NARASARAOPETA ENGINEERING COLLEGE (AUTONOMOUS)

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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Batch Number	DG2
Team Members	P. Nikhitha (21471A05O1) Sd. Mahishabi (22475A0515) A. Ranga Lakshmi (21471A05L4)
Guide	Dr. K LakshmiNadh M.Tech.,Ph.D
Title	Neural Network – Based Named Entity Recognition for Bodo : A Deep Learning Approach
Domain/Technology	DEEP LEARNING
Base Paper Link	https://www.sciencedirect.com/science/article/pii/S1877050924009049
Dataset Link	https://www.kaggle.com/datasets/jigarpanjiyar/english-to-bodo-dataset
Software Requirements	Browser: Any latest browser like Chrome Operating System: Windows 7 Server or later Python (COLAB)
Hardware Requirements	SystemType: Intel Core i5 or above RAM: 8 GB Number of cores:5 Number of Threads: 4
Abstract	Named Entity Recognition (NER) is a critical task in Natural Language Processing (NLP) with uses in information extraction, machine translation, search engine, document summarization, sentiment analysis, language comprehension and question answering. Bodo is a low-resource language that suffers from the lack of annotated corpora and linguistic resources. This paper suggests a deep learning-based method to NER for Bodo using Long Short-Term Memory (LSTM), Gated Recurrent Units (GRU), and Convolutional Neural Networks (CNN). Data augmentation and transliteration methods are utilized to overcome data paucity. The results of experiments indicate that CNN performs best compared to other structures with an accuracy of 99.91%, followed by GRU at 99.36% and LSTM at 96.5%. SHAP analysis is also used for feature importance in order to extend model interpretability. This work supports the improvement of NER research for low-resource languages and demonstrates the efficiency of deep learning in processing low-resource linguistic issues.

Signature of the student(s) **Signature of the Guide** **Signature of the project coordinator**