

MINI PROJECT (BCS-351) CS-2K

SYNOPSIS

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OptiFi

AI-Powered Personal Finance Tracker

Final Project Synopsis

OptiFi is an AI-powered personal finance tracker that simplifies budgeting, expense tracking, and financial planning. This synopsis presents the project objective, functioning, key features, technology stack, and expected impact.

1. Title

OptiFi: An AI-Powered Personal Finance Tracker for Smart Budgeting and Expense Management

2. Objective

The objective of **OptiFi** is to simplify personal financial management by leveraging AI/ML technologies. OptiFi automates expense tracking, categorization, budget forecasting, savings recommendations, and investment monitoring. Designed for both students and professionals, it provides real-time insights, personalized coaching, and predictive budgeting to improve financial behavior.

3. How it Works

Data Collection: Users upload bank statements (CSV/PDF) or connect accounts via financial APIs. OCR extracts transactions from images/PDFs and parses them into structured fields (date, description, amount).

Expense Categorization (AI/NLP): ML and NLP models automatically classify transactions into categories (Groceries, Rent, Utilities, etc.). Contextual understanding differentiates merchant codes and descriptors for high accuracy.

Budget Prediction & Forecasting: Time-series and regression models analyze historical spending to predict future cash flow and monthly expenses. Alerts are generated when projections indicate budget exceedance.

Personalized Insights & Coaching: AI-driven recommendations provide actionable tips (e.g., reduce dining out) and natural-language explanations via LLMs for more human-like guidance.

Investment & Goal Tracking: Integrates investment APIs to show portfolio values and allows users to set and track savings goals with visual progress indicators.

Security & Privacy: Implements secure authentication (OAuth2, JWT), and compliance with GDPR/PCI standards.

4. Key Features

- Expense Categorization: Automatic classification using NLP/ML.
- Budget Prediction & Alerts: Forecast cash flow and send proactive notifications.
- Savings Tips & Financial Coaching: Personalized advice using LLMs or recommendation engines.
- Investment Tracking: Portfolio integration with external APIs for consolidated views.
- Bill Reminders & Automation: Notifications for upcoming and recurring payments.

- Goal Setting & Gamification: Set savings goals, track progress, and incentivize saving.
- Receipt OCR: Extract transaction data from receipts to minimize manual entry.

5. Tech Stack

The project uses a modular, scalable tech stack to support frontend UX, backend APIs, AI/ML models, integrations, and secure deployment.

Frontend	React.js , JavaScript, TailwindCSS, Chart.js
Backend / API	Python (FastAPI / Flask) or Node.js (Express), MongoDB , django
AI/ML	Scikit-learn, PyTorch/Tensorflow, numpy, pandas, Hugging Face Transformers
DevOps / Hosting	GitHub Actions (CI/CD) Vercel / Render for hosting
Security	HTTPS/SSL, JWT

6. Impact

OptiFi targets both students and working professionals. For students, the app fosters budgeting discipline and reduces overspending; studies show ~68% of student users report better budgeting after using AI finance tools. For professionals, OptiFi delivers consolidated views of spending and investments, enabling smarter financial decisions. With AI-driven personalization and gamification, OptiFi aims to increase user savings behavior by up to 30% and improve retention through engaging UX and trusted security practices. Market trends indicate growing adoption of AI finance apps (approx. +25% downloads in 2023–24), positioning OptiFi well for uptake.

References

- Industry analyses on AI-powered budgeting tools (2023–2024).
- Nanonets: AI-based bank statement processing guidance.
- Research on predictive budgeting and user behavior studies.
- Reports on data security and privacy in fintech.
- Intellias guide on AI financial assistant development.

Prepared by: Team OptiFi

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