## AI Text Completion Project Report

## 1. Introduction

This project explores the practical application of Generative AI by building a text completion app using Google's Gemini API (gemini-2.0-flash). The objective is to understand how AI models interpret prompts, generate relevant responses, and how their behavior can be tuned using parameters.

## 2. Objectives

* Build a Python-based text completion tool using Generative AI
* Learn how prompts influence AI behavior
* Analyze AI output quality and limitations
* Experiment with model parameters like temperature and max\_tokens
* Reflect on AI capabilities across different prompt types

## 3. Tools and Technologies

* Python 3
* google-generativeai
* .env file for API key management
* Terminal for CLI interaction

## 4. Application Overview

The app takes user input, sends it to the Gemini model, and returns a generated response. It includes input validation, parameter customization, and graceful error handling. Responses are timed and printed to the terminal.

## 5. Prompt Evaluation and Results

* Prompt 1: Explain WW1 — Informative and structured
* Prompt 2: Write a haiku about the ocean — Creative and on-format
* Prompt 3: Explain recursion like I’m five — Relatable analogies
* Prompt 4: What happens when a star dies? — Scientific and clear
* Prompt 5: Continue this story: The robot woke up... — Creative narrative

## 6. Observations and Limitations

* Strengths:
* Excellent language fluency and formatting
* Strong performance across narrative, factual, and poetic tasks
* Limitations:
* No real-time data or external context
* Occasionally verbose or speculative
* Needs factual verification

## 7. Improvements and Future Work

* Add model selection (e.g., OpenAI vs Gemini)
* Create GUI with Streamlit or Tkinter
* Store and visualize prompt history
* Implement response filtering or summarization

## 8. Conclusion

This project helped demonstrate how Generative AI can power a responsive text completion app. Despite its limitations, Gemini performs impressively across creative, educational, and technical prompts. The project improved understanding of prompt engineering and responsible use of AI.