

A PROJECT REPORT

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in partial fulfillment for the award of the degree of

BACHELOR OF ENGINEERING

IN

COMPUTER SCIENCE & ENGINEERING



November 2023

BONAFIDE CERTIFICATE

Certified that this project report **Personalised Chat bot application** is the bonafide work of Tanmay , Shivam , Shashi who carried out the project work under my/our supervision.

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Submitted for the project viva-voce examination held on

INTERNAL EXAMINER

EXTERNAL EXAMINER

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CHAPTER 1.

INTRODUCTION

1.1. Personalized Chatbots are a type of Chatbot that uses AI to get to know each individual user and provide them with a personalized experience based on their needs and interests. This can include things like tailoring the responses to the user's conversation history, recommending products or services that they are likely to be interested in, and even providing emotional support.

Personalized Chatbots are becoming increasingly popular in a variety of industries, including customer service, education, healthcare, and entertainment..

1.2. Improved customer service: Personalized Chatbots can provide customers with a more personalized and efficient customer service experience. For example, a Personalized Chatbot can help customers find the information they need quickly and easily, or resolve issues they are having with a product or service.

Increased engagement: Personalized Chatbots can help businesses increase engagement with their customers. By providing customers with a personalized experience, Personalized Chatbots can make customers more likely to return to a business or recommend it to others.

Improved data collection: Personalized Chatbots can help businesses collect valuable data about their customers. This data can be used to improve products and services, develop new marketing campaigns, and better understand customer needs.

Reduced costs: Personalized Chatbots can help businesses reduce costs associated with customer service and support. For example, a Personalized Chatbot can handle customer inquiries that would otherwise have to be handled by human representatives.

1.3. Summarize project reports: A Personalized Chatbot can be used to generate a summary of a project report in a way that is tailored to the individual reader's needs. This can be useful for busy managers who don't have time to read the entire report. Identify key findings: A Personalized Chatbot can be used to identify the key findings of a project report and highlight them for the reader. This can be helpful for readers who need to quickly understand the main takeaways from the report.

Answer questions about the report: A Personalized Chatbot can be used to answer questions about a project report. This can be helpful for readers who need clarification about certain aspects of the report or who want to learn more about the project. Overall, Personalized Chatbots are a powerful tool that can be used to improve project reports in a number of ways. They can help to make reports more informative, engaging, and user-friendly.

CHAPTER 2.

DESIGN FLOW/PROCESS

In the design section of the project report, you should describe your target audience, identify their needs and requirements, design the conversation flow for your chatbot, and specify the features and functionality that your chatbot will have. You should also describe the technical architecture of your chatbot, including the specific components that you will be using and how they will work together.

2.1. The first step is requirement gathering and analysis, where the purpose, goals, and target audience of the chat bot are identified. This includes understanding the specific needs of the users and defining the scope of the project, along with determining the desired functionalities and features.

Once the requirements are clear, the next step is designing the conversation flow. This involves creating a structured flowchart or diagram that outlines the different paths and interactions the chat bot will have with users. The conversation flow should be intuitive and user-friendly, allowing users to navigate through various options and receive relevant responses.

After designing the conversation flow, the backend logic of the chat bot is developed. This involves programming the chat bot to understand and respond to user inputs. Depending on the complexity and requirements of the project, this can be achieved using natural language processing (NLP) algorithms, machine learning models, or other relevant technologies.

Simultaneously, the frontend interface of the chat bot is designed. This includes creating a visually appealing and user-friendly interface that allows users to interact with the chat bot. The frontend can be developed using web technologies, mobile app development frameworks, or integrated into existing platforms like messaging apps or websites.

2.2. Once the backend logic and frontend interface are developed, the chat bot undergoes rigorous testing. This includes testing different scenarios and user inputs to

identify and fix any bugs or issues. User feedback and suggestions are also collected during this phase to further improve the chat bot's performance and user experience.

Finally, after thorough testing and refinement, the chat bot is deployed to the desired platform or channels. This can involve hosting the chat bot on a server, integrating it with messaging platforms like Facebook Messenger or Slack, or embedding it into a website or mobile app.

2.3.

Throughout the design flow, considerations for user privacy and data security are essential. Proper measures should be taken to protect user information and ensure compliance with relevant regulations.

CHAPTER 3.

RESULTS ANALYSIS AND VALIDATION

To evaluate the effectiveness and performance of the "Personalized Chat Bot" project, a comprehensive analysis and validation process was conducted .

3.1. Data Collection: Relevant data was collected during the testing phase, including user interactions, feedback, and system logs. This data served as the basis for analysis and validation.

Performance Metrics: Key performance metrics were defined to measure the chat bot's performance. These metrics included response time, accuracy of responses, user satisfaction ratings, and completion rates for user queries.

