Internship Report

Internship Details

- **Organization Name**: Caffeinated Programmers
- **Internship Title**: Python Intern
- **Project Assigned**: PDF to Markdown using Gemini API
- **Duration**: 2nd June 2025 – 2nd July 2025
- **Mode**: Remote
- **Working Hours**: 01:00 PM – 6:00 PM
- **Mentor Name**: Mr. Anurag Kashyap

Submitted By:

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Batch: 2022–2026

Project Overview

This project is a Python-based CLI that converts PDF files into Markdown using Google's Gemini large language model (LLM). It focuses on clean code, smooth API integration, and secure file handling to ensure accurate and safe conversion of content. The goal is to make PDF to Markdown conversion easy and reliable using Gemini API.

Objectives of the Project

- Build a command-line interface for selecting PDF files
- Extract text from selected PDFs
- Use Gemini API to convert extracted text into Markdown format
- Save converted files into a designated folder

Roles & Responsibilities

- Designed and developed the complete pipeline using Python, focusing on a clean and modular structure.
- Integrated the Gemini API securely, using environment variables with dotenv to manage API keys.
- Then built reusable components for selecting and processing PDF files, making the model easy to extend.
- After that I handled edge cases like API rate limits, folder creation errors, and ensured reliability through testing.
- I also documented the code thoroughly with clear docstrings and a well-structured Readme for easy understanding.

Tools & Technologies Used

- Visual Studio Code - Used as code editor
- PyPDF2 – Used to extract text content from PDF files.
- Inquirer - Creates an interactive command-line interface for file selection.
- Google-Generative AI – Used to integrate Gemini API for markdown conversion
- Dotenv – It manages API keys securely using environment variables.
- Git & GitHub - Version control and code hosting for collaboration

Key Learnings

Through this project, I gained hands-on experience working with large language models (LLMs) and integrating external APIs like Google's Gemini. I improved my skills in file handling and text processing using Python, especially when working with unstructured PDF content.

I also learned how to structure a project into clean, maintainable modules for better readability and scalability. Securely managing environment variables using dotenv helped me appreciate the importance of protecting sensitive data.

I learnt how the error is handled, especially when dealing with API limits and unexpected input formats. It also strengthened my version control practices, using Git and GitHub to maintain clean commit histories, manage branches, and write meaningful commit messages.

Overall, it was a valuable experience in working with AI, APIs, building production-ready tools, and writing code that's easy to maintain and scale.

Challenges Faced

During the model development, some challenges are faced, here are some challenges :

- Hitting Gemini API limits sometimes slowed down testing.
- Some API errors (like 404 and 429: "Not Found" and "Too Many Requests") were fixed by switching the model to more reliable Gemini model.
- The script had issues creating folders when run multiple times without cleanup.
- File path issues on windows caused errors during execution

Outcomes of the Internship

Developed a fully functional CLI model
Created a simple command-line model in Python that turns PDF files into clean Markdown text using Google's Gemini AI. This model let users to pick a file, extracts the text, sends it to the AI for conversion, and then saves the result in new folder - all in an easy and automated way.

Gained real-world experience working with AI models and APIs
Got hands-on experience using the Gemini API, where I learned how to write effective prompts, manage AI responses, and handle common issues like rate limits and errors. This gave me practical knowledge of how to work with LLM in real-world projects.

Improved my confidence in writing clean code
This project helped me get better at writing clean and organized Python code. I learned how to structure code in a modular way, follow best practices, and build something that's easy to maintain and ready for real-world use.

Project Deliverables

- **GitHub Repository**: https://github.com/isha74/PDF-to-MD-Using-Gemini
- **Live Demo** https://github.com/isha74/PDF-to-MD-Using-Gemini/tree/2025PY1056
- **Demo Video**: https://drive.google.com/file/d/15TGfYnoQeHJmQ7bJp63GqNxWt2VS_mTQ/view?usp=sharing
- **Documentation (README)**: https://github.com/isha74/PDF-to-MD-Using-Gemini/blob/2025PY1056/README.md

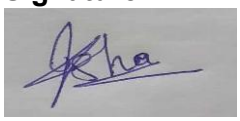
Acknowledgement

I extend my heartfelt thanks to the team at Caffeinated Programmers and my mentor for providing valuable guidance and feedback throughout this internship. I also thank my faculty and institution for supporting me in this opportunity.

Declaration

I hereby declare that the information provided above is true to the best of my knowledge and this report is a genuine reflection of the work I completed during the internship period.

Signature



Isha Premnath Bairam
Date: [30/06/2025]