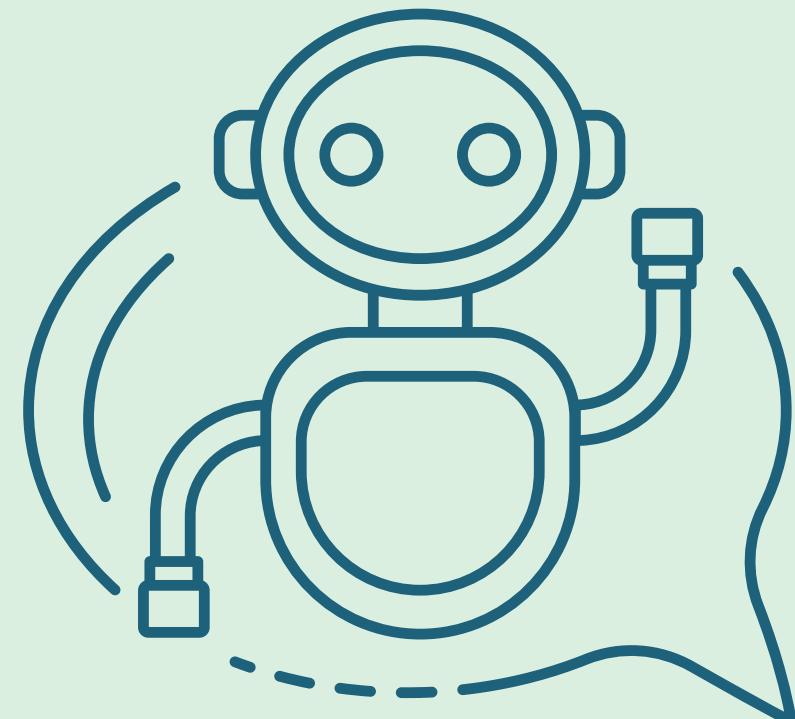


# **Question Answering System For VIT Chennai Website with Tensorflow – Chatbot**

**M. Dheeraj Sai – 19BCE1876**

**B. Kedaarnath – 19BCE1370**

**K. Manoj Kumar – 19BCE1866**



# ABSTRACT

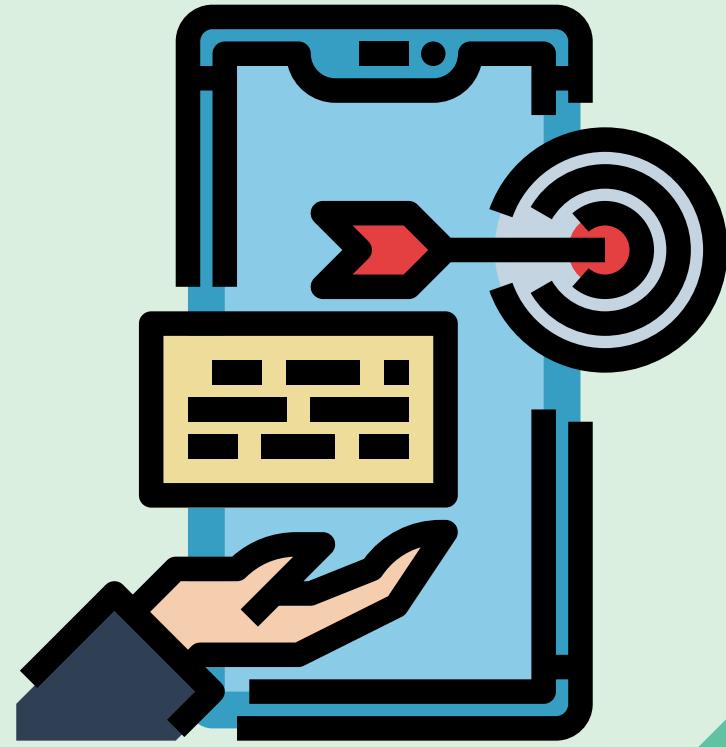
For using software applications, user interfaces that can be used includes command line, graphical user interface (GUI), menu driven, form-based, natural language, etc. The mainstream user interfaces include GUI and web-based, but occasionally the need for an alternative user interface arises. A chat bot based conversational user interface fits into this space. They generally provide a state full service i.e. the application saves data of each session. On a website, one often doesn't know here to search for some kind of information.

