 JANA THE BOT USING FLUTTER DART FRAMEWORK

A MINI PROJECT REPORT

Submitted by

|  |  |
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| **PRABAKARAN C** | **(721820104036)** |
| **VELMURUGAN S** | **(721820104062)** |
| **AMRISH MANICKRAJ J** | **(721820104301)** |

***in partial fulfillment for the award of the degree of***

**BACHELOR OF ENGINEERING**

**IN**

COMPUTER SCIENCE AND ENGINEERING

**RATHINAM TECHNICAL CAMPUS**

**COIMBATORE-641021**

**ANNA UNIVERSITY: CHENNAI 600025**

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**BONAFIDE CERTIFICATE**

Certified that this project report **“JANA THE BOT USING FLUTTER DART FRAMEWORK”** is the bonafide work of **“JOTHISWARAN R, PRABAKARAN C, VELMURUGAN S, AMRISH MANICKRAJ J”** who carried out the mini project work under my supervision.

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Submitted for the **ANNA UNIVERSITY**, Chennai project viva-voce held on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**INTERNAL EXAMINER EXTERNAL EXAMINER**

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**ABSTRACT**

The billing system is an essential component of business operations, enabling efficient management of financial transactions, invoicing, and revenue generation. This paper focuses on the design and implementation of a billing system that caters to both client and admin sides, providing distinct functionalities and interfaces for each user role. The system aims to streamline the billing process, enhance user experience, and ensure accurate and timely financial management.The billing system's architecture encompasses various components, including user interfaces, databases for data storage, billing logic for invoice generation and payment processing, integration capabilities with external systems, reporting and analytics functionalities, and security measures to safeguard sensitive information. This paper discusses the design considerations, functionality, and benefits of a billing system with client and admin sides. By providing a seamless user experience, accurate financial management, and comprehensive reporting capabilities, the billing system enhances efficiency, customer satisfaction, and business growth. The integration of client and admin sides offers a holistic approach to billing management, promoting transparency and effective communication between customers and administrators.

**Keywords**: Billing software, Invoicing, Payment processing, Revenue management, Subscription billing, Billing cycle, Invoice generation, Payment tracking, Pricing model.

**LIST OF FIGURES**

|  |  |  |
| --- | --- | --- |
| **FIGURE**  1.1  1.2  1.3 | **TITLE**  Introduction  Aim and Objectives  Literature Survey |  |

1.4 Data collection and Processing

1.5 Flowchart

1.6 System architecture

1.7Source code

1.8 Advantages and Disadvantages

1.9 Conclusion

1.10 Reference

# **CHAPTER-1**

# **INTRODUCTION**

A billing system is a crucial component of any business, enabling the efficient management of financial transactions, invoicing, and revenue generation. It plays a vital role in accurately tracking and processing payments, ensuring timely invoicing, and maintaining financial records. Whether it is a small-scale startup or a large enterprise, an effective billing system is essential for smooth financial operations and customer satisfaction.The primary purpose of a billing system is to streamline the process of generating invoices, tracking payments, and managing customer accounts. It automates the billing cycle, eliminating the need for manual calculations and paperwork, which not only saves time but also reduces the chances of errors and discrepancies. Additionally, a billing system provides insights into revenue trends, customer behavior, and financial performance through comprehensive reporting and analytics.

**CHAPTER - 2**

**Aim**

To provide a user-friendly platform for efficient billing and invoicing processes. Enable users to easily create and customize professional invoices. Facilitate secure payment processing and integration with popular payment gateways. Offer robust reporting and analytics features for financial tracking and decision-making**.**

**Objectives**

**Accurate Invoicing:** The primary objective of billing software is to generate accurate and error-free invoices for products or services provided by a business. It automates the calculation of charges, taxes, discounts, and other billing components to ensure accuracy.

**Efficient Billing Process:** Billing software aims to streamline the billing process by automating tasks such as invoice generation, payment reminders, and tracking outstanding payments. This efficiency saves time and reduces manual errors.

**Payment Management:** Billing software helps businesses manage payments effectively by providing features such as online payment integration, payment tracking, and reconciliation. It allows businesses to easily record and track payments received from customers.

**Billing Automation:** The software automates recurring billing processes, allowing businesses to set up and manage subscription-based or recurring billing cycles. This eliminates the need for manual intervention for regular billing activities.

**Customer Management:** Billing software often includes customer management features, such as maintaining a customer database, storing customer information, and tracking customer-specific billing history. This helps businesses provide personalized customer service and facilitates easy access to customer information.

