

BankBot AI Chatbot for Banking FAQs

MILESTONE-1

- Enable the chatbot to understand **user intent** from natural language queries
- Extract **key entities** required for banking operations
- Form the foundation for dialogue management and backend actions
- Ensure reliable interpretation of user requests before execution

Key Intents Defined

> check_balance (40 examples)

> transfer_money (40 examples)

> card_block (40 examples)

> find_atm (40 examples)

- **Check Balance** – User queries account balance
- **Transfer Money** – User initiates fund transfer
- **Card Block** – User requests card blocking
- **Find ATM** – User searches for nearby ATMs

Intent Design Strategy

- Included variations in language, tone, and phrasing
- Covered both formal and informal queries
- Ensured intent separation to avoid overlap
- Collected realistic user utterances

Entity Recognition

- **Amount** – Money involved in transactions
- **Account Type** – Savings/ current
- **Date** – Transaction or request timing
- **Location** – ATM or branch search

Intent Recognition

find_atm

76.5%

transfer_money

8.2%

card_block

8.0%

check_balance

7.4%

Entity Extraction

No entities found

NLU Visualizer

BORRA SRI LAKSHMI's BankBot NLU Engine

Intents (edit & add)

- > check_balance (40 examples)
- > transfer_money (40 examples)
- > card_block (40 examples)
- > find_atm (40 examples)

NLU Visualizer

User Query

Analyze

MILESTONE-2

Response Handling & Dialogue Flow

- Control conversation flow after intent recognition
- Handle multi-step banking operations
- Generate accurate and secure system responses
- Manage errors, fallback scenarios, and casual interactions
- Improve overall user experience and reliability

Money Transfer Dialogue Flow

- User selects **Transfer Money**
- System verifies login status
- Displays current account balance
- Collects receiver account number
- Collects transfer amount
- Verifies password
- Confirms transaction
- Updates balance and displays success message

 **BankBot**

 **Transfer Money**

Logged in as: Bindu (1002)

Current Balance: ₹ 20000

Receiver Account Number
1001

Amount
5000 - +

Your Password
..... (eye icon)

Transfer

✓ ₹5000 transferred successfully

New Balance: ₹ 15000

MILESTONE-3

UI Integration & Chat Interface

- Provide an intuitive and user-friendly chat interface.
- Enable real-time interaction with the chatbot.
- Integrate frontend UI with backend NLU and dialogue engine.
- Handle user errors and edge cases gracefully.
- Improve overall user experience and accessibility.

Chat Interface Design

- Simple and clean chatbot screen
- Text input box for user queries
- Send button for message submission
- Sidebar navigation for banking actions
- Responsive layout for better usability

Navigation & User Flow

Chatbot

 BankBot

Navigation

Go to

- Chatbot
- Create Account
- Login
- Check Balance
- Transfer Money
- User Query
- Database
- Logout

Bank Chatbot

Ask anything (banking or general question)

what is machine learning?

Send Chat

⌚ Machine Learning: An Overview ↗

Machine learning is a subset of artificial intelligence (AI) that involves the use of algorithms and statistical models to enable machines to learn from data, make decisions, and improve their performance over time.

Key Characteristics:

1. **Data-driven:** Machine learning relies on large amounts of data to learn and make predictions.
2. **Algorithmic:** Machine learning uses algorithms to analyze data and make decisions.
3. **Self-improving:** Machine learning models can improve their performance over time through experience and learning.

Types of Machine Learning:

1. **Supervised Learning:** The model is trained on labeled data to learn the relationship between input and output.
2. **Unsupervised Learning:** The model is trained on unlabeled data to identify patterns and relationships.
3. **Reinforcement Learning:** The model learns through trial and error by interacting with an environment and receiving feedback.