The solution to these comes up with a inquiry chat bot, a fast, standard and informative widget to enhance a website's user experience and provide effective information to the user. Chat bots are an intelligent system being developed using artificial intelligence (AI), Machine Learning and natural language processing (NLP) algorithms. It has an effective user interface and answers the queries related to all features and activities.

# SCOPE

Simple chat bots were capable of matching a text string and offering an answer only when the exact match is found. When we said chatbots have come a long way, we actually meant it. The advanced chatbots today have a learning curve powered by artificial intelligence and is leading them to be of great significance.

The availability of chat bots 24/7 with the immense knowledge they can outperform humans. With speed and accuracy, they are offering support to enterprises, they will soon augment human capabilities. Users love to interact with chat bots as it saves them time and in most cases offers them clear and concrete answers. They may not be perfect but they are very close to be perfect.



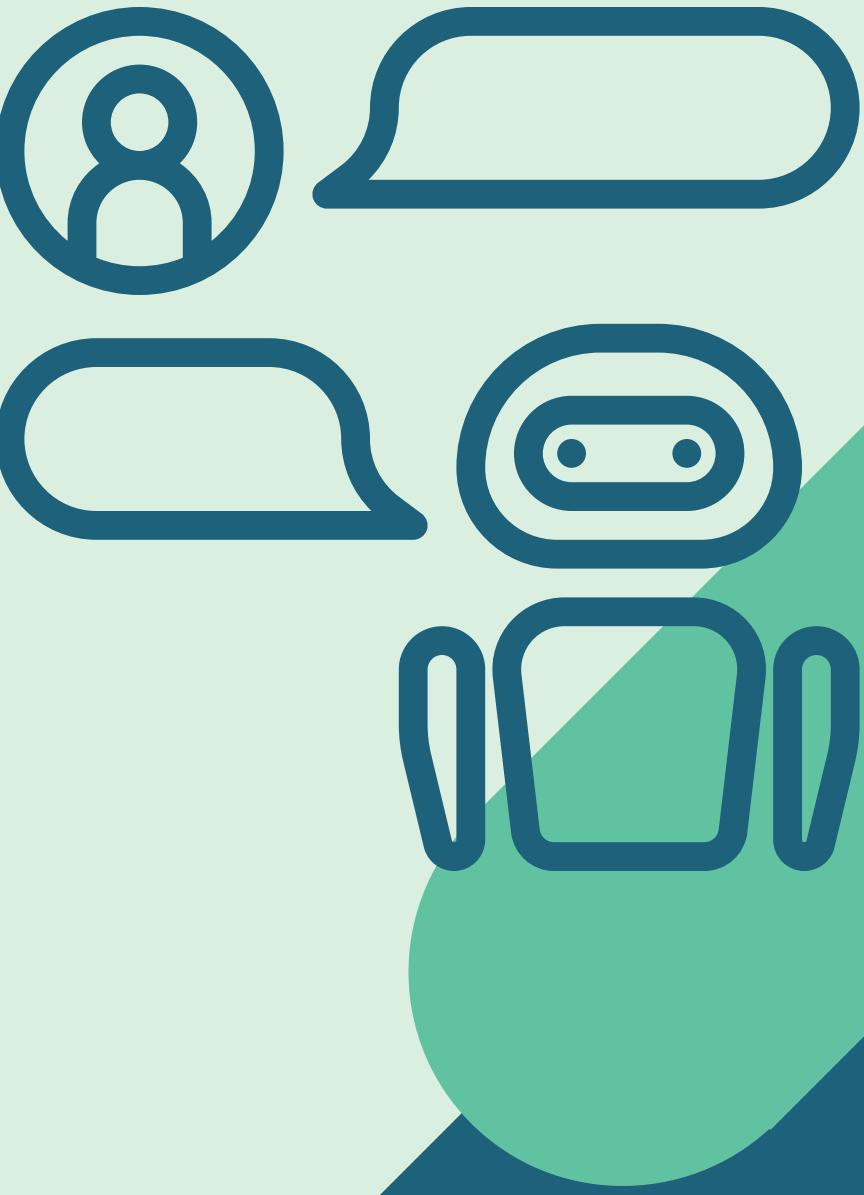
# GOALS & OBJECTIVES

- The purpose of a chat bot system is to simulate a human conversation.
- Its architecture integrates a language model and computational algorithm to emulate information online communication between a human and a computer using natural language.
- Any user can freely ask their queries.
- The chat bot provides fast and efficient search for answers to the queries and gets the relevant links to their question.



