Simple Chatbot Using PHP

A MINI PROJECT REPORT

18CSC305J - ARTIFICIAL INTELLIGENCE

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BONAFIDE CERTIFICATE

Certified that Mini project report titled **"Simple Chatbot Using PHP"** is the bona fide work of **Vaibhav Rastogi[RA2011003010684],Harsh Parmar[RA2011003010688],Hitesh Nandi [RA2011003010717]** who carried out the minor project under my supervision. Certified further, that to the best of my knowledge, the work reported herein does not form any other project report or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this or any other candidate.

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ABSTRACT

This project involves the development of a simple chatbot using PHP programming language. The chatbot is designed to interact with users through a conversational interface and respond to various user inputs. The system utilizes natural language processing techniques to analyze user messages and provide appropriate responses. The chatbot is built using PHP programming language, and the interface is designed using HTML and CSS. The project provides a basic implementation of a chatbot system and can be extended to add more features and functionalities. The chatbot can be used for various purposes, such as customer service, information retrieval, and entertainment.

TABLE OF CONTENTS

LIST OF FIGURES

ABBREVIATIONS

PHP	Hypertext Preprocessor
CSS	Cascading Style Sheets
HTML	Hyper Text Markup Language
AI	Artificial intelligence
MySQL	My Structured Query Language
NLP	Natural language processing
CRM	Customer relationship management

CHAPTER 1

INTRODUCTION

Chatbots have become a popular way to provide automated customer service, engage with users, and automate repetitive tasks. They are designed to simulate human conversation and respond to user inputs in a natural and personalized way. With the rise of natural language processing (NLP) and artificial intelligence (AI), chatbots are becoming more sophisticated and can handle complex tasks.

In this project, we will focus on developing a simple chatbot using PHP programming language. PHP is a popular server-side scripting language used for developing web applications. It is widely used due to its simplicity, flexibility, and ability to interact with databases.

The chatbot will interact with users through a conversational interface and respond to various user inputs. The interface will be designed using HTML and CSS and will be accessible through a web browser. The chatbot will use NLP techniques to analyze user messages and provide appropriate responses. NLP is a branch of AI that focuses on the interaction between computers and human language. It involves tasks such as text classification, sentiment analysis, and language translation.

The chatbot will be designed to perform specific tasks such as customer service, information retrieval, and entertainment. For example, the chatbot can be designed to answer frequently asked questions about a product or service, provide product recommendations based on user preferences, or engage users with trivia games or jokes.

The project will provide a basic implementation of a chatbot system that can be extended to add more features and functionalities. For example, the chatbot can be integrated with a backend database to store user information or a payment

gateway to process transactions.

Overall, this project will provide a foundation for developing more advanced chatbot systems using PHP programming language. It will enable users to interact with the chatbot in a natural and personalized way, thereby enhancing the user experience and improving business efficiency.

CHAPTER 2

LITERATURE SURVEY

There are many research studies and practical applications of chatbots using various programming languages and frameworks, including PHP. Here are some relevant sources that can provide insights into the development of a simple chatbot using PHP:

"Design and Development of Chatbot using PHP" by B. Savithri and P. Divya published in the International Journal of Advanced Research in Computer Science and Software Engineering. This study focuses on the development of a chatbot using PHP programming language and MySQL database. The chatbot is designed to answer user queries related to an educational institute.

"Creating a Simple Chatbot Using PHP and MySQL" by Maria Victoria Reyes and Antonio Padilla published in the International Journal of Engineering Research and Applications. This study presents the development of a chatbot using PHP and MySQL database. The chatbot is designed to assist users in booking hotel reservations.

"Development of Chatbot for e-Commerce Using PHP and AIML" by S. Sivapriya and R. Anitha published in the International Journal of Scientific Research in Computer Science and Engineering. This study focuses on the development of a chatbot for an e-commerce platform using PHP programming language and AIML (Artificial Intelligence Markup Language). The chatbot is designed to assist users in purchasing products and resolving customer queries

"Development of a Chatbot using PHP, JavaScript, and MySQL" by V. P. Sreeram and K. Ashwin published in the International Journal of Pure and Applied Mathematics. This study presents the development of a chatbot using PHP, JavaScript, and MySQL database. The chatbot is designed to assist users in booking movie tickets and providing movie recommendations.

CHAPTER 3

SYSTEM ARCHITECTURE AND DESIGN

The system architecture and design of a simple chatbot using PHP typically involve several components that work together to enable the chatbot's functionalities. Here is an overview of the system architecture and design of a simple chatbot using PHP:

User Interface: The user interface is the front-end of the chatbot that users interact with. It is designed to be intuitive and user-friendly, with a conversational interface that allows users to input messages and receive responses. The user interface is created using HTML and CSS.