**Reporting and Analytics:** Billing software generates reports and analytics that provide insights into the business's financial health, revenue streams, outstanding payments, and customer trends. These reports help businesses make informed decisions and identify areas for improvement.

**Integration with Accounting Systems:** Billing software integrates with accounting systems, enabling seamless transfer of financial data such as invoices, payments, and transaction details. This integration improves the accuracy of financial records and simplifies accounting processes.

**Compliance and Security:** Billing software aims to ensure compliance with legal and regulatory requirements related to billing and invoicing. It also focuses on data security, protecting sensitive customer and financial information.

# **CHAPTER – 3**

**LITERATURE REVIEW**

A billing system is a critical component of financial management in businesses across various industries. It enables the accurate and efficient management of invoicing, payment processing, and revenue generation. This literature review aims to provide an overview of existing research and literature on billing systems, exploring different aspects such as system design, functionalities, challenges, and emerging trend.

**Billing Process Optimization:**

Efficiency in the billing process is a key area of interest. Literature suggests various optimization techniques, such as automating invoice generation, implementing intelligent pricing models, and utilizing machine learning algorithms for predictive billing and payment reminders. These approaches aim to reduce manual efforts, improve accuracy, and enhance customer satisfaction.

**Payment Processing and Integration:**

Research has examined payment processing methods and integration with payment gateways. Studies explore topics like online payment security, fraud detection, and transaction reconciliation. Integration with external systems, such as banking systems or online payment platforms, is also a focus area to streamline payment processes and ensure data accuracy.

**Billing System Challenges and Solutions:**

Challenges faced in billing systems, such as handling complex pricing models, managing subscription-based billing, and addressing regulatory compliance, have been widely discussed. Research proposes solutions to address these challenges, including advanced pricing algorithms, subscription management modules, and adherence to legal and regulatory frameworks.

**Billing Analytics and Reporting:**

The utilization of billing data for analytics and reporting purposes has gained significant attention. Researchers emphasize the importance of generating meaningful insights from billing data to support decision-making, revenue forecasting, and customer behavior analysis. Reporting tools and techniques for visualizing data are explored to provide comprehensive and real-time analytics.

**Emerging Trends and Technologies:**

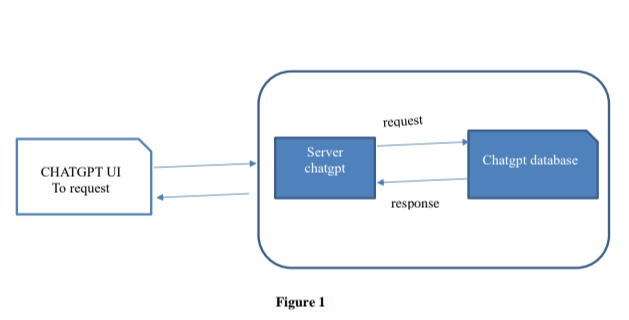
Literature highlights emerging trends in billing systems, such as the adoption of cloud-based solutions, blockchain for secure transactions, and the use of artificial intelligence for advanced billing automation. Studies also discuss the impact of regulatory changes, such as tax compliance requirements, on billing system design and implementation.

# **CHAPTER - 4**

**DATA COLLECTION AND PROCESSING**

Billing systems are essential for managing financial transactions, invoicing, and revenue generation in businesses. Effective data collection and processing are critical components of billing systems, ensuring accurate invoicing, timely payments, and financial record-keeping. This section discusses the key aspects of data collection and processing in billing systems.Data Collection: Customer Information: Billing systems collect and store customer information, including contact details, billing addresses, payment preferences, and historical transaction data. Accurate product/service data ensures correct invoicing and revenue calculation.Payment Data: Billing systems collect payment-related data, such as payment methods, transaction IDs, payment dates, and payment amounts. This data is crucial for tracking payment status, generating payment reminders, and reconciling financial records.Usage and Consumption Data: In certain industries, billing systems may collect usage or consumption data, such as energy usage for utility billing or data usage for telecommunications billing. This data is used to calculate charges accurately based on usage levels. System and Operational Data: Billing systems may collect system-related data, such as login activities, audit trails, and system performance metrics. This data aids in monitoring system usage, identifying potential issues, and ensuring data security.Data Processing:Invoice Generation: Billing systems process the collected data to generate invoices. This involves applying pricing rules, calculating taxes, discounts, and any other applicable charges. The system ensures accuracy in invoice generation to prevent billing errors and discrepancies.Payment Processing: The billing system processes payment data, validating payment information, updating payment statuses, and generating receipts. It may integrate with payment gateways or external systems to facilitate secure and efficient payment processing. Data Validation and Error Handling: Billing systems validate collected data to ensure its accuracy and integrity. Data validation checks may include verifying customer information, product pricing, and payment details. The system also handles data errors and exceptions, providing notifications and remedial actions when necessary.Financial Record-Keeping: Billing systems maintain comprehensive financial records, including invoices, payment history, and revenue reports. These records help in financial analysis, auditing, and compliance with regulatory requirements. Reporting and Analytics: Billing systems often provide reporting and analytics capabilities to derive insights from billing data. This includes generating financial reports, tracking revenue trends, and analyzing customer behavior.They implement measures to protect sensitive customer information, such as encryption, access controls, and adherence to data privacy regulations. Secure data transmission and storage practices are essential to maintain the integrity and confidentiality of billing system data.

