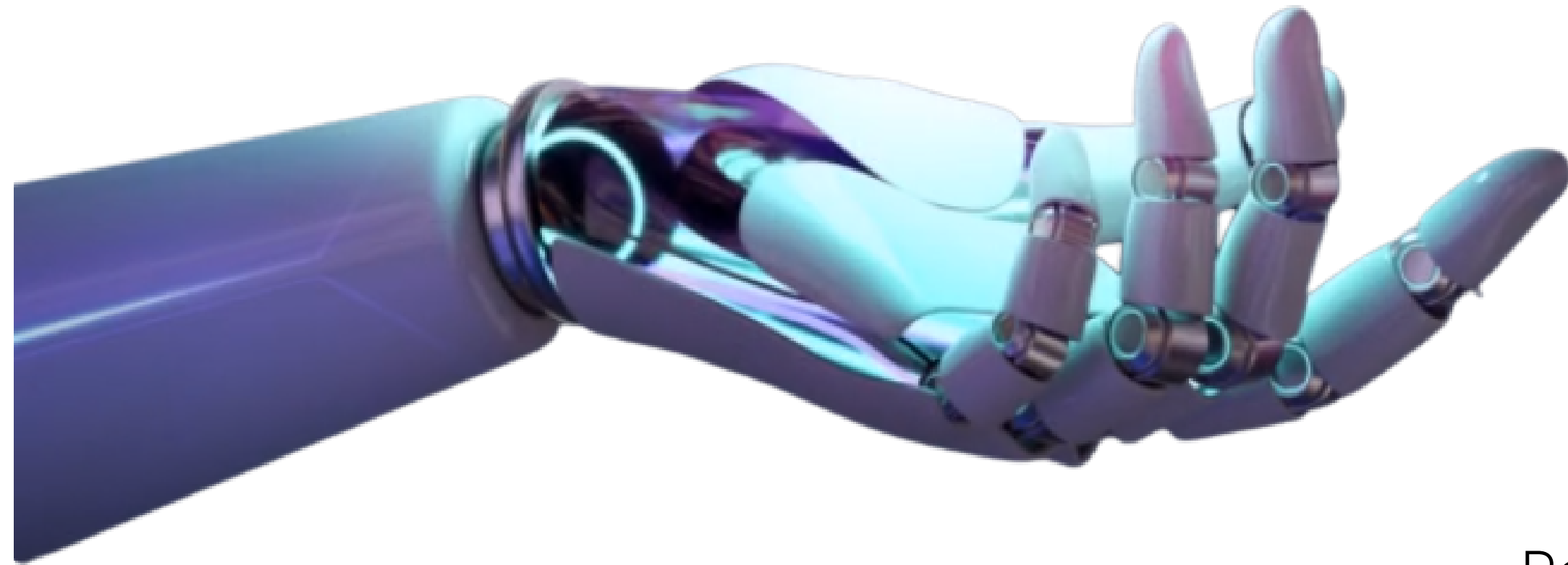


# UNIT Chatbot Minor Project



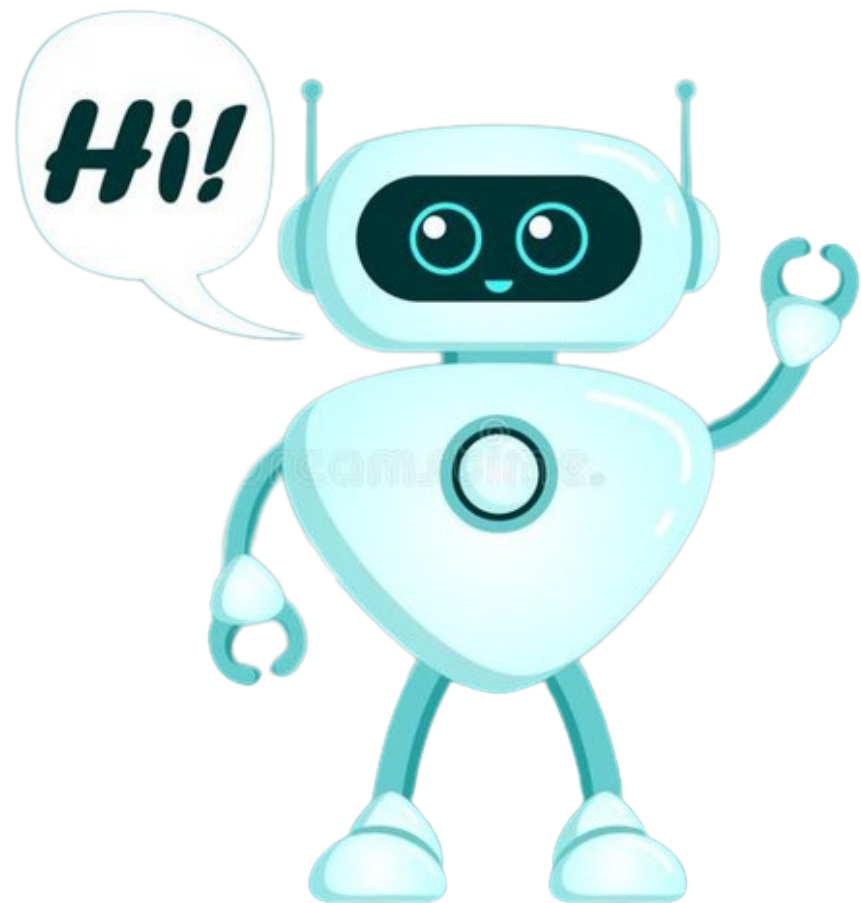
Poorva Kalekar-24  
Komal Kamble- 26  
Sakshi Khanvilkar- 30



