Database Technologies:

Purpose of Databases

1. What job do databases serve in relation to a full-stack site?

A:

The main role of a Database is to store the data of an application/site; a Database is the storage system for full-stack sites, defined by the Oxford Dictionary as: a structured set of data held in a computer, especially one that is accessible in various ways.

The Database stores data such as user information, application data; basically, all data required by the full-stack site. It is a collection of data, all stored under one roof so-to-speak.

Security, Stability, Accessibility, Accuracy; these are all valid reasons as to why Databases are so useful and popular and gives merit as to why they are perfect for the job of storing data.

A full-stack site communicates with the database, which can perform CRUD (Create, Read, Update, Delete) operations, allowing for more control.

1. Describe the two parts of the SQL language - DML (Data Manipulation Language) and DDL (Data Definition Language).

A:

“Structured Query Language” is a (programming) language, abbreviated to SQL. Its use is to manage/manipulate (relational) databases, consisting of two parts: Data Manipulation Language (DML) and Data Definition Language (DDL).

* DML consists of SQL commands pertaining to inserting, updating, deleting, and retrieving data from tables.

**SELECT, INSERT, UPDATE** and **DELETE** are all DML commands, and prove to *manipulate* the SQL database.

* DDL are the *defining* SQLcommands, including creating, altering, and dropping tables, indexes, and other database objects.

**CREATE, ALTER, DROP** and **TRUNCATE** are all used to define the SQL database, i.e. setting up and maintaining it.

1. MySQL is regarded as possibly the most popular relational database in the market. Locate some facts concerning it, such as its history, it's interface and the development of Xampp as the IDE which presents an interface for the designer.

*Picture the scene:*

Two men, one idea: to create a database called MySQL. It was the year 1995; Michael "Monty" Widenius and David Axmark founded “MySQL AB”, a Swedish company.

Soon after, “Sun Microsystems”, an American technology company that sold computers, computer components, software, and information technology services and created the Java programming language, bought out and acquired MySQL AB.

Again, the tale of buying and acquiring replayed, this time with “Oracle Corporation”, the world's largest database management company, acquiring Sun Microsystems in 2010. This could attest to MySQL continued existence.

As stated above, SQL stands for Structured Query Language, this being the programming language that manipulates the database and all its tables. It serves as an all-rounded package for managing data, allowing for direct control for users all in one place, with tools such as GUIs (graphical user interfaces), a command-line client and support for other APIs (Application Programming Interface).

SQL is open-source, and so is an application known as XAMPP:

XAMPP’s own website describes the application as: “..a free and open-source cross-platform web server solution stack package developed by Apache Friends, consisting mainly of the Apache HTTP Server, MariaDB database, and interpreters for scripts written in the PHP and Perl programming languages.”

What this essentially means is it provides a control panel to enter SQL databases and connect to local Apache servers, so as to create and run web applications that actually work and connect via the internet, again, all under one roof.

These applications are simply to provide efficient environments for developers to manage their data and create their online applications/sites.

A screenshot of a computer program

Description automatically generated

Entities and Cardinalities

A diagram of a program

Description automatically generated with medium confidence

Entity Relationship Diagramming (ERD)

Activity - PILOT DATABASE USING MS ACCESS/draw.io

A screenshot of a computer

Description automatically generated

Implementing an ERD into a Relational Database

A screen shot of a computer

Description automatically generated

Data DictionaryA white sheet with black text

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