Machine Learning Applications



15:56
31-12-2025

Create Account

BankBot
Navigation

Go to

- Chatbot
- Create Account
- Login
- Check Balance
- Transfer Money
- User Query
- Database
- Logout

NEW Create Account

Account Number
1006

Username
Anu

Password
**** (Eye icon)

Account Type
Savings

Initial Balance
7000 - +

Create Account Now

✓ Account created successfully



16:01 31-12-2025

Login

BankBot
Navigation

Go to

- Chatbot
- Create Account
- Login
- Login
- Check Balance
- Transfer Money
- User Query
- Database
- Logout

 **Login**

Username
Anu

Password

Login Now

✓ Welcome Anu

Check Balance

BankBot Navigation

Go to

- Chatbot
- Create Account
- Login
- Check Balance
- Transfer Money
- User Query
- Database
- Logout



Check Balance



Your balance is ₹7000

Transfer Money

BankBot Navigation

Go to

- Chatbot
- Create Account
- Login
- Check Balance
- Transfer Money
- User Query
- Database
- Logout



Transfer Money

Receiver Account Number

1004

Amount

2000

Transfer Now

Transfer successful

User Query

 **BankBot**
Navigation

Go to

- Chatbot
- Create Account
- Login
- Check Balance
- Transfer Money
- User Query
- Database
- Logout

User Query

Ask any question

Explain python

Submit Query

😊 Introduction to Python

Python is a high-level, interpreted programming language that is widely used for various purposes such as web development, scientific computing, data analysis, artificial intelligence, and more. It was created in the late 1980s by Guido van Rossum and was first released in 1991.

Key Features of Python

1. **Easy to Learn:** Python has a simple syntax and is relatively easy to learn, making it a great language for beginners.
2. **High-Level Language:** Python is a high-level language, meaning it abstracts away many low-level details, allowing developers to focus on the logic of their program.
3. **Interpreted Language:** Python code is interpreted line by line, making it easier to write and test code.
4. **Object-Oriented:** Python supports object-oriented programming (OOP) concepts such as classes, objects, inheritance, and polymorphism.
5. **Large Standard Library:** Python has a vast collection of libraries and modules that make it easy to perform various tasks, such as file I/O, networking, and data analysis.

Basic Syntax



16:12 ENG IN 31-12-2025

Database

 **BankBot**
Navigation

Go to

- Chatbot
- Create Account
- Login
- Check Balance
- Transfer Money
- User Query
- Database
- Logout

All Accounts

| | 0 | 1 | 2 | 3 |
|---|------|------------|---------|------|
| 0 | 1001 | srilakshmi | Savings | 5000 |
| 1 | 1002 | bindu | Savings | 3300 |
| 2 | 1003 | harsha | Savings | 2700 |
| 3 | 1004 | sai | Savings | 3000 |
| 4 | 1006 | Anu | Savings | 5000 |

Delete All Accounts



16:14 ENG IN 31-12-2025

Logout

BankBot Navigation

Go to

- Chatbot
- Create Account
- Login
- Check Balance
- Transfer Money
- User Query
- Database
- Logout

 Logged out successfully

BankBot Admin Project

Milestone-4

What is BankBot?

- AI-powered banking assistant for queries and customer support.
- Purpose of Admin Panel:
- Manage intents & knowledge base.
- Test chatbot queries.
- Monitor analytics & user interaction

Project Objectives

- ❖ Provide a **user-friendly interface** for bank staff/admins.
- ❖ Add, edit, and delete **intents and knowledge base articles**.
- ❖ Test chatbot with **real user queries**.
- ❖ View **analytics & confidence levels** for each intent.
- ❖ Export analytics data to **PDF reports**.

Tools & Technologies

- ❑ **Frontend:** Streamlit (Python)
- ❑ **Backend & Storage:** JSON files for intents, knowledge base, and analytics.
- ❑ **NLP & AI:** TF-IDF vectorizer + Cosine similarity for intent detection.
- ❑ **Visualization:** Altair charts (line, bar, donut)
- ❑ **PDF Export:** ReportLab library
- ❑ **Python Libraries:** pandas, sklearn, datetime, json, reportlab

Features – Admin Panel

1. Dashboard Overview

1. Total Intents, Total Queries, Top Intent.
2. Interactive colored cards and intent buttons.



2.Intent Manager:

- Add, edit, view intents

Intent Manager

Intent Tag
foreign_exchange

Patterns (one per line)
current exchange rates

Responses (one per line)
check current forex rates on our website

Add Intent

Intent added

Existing Intents

Select Intent
greeting

3.Knowledge Base:

- Add questions & answers

Knowledge Base

Question
what are the bank service charges?

