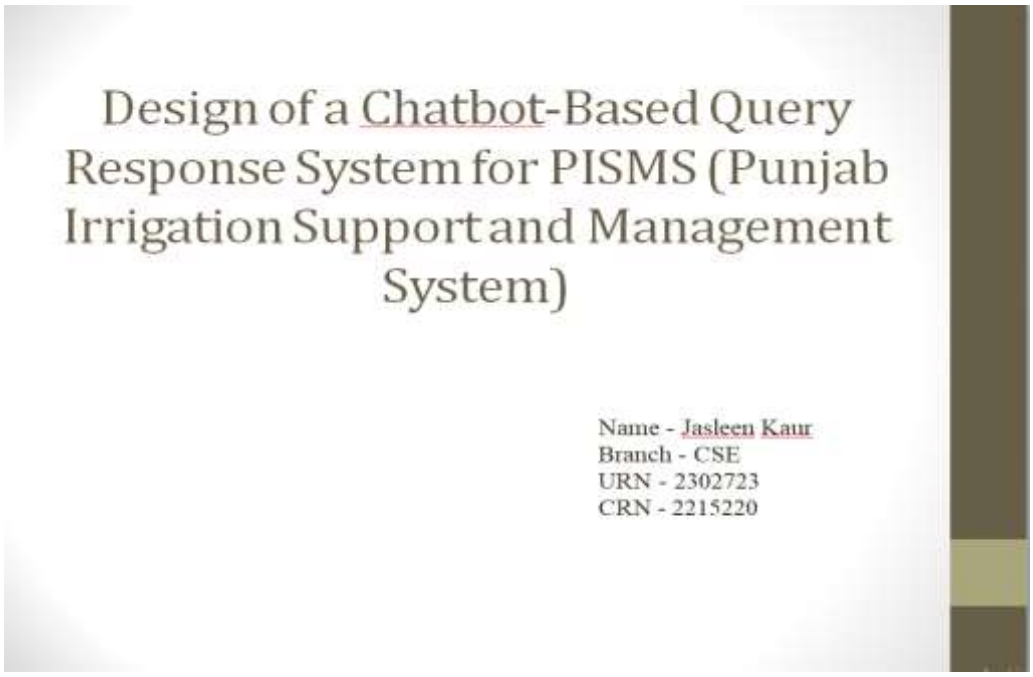
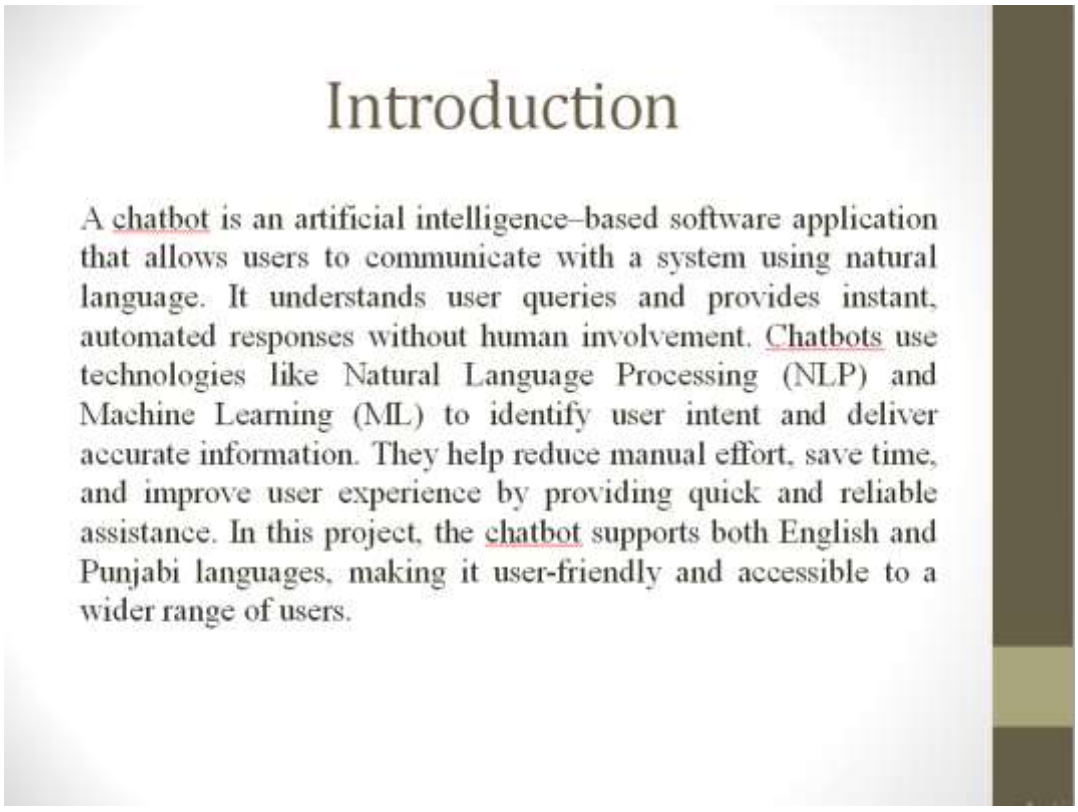
DAY – 90