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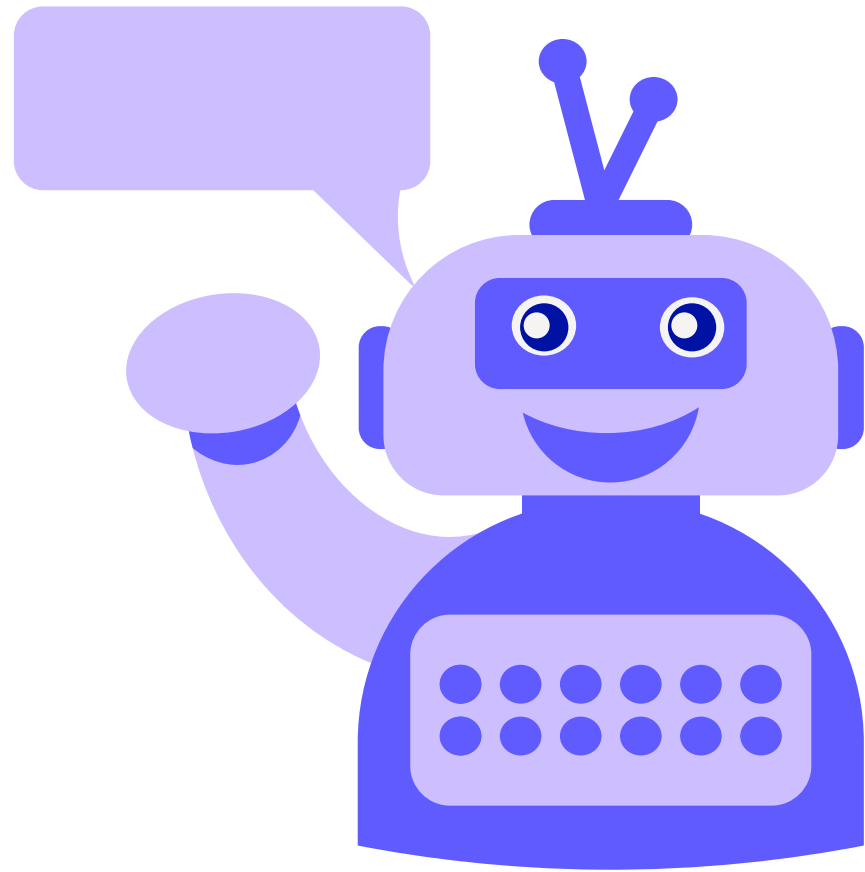
- Introduction
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# Introduction



- Chatbots are computer programs that conduct a conversation via auditory or textual methods.
- It uses artificial intelligence (AI) and natural language processing (NLP) to understand customer questions and automate responses to them.
- A chatbot can process user input and produce an output.