# EXISTING SYSTEM

As we all aware, there are numerous websites dedicated to college information, and students use them to get information. While there is a lot of information available on the websites and we can acquire it fast, these websites may not be able to deliver sophisticated information. Many students look for information about the institution during the admissions process, and many college websites take much too long to search for specific information. Because many people use college websites at the same time, they are infamously slow, increasing traffic and extending the gap between students and the college.



# NEED FOR NEW SYSTEM

The need for a college inquiry system arises due to various reasons which include: the slow nature of the college website, an outsider would not know where to search for a particular piece of information, difficult for the person outside the college's domain to extract information. The smart solution for all the drawbacks lends to the need of the system. The college inquiry system will provide the response by summarizing the query and then output answers, it also provides selective information about what the user wants. A college system will dispense all answers relating to domains such as admission, examination cell, notice board, attendance, placement cell and other miscellaneous domains.

# PROPOSED SYSTEM

NLP is used to determine the meaning of a complaint when a user presents it to the system. Part of speech tagging and the wordnet dictionary are used to identify the meaning of the words. The seriousness of a complaint is determined via sentiment analysis. Additionally, client complaints are prioritized according to their severity.

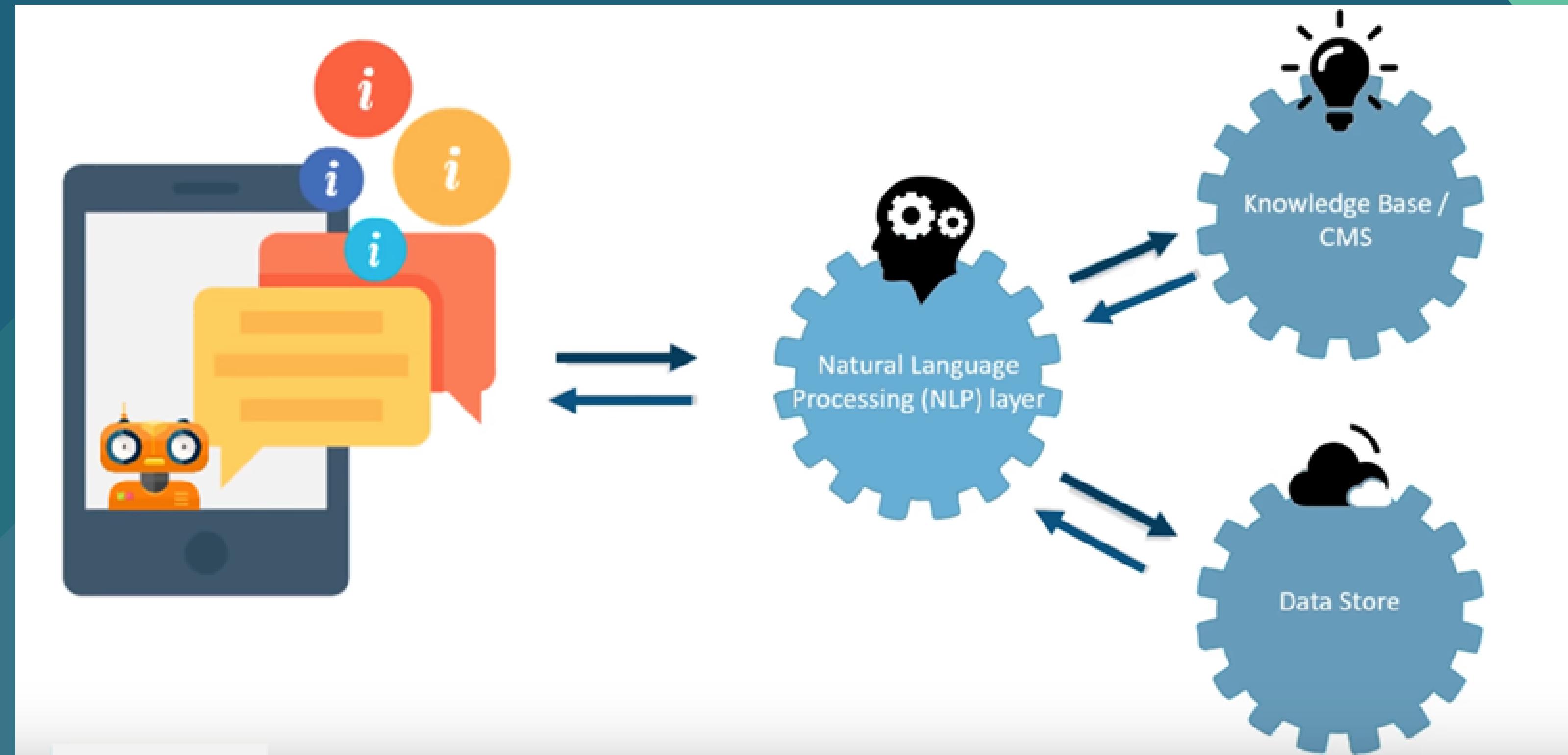
Once the complaint's negation level has been identified, WorldNet is used to find the precise question in the complaint. Because the nature of the complaint differs from one individual to the next. The same question can be asked by many users in different ways. A question may be asked in a simple and clear manner by one individual, while another may ask the same question in a more negative tone by another. As a result, in order to deliver a high-quality service,

