**Abstract**

This project implements an advanced text summarization system utilizing the BART Seq2Seq model, renowned for its state-of-the-art performance in natural language processing tasks. The system processes input text through a comprehensive pipeline that includes text preprocessing, sentence tokenization, and feature extraction. By leveraging the capabilities of the BART model, the system generates coherent and contextually relevant summaries, effectively condensing large volumes of information into concise formats. The user-friendly interface allows users to input text and receive summaries, enhancing information accessibility and comprehension. This project demonstrates the efficacy of modern neural network architectures in transforming text summarization tasks, paving the way for further research and application in the field of automated content generation

**1.1 INTRODUCTION**

The rapid advancement of technology and the digitalization of information have led to an explosion in the volume of text data being generated daily. From news articles to social media posts, scientific papers, and business reports, the sheer amount of text that individuals and organizations need to process has become overwhelming. In such a scenario, automatic text summarization has emerged as an essential tool to condense large volumes of text into more manageable summaries, allowing users to extract the most critical information without reading entire documents.

Over the years, a variety of methods have been employed for text summarization. Early approaches relied on rule-based systems or statistical methods such as term frequency-inverse document frequency (TF-IDF) to identify key sentences. While effective for short texts, these methods struggled with long documents, context, and meaning. More recently, machine learning and deep learning techniques, particularly with the introduction of transformer-based models, have revolutionized the field of Natural Language Processing (NLP). Transformers have enabled significant improvements in various NLP tasks, including translation, question answering, and summarization, due to their ability to model long-range dependencies in text.This project aims to implement an abstractive text summarization system using the BART Seq2Seq model, showcasing its ability to summarize long documents while retaining state-of-the-art performance. The model's architecture, which utilizes both encoder-decoder capabilities, allows it to handle large datasets and generate meaningful, human-like summaries. With applications ranging from news aggregation to scientific research, text summarization is a crucial task that enables users to navigate vast amounts of information quickly and efficiently.

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