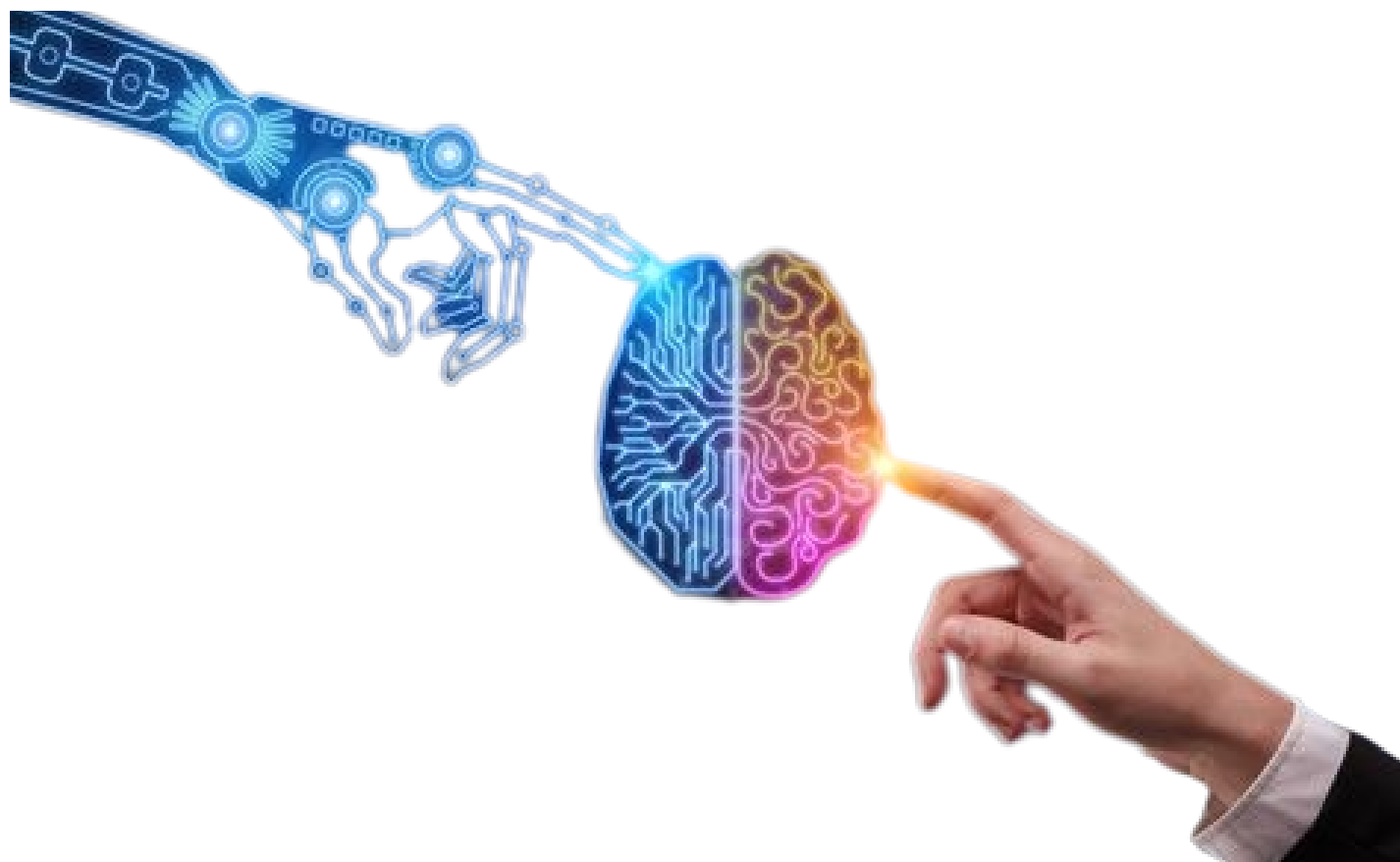
# Problem Statement



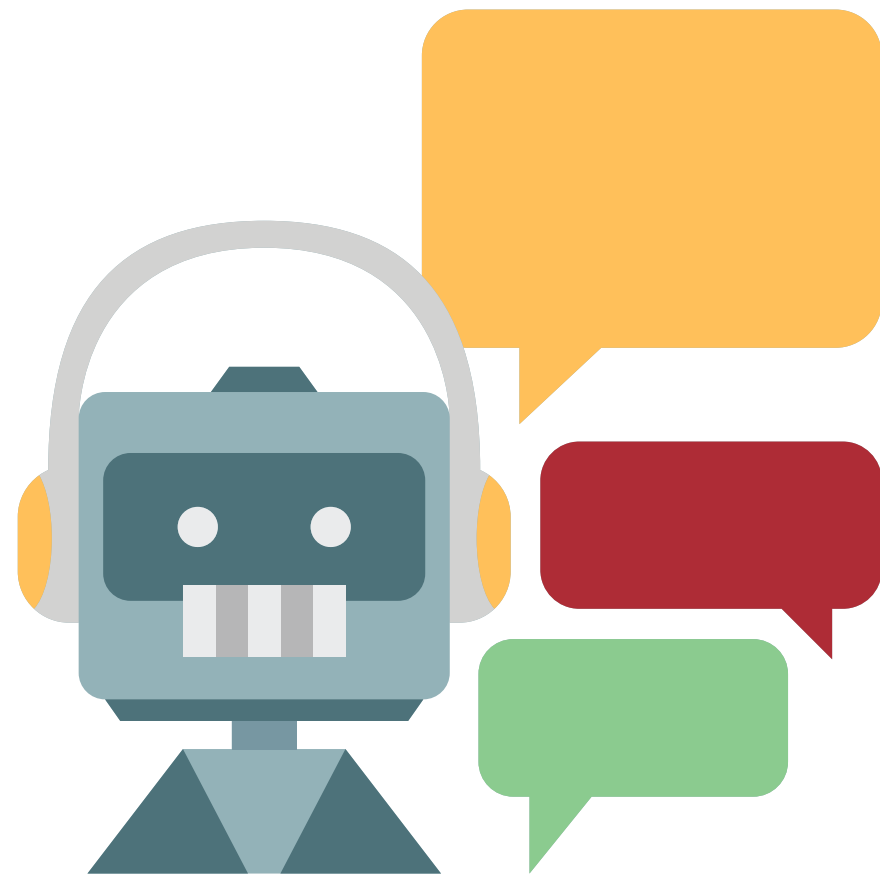
- Implementing Chatbot for Usha Mittal Institute of Technology using Python and Json.
- Chatbots utilize methods and algorithms from two Artificial Intelligence domains: Natural Language Processing and Machine Learning.
- In this project, we review recent advances in chatbots, where Artificial Intelligence and Natural Language processing are used.

# Scope

- The main objective is to create a college website chatbot that interacts with the users and answers their questions
- Most of the questions asked by the users are simple and repetitive hence addressing them by using the chatbot makes it simple for the user
- There are a handful of questions that get asked a lot. These are standard FAQs.

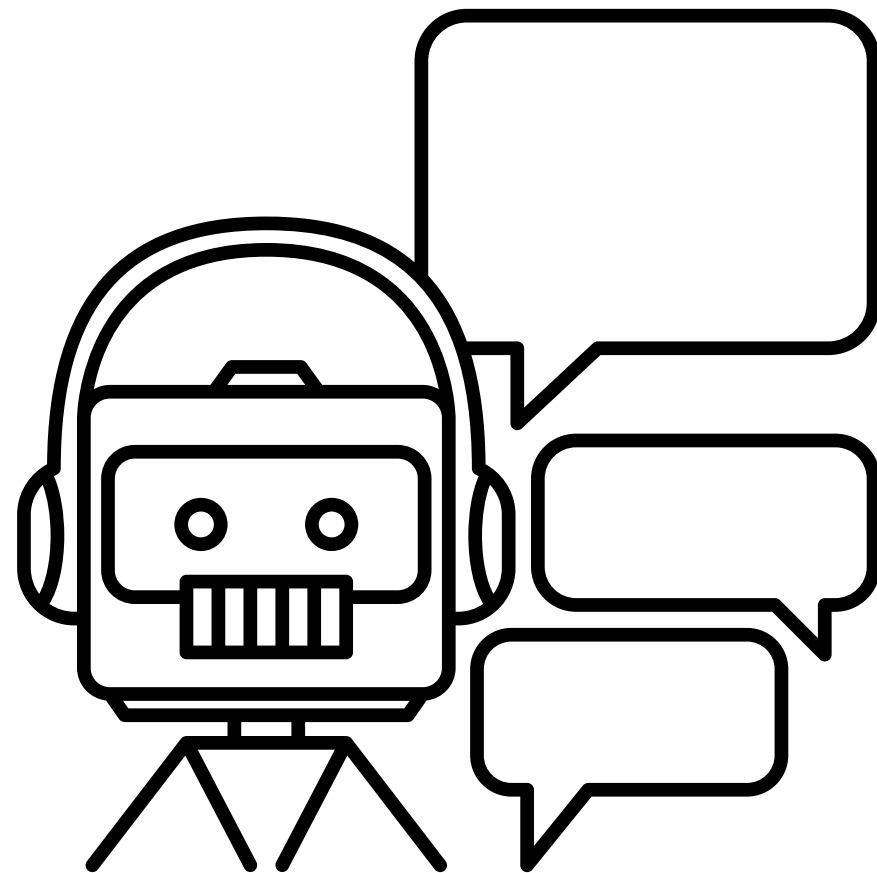


# Literature Review



Sr No.	Paper Name	Authors	Purpose	Method/ Algorithm/Tools used	Result
1.	College Enquiry Chat-bot System	Prof. Ram Manoj Sharma [2]	The bot analyses users query and understands user messages.	Artificial Intelligence algorithms	Reduce the work load on the college's office staff and reduce the response time to a user's query.
2.	An Intelligent College Enquiry Bot using NLP and Deep Learning based techniques	P.Nikhila, G.Jyothi, K.Mounika, Mr. C Kishor Kumar Reddy & Dr. B V Ramana Murthy [3]	AIML is employed to make or customize alicebot that could be a chat-bot application supported ALICE free code.	AIML (Artificial Intelligence Mark-up Language)	The system will save time ,extra manpower of students.
3.	A Smart Chatbot	Harsh Pawar , Pranav Prabhu, Ajay Yadav, Vincent Mendonca , Joyce Lemos [6]	It uses SQL (Structured Query Language) for pattern matching which is been stored in program.	Using knowledge in database	It saves time and reduce the workload of students.
4.	College enquiry system	Nitesh Thakur, Akshay Hiwrale, Sourabh Selote, Abhijeet Shinde and Prof. Namrata Mahakalkar [10]	It introduces an interest in some emerging capabilities for evolving speed understanding and processing in virtual human dialogue system.	NLP (Natural Language Processing)	It saves time and reduce the workload of students.