## **Application Chart:**



# **` CHAPTER – 5 FLOWCHART**

**START**

**LOGIN**

**CLIENT AND ADMIN**

**LOGIN**

**CLIENT**

**ADD CUSTOMER**

**ADMIN**

**VIEW PENDING**

**BILL**

**VIEW BILL**

**CUSTOMER QUERIES**

**PRODUCT**

**CUSTOMERS**

**DASHBOARD**

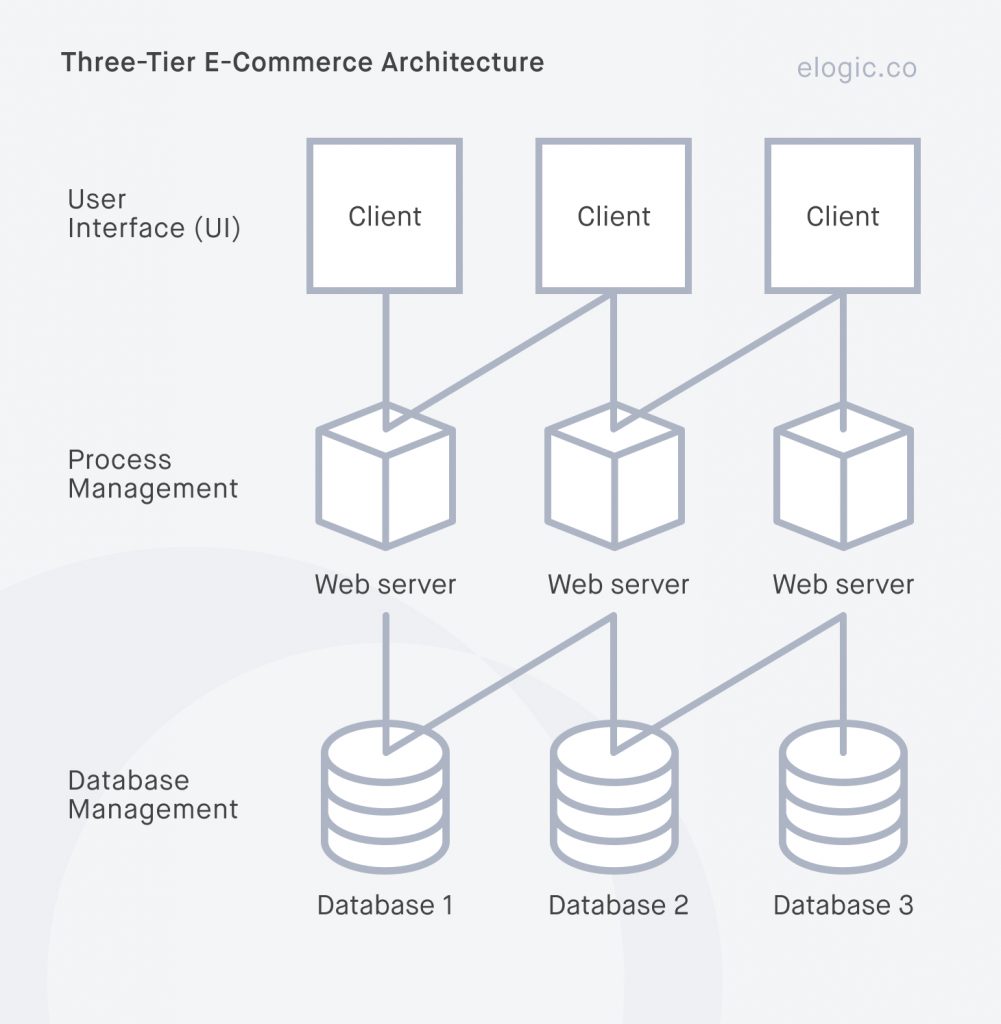
**ADD CART**

**VIEW BILL**

**END**

**CHAPTER - 6**

## **SYSTEM ARCHITECTURE:**



# **CHAPTER - 7**

**SOURCE CODE**

**LOGIN PAGE:**

<?php

session\_start();

