# ASSIGNMENT B2

# Title: Expert Systems

# Problem Statement:

Implement any one of the following Expert System:

1. Medical Diagnosis of 10 diseases based on adequate symptoms.
2. Identifying birds of India based on characteristics

OR.

Develop elementary chatbot for suggesting investment as per customer needs.

# Objectives:

- Learn to implement a simple/elementary chatbot.
- Understand the working principle of chatbots
- Learn about various chatbots and their working.

# Outcomes:

We will be able to:

- Study varios chatbots and their working
- Implement elementary chatbot in python.

# Software and Hardware requirements:

- OS: Fedora 20 / Ubuntu (64-bit)
- RAM: 4GB
- HDD: 500 GB
- Jupyter Notebook.
- Python Libraries for developing chatbot.

# Theory:

→ Chatbot.

- A chatbot can be looked upon as a virtual assistant that communicates with users via text messages and helps business in getting close to their customers.
- It is a program designed to imitate the way humans communicate with each other.
- It can be done through a chat interface or by voice call.

→ How does chat bot work?

- Chatbots are nothing but software applications that have an application layer, database and API's.
- It works on pattern matching to classify text and produce a suitable respons for questions/ queries addressed by the user.
- The chatbot responds to the user as per the program that has been fed in it.

→ Types of chatbots

- Rule-Based Chatbot.
  - The user interacts with this kind of bot by using predefined options.
  - To get answers from these bots, users need to click on certain options.
  - The bots collect user's request, analyze it and then offer results in form of buttons.

- Independent (key-word) Chatbots:
  - These are ML bots, unlike rule-based bots, they analyze what the user wants and responds appropriately.
  - These chatbots use customizable keywords and ML to determine how to respond to users' requests effectively and efficiently

- NLP (Contextual) Chatbots:
  - These are the most advanced chatbots
  - They are a combination of best from rule-based and keywords chatbots
  - These use NLP to understand the content and intent in users' request and thus act accordingly.

⇒ Chatterbot Python library.
- This library is specifically designed to generate chatbots.
- This algorithm uses a selection of ML algorithms to fabricate varying responses to users as well as it also per their requests.

⇒ How chatterbot works.
- It starts by creating an untrained chatterbot that has no prior experience or knowledge regarding how to communicate.
- As the user enter statements, the library saves the request made by user as well as it also saves the responses that are sent back to users

- As the number of instances increase in chatterbot, the accuracy of responses made by chatterbot also increases.
- Chatterbot is trained to search the closest analogous response by finding closest analogous request made by user that is equivalent to the new request made.
- The USP of chatterbot is that it enables derelopers to create their own dataset and structures at ease.

# Test Cases :

Input: Hi, how are you?
Buddy: I am fine, how may I assist you?
Input : How does investment work?
Buddy: . . . .
Input : Bye
# Buddy: bye

# Conclusion:

Thus, we have successfully implemented an elementary chatbot using python libraries.