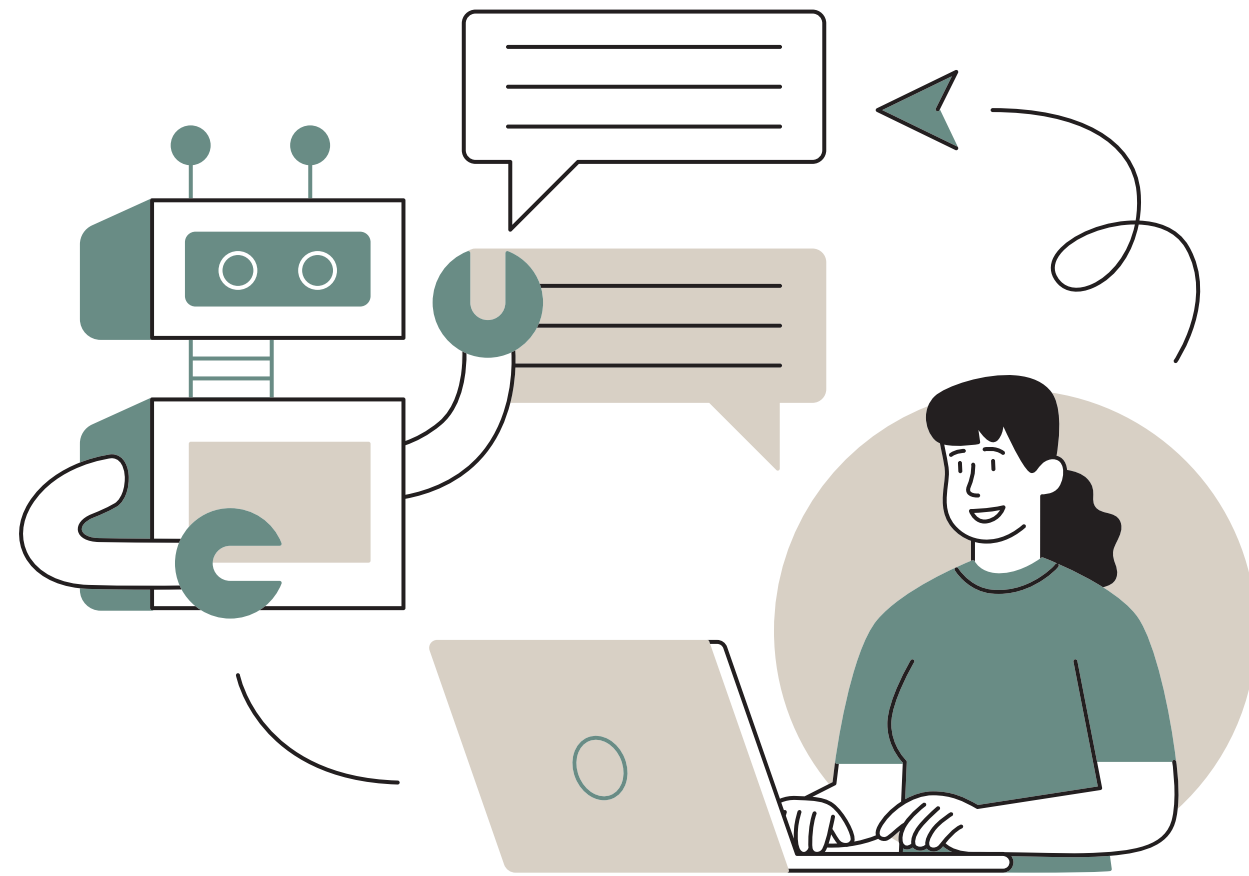
# Existing System



- Users need to personally visit the college and ask the college help desk if the student has any queries about the college.
- It takes a lot of time and money if the college is miles away from the student's native place.
- Disadvantages:
  - The chatbot system is not known to people who do not have more knowledge.
  - Even if there exists a chatbot system, it is not much accurate in providing the answers to our solution.
  - Also this process may lead to a communication gap between students and college



# Proposed System



- This application provides answers to the query of the user.
- User have to query through the bot which is used for chatting.
- The system used is built in PyTorch, NLTK, and Neural network concepts.
- The answers are appropriate to what the user queries.



# Hardware and Software Requirements

## Hardware Requirements:

Processor: intel core5

Hard disk: 500GB

Monitor: 15"LED

RAM: 4GB

Input devices : Keyboard,  
Mouse

## Software Requirements:

Operating system: Windows 10

Tool used: Visual Studio

Language used: Python: 3.8.5,  
GUI

basic libraries:

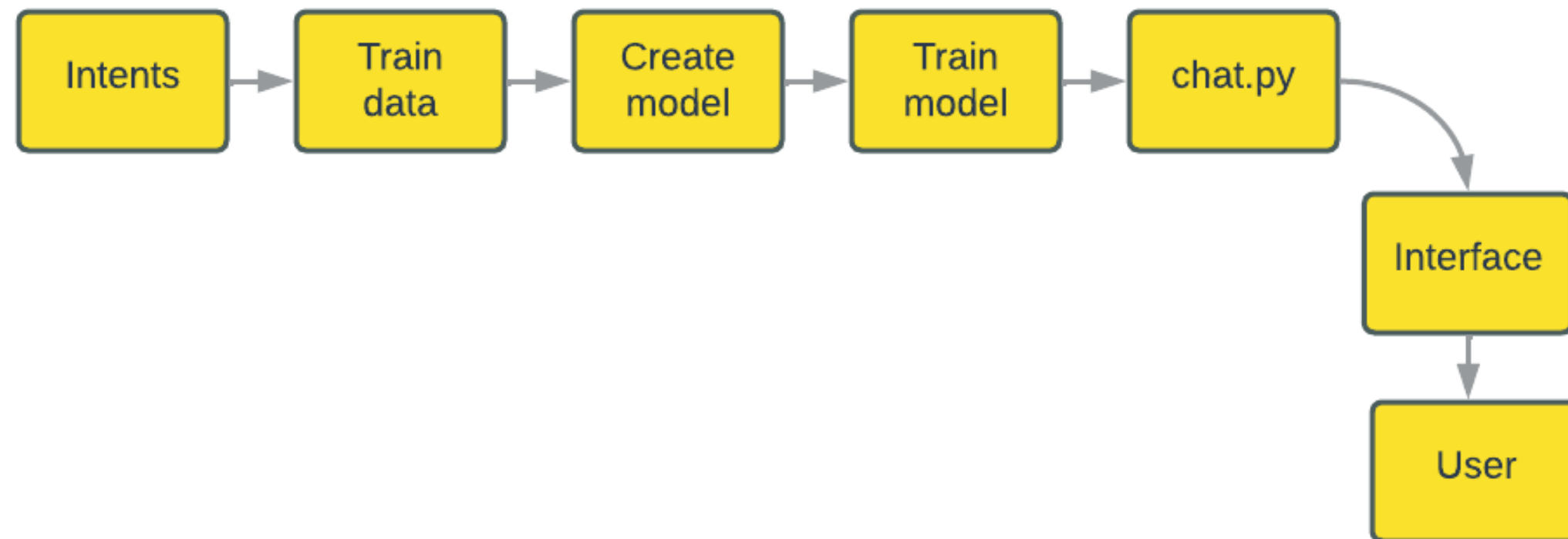
NumPy: 1.19.5

NLTK: 3.2.5

PyTorch

Database: Updated JSON with  
additional information

# Explanation



NLTK is a toolkit built for working with NLP in Python

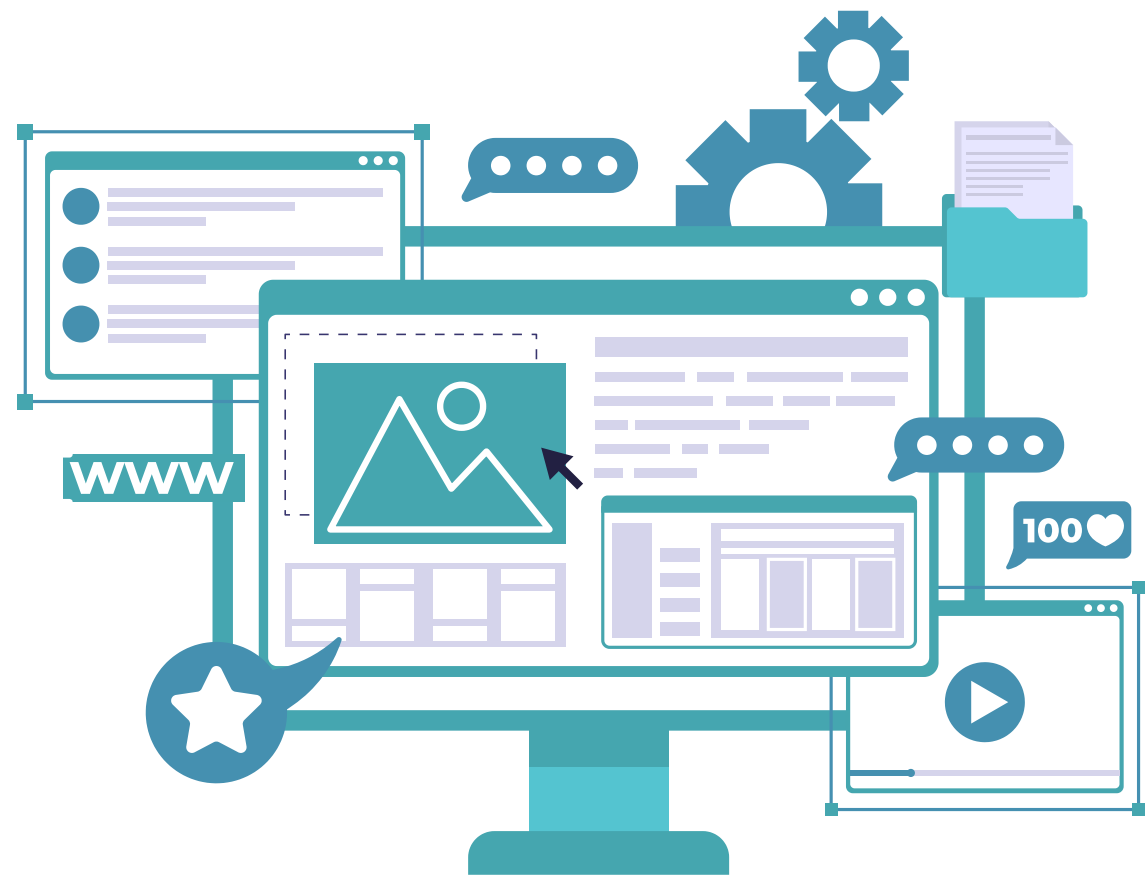
NLP Concepts: Tokenization and Stemming.

The intents file has all the data that we will use to train the model.

Once the intents.json file is loaded we start creating the training data.

Next, we will import the bag of words with the tokenized sentence and all the words.

# GUI



A graphical user interface (GUI) is a digital interface in which a user interacts with graphical components such as icons, buttons, and menus.

In a GUI, visual elements represent actions users can take, objects that users can manipulate, and other information relevant to the user.

The ultimate purpose of GUIs is to allow humans to interact with a device's underlying code by separating us from the technical details and presenting a simplified interface to the user.

This process is called abstraction and is a key concept when designing and building interfaces.

GUI examples include most websites, web apps, software programs etc.

# GUI advantages and disadvantages

## Advantages:

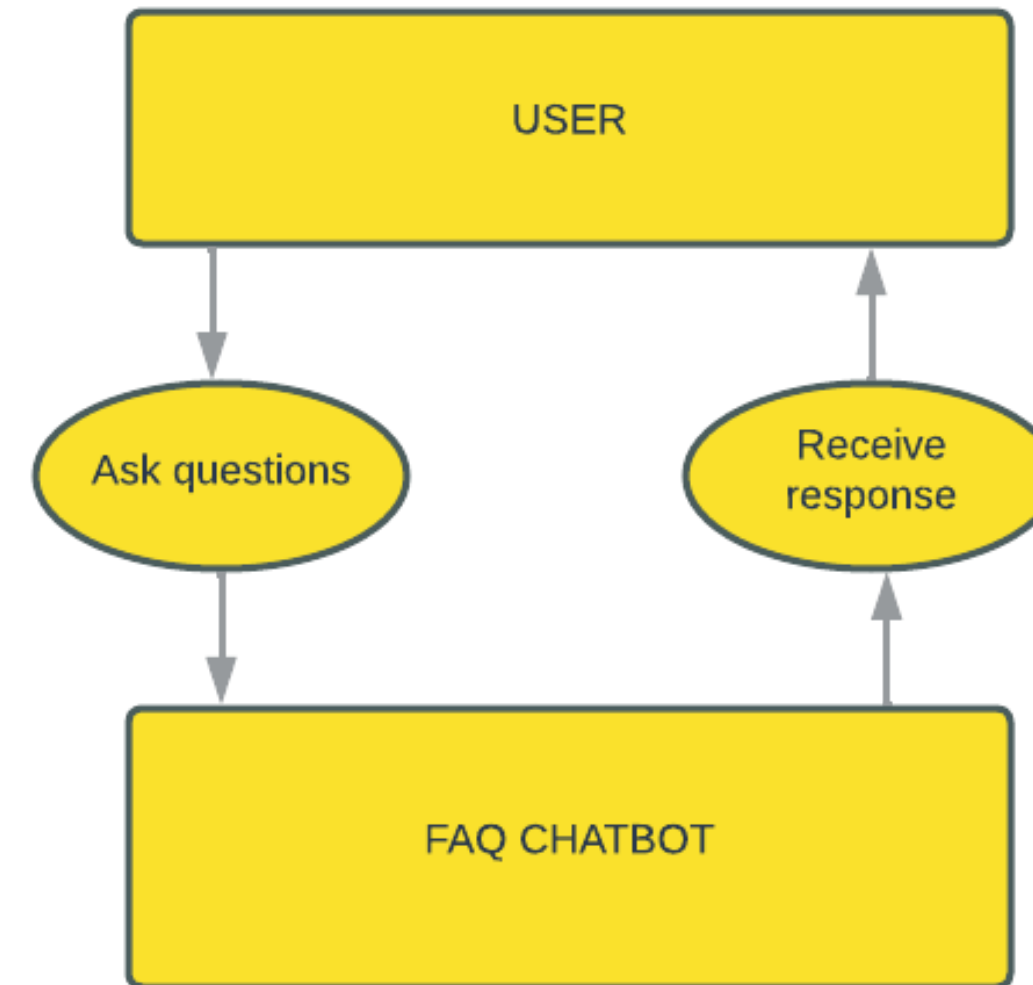
- User-friendliness
- Efficiency
- Clarity
- Accessibility
- Aesthetic

