8) Design and Develop real-time Data Science Application (e.g. Image Recognition/ Intelligent Assistant/ Recommendation System/ Fake News Detection/Emotion Recognition/Chatbot/Other)

In [8]:
```
class DataScienceChatbot:
    def __init__(self):
        # Predefined responses for the chatbot
        self.responses = {
            "what is data science": "> Data science is the study of data to extract ir
            "what is data analytics": "> Data analytics is the process of examining, c
            "what are the differences between data analytics and data science": "> Dat
            "what is machine learning": "> Machine learning is a subset of AI that pro
            "what is deep learning": "> Deep learning is a subset of machine learning
            "what is supervised learning": "> Supervised learning is a type of machine
            "what is unsupervised learning": "> Unsupervised learning is a type of mac
            "explain the steps in making a decision tree": "> The steps in making a de
            "differentiate between univariate, bivariate, and multivariate analysis":
            "how should you maintain a deployed model": "> Maintaining a deployed mode
            "what is a confusion matrix": "> A confusion matrix is a table used in cla
            "how is logistic regression done": "> Logistic regression is used for bina
            "what is the significance of p-value": "> The p-value is used in hypothesi
            "mention some techniques used for sampling": "> Sampling techniques includ
            "default": "> I'm sorry, I don't have an answer for that. Please ask anoth
        }

    def get_response(self, user_input):
        # Convert user input to lowercase and strip spaces
        user_input = user_input.lower().strip()

        # Search for a response, if not found, return a default response
        return self.responses.get(user_input, self.responses["default"])

    def chat(self):
        print("DataScience Chatbot: Hello! Ask me about data science or machine learni
        while True:
            user_input = input("You: ")
            if user_input.lower() in ['exit', 'quit', 'bye']:
                print("DataScience Chatbot: Goodbye!")
                break
            response = self.get_response(user_input)
            print(f"DataScience Chatbot: {response}")
```

In [9]:
```
# Run the chatbot
chatbot = DataScienceChatbot()
chatbot.chat()
```

```
DataScience Chatbot: Hello! Ask me about data science or machine learning.
You: what is data science
DataScience Chatbot: > Data science is the study of data to extract insights and know
ledge from structured and unstructured data.
You: what is machine learning
DataScience Chatbot: > Machine learning is a subset of AI that provides systems the a
bility to automatically learn and improve from experience without being explicitly pr
ogrammed.
You: what is supervised learning
DataScience Chatbot: > Supervised learning is a type of machine learning where the al
gorithm is trained on a labeled dataset, and it learns to make predictions based on i
nput features and corresponding target labels.
You: what is unsupervised learning
DataScience Chatbot: > Unsupervised learning is a type of machine learning where the
algorithm is trained on an unlabeled dataset, and it identifies patterns, structures,
or clusters within the data.
You: mention some techniques used for sampling
DataScience Chatbot: > Sampling techniques include random sampling, stratified sampli
ng, systematic sampling, and cluster sampling.
You: how is logistic regression done
DataScience Chatbot: > Logistic regression is used for binary classification and invo
lves modeling the probability of the binary outcome using the logistic function.
You: bye
DataScience Chatbot: Goodbye!
```