Comparative Analysis: The performance of the personalized chat bot was compared against predefined benchmarks or existing chat bot systems. This analysis helped identify areas of improvement and determine the chat bot's effectiveness in meeting the project's objectives.

User Feedback: User feedback was collected through surveys, interviews, or feedback forms to gauge user satisfaction and identify any usability issues. This feedback was crucial in understanding user preferences and making necessary adjustments to enhance the chat bot's performance.

Validation of Personalization: The personalized aspect of the chat bot was validated by assessing its ability to provide tailored responses based on user preferences, history, or specific needs. This validation was done by comparing the personalized responses with user expectations and evaluating the accuracy and relevance of the recommendations or suggestions provided.

Iterative Refinement: Based on the analysis and validation results, iterative refinements were made to improve the chat bot's performance. This involved addressing any identified issues, enhancing the conversation flow, fine-tuning the backend logic, and incorporating user feedback to enhance the overall user experience.

User Acceptance Testing: The final step involved conducting user acceptance testing to ensure that the chat bot met the expectations and requirements of the target

audience. This testing involved a diverse group of users who interacted with the chat bot and provided feedback on its usability, effectiveness, and overall satisfaction.

Through the results analysis and validation process, it was determined that the "Personalized Chat Bot" project achieved its objectives of providing personalized and relevant responses to users. The chat bot demonstrated improved response times, accuracy, and user satisfaction compared to existing benchmarks. The iterative refinement process and user feedback played a crucial role in enhancing the chat bot's performance and ensuring its acceptance among users.

Overall, the results analysis and validation phase provided valuable insights into the effectiveness and performance of the "Personalized Chat Bot" project, validating its success in meeting the project's goals and delivering a personalized and user-friendly chat bot solution.

CHAPTER 4.

CONCLUSION AND FUTURE WORK

4.1. In conclusion, the project "Personalized Chat Bot" has successfully developed a chat bot that provides personalized and tailored responses to users based on their preferences and needs. The project achieved its objectives of creating an intuitive and user-friendly conversation flow, implementing backend logic using natural language processing algorithms, and designing a visually appealing frontend interface.

Through rigorous testing and validation, the chat bot demonstrated improved performance metrics, including response time, accuracy of responses, and user satisfaction ratings. User feedback played a crucial role in refining the chat bot's functionality and enhancing the overall user experience.

However, there is still room for future work and improvement.

4.2. Enhanced Personalization: Further refining the chat bot's ability to understand and adapt to individual user preferences, history, and context. This could involve incorporating more advanced machine learning techniques or leveraging user data to provide even more personalized responses.

Integration with Additional Platforms: Expanding the chat bot's reach by integrating it with more messaging platforms or voice assistants, allowing users to interact with the chat bot through various channels.

Multilingual Support: Extending the chat bot's capabilities to support multiple languages, enabling users from different regions to interact with the chat bot in their preferred language.

Continuous Learning and Improvement: Implementing mechanisms for the chat bot to continuously learn from user interactions and feedback, allowing it to improve its responses and adapt to changing user needs over time.

Integration with External Systems: Integrating the chat bot with external systems or APIs to provide users with more comprehensive and accurate information or services.

In conclusion, the "Personalized Chat Bot" project has successfully developed a chat bot that delivers personalized responses and enhances user engagement. The project's results and validation demonstrate its effectiveness and potential for further improvement. The future work outlined above presents exciting opportunities to enhance the chat bot's capabilities and provide an even more personalized and valuable user experience.

REFERENCES

- 1.Li, J., & Jurafsky, D. (2016). Neural Net Models for Open-Domain Discourse Coherence. Proceedings of the 2016 Conference on Empirical Methods in Natural Language Processing (EMNLP), 553-563.
- 2.Bojanowski, P., Grave, E., Joulin, A., & Mikolov, T. (2017). Enriching Word Vectors with Subword Information. Transactions of the Association for Computational Linguistics, 5, 135-146.
- 3.Vaswani, A., Shazeer, N., Parmar, N., Uszkoreit, J., Jones, L., Gomez, A. N., ... & Polosukhin, I. (2017). Attention is All You Need. Advances in Neural Information Processing Systems (NeurIPS), 5998-6008.
- 4.Rasa Open Source. (n.d.). Retrieved from <https://rasa.com/docs/rasa/>
- 5.Chollet, F., et al. (2015). Keras. Retrieved from <https://keras.io/>
- 6.Python Software Foundation. (n.d.). Retrieved from <https://www.python.org/>
- 7.OpenAI. (n.d.). Retrieved from <https://openai.com/>
- 8.Microsoft Bot Framework. (n.d.). Retrieved from <https://dev.botframework.com/>
- 9.Facebook for Developers. (n.d.). Retrieved from <https://developers.facebook.com/>
- 10.Slack API. (n.d.). Retrieved from <https://api.slack.com/>