## Disadvantages:

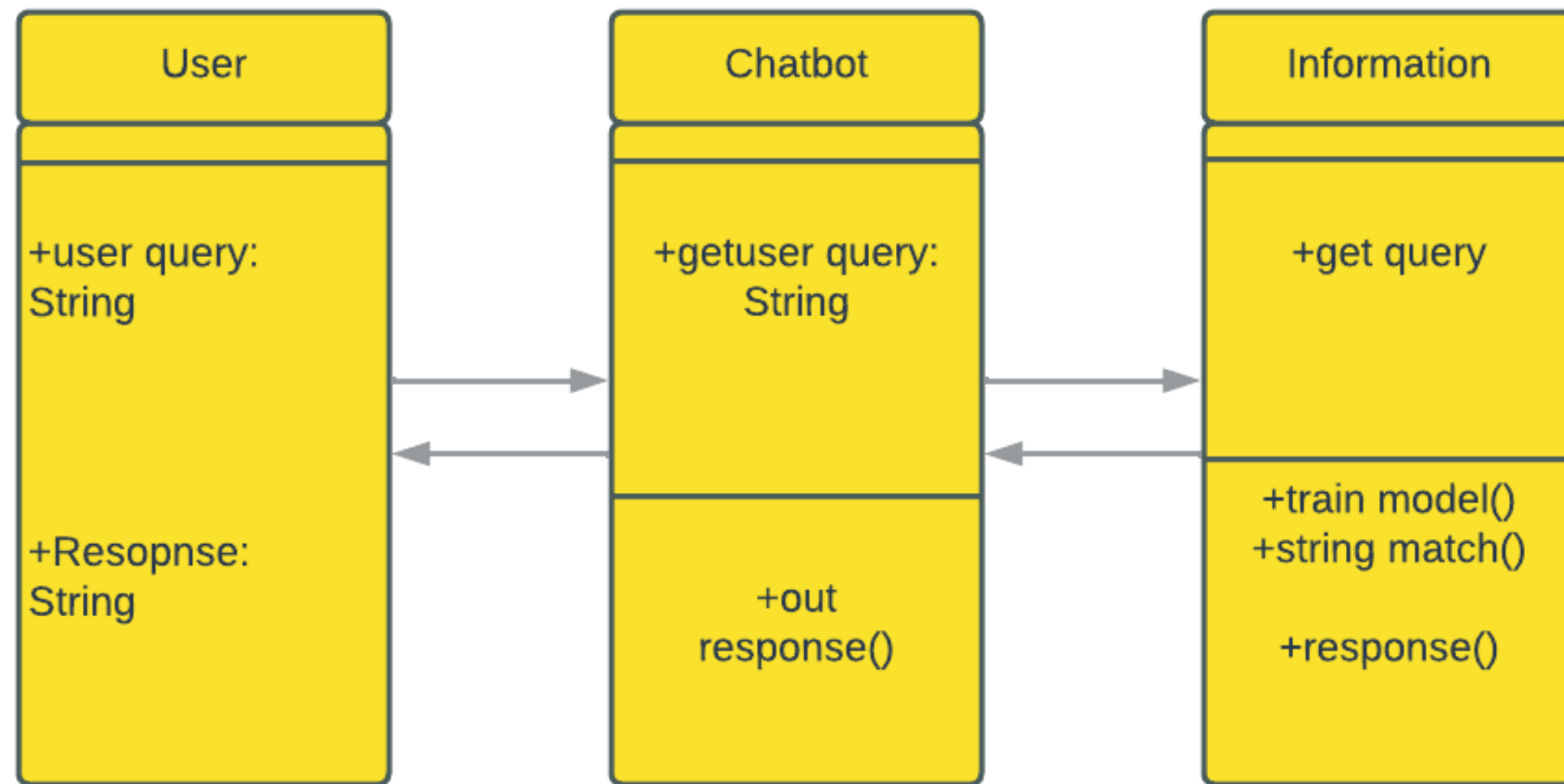
- Speed
- Memory usage
- Lack of flexibility
- Inefficiency
- Build

