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Sample - GEN AI PROJECT PHASE 1 SUBMISSION DOCUMENT

# Phase 1: Proposal & Idea Submission

## 1. Project Title:

Text Style Transfer using Generative AI

## 2. Domain:

Generative AI | NLP | Text Transformation

## 3. Problem Statement:

Style transfer in natural language processing involves rewriting text from one style to another while preserving the original content. This capability is valuable in applications such as formalizing casual text, modernizing archaic language, or converting passive to active voice. The project aims to build a system that performs style transfer on English text using a generative model.

## 4. Proposed Solution:

This project will leverage pre-trained transformer-based generative models (like T5 or GPT) to perform text style transfer. The system:  
- Accepts user-provided text input in one style.  
- Applies a prompt-based transformation to generate an output in the target style.  
- Supports various style transfers such as casual → formal, passive → active, etc.  
- May include a user interface for easy interaction.

## 5. Objectives:

- To demonstrate style transfer using a transformer-based generative model.  
- To evaluate the quality and faithfulness of the transformed text.  
- To explore prompt engineering and fine-tuning techniques for improving results.  
- To build an interactive demo interface for users.

## 6. Expected Outcome:

- A Python-based prototype that takes text input and produces stylistically transformed output.  
- Support for at least two distinct style transfer tasks.  
- Optionally, a Streamlit or Flask web app for user testing.  
- Qualitative evaluation of the outputs using sample prompts.

## 7. Tools & Technologies to be Used:

- Python  
- HuggingFace Transformers  
- Pre-trained models: T5, GPT-2  
- Jupyter Notebook (for experimentation)  
- Streamlit (for UI demo)  
- Google Colab / Local machine for development

## 8. References:

- HuggingFace Transformers Documentation  
- “Exploring the Limits of Transfer Learning with a Unified Text-to-Text Transformer” (T5 Paper)  
- Style transfer datasets from HuggingFace Datasets library  
- Prompt engineering techniques in NLP