10 December 2025

Today, I worked on creating the Presentation for my project





Features of Chatbot

- Understands user queries written in natural language.
- Uses NLP and Machine Learning techniques to identify user intent.
- Provides automated and accurate responses without human involvement.
- Retrieves information from a predefined dataset and PDF documents.
- Supports bilingual communication in **English and Punjabi**.
- Offers step-by-step guidance for system usage and form filling..
- Works **24×7**, providing assistance anytime.
- Reduces manual effort and dependency on help-desk staff.
- Easy to use and suitable for both technical and non-technical users.

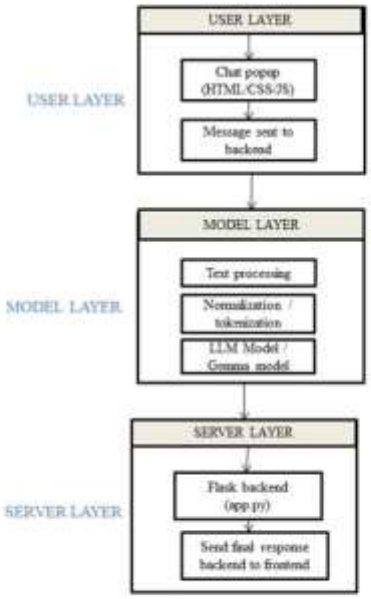
Project Objectives

- To provide efficient and user-friendly assistance by offering instant, 24×7 guidance to farmers and irrigation officials, simplifying the use of the PISMS mobile and web application through step-by-step explanations and preventing common mistakes in modules such as Chakbandi, CO40, and Warabandi.
- To simplify access to information by reducing reliance on lengthy user manuals and delivering accurate, clear, and direct answers that make system navigation and feature understanding easier for all users.
- To support multilingual communication—especially in English and Punjabi—so that users can easily access help in their preferred language, improving inclusivity and usability.
- To enhance platform efficiency and scalability by increasing user satisfaction, reducing confusion, enabling smooth digital adoption, and creating a smart, easily updatable support system that can incorporate new FAQs and manuals without modifying the core code.

Overview of Chatbot

- AI-based conversational system
- Accepts user queries in natural language
- Supports English and Punjabi languages
- Uses NLP to understand user intent
- Retrieves answers from dataset and PDF files
- Provides fast, automated responses
- Available 24×7 and reduces manual effort

Functionality of Chatbot



Technologies Used

Front-End:
- **HTML** – Chatbot interface structure
- **CSS** – Design, layout & responsiveness
- **JavaScript** – User interaction & API communication

Back-End:
- **Python** – Core chatbot logic
- **Flask** – Backend framework & API handling

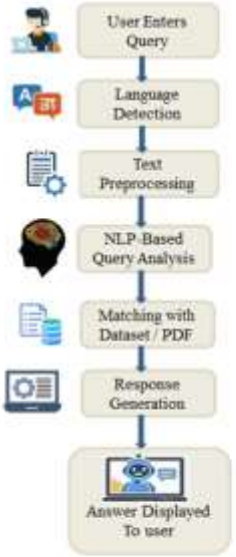
AI & NLP:
- **NLP** – Understanding user queries
- **Machine Learning** – Query matching

Data & Tools:
- **PDF Reader** – Extracts data from manuals
- **Dataset File** – Predefined Q&A storage
- **Session Management** – Manages chat flow

