College Name: VIT Bhopal University
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TEXT COMPLETION GENERATOR - GEN AI PROJECT PHASE 1 SUBMISSION DOCUMENT

Phase 1: Proposal & Idea Submission

1. **Project Title:**
   Complete Sentence Prediction using Generative AI

2. **Domain:**
   Generative AI | NLP | Sentence Completion

3. **Problem Statement:**
   Understanding and generating coherent text is a critical challenge in NLP. The ability to predict or complete the complete sentence based on context is essential for building intelligent applications like chatbots, content generators, and summarization tools. This project addresses the challenge by building a generative model that can complete a sentence or paragraph fragment meaningfully.

4. **Proposed Solution:**
   This project uses a pre-trained Generative AI model (GPT-2) to build a sentence completion system. The user enters the beginning of a sentence or paragraph into an interactive UI (built using IPyWidgets). The system:

   - Loads a fine-tuned or pre-trained language model.
   - Generates a sentence completion for the user's input.
   - Filters to return only the first complete sentence to ensure coherence.
   - Provides a user-friendly interface in Google Colab using interactive widgets.

5. **Objectives:**

   - To build a working prototype that completes or predicts the complete sentence using a generative model.
   - To integrate an interactive interface for real-time sentence generation.
   - To explore different decoding strategies (e.g., temperature, top-p) and improve quality.

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6. Expected Outcome:

- A Google Colab-based app that accepts sentence inputs and returns plausible complete sentences.
- Clear and grammatically correct outputs limited to the first generated sentence.
- A ready-to-demo prototype showcasing the application of Gen AI in NLP.

7. Tools & Technologies to be Used:

- Python (programming language)
- Transformers Library (HuggingFace)
- Pre-trained model: GPT-2
- Google Colab (for development & UI)
- IPyWidgets (for UI interaction)
- Optional: Flask/Streamlit (for future web-based extension)

8. References:

- HuggingFace Transformers Documentation
- OpenAI GPT-2 Model Documentation
- NLP Sentence Generation Research Papers
- GitHub Repositories on NLP Autocompletion