require\_once 'admin/config/config.php';

$token = bin2hex(openssl\_random\_pseudo\_bytes(16));

// If User has already logged in, redirect to dashboard page.

if (isset($\_SESSION['user\_logged\_in']) && $\_SESSION['user\_logged\_in'] === TRUE)

{

header('Location:index.php');

}

// If user has previously selected "remember me option":

if (isset($\_COOKIE['series\_id']) && isset($\_COOKIE['remember\_token']))

{

// Get user credentials from cookies.

$series\_id = filter\_var($\_COOKIE['series\_id']);

$remember\_token = filter\_var($\_COOKIE['remember\_token']);

$db = getDbInstance();

// Get user By series ID:

$db->where('series\_id', $series\_id);

$row = $db->getOne('admin\_accounts');

if ($db->count >= 1)

{

// User found. verify remember token

if (password\_verify($remember\_token, $row['remember\_token']))

{

// Verify if expiry time is modified.

$expires = strtotime($row['expires']);

if (strtotime(date()) > $expires)

{

// Remember Cookie has expired.

clearAuthCookie();

header('Location:login.php');

exit;

}

$\_SESSION['user\_logged\_in'] = TRUE;

$\_SESSION['admin\_type'] = $row['admin\_type'];

header('Location:index.php');

exit;

}

else

{

clearAuthCookie();

header('Location:login.php');

exit;

}

}

else

{

clearAuthCookie();

header('Location:login.php');

exit;

}

}

include BASE\_PATH.'admin/includes/header.php';

?>

<div id="page-" class="col-md-4 col-md-offset-4">

<form class="form loginform" method="POST" action="authenticate.php">

<div class="login-panel panel panel-default">

<div class="panel-heading">Please Sign in</div>

<div class="panel-body">

<div class="form-group">

<label class="control-label">username</label>

<input type="text" name="username" class="form-control" required="required">

</div>

<div class="form-group">

<label class="control-label">password</label><input type="password" name="passwd" class="form-control" required="required">

</div>

<div class="checkbox">

<label>

<input name="remember" type="checkbox" value="1">Remember Me

</label>

</div>

<?php if (isset($\_SESSION['login\_failure'])): ?>

<div class="alert alert-danger alert-dismissable fade in">

<a href="#" class="close" data-dismiss="alert" aria-label="close">&times;</a>

<?php

echo $\_SESSION['login\_failure'];

unset($\_SESSION['login\_failure']);

?>

</div>

<?php endif; ?>

<button type="submit" class="btn btn-success loginField">Login</button>

</div>

</div>

</form>

</div>

<?php include BASE\_PATH.'admin/includes/footer.php'; ?>

**PRODUCT SUGGESTION :**

<?php

// Include your database connection file

require\_once 'admin/config/config.php';

// Retrieve the query parameter from the AJAX request

$query = $\_POST['query'];

// Sanitize the query to prevent SQL injection

$clean\_query = '%' . $query . '%';

// Perform the database query to fetch product suggestions

$db = getDbInstance();

$db->where('product\_name', $clean\_query, 'LIKE');

$products = $db->get('customers', null, ['product\_id', 'product\_name']);

// Generate the HTML for the suggestions

$suggestionsHTML = '';

if ($db->count > 0) {

foreach ($products as $product) {

$suggestionsHTML .= '<div class="suggestion-item">' . $product['product\_name'] . '</div>';

}

} else {

$suggestionsHTML .= '<div class="no-suggestions">No products found.</div>';

}

// Return the HTML as the AJAX response

echo $suggestionsHTML;

?>

**BILL PRINT:**

<!DOCTYPE html>

<html>

<head>

<title>Bill</title>

<style>

body {

font-family: Arial, sans-serif;

background-color: #f0f0f0;

padding: 20px;

