

# Introduction to AI(AI101B) Even Semester Session 2024-25

## AI-Based ChatBot

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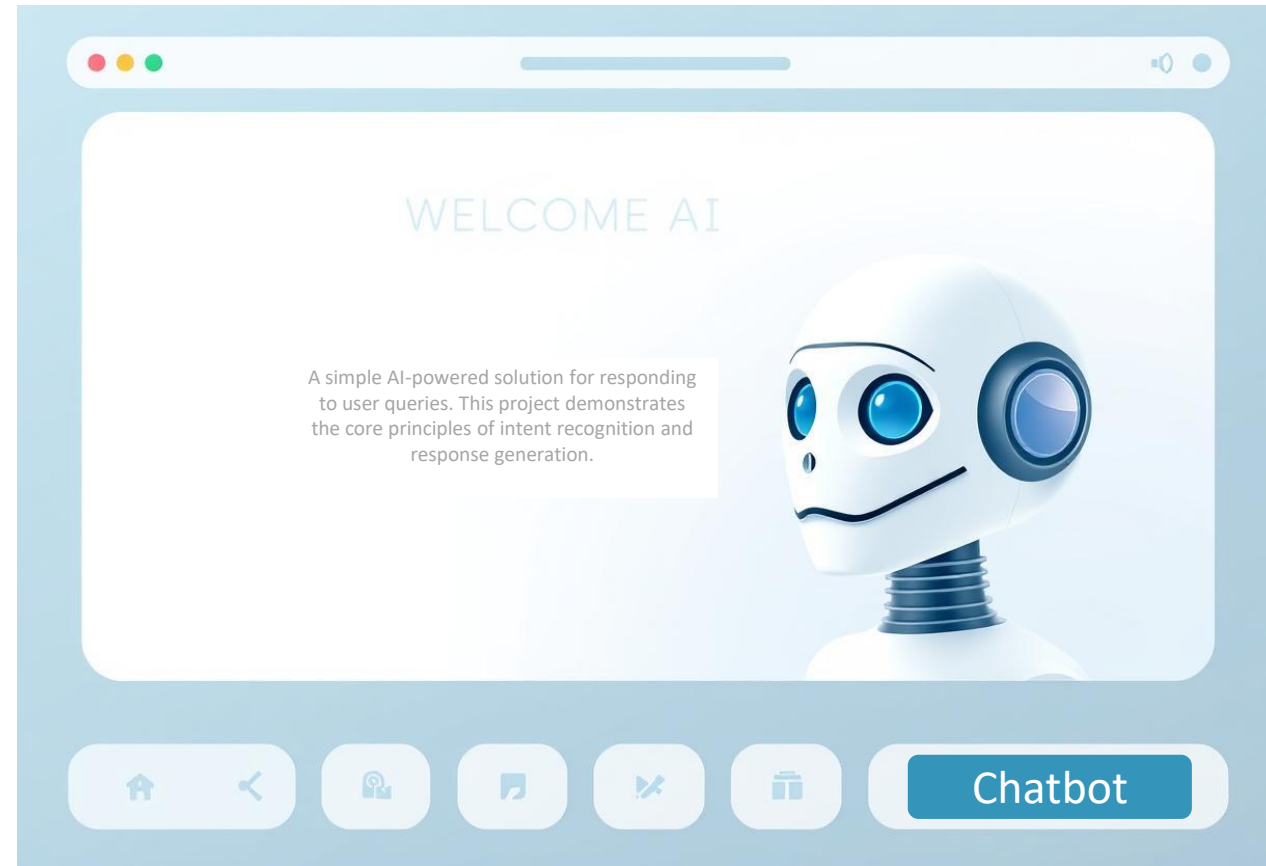
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# Introduction

- This project presents an AI-based chatbot designed to interact with users through natural language input.
- Rather than following fixed rules, it uses basic natural language processing to generate relevant responses based on user input.
- The chatbot aims to simulate human-like interaction and demonstrate the use of AI in conversational systems.
- It is intended as a learning model to explore AI fundamentals through a hands-on project.



# Objectives

## Basic Conversational AI

- Develop a basic AI chatbot with simple conversational abilities.

## Understand Core AI Concepts

- Understand core concepts of AI and how they apply to chat systems.

## Implement a Working Model

- Implement a working model that responds to user input with relevant replies.

## Provide Real-Time Responses

- Generate immediate and meaningful replies for varied user queries.

# Methodology

## Design & Planning

- Identified scope and chatbot objectives
- Outlined input types and conversation flow

