

AI-Powered Conversational Assistant for Credit Card FAQs

Synopsis

# MCA - IV Sem

# Submitted By

Student Name- Gursharan Singh

Student Registration No.- 23FS20MCA00028

# Faculty Coordinator

Dr. Pramod Soni

DEPARTMENT OF COMPUTER APPLICATIONS

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## 1. Introduction

This project presents an AI-powered conversational assistant specifically designed to answer frequently asked questions (FAQs) about credit cards. With the increasing demand for instant, round-the-clock customer support, financial institutions seek intelligent systems that can address common user queries effectively. This assistant simulates human-like interaction, delivering immediate, consistent, and accurate responses on credit card topics such as eligibility, benefits, charges, payment, and security.

### 2. Motivation

With digital banking becoming mainstream, there is a growing need for always-available, intelligent support systems. Traditional customer support models are resource-intensive, prone to inconsistency, and struggle to scale. The motivation behind this work is to:

* Automate routine customer queries.
* Improve accessibility and response speed.
* Reduce human workload and errors.
* Leverage NLP to create scalable financial helpdesk solutions.

### III. Problem Statement

Customer service departments spend significant time and resources addressing repetitive credit card queries. Manual handling of such FAQs leads to increased wait times and inconsistent answers. The challenge lies in:

* Designing a chatbot that can interpret diverse user intents.
* Delivering accurate, relevant, and prompt responses.
* Structuring the conversation flow to resemble a natural dialogue.  
  This project aims to solve these problems by building a lightweight, AI-powered assistant trained on a curated set of credit card FAQs.

### IV. Methodology/ Planning of Work

The development follows the **Waterfall Model**, ensuring clarity and structure at each stage:

1. **Requirement Gathering**: Identify and analyze user expectations and typical questions.
2. **Design Phase**:
   * Construct intent-response pairs.
   * Design Data Flow Diagrams (DFDs) to model system processes.
3. **Implementation**:
   * Develop the chatbot using Python and NLP libraries.
   * Train a classifier on categorized FAQs using scikit-learn.
4. **Testing**:
   * Evaluate responses using test queries.
   * Validate edge-case handling and fallback mechanisms.
5. **Deployment**:
   * Optionally integrate with Flask or Streamlit to deploy a user-friendly interface.

### V. Requirements for Proposed Work

#### Software Requirements:

* **Operating System**: Windows/Linux
* **Programming Language**: Python 3.7+
* **Libraries**: nltk, scikit-learn, json, pickle, Flask (optional GUI)
* **IDE**: VS Code / Jupyter / PyCharm

#### Hardware Requirements:

* RAM: 4GB or higher
* Processor: Intel i3 or higher
* Disk: 100MB for project files

#### Functional Requirements:

* Accepts user input in plain text.
* Classifies queries to determine relevant intent.
* Generates appropriate responses from stored FAQs.
* Supports logging for improving future versions.

#### Non-Functional Requirements:

* Fast response time (<2 seconds)
* Simple and intuitive interface
* Modular design for future updates

### VII. Conclusion

This project effectively demonstrates the implementation of an AI-powered solution for automating financial FAQs. It achieves a balance between simplicity and functionality by integrating rule-based and machine learning techniques. By automating repetitive credit card queries, the assistant enhances customer satisfaction, reduces operational load, and serves as a solid base for developing more advanced conversational agents in financial services.