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1. PROJECT PROFILE

## Project Description:

The “Prevention of security breaches caused by SQL Injections”

has been used to develop this web application to override the problems prevailing in the Database based applications. This application is supported to eliminate and in some cases reduce the hardship caused SQL Injections. Moreover this system is designed for the particular need of the company to carry out operations in a smooth and effective manner.

This application is reduced as much as possible to avoid the most common types of security breaches caused by SQL Injection that occurs in web applications that can result in serious data breaches, including theft of sensitive information and unauthorized access to systems.

This web application, which made for a solar panel company named Priyasha, as described above, can lead to secure, reliable and error free system using parameterized queries, input validations, limiting user privileges, regularly updating, firewalls and intrusion detection systems and educate the user.

Every organization, whether small or big, has challenges to overcome and manage the web applications and security, therefore we designed this exclusive web application with reducing the risks of SQL Injection attacks.

## Project Features:

* Features:
* Collaboration Of Various Marketing Tools
* Web-based Business Support
* Brand Integration
* Online Shopping
* Self-Registration for Clients
* Responsive Design Features
* Accreditation Support
* Natural User Interface
* Availability Features
* Admin/User/Faculty side Features:
* Signing Up for placing order
* Reporting and Data Analysis
* Assessment Management & Live Feedback
* Quality Content
* Quick User Integration
* Easy Payment Methods
* Team Information Management

## Project Profile:

|  |  |
| --- | --- |
| Project Name: | Prevention of security breaches caused by SQL Injections |
| Front-End: | CSS, JavaScript, HTML |
| Back-End: | MySQL, PHP |
| Browsers: | Google Chrome, Mozilla, Safari |
| Platform: | Windows 10, 11 |
| Documentation Tool: | Microsoft Office Word 2019 |
| Guide: | Ms. Konica Soni |
| Submitted To: | Charotar University of Science and Technology |
| Developed By: | Prapti Jigneshbhai Patel |
|  | Atmik Maheshbhai Virani |

1. Introduction **to Tools**

# Hardware and Software Requirements:

|  |  |
| --- | --- |
| Hardware Specification | |
| Development Time: | **4 GB RAM, intel core i3 or Higher processor** |
| Run Time: | **1 GB RAM, intel core i3 or Higher processor** |

|  |  |
| --- | --- |
| Software Specification | |
| Browser: | Google Chrome, Mozilla, Safari |
| Operating System: | Windows 10, 11 |
| Front-End: | CSS, JavaScript, HTML |
| Back-End: | MySQL, PHP |
| Other Tools: | Microsoft Visual Studio Code |

# 2.2 Technology Used:

## 2.2.1 Back-End Tools:

* **MySQL Technology:**
* **Introduction to MySQL:**
* **MySQL** is an open-source relational database management system(RDBMS).
* It is the most popular database system used in PHP.
* **MySQL** is very fast, reliable, and easy to use database system. It uses standard SQL.
* **MySQL**  works on many operating systems and with many languages including PHP, PERL, C, C++, JAVA, etc.
* **MySQL** is very friendly to PHP, the most appreciated language for web developments.
* **MySQL** supports large databases, up to 50 million rows or more in a table. The default file size limit for a table is 4GB, but you can increase this to a theoretical limit of 8 million terabytes.
* **Features of MySQL:**

1. **Scalability & Flexibility:**

With MySQL you can run deeply embedded applications and create data warehouses holding a humongous amount of data.

1. **High Performance & Availability:**

Provides fast load utilities with distinct memory caches and table index partitioning. MySQL can run high-speed master/slave replication configurations and its offers cluster servers.

1. **Data Types:**

Supports multiple data types like primitive, structured, documents, etc.

1. **It is secure:**

MySQL consists of a solid data security layer that protects sensitive data from intruders. Also, passwords are encrypted in MySQL.

1. **High Performance:**

MySQL is faster, more reliable, and cheaper because of its unique storage engine architecture. It provides very high-performance results in comparison to other databases without losing an essential functionality of the software. It has fast loading utilities because of the different cache memory.

1. **Dual Password Support:**

MySQL version 8.0 provides support for dual passwords: one is the current password, and another is a secondary password, which allows us to transition to the new password.

1. **Client/Server Architecture:**

MySQL follows working of a client/server architecture. There is a database server(MySQL) and arbitrarily many clients (application programs), which communicates with the server; that is, they can query data, save changes, etc.

* **PHP:**
* **Introduction to PHP:**
* **PHP** started out as a small open source project that evolved as more and more people found out how useful it was. Rasmus Lerdorf unleashed the first version of PHP way back in 1994.
* **PHP** is a recursive acronym for “PHP: Hypertext Pre-processor”.
* **PHP** is a server side scripting language that is embedded in HTML. It is used to manage dynamic content, databases, session tracking, even build entire e-commerce sites.
* **PHP** supports a large number of popular databases, including MySQL, PostgreSQL, Oracle, Sybase, Informix, and Microsoft SQL Server.
* **PHP** supports large number of major protocols such as POP3, IMAP, LDAP. PHP4 added support for java and distributed object architectures(COM and COBRA), making n-tier development a possibility for the first time.
* **PHP** is forgiving: PHP language tries to be as forgiving as possible.
* **PHP** Syntax is C-like.
* **Advantages of PHP:**

**PHP** has remained one of the most versatile and pragmatic web development languages in the world today.

**PHP** range of functionalities, amazing array of add-ins to extend functionalities, its open-source nature, and tremendous online community support has made PHP a perennial favourite amongst newbies as well as established development agencies worldwide.