}

.bill-container {

max-width: 400px;

margin: 0 auto;

background-color: #ffffff;

padding: 20px;

box-shadow: 0 2px 4px rgba(0, 0, 0, 0.1);

}

.bill-header {

text-align: center;

margin-bottom: 20px;

}

table {

width: 100%;

border-collapse: collapse;

}

table th, table td {

padding: 8px;

text-align: left;

border-bottom: 1px solid #ddd;

}

.total-row {

font-weight: bold; }

.print-button {

text-align: center;

margin-top: 20px;

}

.print-button button {

background-color: #4caf50;

color: #ffffff;

border: none;

padding: 10px 20px;

font-size: 16px;

cursor: pointer;

border-radius: 4px;

}

</style>

</head>

<body>

<div class="bill-container">

<div class="bill-header">

<h2>Shanmuga Shop - Bill</h2>

</div>

<table>

<thead>

<tr>

<th>Customer</th>

<th>Product</th>

<th>Price</th>

<th>GST (%)</th>

<th>Quantity</th>

<th>Total</th>

</tr>

</thead>

<tbody>

<tr>

<td>John Doe</td>

<td>Product 1</td>

<td>100</td>

<td>10</td>

<td>2</td>

<td>220</td>

</tr>

<tr>

<td>Jane Smith</td>

<td>Product 2</td>

<td>50</td>

<td>5</td>

<td>3</td>

<td>157.5</td>

</tr>

<tr>

<td colspan="5" class="total-row">Total</td>

<td class="total-row">377.5</td>

</tr>

</tbody>

</table>

<div class="print-button">

<button onclick="window.print()">Print Bill</button>

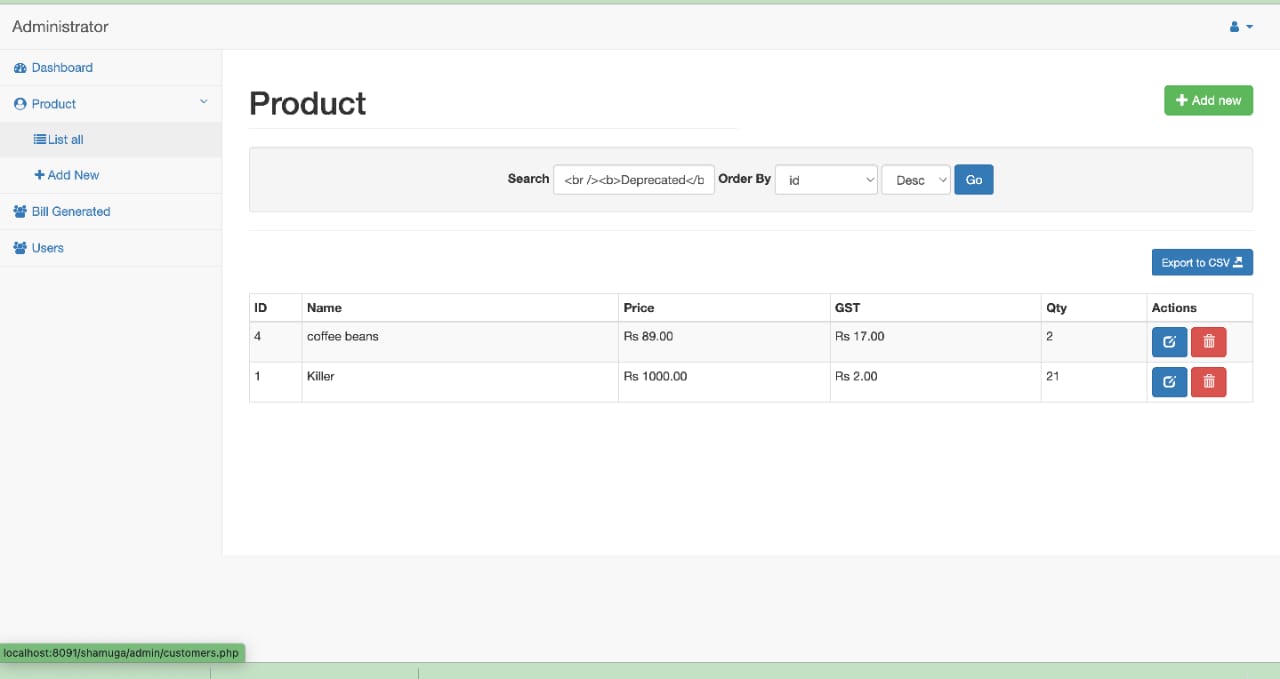
</div>

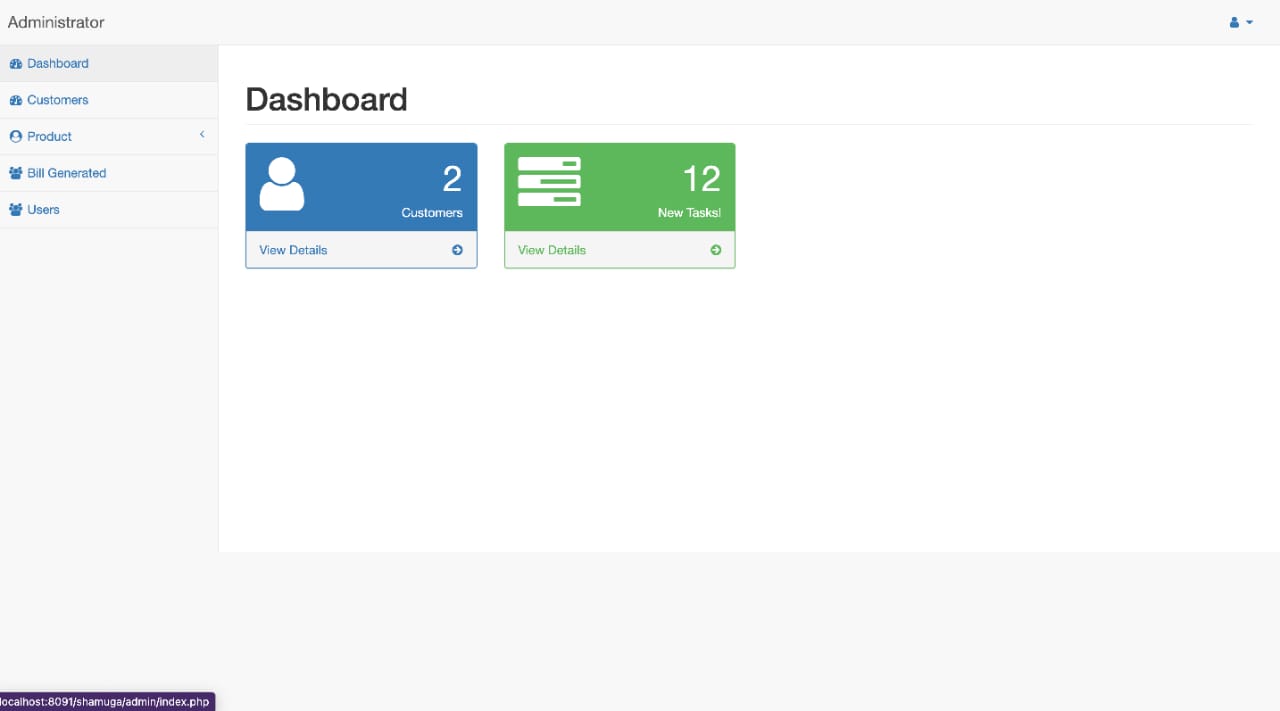
</div>

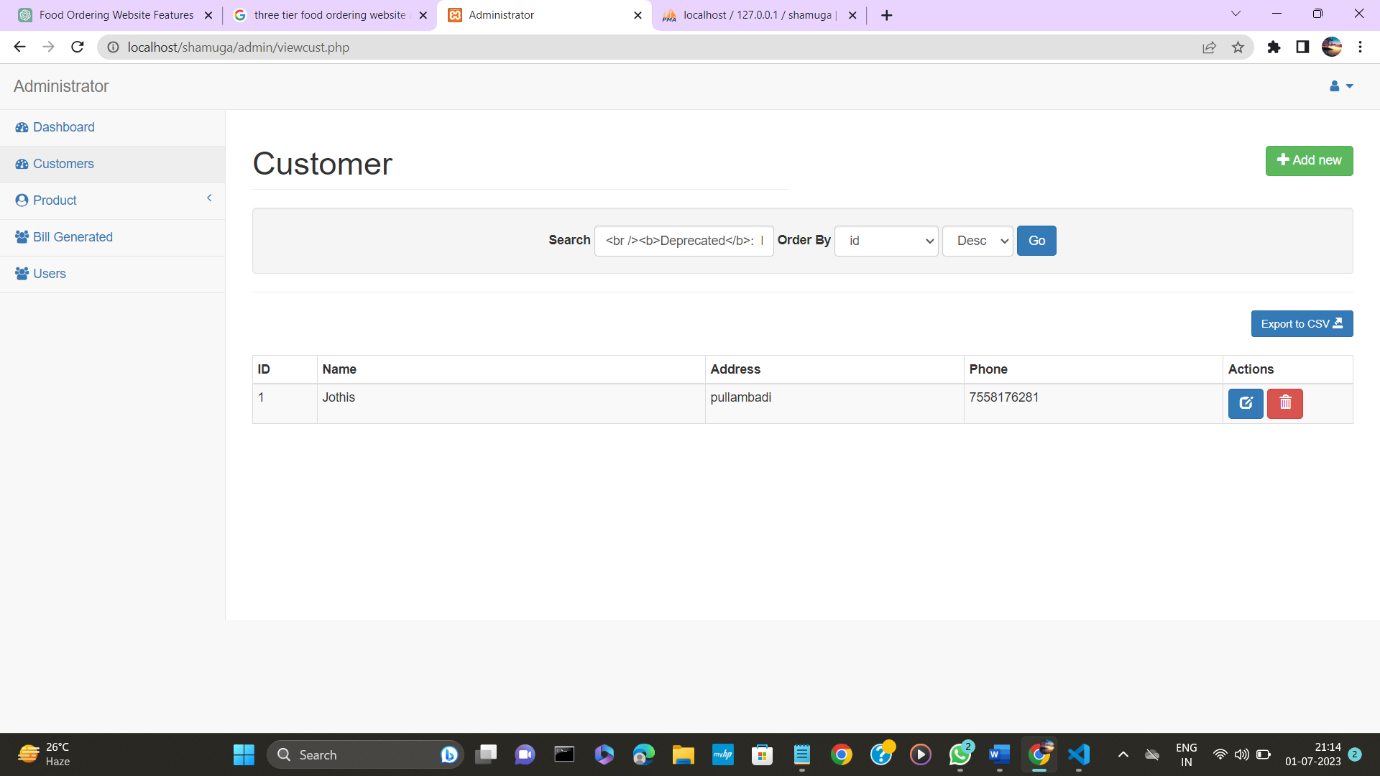
