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INFORMATION TECHNOLOGY FOR CLASS 12

(Study materials)

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DATABASE MANAGEMENT SYSTEM

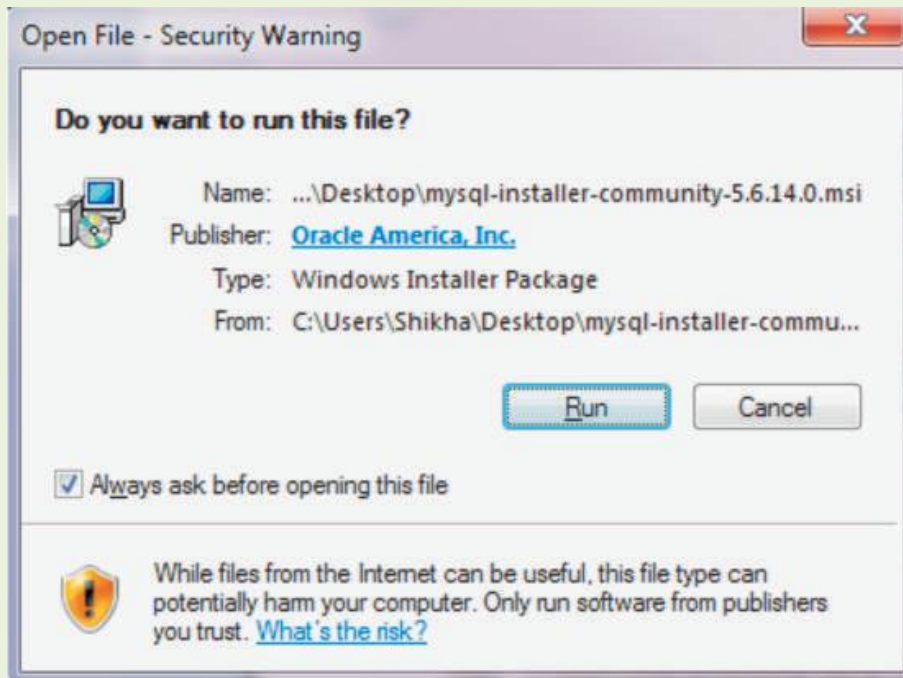
✚ STRUCTURED QUERY LANGUAGE(SQL)

SQL is a language that is used to manage data stored in a RDBMS. It comprises of aData Definition Language(DDL)and aData Manipulation language(DML). Where DDL is a language which is used to define structure and constraints of Data and DML is used to insert, modify and delete data in a database.

SQL commands are used to perform all the operations. a database system needs to be installed on the Computer. There are various softwares available. We will study the MySQL server. SQL uses the terms table, row and column for the relational model terms relation, tuple and attribute.

For install SQL we will use MySQL Community Server 5.6.20 which is freely downloadable. The most recent versions can be found on the website: <http://dev.mysql.com/downloads/> Following are the steps to install and configure MySQL Community Server 5.6.20 for studying SQL commands.

- ✚ **Open the URL:** <http://dev.mysql.com/downloads/mysql/#downloads>
- ✚ **Download the MySQL** Community Server 5.6.20 available on the above webpage. You can select the platform (Windows/Linux) as shown below
- ✚ Once you have downloaded the file mysql-installer-community-5.6.20.0.msi, double click on the downloaded file and then click on the “Run” button.
- ✚ MySQL Installer will start installing. Click on the “Install MySQL Products” option.
- ✚ Check the option “I accept the license terms” and then Click on “Next” button.
- ✚ Then next click on the “Execute” button.
- ✚ On successful execution, click on the “Next” button.
- ✚ Select the “Server only” option. Then click on “Next” button.
- ✚ Installer will check for the requirements. If any requirements are required, you have to download them first before installing MySQL server. If all the requirements are met, then the following message will be displayed. Click “Next” to continue.
- ✚ Click on “Execute” to install MySQL Server 5.6.20.
- ✚ On successful installation, Click on “Next”
- ✚ Click on “Next” to start initial configuration.
- ✚ Select the following configurations and then Click “Next”.
- ✚ Type the MySQL root password (minimum 4 characters long) and then click “Next”
- ✚ Click on “Next” on the following window.
- ✚ Installer will configure the server. On successful configuration, click on “Next”. Then Click on “Finish”. The installation and configuration of MySQL Server 5.6.20 is now complete. You can now start using the server for creating and modifying databases.



This command is used to create a new table or relation. The syntax for this command is :

```
CREATE TABLE<table name>
(
<column 1><data type> [constraint] ,
<column 2><data type>[constraint],
<column 3><data type>[constraint]
);
```

where []=optional

The keyword CREATE TABLE is followed by the name of the table that you want to create. Then within parenthesis, you write the column definition that consists of column name followed by its data types and optional constraints. There can be as many columns as you require. Each column definition is separated with a comma (.). All SQL statements should end with a semicolon (;).

Shows the data types commonly used

<i>Data type</i>	<i>Meaning</i>	<i>Example</i>
CHAR(n)	Fixed length character string. 'n' is the number of characters.	CHAR(5)"Ashok""Vijay"
VARCHAR	Variable length character string. 'n' is the maximum number of characters in the string	VARCHAR(15); "VIJAY KUMAR" "ASHOK SINGH"
DATE	Date in the form of YYYY-MM-DD	DATE '2020-04-20'
INTEGER	Integer number	23 56789
DECIMAL(m,d)	Fixed point number m represents	DECIMAL(5,2):999.99-567.78

DECIMAL(m,d)	the number of significant digits that are stored for values and d represents the number of digits that can be stored following the decimal point.If D is zero or not specified then the value does not contains any decimal part	DECIMAL(5):23456 99999

Suppose we create a database of all the teachers working in a school. This database should include the Teacher relation (schema given below):

Teacher (Teacher_ID, First_Name, Last_Name, Gender, Date_of_Birth, Salary, Dept_No)

The above schema stores the information about all the teachers working in the school such as their unique ID, first and last name, gender, salary, date of birth and the department to which the teacher belongs.

To create the above relations in SQL, following CREATE TABLE command is used:

```
CREATE TABLE Teacher
(
Teacher_ID INTEGER,
First_Name VARCHAR(20),
Last_Name VARCHAR(20),
Gender CHAR(1),
Salary DECIMAL(10,2),
Date_of_Birth DATE,
Dept_No INTEGER
);
```

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