NLP - MODULE 1 - CHAPTER 1

Introduction to NLP

Natural Language Processing

- process of computer analysis of i/p provided in human language and conversion of that i/p in useful form of representation

I/p or O/p of NLP ⇒ text or speech

Need of NLP

- develop automatic tool for NLP
- better understanding of human communicat°

Generic NLP System

1) ELIZA
2) SysTran
3) TAUM METEO
4) SHRDLU
5) LUNAR

Levels of NLP

1) Phonology level
2) Morphological level
3) lexical level
4) Syntactic level
5) Semantic level → syntax driven semantic analysis, → semantic grammar
6) Discourse level → anaphora resolute, → discourse / text structure recognition
7) Pragmatic level

Knowledge in language Processing

1) Phonetic & Phonological Knowledge
2) Morphological Knowledge
3) Syntactic Knowledge
4) Semantic Knowledge
5) Pragmatic Knowledge
6) Discourse Knowledge

Ambiguity in NLP

1) lexical ambiguity
2) Syntactic ambiguity
3) Semantic ambiguity
4) Metonymy ambiguity

Stages in NLP

1) lexical analysis
2) Syntactical analysis (Parsing)
3) Semantic analysis
4) Discourse Integration
5) Pragmatic Analysis

Challenges of NLP

1) Contextual words & phrases & homonymes
2) Synonymes
3) Irony Sarcasm
4) Ambiguity
5) Errors in text or speech
6) Idioms & Slangs
7) Domain specific language
8) Low Resource language

Applications of NLP

1) Machine Translation
2) Speech Recognition
3) Speech Synthesis
4) Information Retrieval
5) Information Extraction
6) QA
7) Text - Summarization
8) Sentiment Analysis

Steps in NLP

1) Tokenization
2) Stemming
3) Lemmatization
4) Pos Tags
5) Name Entity Recognition
6) Chunking