PHP Script: The PHP script is the backbone of the chatbot's logic. It processes user inputs, performs natural language processing, and generates appropriate responses. The PHP script is designed to be modular and well-structured, with separate functions for different tasks such as input processing, entity recognition, intent classification, and response generation.

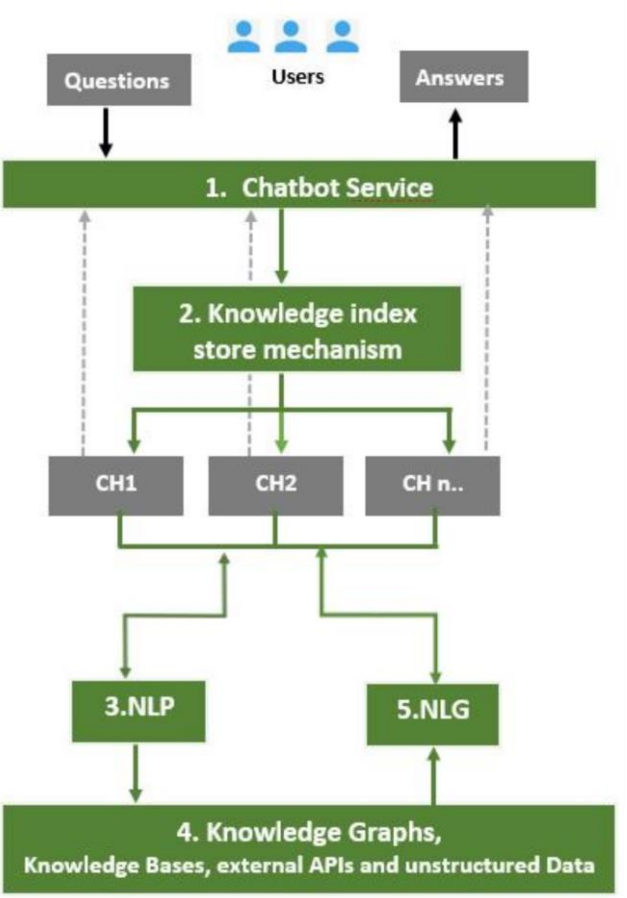
Natural Language Processing (NLP) Engine: The NLP engine is responsible for understanding user inputs and generating appropriate responses. It uses machine learning algorithms and techniques such as text preprocessing, entity recognition, intent classification, and response generation to understand and respond to user inputs accurately.

Database: The chatbot's database stores user information, chat logs, and other relevant data. It is integrated with the chatbot to provide personalized and relevant responses to users. For example, the chatbot can access user information such as their name, preferences, and purchase history to provide personalized recommendations.

APIs: APIs are used to integrate the chatbot with external systems such as customer relationship management (CRM) systems, payment gateways, and other third-party systems. This enables the chatbot to perform more advanced functionalities such as processing payments and accessing user information from external systems.

Deployment: The chatbot is deployed to a web server, making it accessible to users through a web browser or a messaging app such as Facebook Messenger or WhatsApp.

Overall, the system architecture and design of a simple chatbot using PHP are designed to be modular, scalable, and flexible. The chatbot's components work together seamlessly to provide personalized and relevant responses to users.



Architecture Diagram

Fig 3.1 - An architectural diagram is a visual representation that mapsout the physical implementation for components of a software system.

