Lecture No. 1

■ Summary

- Natural Language Processing (NLP) basics: tokenization, stop word removal, stemming, lem matization, parts of speech tagging, name entity recognition, and text vectorization (bag of words, TFIDF, word embeddings).

- Learn llm Concepts such as "attention is all you need" and utilize open source models fr om Hugging Face.

- Understand prompt engineering and Advanced Techniques for llms, including quantization a nd fine-tuning.

- Lang chain for chatbot and generative AI applications, and building a backend using fast API or Django.

- Front-end development with HTML, CSS, Tailwind CSS, and JavaScript, as well as framework s like React, Angular, or Vue.js.

- Apply skills to building projects that solve real-world problems and learn basic deploym ent.

■ Key Terms and Concepts

- Natural Language Processing (NLP)

- Tokenization, stop word removal, stemming, lemmatization

- Parts of speech tagging, name entity recognition

- Bag of words, TFIDF, word embeddings

- llm Concepts, "attention is all you need"

- Open source models from Hugging Face

- Quantization, fine-tuning

- Lang chain

- Fast API, Django

- HTML, CSS, Tailwind CSS, JavaScript

- React, Angular, Vue.js

- Deployment

■ Review Questions

1. What are the key components of natural language processing (NLP)?

2. How are llms used in generative AI, and what are the core concepts behind them?

3. What is prompt engineering, and why is it important for llms?

4. Explain the role of Lang chain in building chatbots and generative AI applications.

5. What are the basic requirements for building a backend and frontend for a generative AI application?