# WHAT CHATBOTS CAN DO?

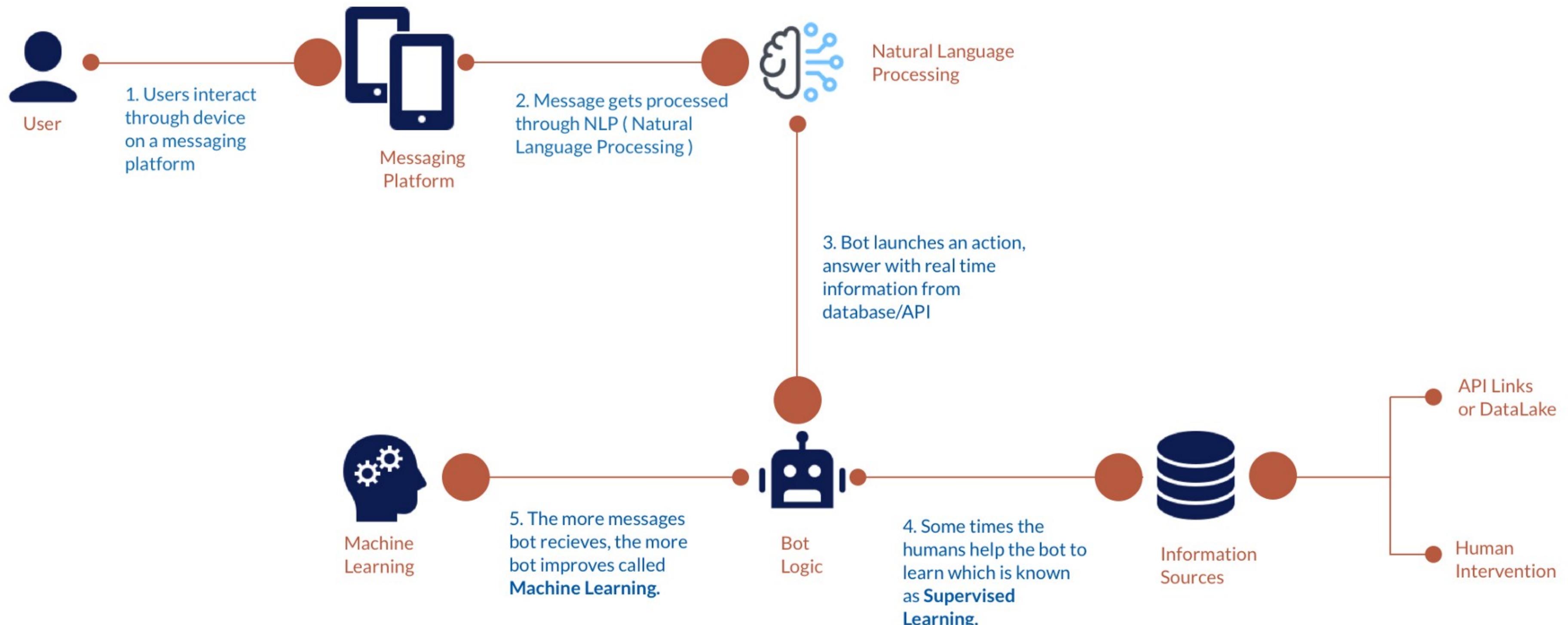
- Use existing conversation data or Learn from Experience to understand the type of Input is given.
- Analyze correct Responses to those Inputs through a 'training' period and Model.
- Use Machine Learning & NLP to learn the Nature and Context of Input, and get better step by step or response by response with each and every Interactions