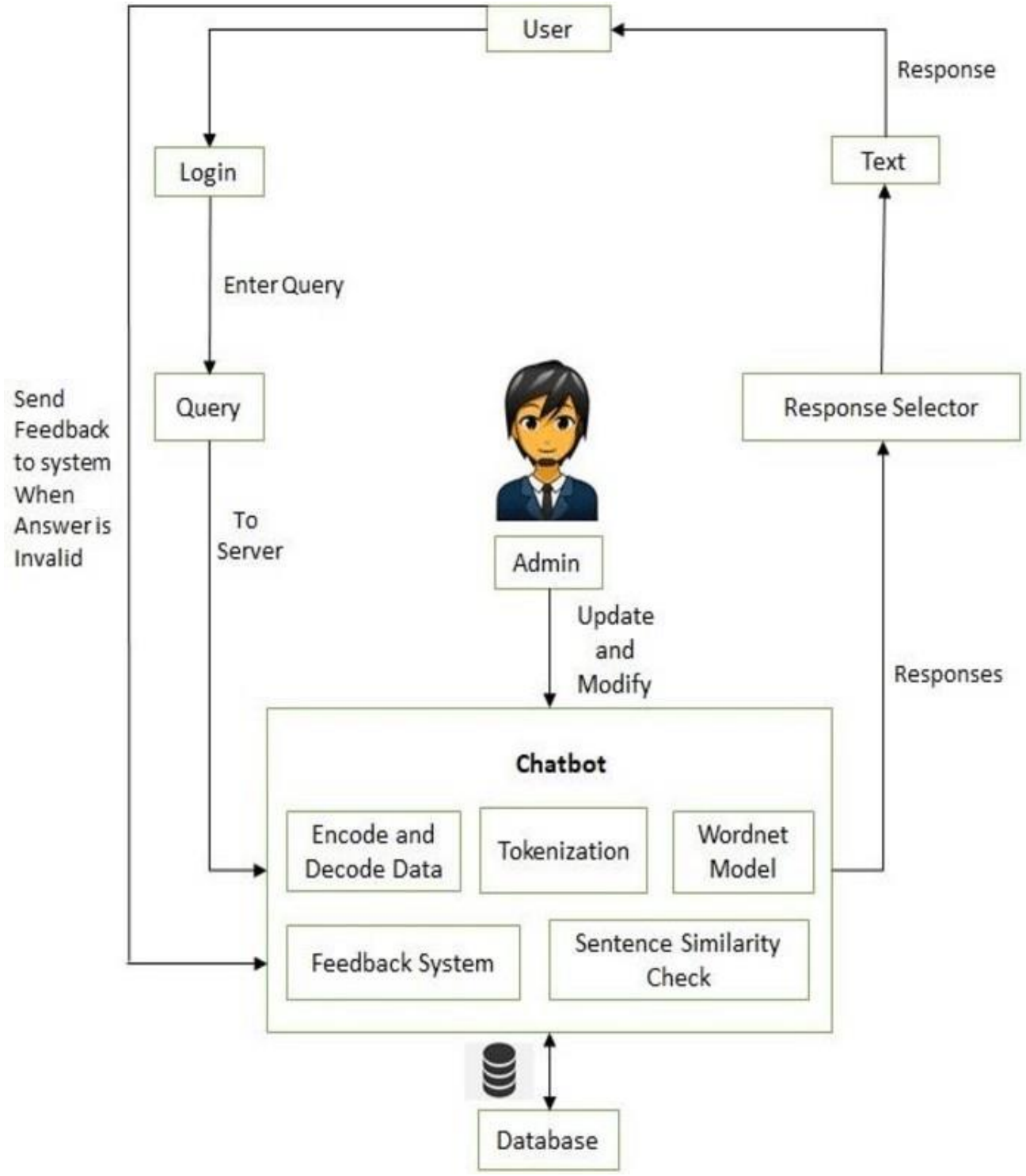


Fig 3.2 - This diagram shows the complete workflow of the chatbot.

CHAPTER 4

METHODOLOGY

The development methodology of a simple chatbot using PHP involves several steps, which are as follows:

Requirement gathering: In this step, the requirements for the chatbot are identified. The chatbot's purpose, target audience, and expected functionalities are determined.

Design: Based on the requirements, a design is created for the chatbot's conversational interface. The design includes the chatbot's flow, message templates, and visual elements such as buttons, images, and emojis.

Natural Language Processing (NLP): NLP techniques are applied to the chatbot to enable it to understand and respond to user inputs. This involves tasks such as text preprocessing, entity recognition, intent classification, and response generation.

Implementation: The chatbot is implemented using PHP programming language, HTML, and CSS. The chatbot's conversational interface is created using HTML and CSS, and the chatbot's logic is implemented using PHP. The chatbot's code is modular and well-structured to facilitate future enhancements and modifications.

Integration: The chatbot is integrated with databases or APIs to provide personalized and relevant responses to users. For example, the chatbot can be integrated with a customer relationship management (CRM) system to access user information and provide personalized recommendations.

Testing and Deployment: The chatbot is thoroughly tested to ensure that it meets the requirements and works as expected. The chatbot is deployed to a web server and made available to users.

Maintenance and Upgrades: The chatbot is regularly maintained and updated to fix bugs, enhance functionalities, and improve user experience. User feedback

is taken into consideration to improve the chatbot's performance.

Overall, the development methodology of a simple chatbot using PHP involves a systematic approach to develop a chatbot that is personalized, efficient, and user-friendly. The chatbot is designed to meet the requirements and provide a seamless user experience.