</body>

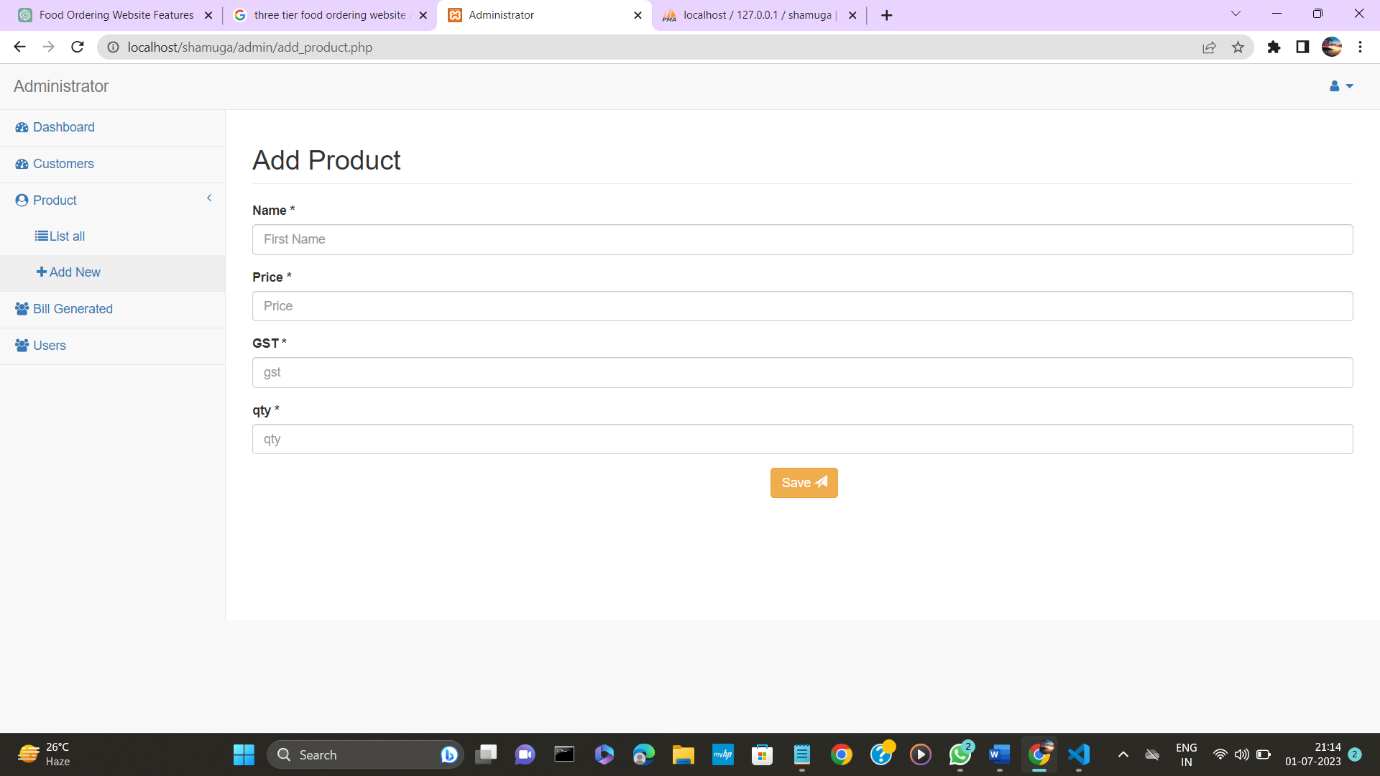
</html>

**SNAPSHOTS:**









# **CHAPTER - 8**

**ADVANTAGES**

* Comfortable to use as the platform is user friendly.
* Clear Requirement Analysis: The methodology ensures a thorough understanding of user and stakeholder requirements, leading to a website that closely aligns with their needs.
* Reliable Development and Testing: The methodology focuses on building a secure and functional website through careful development and comprehensive testing, minimizing errors and ensuring user satisfaction.
* Scalable Deployment and Maintenance: The methodology ensures a smooth deployment and establishes a maintenance plan for ongoing updates, ensuring the website's scalability and consistent performance.

**Disadvantages**

* Complexity: The existing methodology can be complex, involving detailed analysis, extensive development, and thorough testing. This complexity may lead to longer project timelines and increased resource requirements.
* Lack of Flexibility: The existing methodology may limit flexibility by focusing heavily on upfront requirements. This can make it difficult to accommodate changes or evolving user needs during development.
* Higher Costs: The detailed development, testing, and deployment processes of the existing methodology can result in higher development and maintenance costs, which may pose challenges for organizations with limited resources

