate functions with "Group By", "Having" and "Order By" Clause.

Students must be taught about the following things in functions:

- Why are they important
- Syntax of using Functions in SQL.
- String Functions, Number Functions and Date and Time Functions.

Extension

Ask the students some oral questions based on this chapter.

Q. What is Aliasing?

Q. What are aggregate functions?

Q. Name the clauses used with aggregate functions.

Q. What is the use of the following functions:

a. CONCAT()

b. POWER()

c. TRUNCATE()

d. DATE()

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 41 and 42 in the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **In the Lab** section on Page 42 in the main course book. This will enhance the abilities of the students and serve as a subject enrichment activity.

Suggested Activity

Divide the class into groups and ask each group to make Power Point Presentation on different aggregate functions with suitable examples and see who presents the best. Discuss the Clickipedia on page 35 and 36.

5. Advanced Features of MySQL

Teaching Objectives

Students will learn about

- ☞ Subqueries
- ☞ Joins
- ☞ Views
- ☞ Index

Number of Periods	
Theory	Practical
2	3

Teaching Plan

In the beginning the students must be told about the subqueries using some simple day to day examples.

The students must be explained the concepts of subqueries using SQL. They must practise subqueries with and without operators in the lab.

The students should be elaborately informed about the rules for subqueries.

Introduce "Table Join" with a cartesian product between two tables, thus introducing Equi Join and categories of Join (Inner, Outer etc)

Discuss and demonstrate the use of views in SQL.

Explain students the importance of index and show them how to create it.

Ensure that students follow the guidelines for SQL commands while practising in the Lab.

Extension

Ask the students some oral questions based on this chapter.

Q. What is a subquery?

Q. What are the rules to be followed for subqueries?

Q. What is cartesian product?

Q. How Cartesian product is related to a Join?

Q. Differentiate between Left Join and Right Join.

Q. What is view ?

Q How index is useful in database table?

Evaluation

After explaining the chapter, let the students do the exercises given on Pages 51 and 52 in the main course book as **Exercise**.

Take the students to the computer lab and let them practice the activity given in **In the Lab** section on Page 52 in the main course book. This will enhance the abilities of the students and serve as a subject enrichment activity.

Suggested Activity

Students must practise Inner join, outer join, right join, left join and prepare a worksheet exemplifying the same.