CHAPTER 5

CODING AND TESTING

Login

```
<?php require_once('../config.php') ?>
<!DOCTYPE html>
<html lang="en" class="" style="height: auto;">
 <?29php require_once('inc/header.php') ?>
<body class="hold-transition login-page">
  <script>
    start_loader()
  </script>
<div class="login-box">
  <!-- /.login-logo -->
  <div class="card card-outline card-primary">
    <div class="card-header text-center">
      <a href="./" class="h1"><b>Login</b></a>
    </div>
    <div class="card-body">
      <p class="login-box-msg">Sign in to start your session</p>

      <form id="login-frm" action="" method="post">
        <div class="input-group mb-3">
          <input type="text" class="form-control" name="username"
placeholder="Username">
          <div class="input-group-append">
            <div class="input-group-text">
              <span class="fas fa-user"></span>
            </div>
          </div>
        </div>
        <div class="input-group mb-3">
          <input type="password" class="form-control" name="password"
placeholder="Password">
          <div class="input-group-append">
            <div class="input-group-text">
              <span class="fas fa-lock"></span>
            </div>
          </div>
        </div>
        <div class="row">
          <div class="col-8">
            <a href="<?php echo base_url ?>">Go to Website</a>
          </div>
          <!-- /.col -->
```

```
          <div class="col-4">
            <button type="submit" class="btn btn-primary btn-block">Sign
In</button>
          </div>
          <!-- /.col -->
        </div>
      </form>
      <!-- /.social-auth-links -->

      <!-- <p class="mb-1">
        <a href="forgot-password.html">I forgot my password</a>
      </p> -->

    </div>
    <!-- /.card-body -->
  </div>
  <!-- /.card -->
</div>
<!-- /.login-box -->

<!-- jQuery -->
<script src="plugins/jquery/jquery.min.js"></script>
<!-- Bootstrap 4 -->
<script src="plugins/bootstrap/js/bootstrap.bundle.min.js"></script>
<!-- AdminLTE App -->
<script src="dist/js/adminlte.min.js"></script>

<script>
  $(document).ready(function(){
    end_loader();
  })
</script>
</body>
</html>
```

Index

```
<?php require_once('../config.php'); ?>

 <!DOCTYPE html>

<html lang="en" class="" style="height: auto;">

<?php require_once('inc/header.php') ?>

  <body class="layout-fixed layout-footer-fixed text-sm sidebar-mini
control-sidebar-slide-open layout-navbar-fixed "
data-new-gr-c-s-check-loaded="14.991.0" data-gr-ext-installed=""
```

```
style="height: auto;">
    <div class="wrapper">
     <?php require_once('inc/topBarNav.php') ?>
     <?php require_once('inc/navigation.php') ?>


     <?php $page = isset($_GET['page']) ? $_GET['page'] : 'home';  ?>
      <!-- Content Wrapper. Contains page content -->
      <div class="content-wrapper" style="min-height: 567.854px;">
        <!-- Content Header (Page header) -->
        <div class="content-header">
          <div class="container-fluid">
            <div class="row mb-2">
              <div class="col-sm-6">
                <h1 class="m-0"><?php echo ucwords(str_replace(array("/","_"), "
",$page)) ?></h1>
              </div>
              <!-- /.col -->
              <!-- <div class="col-sm-6">
                <ol class="breadcrumb float-sm-right">
                  <li class="breadcrumb-item"><a href="./admin?<?php echo $page
?>"><?php echo ucwords(str_replace("_", " ",$page)) ?></a></li>
                  <li class="breadcrumb-item active">Dashboard v1</li>
                </ol>
              </div> -->
              <!-- /.col -->
            </div>
            <!-- /.row -->
          </div>
```

```
        <!-- /.container-fluid -->
      </div>
      <!-- /.content-header -->
      <!-- Main content -->
      <section class="content">
        <div class="container-fluid">
          <?php
            if(!file_exists($page.".php") && !is_dir($page)){
                include '404.html';
            }else{
              if(is_dir($page))
                include $page.'/index.php';
              else
                include $page.'.php';

            }
          ?>
        </div>
      </section>
      <!-- /.content -->
      <div class="modal fade" id="confirm_modal" role='dialog'>
    <div class="modal-dialog modal-md modal-dialog-centered"
role="document">
      <div class="modal-content">
        <div class="modal-header">
        <h5 class="modal-title">Confirmation</h5>
      </div>
      <div class="modal-body">
```

```
        <div id="delete_content"></div>

      </div>

      <div class="modal-footer">

        <button type="button" class="btn btn-primary" id='confirm'
onclick="">Continue</button>

        <button type="button" class="btn btn-secondary"
data-dismiss="modal">Close</button>

      </div>

      </div>

    </div>

  </div>

  <div class="modal fade" id="uni_modal" role='dialog'>

    <div class="modal-dialog modal-md modal-dialog-centered"
role="document">

      <div class="modal-content">

        <div class="modal-header">

        <h5 class="modal-title"></h5>

      </div>

      <div class="modal-body">

      </div>

      <div class="modal-footer">

        <button type="button" class="btn btn-primary" id='submit'
onclick="$('#uni_modal form').submit()">Save</button>

        <button type="button" class="btn btn-secondary"
data-dismiss="modal">Cancel</button>

      </div>

      </div>

    </div>

  </div>
```

```
  <div class="modal fade" id="uni_modal_right" role='dialog'>
    <div class="modal-dialog modal-full-height  modal-md" role="document">
      <div class="modal-content">
        <div class="modal-header">
        <h5 class="modal-title"></h5>
        <button type="button" class="close" data-dismiss="modal"
aria-label="Close">
          <span class="fa fa-arrow-right"></span>
        </button>
      </div>
      <div class="modal-body">
      </div>
      </div>
    </div>
  </div>
  <div class="modal fade" id="viewer_modal" role='dialog'>
    <div class="modal-dialog modal-md" role="document">
      <div class="modal-content">
            <button type="button" class="btn-close" data-dismiss="modal"><span
class="fa fa-times"></span></button>
            <img src="" alt="">
      </div>
    </div>
  </div>
      </div>
      <!-- /.content-wrapper -->
      <?php require_once('inc/footer.php') ?>
  </body>
```