# **CHAPTER - 9**

**CONCLUSION:**

In conclusion, a well-designed and properly implemented billing system plays a crucial role in streamlining the billing process, enhancing efficiency, and improving financial operations for businesses. Throughout this paper, we have explored various aspects of a billing system, including its functionality, architecture, data collection, processing, and analysis.The billing system enables businesses to generate accurate invoices, process payments, track financial transactions, and manage customer accounts effectively. By automating these tasks, businesses can reduce manual errors, save time, and improve overall accuracy in billing processes.Through the comparison of traditional forecasting models with the billing system, it becomes evident that the billing system provides more accurate and reliable financial forecasts. The system leverages real-time data and analysis, allowing businesses to make informed decisions and optimize revenue generation.The data collection and processing in the billing software ensure the availability of accurate and up-to-date information. This enables businesses to track financial performance, analyze trends, and make data-driven decisions. It also facilitates compliance with regulatory requirements and provides a foundation for reporting and analytics.The theoretical foundation of the billing software encompasses concepts from finance, accounting, and software engineering. By integrating these disciplines, businesses can develop robust billing systems that align with industry best practices and meet specific business requirements.Overall, the billing system offers several advantages, including improved efficiency, increased accuracy, enhanced customer satisfaction, cost reduction, and scalability. By adopting a well-defined methodology, businesses can successfully develop, deploy, and maintain a billing system that meets their unique needs.However, it is important to note that the effectiveness of a billing system depends on factors such as system design, data quality, user adoption, and ongoing maintenance and support. Regular evaluation, feedback, and continuous improvement efforts are necessary to ensure the system's effectiveness and address any emerging challenges or opportunities.In conclusion, a well-implemented billing system can streamline financial operations, enhance revenue generation, improve customer satisfaction, and contribute to the overall success of a business

# **CHAPTER - 10**

**REFERENCES:**

Here are some references that you can use for further information on billing systems:

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Please note that the above references are provided as examples, and it is important to conduct further research and refer to relevant academic journals, books, and industry publications for a comprehensive understanding of billing systems.