

Subject: Natural Language Processing

BE Computer Engineering

Week No.	Assignment Details																								
2	<p>What is the role of NLP in the following application? Explain anyone.</p> <p>Batch1: ChatGPT/Siri/Alexa Batch 2: QuillBot/Naukri.com/Resume Classifier Batch 3: Email Spam Filtering/Grammarly/Auto-correction Batch 4: Recommendation Engine of any E-commerce website/Opinion Mining</p> <p>Prepare a PPT for the same and present on 31st July 2024</p>																								
3	<p>Compare Top 5 Python Libraries for Natural Language Processing with reference to its usage.</p>																								
4	<p>Pop Quiz based on Modules 1 and 2</p>																								
5	<p>1. Design a Finite State Automata (FSA) for the words of English numbers 1-99. Write FSA for noun, verb, and adjective.</p> <p>2. What is a language model? Write a note on evaluation metrics for the language model.</p> <p>3. Evaluate the performance of the developed question answering system in terms of providing contextually relevant answers for Marathi educational content.</p>																								
6	<p>1.Compare different Stemming techniques- Porter Stemmer, Snowball Stemmer, Lancaster, Regexp Stemmer</p> <p>2. Identify the unique challenges in sentiment analysis when applied to customer reviews in Bengali, compared to other languages.</p>																								
7	<p>Take Home Test</p> <p>Based on the given state transition and emission probability matrix, assign POS to the statement: Time flies like an arrow.</p> <p>Emission Probability Matrix</p> <table><tr><td></td><td>Time</td><td>flies</td><td>like</td><td>an</td><td>arrow</td></tr><tr><td>VB</td><td>0.1</td><td>0.2</td><td>0.2</td><td>0</td><td>0</td></tr><tr><td>NN</td><td>0.1</td><td>0.1</td><td>0</td><td>0</td><td>0.1</td></tr><tr><td>IN</td><td>0</td><td>0</td><td>0.25</td><td>0</td><td>0</td></tr></table>		Time	flies	like	an	arrow	VB	0.1	0.2	0.2	0	0	NN	0.1	0.1	0	0	0.1	IN	0	0	0.25	0	0
	Time	flies	like	an	arrow																				
VB	0.1	0.2	0.2	0	0																				
NN	0.1	0.1	0	0	0.1																				
IN	0	0	0.25	0	0																				

DT	0	0	0	0.5	0
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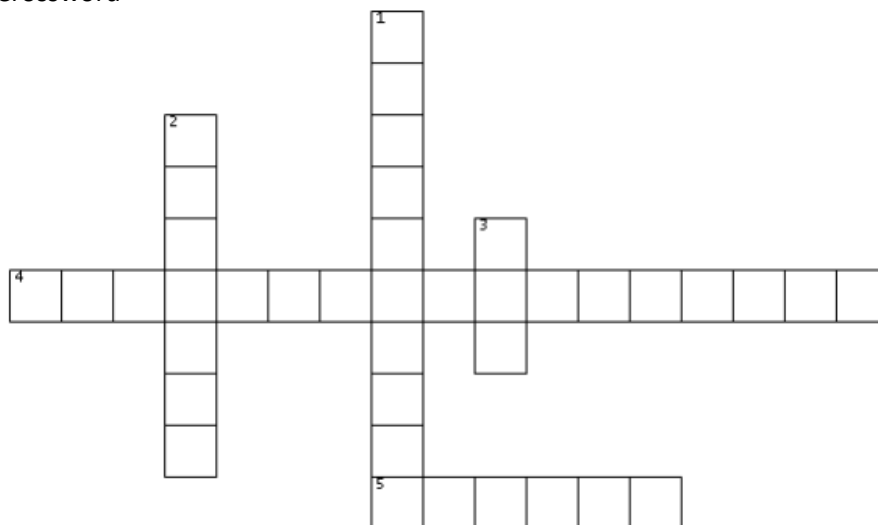
State Transition Matrix

	VB	NN	IN	DT	</S>
<S>	0.2	0.8	0	0	0
VB	0	0.3	0.2	0.5	0
NN	0.4	0.5	0.1	0	0
IN	0	0.75	0	0.25	0
DT	0	1	0	0	0

8 Discuss the applications of WordNet and BabelNet Lexical Database. Prepare a poster on the same.

9 Write a one-page summary report of any recent paper(2020 -2024) in the domain of NLP, published in Elsevier/Springer Journal

10 Crossword



	<p>ACROSS</p> <p>4. Probability based technique for Part of Speech tagging</p> <p>5. study of the structural relationship between words</p> <p>DOWN</p> <p>1. study of the relation between language and context -of-use</p> <p>2. Lexical database for semantic analysis in NLP</p> <p>3. Bottom up parsing technique</p>
11	Pop Quiz on Module-3,4,5,6
12	Discuss the role of Prompt engineering in Generative AI and ChatGPT