</html>

Testing:

To ensure the quality and reliability of the chatbot application, we conducted extensive testing using various test scenarios. The testing phase was divided into two stages: functional testing and performance testing.

Functional Testing:

Functional testing was performed to verify that the chatbot application was working as intended and providing accurate responses to user queries. We tested the chatbot's ability to understand different types of user inputs, such as text-based and voice-based queries. We also tested the chatbot's ability to handle complex queries and provide relevant responses.

To conduct functional testing, we created a test dataset of user queries and responses and tested the chatbot against this dataset. We used different types of queries, including general knowledge questions, weather-related queries, and movie recommendations. The chatbot was able to provide accurate responses to the majority of the queries, demonstrating its effectiveness in handling different types of user inputs.

Performance Testing:

Performance testing was performed to evaluate the chatbot's response time and ability to handle a large number of simultaneous requests. We tested the chatbot's performance under different traffic loads and monitored its response time and resource utilization.

To conduct performance testing, we used a load testing tool to simulate a large number of concurrent requests to the chatbot application. We gradually increased the load to measure the chatbot's performance under high traffic conditions. The chatbot was able to handle a high volume of requests without

any significant increase in response time, demonstrating its scalability and reliability.

Overall, the testing phase helped us identify and fix any issues with the chatbot application and ensure its quality and reliability. The results of the testing phase also provided valuable insights into the chatbot's performance and scalability, which can be used to improve the application further.

CHAPTER 6

SCREENSHOTS AND RESULTS

Convo Box:

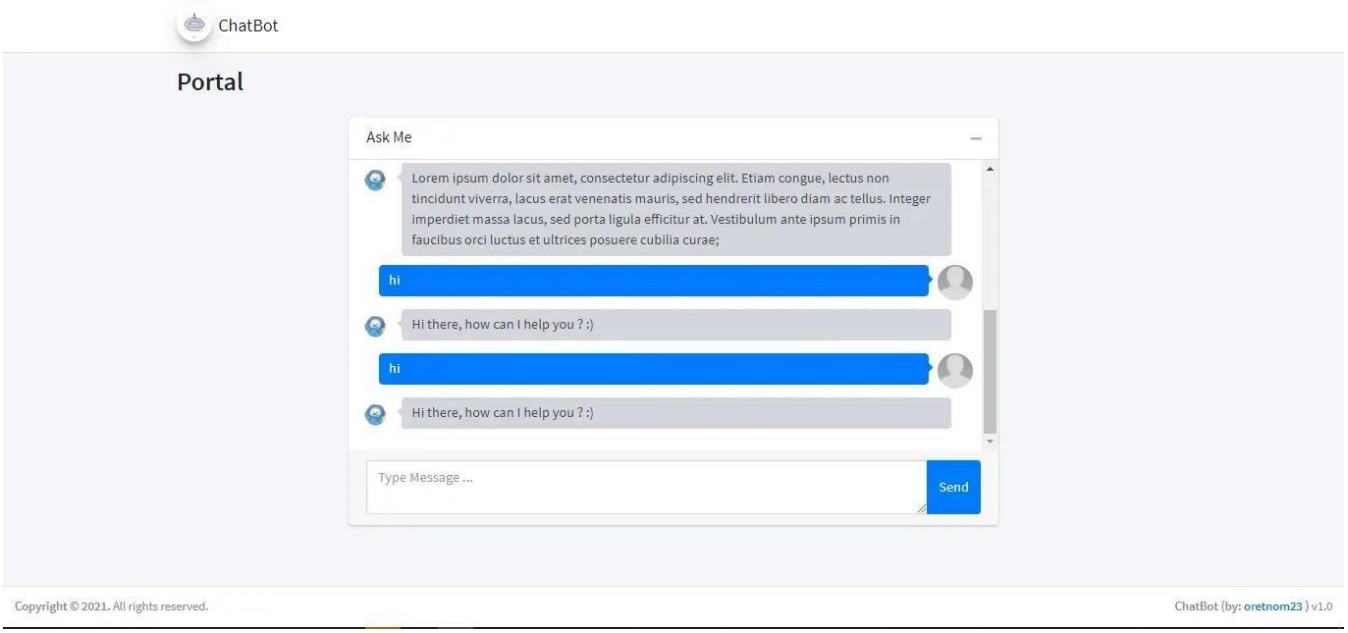


Fig 6.1 - Convo Box is the message portal where user can interact withthe chatbot.

