# Machine Learning, NLP, and Deep Learning Q&A

## Machine Learning (ML)

### What is Machine Learning?

Machine Learning is a field of AI that enables computers to learn from data without explicit programming.

### What are the types of Machine Learning?

The three main types are Supervised Learning, Unsupervised Learning, and Reinforcement Learning.

### What is Overfitting in ML?

Overfitting occurs when a model learns the training data too well, capturing noise instead of the actual pattern.

### What is a Decision Tree?

A Decision Tree is a flowchart-like structure used for classification and regression tasks.

### What is the difference between Classification and Regression?

Classification predicts categories, whereas Regression predicts continuous values.

## Natural Language Processing (NLP)

### What is NLP?

Natural Language Processing (NLP) is a field of AI that enables computers to understand and process human language.

### What is Tokenization in NLP?

Tokenization is the process of splitting text into words or sentences.

### What is Named Entity Recognition (NER)?

NER is a technique used to identify proper names, locations, and dates in text.

### What is Lemmatization?

Lemmatization reduces words to their base form using linguistic rules.

### What are Stopwords?

Stopwords are common words like 'is', 'the', 'and' that are often removed from text processing.

## Deep Learning (DL)

### What is Deep Learning?

Deep Learning is a subset of ML that uses neural networks with multiple layers to learn from data.

### What is a Neural Network?

A Neural Network is a series of layers that transform input data into predictions using weighted connections.

### What is Backpropagation?

Backpropagation is an optimization algorithm used to adjust weights in neural networks.

### What are CNNs used for?

Convolutional Neural Networks (CNNs) are used for image processing tasks like object recognition.

### What is the difference between ANN and RNN?

ANNs process fixed-size inputs, whereas RNNs are designed for sequential data like time series and text.