

# AI-POWERED TRANSACTION MAPPING FOR OPTIMIZED CREDIT CARD MANAGEMENT

## • Overview

CreditFins is an Egyptian fintech startup offering an innovative platform for credit card management. By helping users repay their credit card debts through fixed, lower monthly installments, CreditFins empowers customers to avoid exorbitant interest costs. Additionally, it promotes financial literacy by providing users with tools for tracking payments and understanding spending patterns. This approach is crucial in Egypt, where credit card debt surpasses \$2 billion. CreditFins aims to break the cycle of revolving credit card debt through its services, benefitting both individuals and the broader financial ecosystem.

## • Customer

CreditFins

**Country:** Egypt

**Industry:** B2B & B2C

**Customer Size:** 1000+

**Publish Date:** 02/08/2024

## • Problem Statement

CreditFins sought to enhance its platform's functionality by enabling users to better understand their financial habits through enriched transaction data. They needed a solution that could process individual bank statements and extract critical transaction attributes such as city, country, region, merchant name, merchant ID, payment provider, and payment provider ID. This detailed categorization would allow users to identify spending patterns and make more informed financial decisions, a capability the platform was missing.

## • Technical Solution

To meet CreditFins' needs, we developed a data enrichment pipeline that seamlessly processed bank statements and extracted key transaction attributes. Our solution integrated several cutting-edge technologies, including Serper API, which utilized Google searches to accurately identify vendor names. The pipeline also leveraged Natural Language Processing (NLP) techniques and Large Language Models (LLMs) to extract details such as merchant names, payment providers, and location data from transaction descriptions.

Key tools used included Pandas, PyCSV, and Python for data handling, and HuggingFace Embeddings for NLP tasks. The system was designed to enrich each transaction with attributes, making it possible for users to categorize their spending by Merchant Category Codes (MCC). For deployment, we utilized Docker for containerization and LangChain with Qdrant for vector database management, ensuring scalable and efficient data processing.

## • Results

The integration of the data enrichment pipeline significantly transformed CreditFins' platform, providing users with newfound insights into their spending behavior. With the ability to categorize transactions based on merchant types and geographic details, users can now easily track and analyze their spending patterns, which was previously not possible. This improvement enhanced user satisfaction and promoted better financial decision-making, aligning with CreditFins' mission to foster financial literacy and reduce debt. The solution successfully processed over 100K financial documents and was met with positive feedback from both CreditFins and its user base.

## • Technologies

- Pandas
- Docker
- PyCSV
- Python
- LangChain
- OpenAI GPT4o-mini
- Sentence Transformers
- Gradio
- HuggingFace Embeddings
- Github

## • Domains

- Generative AI
- Natural Language Processing (NLP)
- Retrieval Augmented Generation (RAG)