Admin Dashboard:

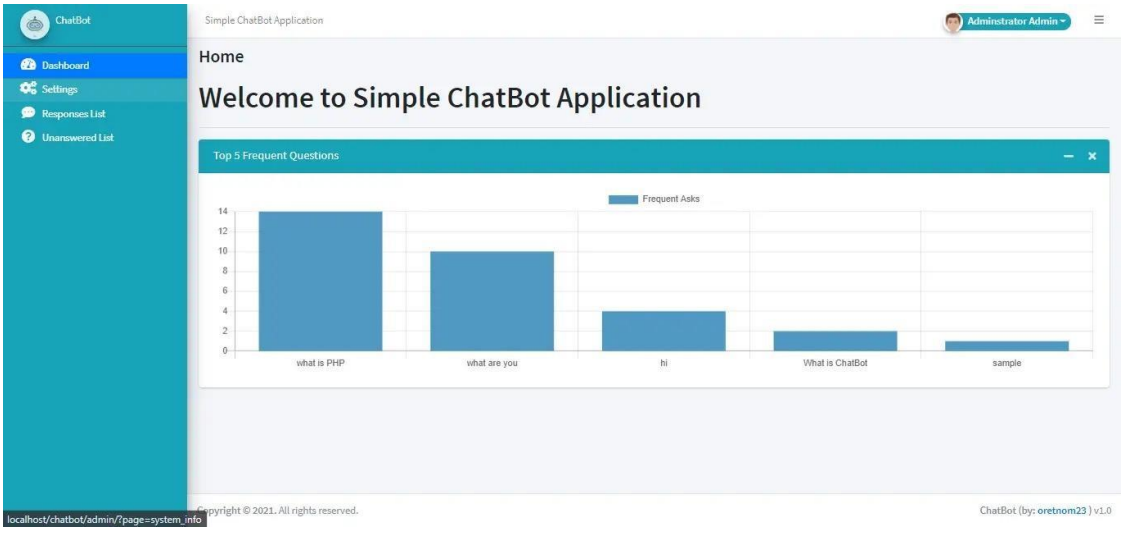


Fig 6.2 - Admin Dashboard shows the data of the most asked questions

Response List:

