

Milestone 2 Report

BankBot AI Chatbot for Banking FAQs

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Batch: 5

Objective:

- Implement CSV-based intent recognition with fuzzy matching to understand user queries.
- Develop contextual, multi-turn conversation handling (e.g., account number, loan, card flow).
- Simulate real banking scenarios like balance check, loan eligibility, and card issues.
- Add keyword-based fallbacks and polite responses for better user experience and error handling.

Tasks Completed:

1. Integrated dataset for chatbot training:

- Loaded and processed the CSV file containing intents and responses.
- Ensured data cleanliness and proper mapping for accurate responses.

2. Implemented fuzzy matching for better understanding:

- Enabled the chatbot to recognize similar or misspelled user inputs.
- Improved accuracy in identifying user intent even with varied phrasing.

3. Built context-based conversation flow:

- Added the ability to handle multi-step interactions like balance or loan queries.
- Managed different states to maintain conversation continuity.

4. Simulated real banking scenarios:

- Created sample responses for common banking tasks such as balance checks, loan eligibility, and card issues.
- Used mock data to make conversations more realistic.

5. Enhanced user experience:

- Added polite responses, greetings, and fallback messages.
- Ensured smooth, natural interaction between the chatbot and user.

Output Snippet:

```
Bank Assistant: Hello! How can I help you today?
You: Hi
Bank Assistant: Hello, how may I assist you? (greet)
You: Can you check my balance
Bank Assistant: Please provide your account number to view the balance. (check_balance)
Bank Assistant: 🏠 Please provide your account number for verification. (check_balance)
You: 34528
Bank Assistant: Your current balance is ₹5,432.78. (completed)
You: loan
Bank Assistant: 🏠 What type of loan are you interested in? (loan_enquiry)
You: types of loan
Bank Assistant: Please specify loan type (home/personal/auto/education). (loan_enquiry)
You: auto loan
Bank Assistant: You selected auto loan. Please enter your monthly income to check eligibility. (loan_income)
You: 50000
Bank Assistant: You are eligible for a auto loan. (loan_eligible)
You: how to apply for this loan
Bank Assistant: Please provide required documents to proceed. (loan_application)
You: which documents
Bank Assistant: The following documents are required for loan processing: 1. ID Proof (Aadhar, Passport, Voter ID) 2. Address Proof (Electricity Bill, Rental Agreement) 3. Income Proof (Salary Slip, IT Returns) 4. Bank Statement (Last 6 months) (loan_required_documents)
You: ok thanks
Bank Assistant: You are welcome. (thanks)
You: bye
Bank Assistant: Goodbye! Have a great day. (goodbye)
```

Tools and Libraries Used

Libraries:

1. **pandas** – For loading and processing the CSV dataset.
2. **re** – For extracting numbers or patterns from user input.
3. **difflib** – For fuzzy matching to handle similar or misspelled queries.

Tools / Environment:

1. **Python** – Programming language used for development.
2. **CSV file** – Dataset containing intents, user queries, and responses.
3. **IDE / Editor** – Such as VS Code, PyCharm, or Jupyter Notebook for writing and testing code.

Conclusion:

In Milestone 2, a functional Bank Assistant chatbot was successfully developed. It can understand user queries using intent recognition and fuzzy matching, handle multi-turn conversations, and simulate common banking tasks like balance checks, loans, and card services. The chatbot provides a smooth user experience with polite responses and fallback handling, demonstrating a practical application of Python, pandas, and basic NLP techniques. This milestone lays a solid foundation for further enhancements, such as integrating a real database or advanced AI-driven responses.