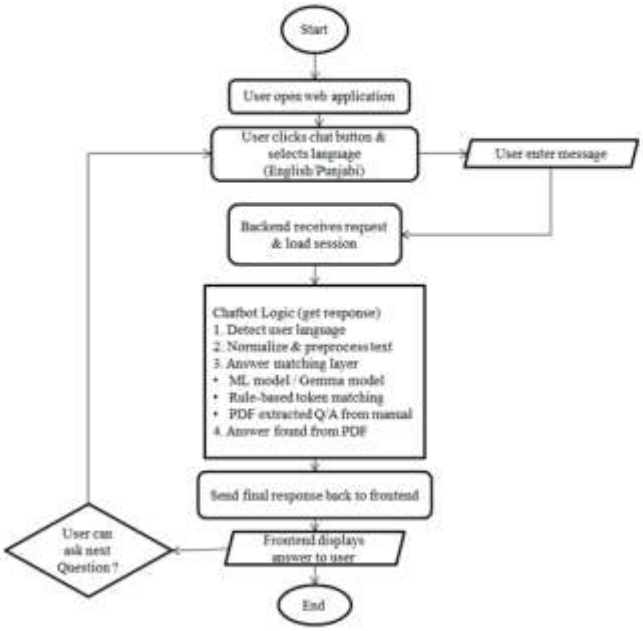
Testing:
- **Web Browser & Developer Tools**

Workflow of Chatbot

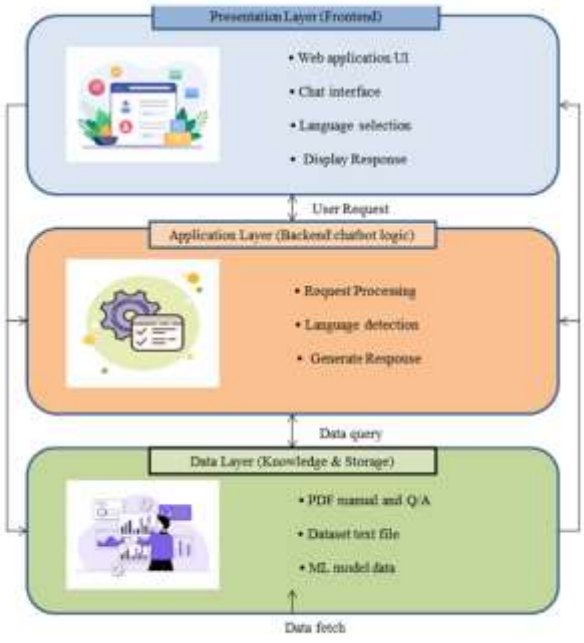
- User enters query
- Language detection
- Text preprocessing
- NLP-based query analysis
- Matching with dataset / PDF
- Response generation
- Answer displayed to use



Flow Chart



System Architecture



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Test Cases

Test Case	Description	Expected Result
TC-01	Valid user query	Correct response displayed
TC-02	Invalid or random input	Proper error or default response
TC-03	English language query	Accurate answer in English
TC-04	Punjabi language query	Accurate answer in Punjabi
TC-05	Query from PDF content	Relevant information retrieved
TC-06	Open chatbot popup	Chat popup opens with welcome message
TC-07	Multiple users access	System responds without failure

Advantages of Chatbot

- Provides fast and instant responses to user queries
- Reduces manual effort and workload
- Available **24×7** without human support
- Easy to use for both technical and non-technical users
- Supports **English and Punjabi** languages
- Saves time by avoiding manual document searching
- Improves accessibility for farmers and officials
- Ensures consistent and accurate information

Limitations of Chatbot

- Requires a stable internet connection
- Supports only English and Punjabi languages
- Needs regular updates and maintenance
- Cannot handle voice input

Performance and Future Scope

Performance

- Provides fast and accurate responses to user queries
- Successfully retrieves information from dataset and PDF documents
- Handles English and Punjabi queries effectively
- Reduces manual effort and time consumption
- User-friendly interface with smooth interaction
- Performs reliably for common and predefined queries

Future Scope

- Voice-based query support
- Support for more regional and international languages
- Improved AI model for better understanding of complex queries
- Auto-learning from user interactions
- Offline or low-internet mode support

Conclusion

This project successfully implements an automated chatbot system that provides fast and accurate responses to user queries. The chatbot minimizes manual effort by enabling users to interact with the system using natural language instead of searching through lengthy documents. It is designed to be simple, efficient, and user-friendly.

Key outcomes of the project include:

- Fast and automated query resolution
- Reduced manual workload and time consumption
- Support for English and Punjabi languages
- Improved accessibility for farmers and officials
- Enhanced overall user experience

Thank You