# UML Diagrams:

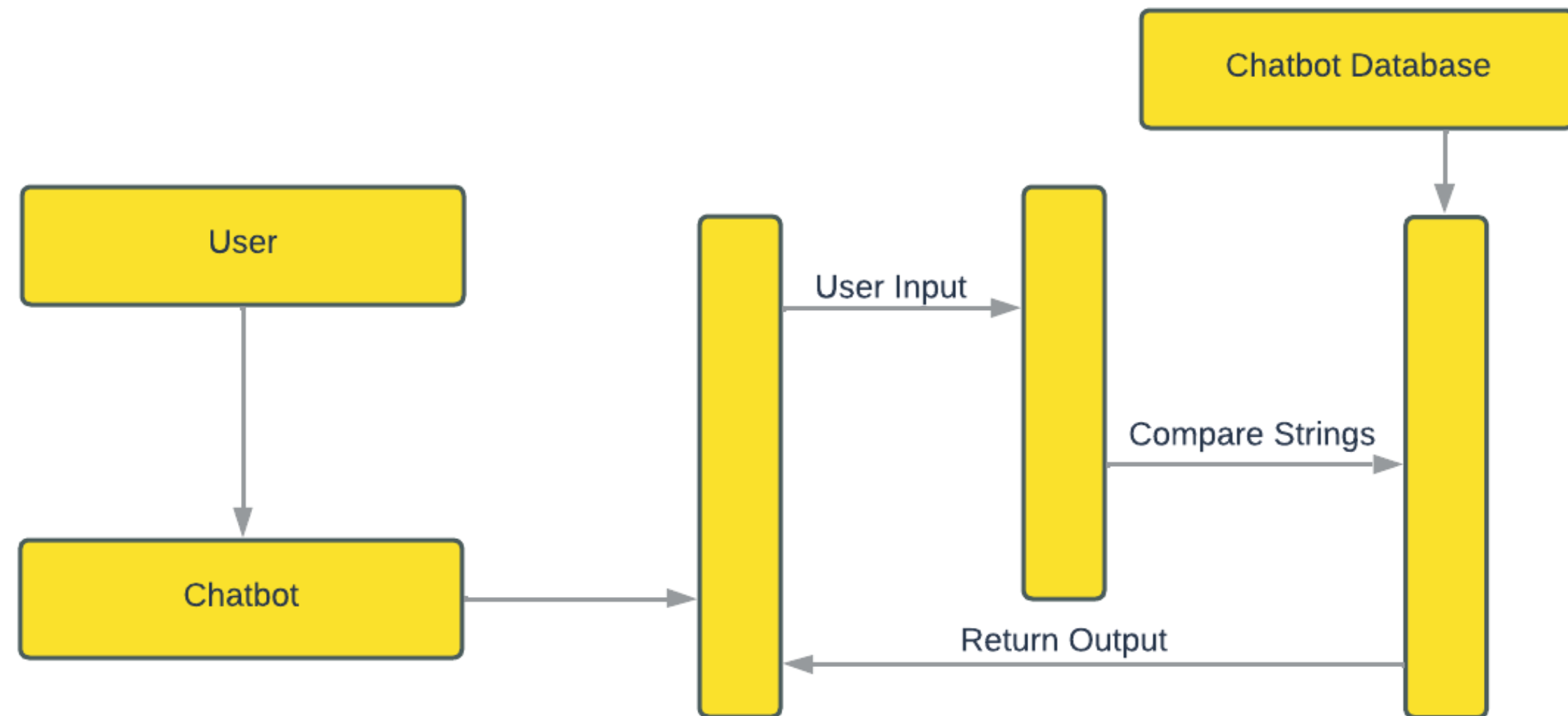
Use Case Diagram:



## Class Diagram:

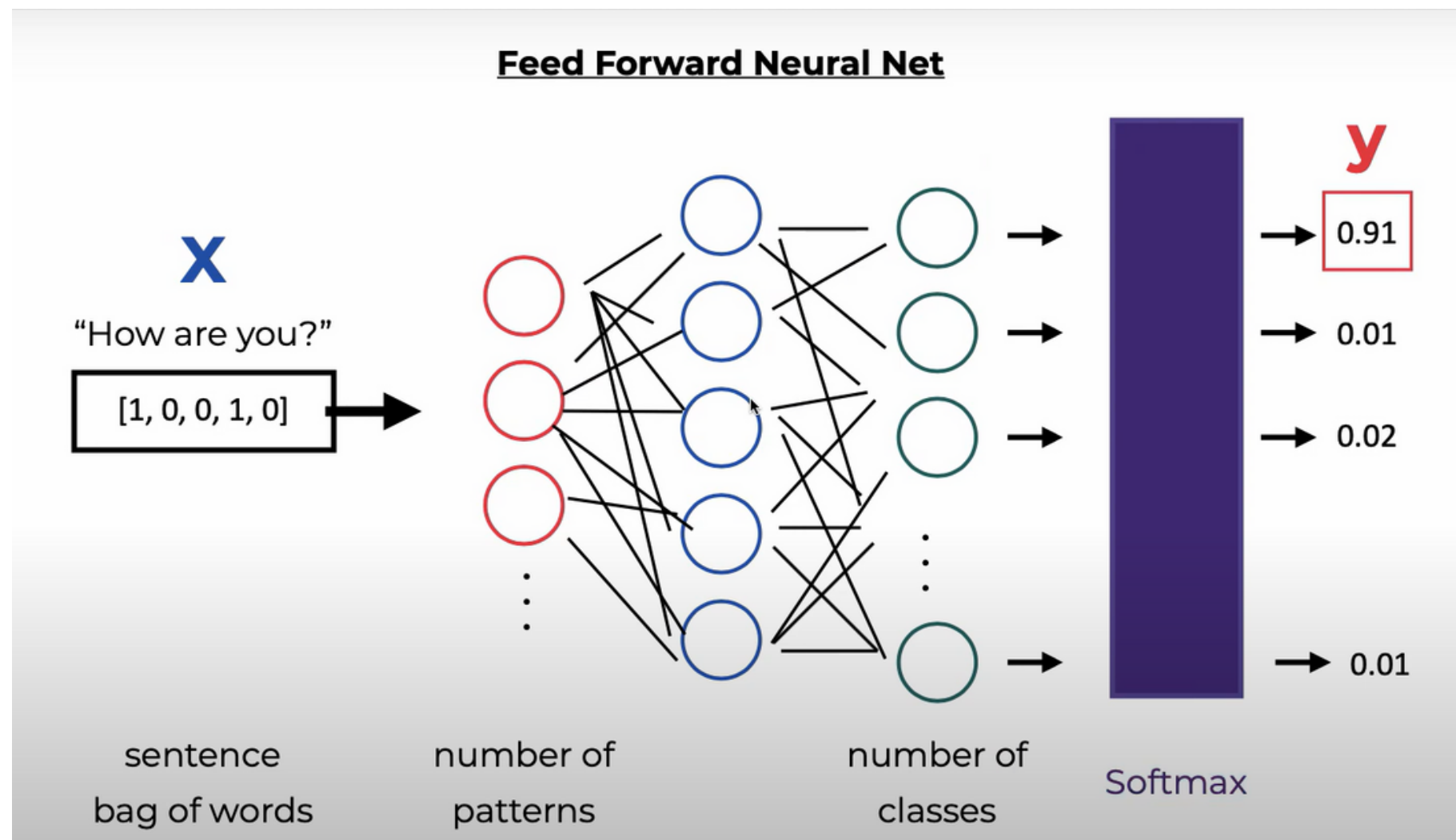


## Sequence Diagram:





# Feed Forward Neural Network



- A Feed Forward Neural Network is an artificial neural network in which the connections between nodes do not form a cycle.
- The feed-forward model is the simplest form of a neural network as information is only processed in one direction.
- We create three linear layers using pytorch.
- Epoch=  
$$\left[ \frac{\text{epoch}+1}{\text{num\_epochs}} \right]$$

# Advantages



1) Faster Customer Service.