# How the Chatbot Works?



# How the Chatbot Works?



# Workflow of Chatbot



**How a Chatbot Works:** As you can see in this graphic, a chatbot returns a response based on input from a user. This process may look simple; in practice, things are quite complex.

# Tasks at the Core of Chatbots

## Request Analysis of User

First Action that a chatbot performs. It analyzes the user's request to identify the user intent and extracts the meaningful attributes and entities.

## Response Back to User

As User Context and Intent is Verified or identified, the chatbot provide the most appropriate response for the user's request

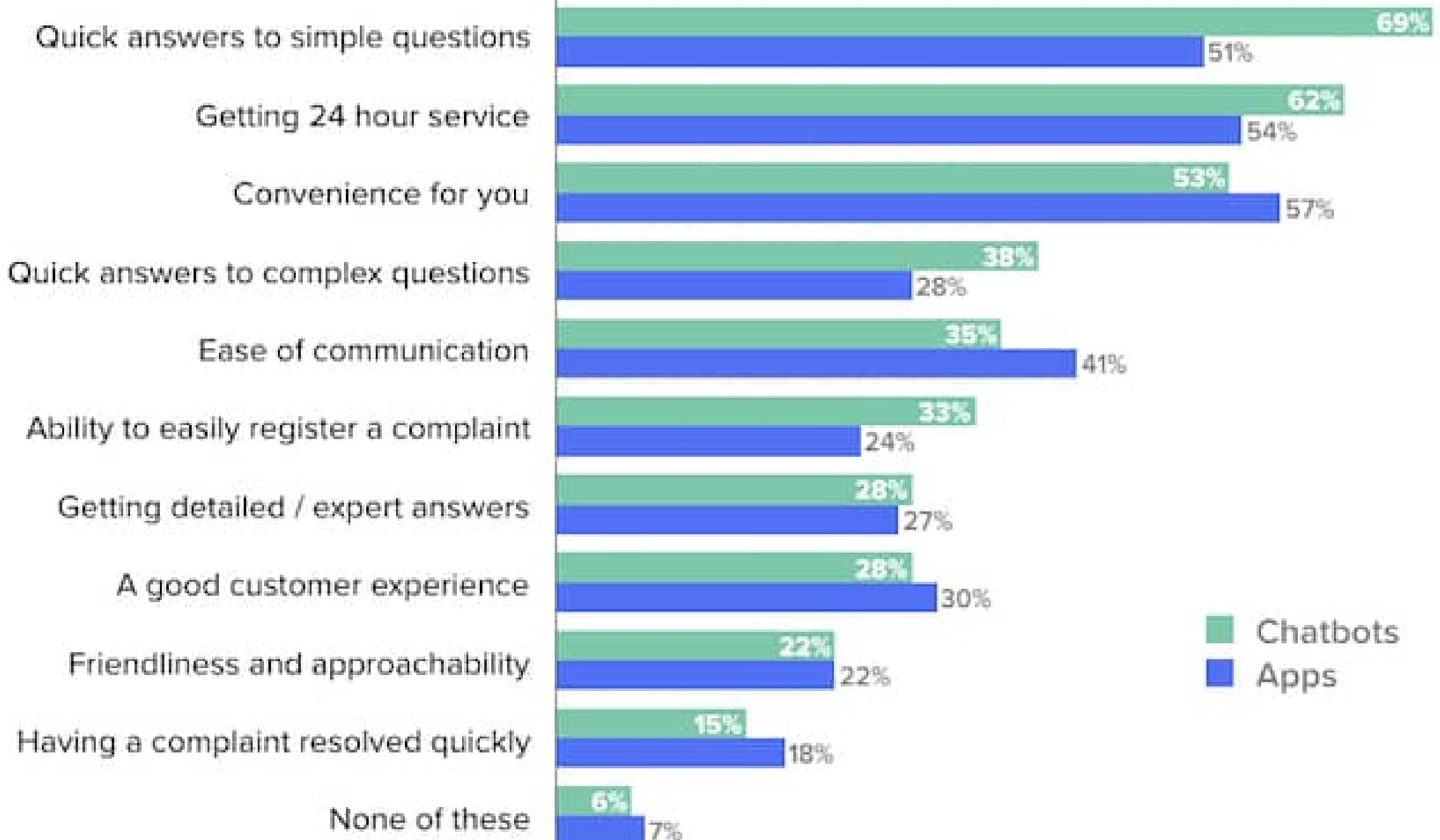
# Where Chatbots are used for a Specific Purpose