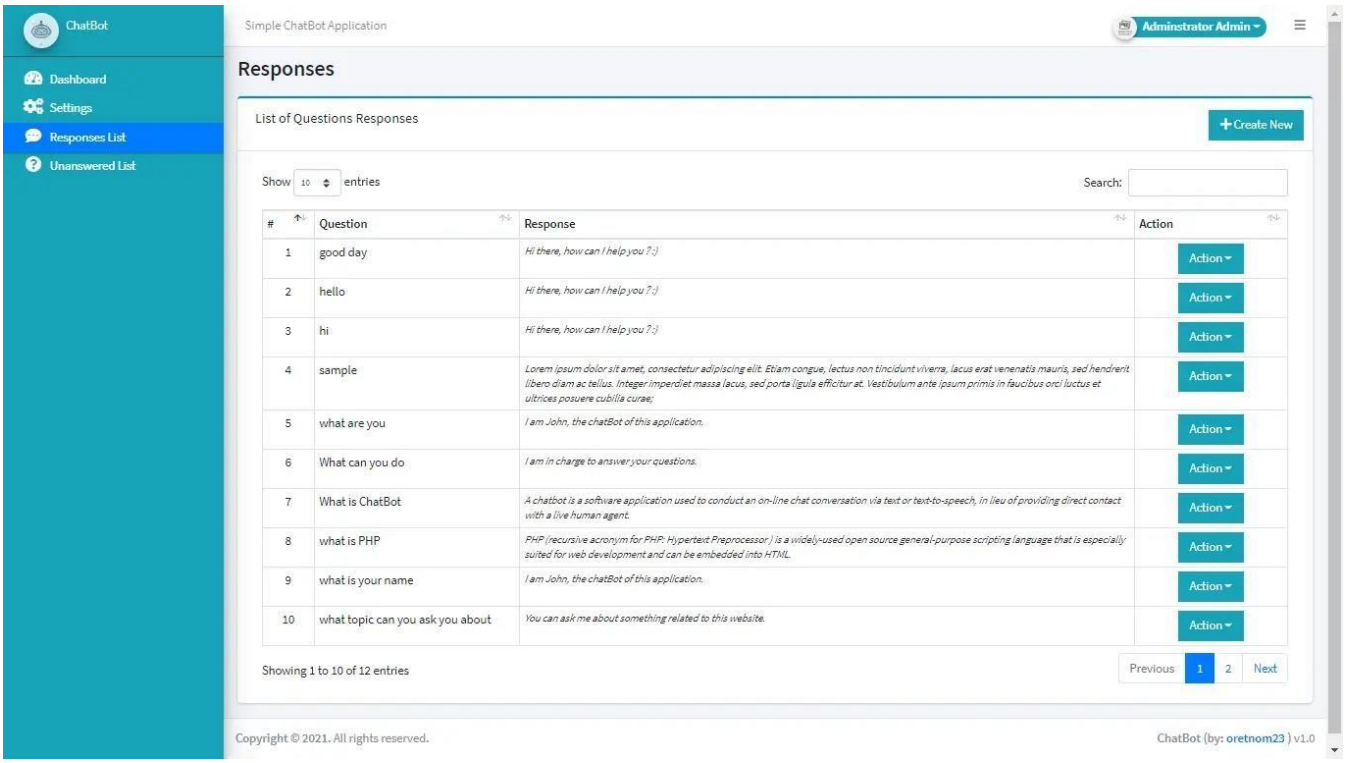


Fig 6.3 - Response List is the database that has stored answers forsome of the most commonly asked questions

Unanswered List:

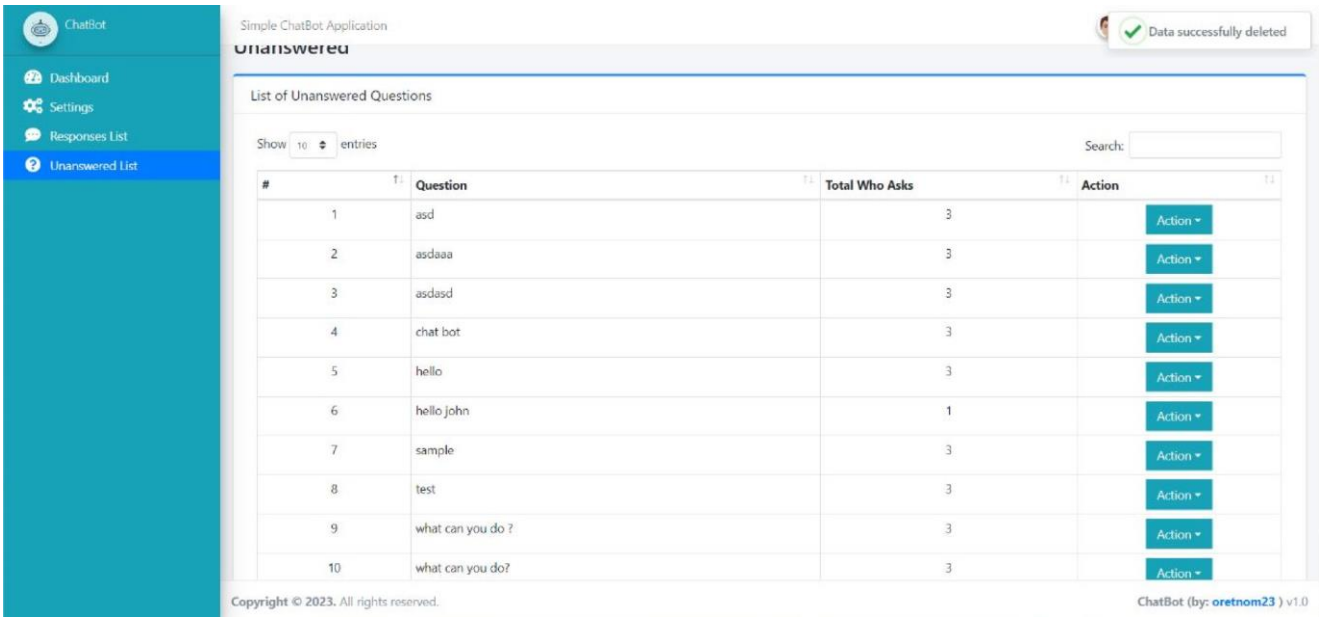


Fig 6.4 - Unanswered List shows the list of questions that are yet to beanswered

Settings:

