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Project Report

Samadhaan – A Chatbot for College-Related Queries

1. Title of the Project

Samadhaan – A Chatbot for College-Related Queries

2. Introduction

Samadhaan is an intelligent chatbot designed to provide quick and accurate responses to college-related queries. It aims to automate student support services by addressing frequently asked questions about courses, admission, faculty, facilities, and more, thereby reducing administrative workload and improving student satisfaction.

3. Objective of the Project

➢ To create a responsive chatbot for answering college-related queries.
➢ To reduce dependency on manual student support.
➢ To enhance accessibility to college information 24/7.
➢ To provide real-time, accurate answers using partial input matching.

4. Scope of the Project

➢ Applicable to colleges and universities seeking digital student engagement tools.
➢ Can be integrated into a website or mobile app.
➢ Can support FAQs, admission procedures, academic calendars, campus facilities, and department-specific queries.
➢ Future scalability: integration with AI/ML for intent recognition.

5. System Requirements

Hardware Requirements:

➢ Intel i3 processor or above
➢ Minimum 4 GB RAM
➢ 250 GB hard disk

Software Requirements:

- ➢ Frontend: HTML, CSS, JavaScript
- ➢ Backend: C++ for query processing
- ➢ Other Tools: GitHub (version control), VS Code or any IDE, Browser

6. Project Modules

1. User Interface: HTML/CSS-based chat interface
2. Query Processing Module: Written in C++, handles query matching using partial matching algorithms
3. Database/Storage: Uses static list of 100 predefined questions and answers
4. Response Display: Displays matched response or a fallback message

7. System Design

Use Case Diagram:

- ➢ Actors: User
- ➢ Use Cases: Ask Question, Receive Answer

Flowchart:

- User types a query → Chatbot reads input → C++ backend searches for match → Displays answer or default message

8. Implementation

Frontend (HTML/CSS/JS):

- ➢ Chat window with text input and send button
- ➢ Displays chat bubbles for user and bot

Backend (C++):

- ➢ Reads user input via POST request
- ➢ Matches against predefined questions
- ➢ Uses substring matching for flexibility
- ➢ Sends matched answer to frontend

9. Testing

Performed manual testing for:

- ➢ Exact matches
- ➢ Partial input matching
- ➢ Invalid queries
- ➢ UI responsiveness

10. Results and Discussion

- ➢ 100+ college-related queries answered successfully.
- ➢ Sub-second response time.
- ➢ Handled incorrect or incomplete queries with default fallback message.
- ➢ Successfully reduced repetitive workload on college support staff.

11. Advantages

- ➢ Easy to use
- ➢ Instant response
- ➢ Reduces human effort
- ➢ Customizable for any institution

12. Limitations

- ➢ Only supports static responses
- ➢ No natural language processing
- ➢ No voice interaction

13. Future Enhancements

- ➢ Use AI/ML for intent detection
- ➢ Integrate with Google Assistant or Alexa
- ➢ Add database for dynamic data updates
- ➢ Implement multilingual support

14. Conclusion

Samadhaan is a reliable and efficient chatbot system designed to automate responses to frequently asked questions about college operations. With minor improvements, it can evolve into a smart assistant for educational institutions.

15. References

- GitHub Documentation: https://docs.github.com
- C++ Tutorials – https://cplusplus.com/
- HTML/CSS Guides – https://www.w3schools.com