Introduction

* In the realm of Natural Language Processing (NLP), the task of next-word prediction plays a pivotal role.
* In today's digital world, where we often communicate through screens and keyboards, Next Word Prediction has become a common feature that makes typing easier and helps by suggesting the next word as we type, based on what we've already written. Imagine being able to identify the most likely word to follow a given sequence of words—whether it’s for text auto-completion, speech recognition, or machine translation You've probably seen it on your phone or computer, where it predicts what you're going to say next, saving you time and effort.
* In recent years, deep learning techniques have revolutionized Natural Language Processing

(NLP), particularly in the domain of next-word prediction. Researchers explore architectures

like Recurrent Neural Networks (RNNs), Long Short-Term Memory (LSTM), and Gated

Recurrent Unit (GRU) to capture context and dependencies within text. Accurate predictions

enhance user experience by suggesting relevant words, streamlining typing, and empowering

NLP applications. Next Word Prediction is a fascinating blend of human language and artificial intelligence. By understanding patterns in language, these prediction models give us insight into how we communicate. This not only speeds up typing but also makes our interactions with technology more intuitive.

* In this research paper, we'll explore Next Word Prediction, looking at how it works, the challenges it faces, and what it can be used for. We'll start by explaining the basics of language modeling, focusing on how deep learning techniques like recurrent neural networks (RNNs) and their variants like Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU) networks, power these prediction systems. Then, we'll dive into the details of a special dataset for our research, we've curated a dataset from "Project Gutenberg", collecting various books published by a specific author. These texts provide rich linguistic context, enabling our model to learn and generalize effectively.
* Benefits and Applications of Next Word Prediction are:

- Enhanced User Experience: Relevant and coherent word suggestions improve auto-completion systems, making typing smoother.

- Entertainment: Imagine a game where players predict a target word within a limited number of attempts. Next-word prediction adds an engaging twist.

* In this paper, further we'll examine how well current Next Word Prediction methods work and where they can be improved. Ultimately, our goal is to deepen our understanding of how language prediction works and We hope to make typing even faster and to simplify the prediction process, enhance user interactions, and contribute to the fascinating world of NLP and find new ways to make Next Word Prediction more useful and accessible in our digital age.