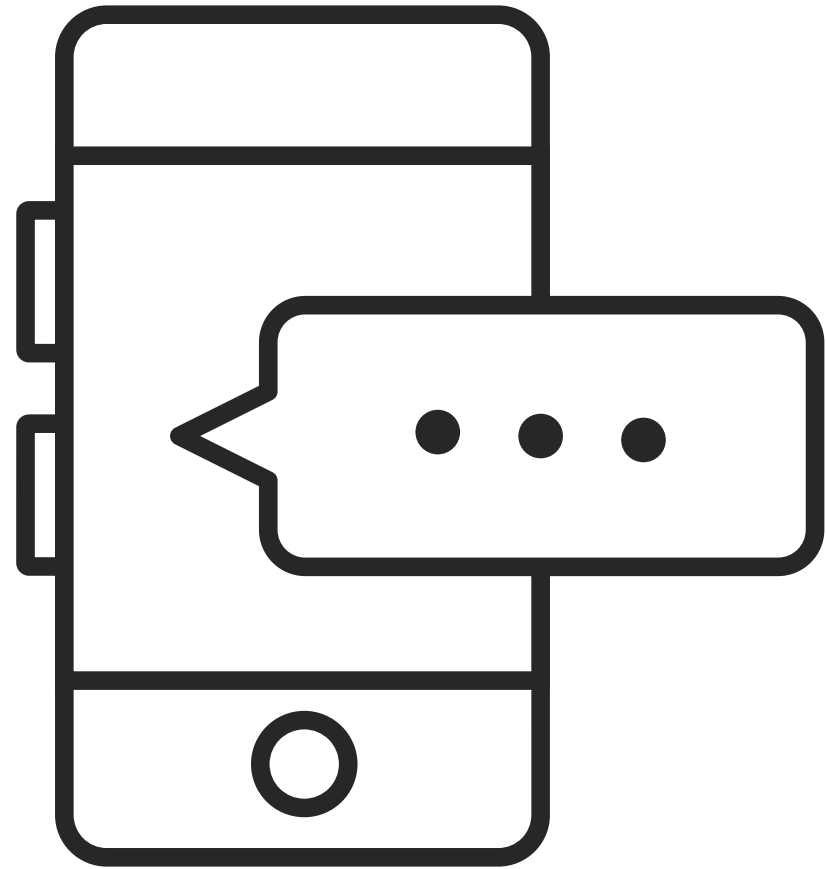
2) Constantly Available.

3) Chatbot can run on local computers and phones,etc

4) This application saves time and enables the students to be updated with college.

5)Implementing a chatbot is much cheaper

# Disadvantages



- 1) Required frequent updating.
- 2) Rule-based, cannot handle out of scope tasks.
- 3) Provides limited Functionality.
- 4) Cannot replace humans for complex queries.
- 5) Lacking a personalised, human touch.

# FutureScope



- To improve the current functionalities of College Enquiry Chatbot, in the future, the scope of the chatbot can be increased by inserting data about result.
- training the bot with varied data, testing it on live website.
- Some of the new features which can be added to the bot are speech recognition feature.

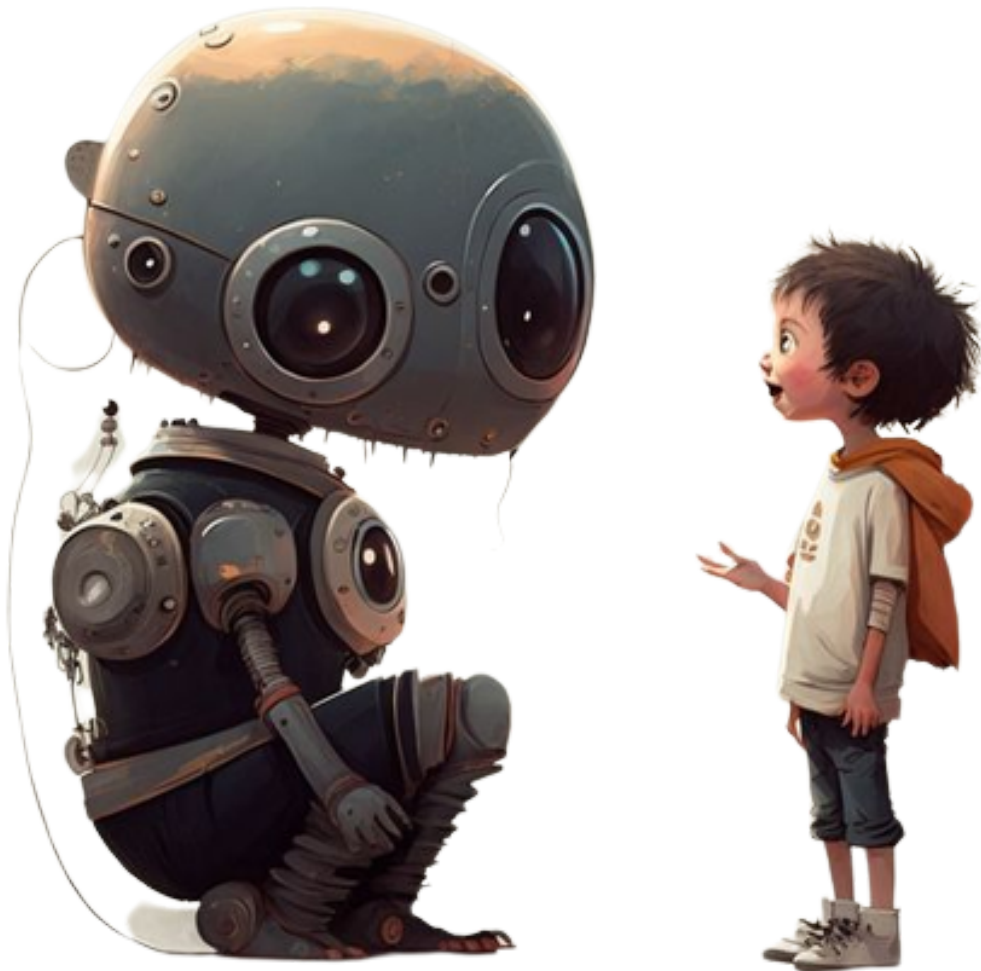
# Conclusion

The work discusses the development of a chatbot for a college.

This chatbot is designed to solve campus-related queries.

The chatbot is based on a generic architecture.

This chatbot can answer to queries in textual user input



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Thank you!