**Database management system Lab CSE-403L**

**Semester:6th**



**Lab Report # 1**

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**Introduction to Dynamic Web Content**

**Objectives of the Lab:**

This lab aims at the understanding of:

* HTML
* HTTP and HTML
* The benefits of PHP, MySQL, JavaScript, CSS, and HTML
* The Apache Web Server
* About Open Source

**Task 1:**

Answer the following questions:

1. **What four components (at the minimum) are needed to create a fully dynamic web page?**

The four components required to create a fully dynamic web page are:

* A web server (such as Apache)
* A server-side scripting language (PHP)
* A database (MySQL), and
* A client-side scripting language (JavaScript).

1. **What does HTML stand for?**

HTML stands for ***Hypertext Markup Language***. HTML files can either be saved with ***.htm*** or ***.html*** extensions. Each HTML document describes a Web page and consists of HTML tags and plain text.

1. **Why does the name MySQL contain the letters SQL?**

Like nearly all database engines, MySQL accepts commands in Structured Query

Language (SQL). SQL is the way that every user (including a PHP program) communicates

with MySQL.

1. **PHP and JavaScript are both programming languages that generate dynamic resultfor web pages. What is their main difference, and why would you use both of them?**

PHP runs on the server, whereas JavaScript runs on the client. PHP can communicate

with the database to store and retrieve data, but it can’t alter the user’s web

page quickly and dynamically. JavaScript has the opposite benefits and drawbacks.

1. **What does CSS stand for?**

CSS stands for ***Cascading Style Sheets***. It is the coding language that gives a website its look and layout. Along with HTML, CSS is fundamental to web design. Without it, websites would still be plain text on white backgrounds.

1. **List three major new elements introduced in HTML5.**

HTML5 offers powerful new features, such as:

***Markup:***

Including new elements such as <nav> and <footer>, and deprecated elements like

<font> and <center>.

***New APIs:***

The <canvas> element for writing and drawing on a graphics canvas, <audio> and <video> elements, offline web apps, microdata, and local storage.

***Applications:***

Including two new rendering technologies:

MathML (Math Markup Language) for displaying mathematical formulae) and SVG (Scalable Vector Graphics) for creating graphical elements outside of the new <canvas> element.

1. **If you encounter a bug (which is rare) in one of the open source tools, how do you**

**think you could get it fixed?**

Some open source technologies are maintained by companies that accept bug reports

and fix the errors like any software company. But open source software also

depends on a community, so your bug report may be handled by any user who

understands the code well enough. You may someday fix bugs in an open source

tool yourself.

**Task 2:**

**Task 3:**

What is a Framework? List top three frameworks used for PHP language. How do these help

Developers?

**Framework:**

A framework, or software framework, is a platform that provides a foundation for developing software applications. Frameworks greatly reduce the time and energy spent in developing software. It uses shared resources such as libraries, image files, and reference documents and puts them together in one package. That package can be modified to suit the specific needs of the project. With a framework, the developer can add or replace features to give new functionality to the application.

**Top Frameworks for PHP:**

[**Laravel**](https://laravel.com/)**:**

### Laravel is a popular and extensive PHP framework known for its elegant syntax. It has plenty of features and built-in functions that make it a solid tool to customize complex apps. Its functions include user authentication, session management, and caching.

[**CodeIgniter**](https://www.codeigniter.com/)**:**

CodeIgniter is a lightweight PHP framework with a total size of less than 1.2 MB. It ensures faster loading speeds and leaves a small footprint on your web server and applications.

CodeIgniter is flexible, offering both MVC and non-MVC design patterns.

[**Symfony**](https://symfony.com/)**:**

Symfony is a highly flexible PHP framework that uses a modular component system. You can choose from over 50 reusable PHP components for your project. If you only need a little help, you can decide which modules to use instead of relying on the whole library.

**Functionality:**

### Saves Development Time

### Better Collaboration

### Good Coding Practice

### Better Security

**Task 4:**

What is the difference between Library and Framework?

|  |  |
| --- | --- |
| LIBRARY | FRAMEWORK |
| Definition: | |
| Libraries provide developers with predefined functions and classes to make their work easier and boost the development process. | Framework is like the foundation upon which developers build applications for specific platforms. |
| Inversion of Control | |
| By using a library, you can control the flow of the application and call the library. | when you use a framework, the control is inverted, i.e., the framework controls the flow and calls your code. |
| Performance | |
| Less code is required to build libraries, which leads to faster loading times and better performance. | Developing a framework requires a lot of coding, which increases loading times and decreases performance. |
| Usage | |
| The purpose of libraries is to perform a defined and specific task. e.g: Image manipulation, network protocols, math operations, etc. | Frameworks can be used for performing a wide range of tasks. Among these are Web application systems, plug-in managers, GUI systems, and so on. |
| Benefits | |
| Good code quality, reusability, and control, enhanced speed and performance of the program, etc. | Faster programming, support from the community, great support for MVC (Model View Controller) pattern, etc. |
| Examples | |
| JQuery, React JS, etc. | Spring, NodeJS, AngularJS, Vue JS, etc. |

**Task 5:**

What is PHP MVC Framework? Give examples. (HINT: LARAVEL, CODEIGNITER, etc).

MVC stands for Model, View & Controller. PHP MVC is an application design pattern that separates the application data and business logic (model) from the presentation (view). The controller mediates between the models and views.

**Model:**

This part is concerned with the business logic and the application data. It can be used to perform data validations, process data and store it.

**Controller:**

This is the part deals with the users’ requests for resources from the server.

**Views:**

This part deals with presenting the data to the user. This is usually in form of HTML pages.

**Task 6:**

What differences do you see in SQL and NoSQL Databases? Mention in detail. (HINT: SQL

Databases include MySQL, ORACLE, SQLITE, MS ACCESS, etc; while NOSQL Databases include MongoDB, CouchDB, HBase, Cassendra, Neo4j, etc.)

* SQL databases are relational, NoSQL databases are non-relational.
* SQL databases use structured query language and have a predefined schema. NoSQL databases have dynamic schemas for unstructured data.
* SQL databases are vertically scalable, while NoSQL databases are horizontally scalable.
* SQL databases are table-based, while NoSQL databases are document, key-value, graph, or wide-column stores.
* SQL databases are better for multi-row transactions, while NoSQL is better for unstructured data like documents or JSON.

**Task 7:**

What is web hosting and domain? List some popular hosting websites.

**Web hosting:**

Web hosting is a service that provides space on a server for your website files, allowing it to be available on the internet. It is the activity of providing storage space for a website that is connected to the Internet.

**Domain:**

A domain name is a string of characters that identifies a website. It is what users type in their browser to visit your site.

**Popular Hosting Websites:**

* Bluehost - Best web hosting overall.
* Hostinger - Best WordPress hosting.
* HostGator - Best shared web hosting.
* InMotion Hosting - Best reseller web hosting.
* GreenGeeks - Best green hosting service.
* GoDaddy - Best multilingual support web host.
* Domain.com - Best shared hosting provider.

**Task 8:**

Make a WordPress website for topic of your choice using 000webhost.co