Seminar Topic Summary Report

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Institution Name: Basaveshwar Engineering College, Bagalkot

Department of Computer Applications (MCA)

Course: MCA

Semester: II

Seminar Topic :Natural language processing (NLP)

Submitted by:KaranasingNayak

USN: 2BA24MC012

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Guide/Faculty Name:Prof. M. H. Shirur

Guide Signature:

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1. Introduction:

Natural Language Processing (NLP) is a subfield of Artificial Intelligence (AI) that enables machines to interpret, understand, and generate human language. By combining linguistics, computer science, and machine learning, NLP aims to create systems that can interact naturally with users through spoken or written language.

2. Seminar Topic Details:

Topic Title: Natural Language Processing
Area/Domain: artificial intelligence
Keywords: encompass a range of concepts and techniques used to enable computers to understand, interpret, and generate human language.

3. Topic Summary:

This seminar provides an overview of NLP, discussing its significance, components, and real-world applications. Topics include tokenization, part-of-speech tagging, named entity recognition, machine translation, sentiment analysis, and deep learning methods. It also covers the challenges in NLP, such as linguistic ambiguity and data scarcity, and highlights ethical considerations and emerging research trends.

4. Relevance to MCA Curriculum:

NLP is highly relevant to the MCA program as it bridges core subjects like Artificial Intelligence, Machine Learning, Data Science, and Human-Computer Interaction. It aligns with current technological trends and provides practical applications in fields such as automation, finance, healthcare, and customer service.

5. Learning Objectives:

By attending this we, students will:
- Understand the fundamentals and applications of NLP.
- Learn various NLP techniques such as preprocessing, text analysis, and model training.
- Explore the roles of deep learning and transformers in modern NLP.
- Identify challenges and ethical issues in NLP development and deployment.

6. Expected Outcome:

After the seminar, we should be able to:
- Analyze and preprocess text data for NLP tasks.
- Recognize the impact of NLP in different industries.
- Utilize NLP libraries and tools effectively.
- Reflect critically on the ethical use and limitations of NLP technologies.

7. References:

- Natural Language Processing
- Jurafsky, D., & Martin, J. H. (Speech and Language Processing textbook)
- Research articles from ACL, IEEE, and arXiv
- Libraries: NLTK, spaCy, Hugging Face Transformers
- Blogs and documentation from OpenAI, Google AI, and NLP community forums

Coordinator Signature   **HOD Signature**