Answer
charges depend on account type.

Add Knowledge

Added

Select Question
How to open an account?||

You can open an account online or at any branch.

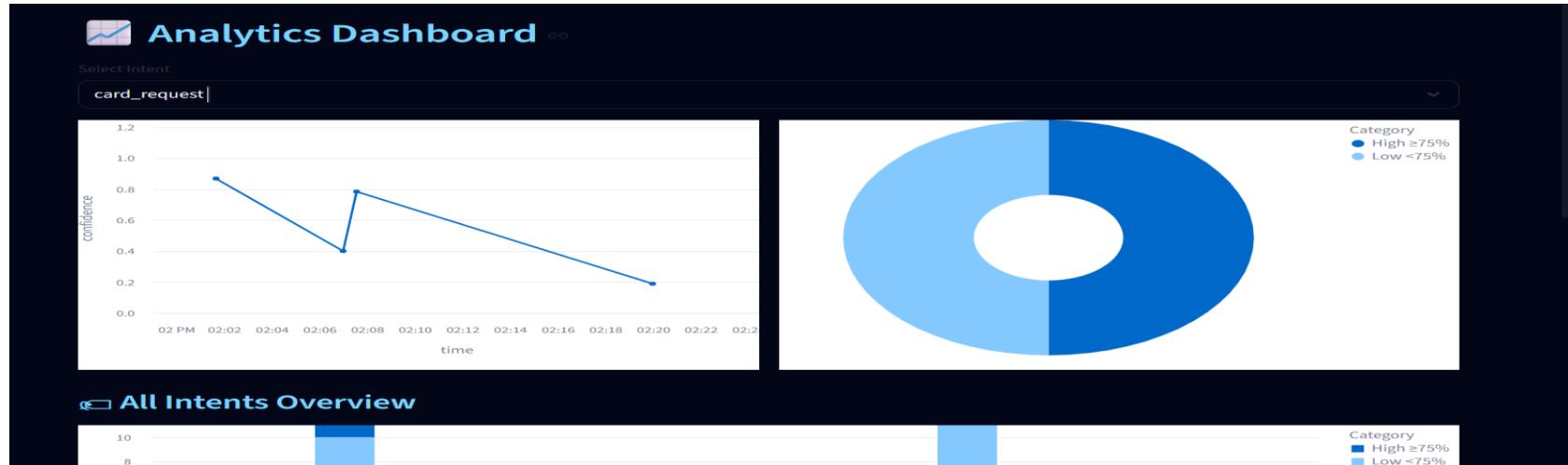
3.Chatbot Test:

- ❑ Input queries & see NLU scores



4.Analytics:

- ❑ Interactive charts, donuts, line charts



5.Export PDF:

- Download reports in table format5.

BankBot Analytics Report

Intent: account_balance

| Time | Query | Confidence |
|---------------------|-------------------------------------|------------|
| 2026-01-09 16:58:05 | "Check my personal loan status" | 0.307 |
| 2026-01-09 16:45:00 | how do i deposit cash in my account | 0.217 |
| 2026-01-09 14:18:56 | Account closure procedure | 0.265 |
| 2026-01-09 14:18:22 | what is my current balance | 0.562 |
| 2026-01-09 14:17:11 | Terminate my account | 0.403 |
| 2026-01-09 14:05:46 | display my account info | 0.332 |
| 2026-01-09 14:05:07 | show balance | 0.457 |
| 2026-01-09 14:04:42 | balance inquiry | 0.457 |
| 2026-01-09 13:48:45 | check my balance | 0.807 |
| 2026-01-09 13:32:09 | check my loan_eligibility | 0.381 |
| 2026-01-09 13:13:19 | nan | 0.381 |

Intent: greeting

| Time | Query | Confidence |
|---------------------|--------------------|------------|
| 2026-01-09 16:05:36 | loan_info | 0.000 |
| 2026-01-09 14:09:42 | pay bills online | 0.000 |
| 2026-01-09 14:09:18 | make a payment | 0.000 |
| 2026-01-09 14:03:56 | investment options | 0.000 |
| 2026-01-09 14:02:35 | home_loan info | 0.000 |
| 2026-01-09 13:54:10 | check my balance | 0.000 |