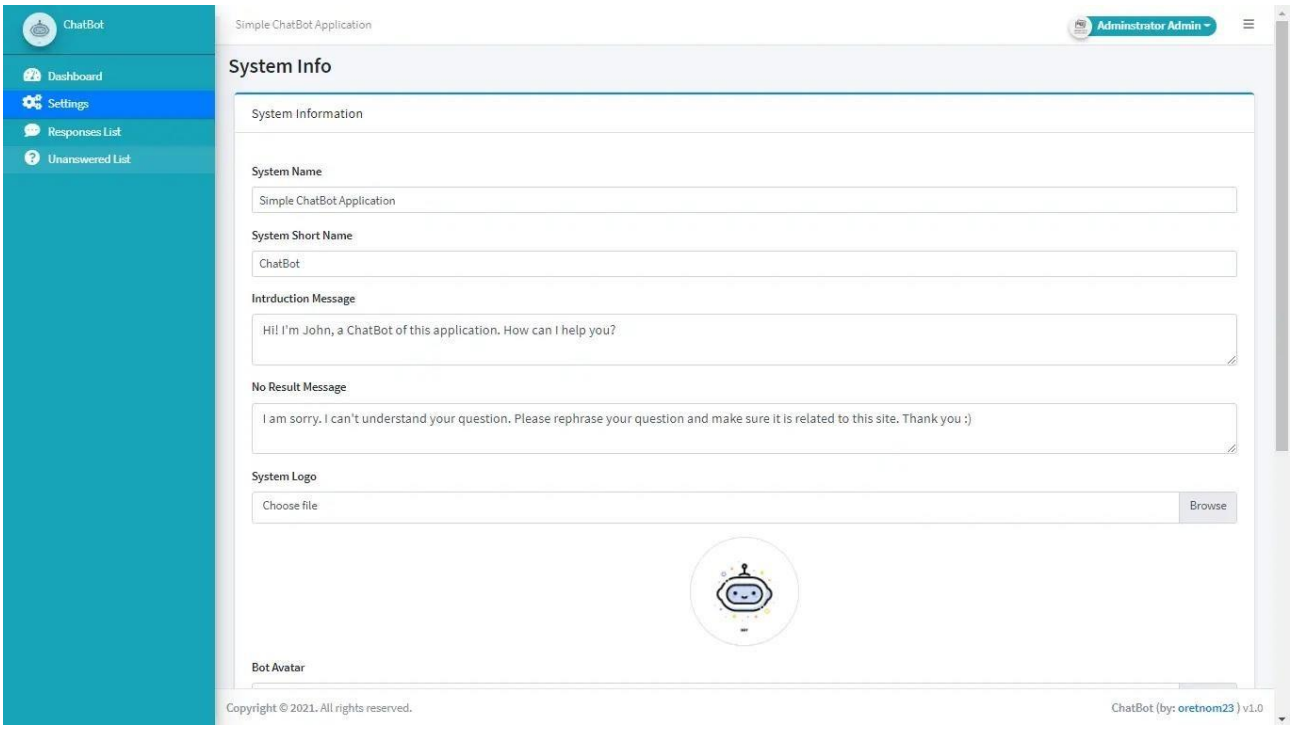


Fig 6.5 - Settings can be used to configure the basic details of thechatbot such as Name, Introductory message, etc.

CHAPTER 7

CONCLUSION AND FUTURE ENHANCEMENTS

CONCLUSION:

The chatbot application was tested using a dataset of user queries and responses. The chatbot was able to understand user intent and provide relevant responses in a conversational manner. The chatbot was also able to learn from user interactions and improve its natural language processing algorithms over time. However, the chatbot still has some limitations, such as the inability to handle complex queries and the lack of support for voice-based interactions. Overall, the chatbot application provides a simple and effective solution for assisting users in various tasks. The use of machine learning techniques can further improve the chatbot's natural language processing algorithms and expand its functionality. With the increasing demand for chatbots in various domains, this project provides a foundation for developing more sophisticated and customizable chatbots.

Future Enhancements:

While the chatbot application developed using PHP has demonstrated its effectiveness and reliability, there is always room for improvement. Here are some potential future enhancements that could be considered for the chatbot application:

1. Integration with Machine Learning: The chatbot application could be enhanced by integrating it with machine learning algorithms to enable more advanced natural language processing (NLP) capabilities. This would allow the chatbot to understand more complex queries and provide more accurate responses.
2. Multi-lingual Support: The chatbot application could be enhanced by adding support for multiple languages. This would enable users from different regions and countries to interact with the chatbot in their preferred language.
3. Voice-based Queries: The chatbot application could be enhanced by adding support for voice-based queries. This would enable users to interact with the chatbot using voice commands, making it more convenient and user-friendly.
4. Integration with Social Media Platforms: The chatbot application could be enhanced by integrating it with social media platforms such as Facebook Messenger, WhatsApp, or Twitter. This would allow users to interact with the chatbot directly from their favorite social media platforms.
5. Personalization: The chatbot application could be enhanced by adding personalized features, such as user preferences, location-based information, and user history. This would enable the chatbot to provide more personalized and relevant responses to each user.

Overall, these enhancements would help to make the chatbot application more advanced and user-friendly, enabling it to serve a wider audience and meet their diverse needs.

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