## AI Response Logic

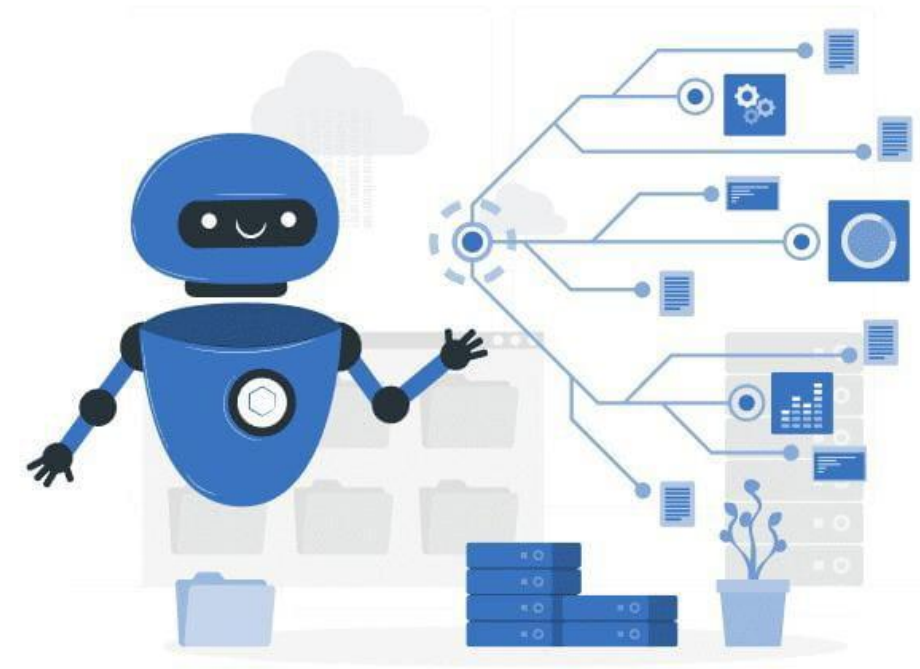
- Implemented basic AI-based response logic using NLP
- Designed random but relevant response selection logic

## Input Processing

- Tokenized and cleaned input text
- Matched with probable response themes

## Evaluation & Refinement

- Interacted with users to observe chatbot behavior
- Improved logic and added variety to responses



# Features

1. AI-Powered Interaction – Uses intelligent response generation logic.
2. Natural Conversation Flow – Feels like chatting with a human.
3. Unpredictable Yet Relevant – Generates varied responses to similar queries.
5. Simple Interface – Easy for users to test and use.
5. Conversational Flow – Keeps replies contextually consistent.

# Tech Stack

**Programming Language:** Python

## **Libraries & Frameworks:**

- Transformers (by Hugging Face): – For pre-trained model & tokenizer
- Torch (PyTorch): – For tensor operations and model inference
- Tokenizer (AutoTokenizer): – for encoding/decoding chat messages

**Interface:** CLI using input() and print()

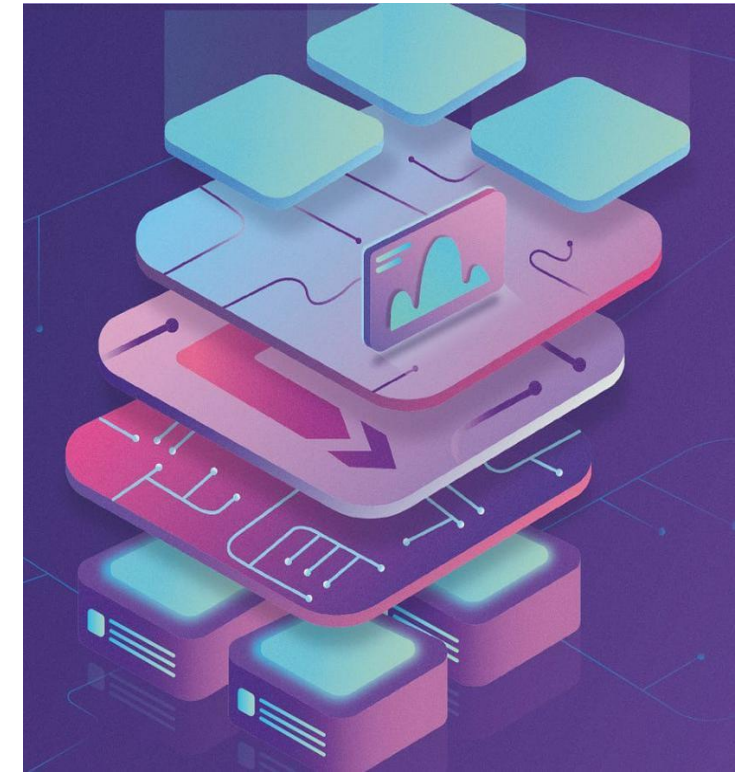
**Environment:** Google Colab

## **Model Used:**

- DialoGPT-medium (by Microsoft, via Hugging Face Transformers)

## **Response Logic:**

- Uses top\_k, top\_p, and temperature to generate natural, varied replies



# How It Works

User Input:  
User enters a query in the chatbot interface.

Preprocessing:  
Input is cleaned and tokenized for analysis.

Intent Detection:  
Keywords are matched to identify user intent.

Output Display:  
The chatbot displays the response to the user.

Response Generation:  
The selected reply is formatted for output.

Response Selection:  
A relevant response is randomly chosen from a predefined set.



# Challenges Faced

1

Low Accuracy

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2

Rigid Logic

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3

Limited Scope



# Current Limitations

1.

No long-term memory or learning capability.

2.

Limited response pool compared to large AI models.

3.

Not suitable for enterprise or domain-specific deployments.

# Conclusion

- Successfully built a functioning AI-based chatbot
- Demonstrated the use of lightweight NLP and AI for user interaction
- Enabled hands-on learning of real-world AI applications
- Future improvements may include deep learning integration, context memory, and GUI enhancements

THANK YOU!