* **Easy and Simple to Learn**
* **Extremely Flexible**
* **Easy Integration and Compatibility**
* **Efficient Performance**
* **Cost-Efficient**
* **Gives Web Developer More Control**

## 2.2.2 Front-End Tools

* **CSS:**
* **Introduction to CSS:**
* **CSS (Cascading Style Sheets)** is a style sheet language used to describe the visual presentation of a web page or web application.
* **CSS** works in conjunction with HTML and JavaScript to create rich and dynamic user experience on the front-end of a web application.
* **CSS** provides a set of rules that can be applied to HTML elements to control their appearance, such as color, font, layout, and other stylistic elements.
* **CSS** is designed to be highly customizable and flexible.
* **Features of CSS:**

1. **Selectors:**

**CSS** uses selectors to target specific HTML elements and apply styles to them.

1. **Properties:**

**CSS** provides a wide range of properties that can be used to control the appearance of HTML elements, such as color, font, size, padding, margin, and more.

1. **Values:**

**CSS** properties can take a variety of values, such as color names, hex codes, numeric values, and more.

1. **Layout:**

**CSS** provides layout features such as positioning, floats, and flexbox to control the positioning and layout of HTML elements.

1. **Responsive Design:**

**CSS** includes features such as media queries and viewport units to create responsive designs that adapt to different screen sizes and devices.

* **JavaScript:**
* **Introduction to JavaScript:**
* **JavaScript** is a high-level programming language that is used primarily for front-end web development.
* It is used to create dynamic and interactive user interfaces.
* **JavaScript** was originally developed by Brendan Eich at Netscape in 1995.
* **JavaScript** is an interpreted language, meaning that the code is executed by the browser as it is encountered, without need for compilation.
* **JavaScript** is used to add interactivity and functionality to web pages, such as form validation, dynamic content, and interactive features like animations and sliders.
* **JavaScript** can also be used for back-end development, such as server-side scripting with Node.js.
* **Features of JavaScript:**

1. **Variable and Datatypes:**

JavaScript supports a wide range of datatypes, including numbers, strings, Booleans, objects, and arrays.

1. **Operators:**

JavaScript provides a variety of operators, including arithmetic, comparison, and logical operators.

1. **Control Structures:**

JavaScript includes control structures such as if/else statements, loops, and switch statements to control the flow of program execution.

1. **Functions:**

JavaScript allows developers to define reusable functions that can be called from other parts of the code.

1. **DOM Manipulation:**

JavaScript provides access to the Document Object Model (DOM) of a web page, allowing developers to manipulate the content and structure of the page in response to user actions.

1. **Events:**

JavaScript provides a variety of event handlers, allowing developers to respond to user actions such as clicks, scrolls, and form submissions.

* **HTML**
* **Introduction to HTML:**
* **HTML (Hypertext Markup Language)** is a markup language used to create web pages and web applications.
* **HTML** provides a way to structure and format content on the web, including text, images, and multimedia.
* **HTML** is an essential component of modern web development, working in conjunction with other web technologies like CSS and JavaScript to create dynamic and interactive user experience.
* **HTML** uses tags and attributes to define the structure and content of web pages.
* **HTML** tags are used to mark up elements of page, while attributes provide additional information about the elements.
* **Features of HTML:**

1. **Elements:**

HTML provides a wide range of elements, such as headings, paragraphs, lists, images, and tables that can be used to structure and format content on a web page.

1. **Attributes:**

HTML elements can have attributes that provide additional information about them, such as the source of an image or the target of a link.

1. **Forms:**

HTML provides a way to create interactive forms that allows users to input data and interact with the page.

1. **Semantic markups:**

HTML5 introduced a range of semantic elements such as article, section, and nav, that provide additional meaning and structure to the content of a web page.

1. **Accessibility:**

HTML provides a range of accessibility features, such as alt text for images and ARIA attributes for interactive elements, that make web content more accessible to users with disabilities.

# System Study

# Existing System and its Drawbacks:

# 3.4 Aim and Objectives of Proposed System:

## Project Modules:

* Admin
* User
* Faculty

## Modules Vice Objectives:

* **Admin:**
* Admin can add new faculty in system and maintain their information.
* Admin can manage his profile and able to change the password.
* Admin can manage payroll system and generate monthly salary slip.
* Admin can also generate offer/coupons for new user.
* Admin can review and manage all user reports.
* Admin can add category and sub-category for the products.
* **User:**
* User can register/login in web application themselves.
* User can view product according to the categories they prefer.
* User can manage his profile and can also change the password.
* User can contact the available faculty online on web application.
* User can add products to cart.
* User can purchase the selected product from the web application.
* **Faculty:**
* Faculty can login in web application by themselves.
* Faculty can update the profile and can change the password.
* Faculty can add related products after admin’s approval.
* Faculty can view the salary slip anytime.