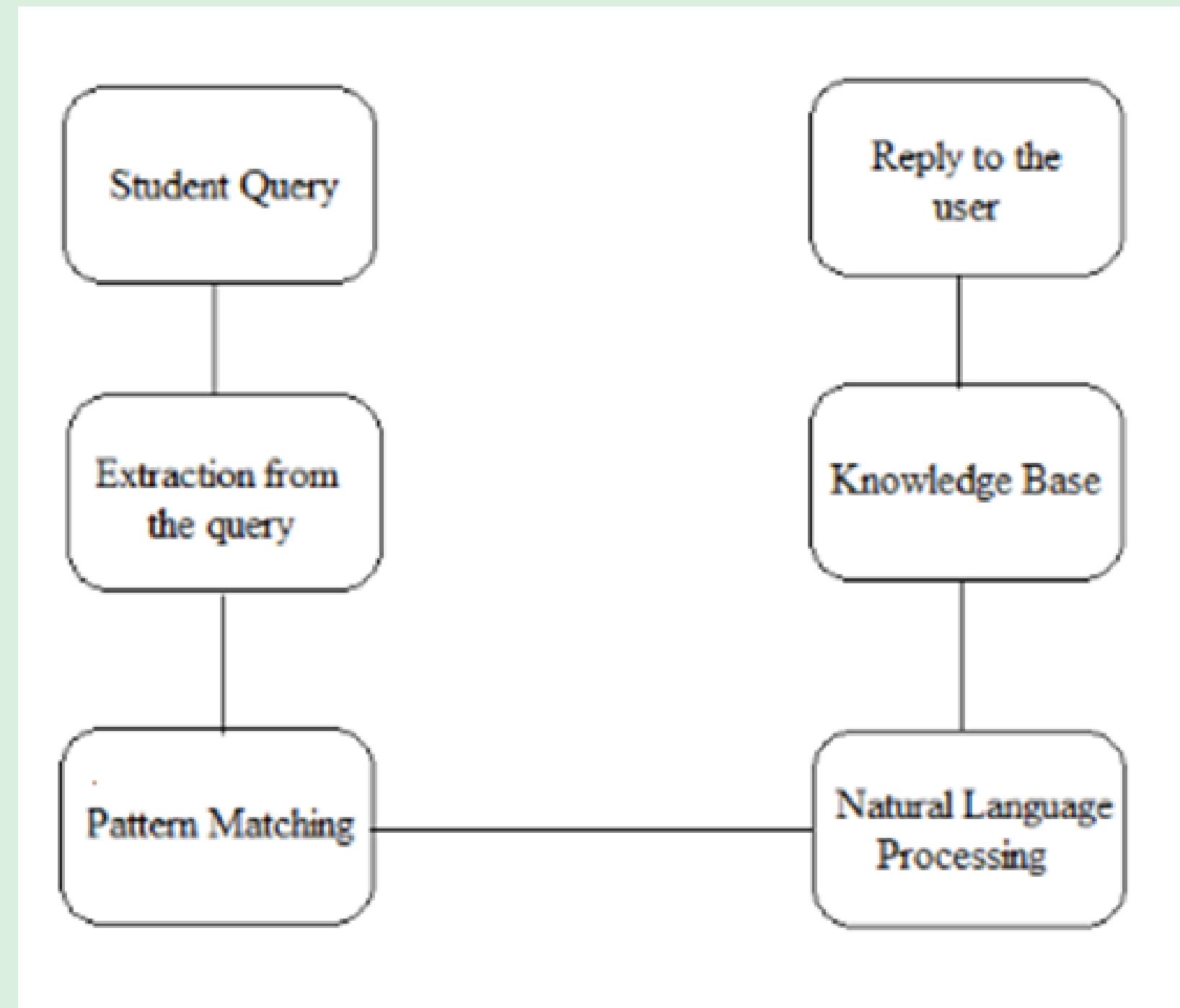


# Chatbot vs App

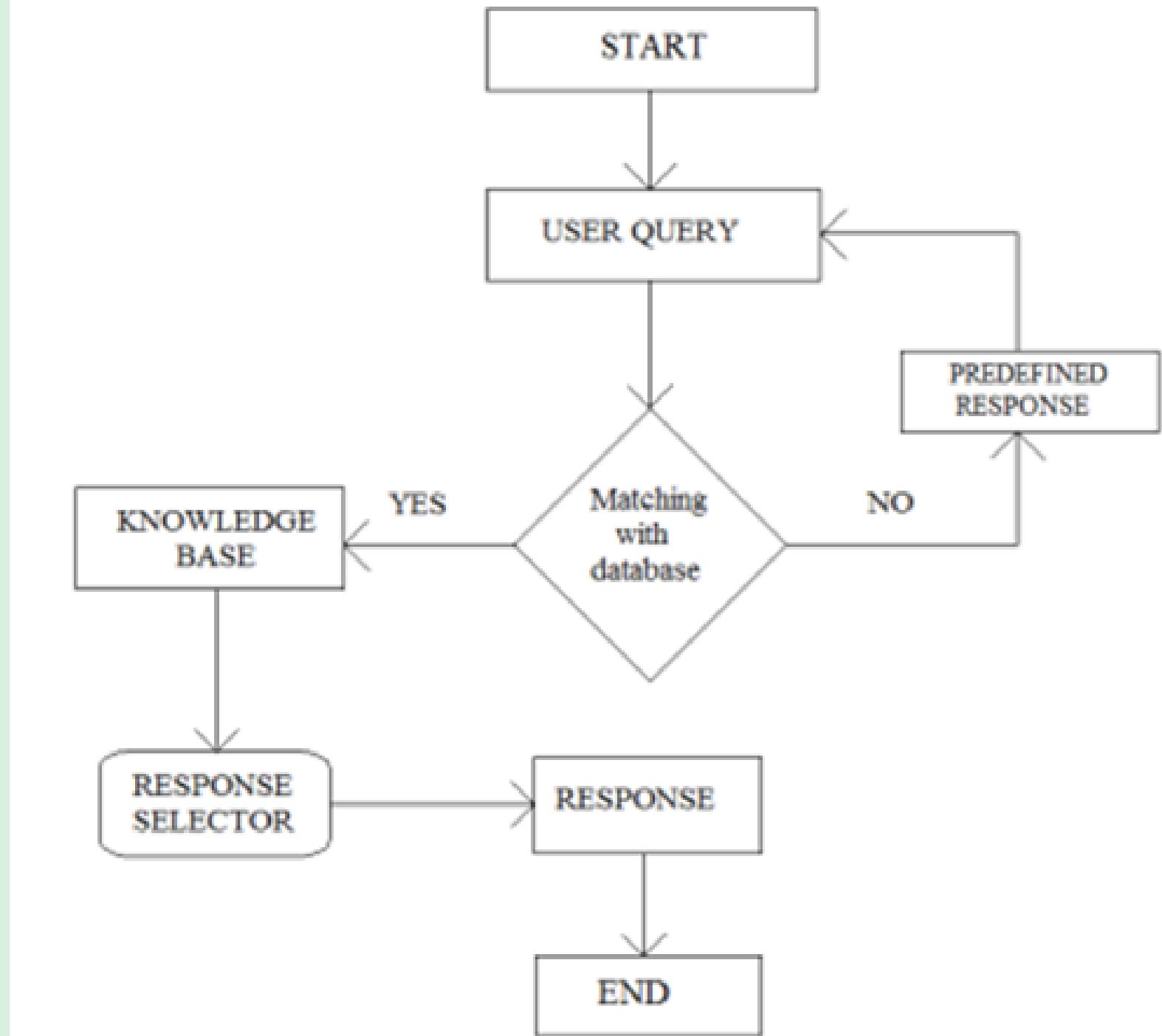
## Chatbots vs. Apps

*Which of these benefits do you most associate with communicating with businesses?*





