Assignment – 1

Q2) Define NLP and its real time application in a specific domain base.

Natural Language Processing (NLP) is a subfield of Artificial Intelligence that focuses on enabling computers to understand, interpret, and generate human language in a meaningful way. It bridges the gap between human communication and computer comprehension, allowing machines to process text and speech much like humans do.

**Real-time Application (Example – Healthcare Domain):**  
 In healthcare, NLP is used to read and analyze medical reports, doctor’s notes, and patient records. For example, if a doctor writes "The patient is suffering from high blood pressure," NLP can automatically pick out the key terms (patient, high blood pressure) and store them in the hospital database. It also powers chatbots that let patients ask questions like “What are the side effects of this medicine?” and get quick, accurate answers.

Q3) What is NLU and NLG?

**NLU (Natural Language Understanding):**  
 NLU is a branch of NLP that focuses on helping machines understand the meaning, intent, and context behind human language. For example, if a user says “Book me a flight to Delhi tomorrow,” NLU extracts the intent (book flight) and entities (Delhi, tomorrow).

**NLG (Natural Language Generation):**  
 NLG is the opposite process—it enables machines to create human-like text or speech from structured data or computer outputs. For example, a weather app might take raw data (temperature: 30°C, condition: sunny) and generate a sentence like “It’s a sunny day with a temperature of 30 degrees Celsius.”