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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 |

# 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 Preprocessor”.
* **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 colour, 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 colour, 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:**