## DATA FLOW DIAGRAM



## FLOW CHART OF THE MODEL

# SOFTWARE USED

- Python
- Python ML Libraries [ NLTK, Pickle, Warnings, Numpy, Keras, Random ]
- Tensorflow
- NLP Methodologies
- Json
- Google Colab

# Model Training and Accuracy

```
✓ [12] #fitting and saving the model
24s hist = model.fit(np.array(train_x), np.array(train_y), epochs=200, batch_size=5, verbose=1)
model.save('chatbot_model.h5', hist)

print("model created")
```

```
✓ [12] 347/347 [=====] - 0s 295us/step - loss: 0.0756 - accuracy: 0.9712
24s Epoch 194/200
347/347 [=====] - 0s 334us/step - loss: 0.0541 - accuracy: 0.9856
Epoch 195/200
347/347 [=====] - 0s 329us/step - loss: 0.1163 - accuracy: 0.9625
Epoch 196/200
347/347 [=====] - 0s 393us/step - loss: 0.0594 - accuracy: 0.9856
Epoch 197/200
347/347 [=====] - 0s 301us/step - loss: 0.0927 - accuracy: 0.9597
Epoch 198/200
347/347 [=====] - 0s 321us/step - loss: 0.0523 - accuracy: 0.9827
Epoch 199/200
347/347 [=====] - 0s 315us/step - loss: 0.1246 - accuracy: 0.9568
Epoch 200/200
347/347 [=====] - 0s 320us/step - loss: 0.1107 - accuracy: 0.9769
model created
```

An accuracy of 97.69% is achieved

# Some Sample Replies

[2] res = chatbot\_response('who is the Dean of computers')  
print(res)

⇨ Dr. Ganesan R is computer Dean

[3] res = chatbot\_response('who are you')  
print(res)

⇨ You can call me VITBOT.

[45] res = chatbot\_response('who made you')  
print(res)

I was developed by Dheeraj, Kedharnath and Manoj

# Some Sample Replies

```
[52] res = chatbot_response('when are exams shdule for this sem')
     print(res)

Here is the Academic Calendar <a target="_blank" href="https://vit.ac.in/sites/default/files/Fall_Se
```

```
[55] res = chatbot_response('I love you')
     print(res)
```

I am not program for this please ask appropriate query

```
[54] res = chatbot_response('what the hell')
     print(res)
```

Maintaining decency would be appreciated

# Some Sample Replies

```
[50] res = chatbot_response('are events there in vit')
     print(res)
```

There are a lot of events of which VIBRANCE is the biggest and well celebrated one!!

```
[51] res = chatbot_response('How are placements in vit chennai')
     print(res)
```

To know about placement visit <a target="\_blank" href="https://collegedunia.com/university/56865-vell



```
res = chatbot_response('Where is vit chennia located')
print(res)
```



VIT Chennai <a target="\_blank" href="https://goo.gl/maps/Q9SFahHUS6FCq461A"> here</a>

# FUTURE SCOPE

The future scope of this chatbot application will be

- Will make an GUI for this chatbot which can be embedded in the website
  - More efficient and accurate chatbot
  - Live Chats features can be used in future to make the software more useful and demanding

The image features a large, white, cursive 'Thank you' centered in the foreground. The background is a vibrant blue with a subtle grid pattern. At the top, there's a faint silhouette of a person walking. To the right, there's a small illustration of a character with a speech bubble. Various icons are scattered across the background, including a gear, a question mark, a speech bubble, and a hand pointing upwards. Along the bottom edge, there's text that reads 'USE YOUR PHONE', 'CALL US!', and 'YOU?'. The overall theme is positive and celebratory.