



Department of Information and Communication Technology

Diploma Studies

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Subject: PROJECT II (09CT0602)

Domain of Project : AI

Title: Finance AI

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1. Problem Statement

Problem Statement:

- People struggle to track expenses, receipts, invoices, and transactions manually.
- Most finance apps require heavy manual input and lack personalized insights.
- Households and small businesses miss spending patterns and face tax-reporting difficulty.
- There's no simple tool that auto-reads financial documents, organizes data, and gives smart suggestions.

2. Project Definition

Project Title:

Customized finance AI Assistant using ML to track finance and get insights.

Finance AI Assistant is an AI-driven system that automatically extracts and organizes financial data. It analyzes expenses, generates real-time insights, and prepares reports. Using machine learning and NLP, it identifies patterns and gives personalized financial insights. The system serves as a virtual finance assistant for individuals and small businesses.

3. Literature Survey

Literature Survey Summary Table:

Existing Work / System	Methods Used	Strengths	Limitations / Gaps
Google Document AI	OCR + ML-based field extraction	High accuracy for invoices/receipts; ready-to-use	Not personalized
Microsoft Azure Form Recognizer	OCR + pretrained templates + ML	Good automation; supports tables & key-value pairs	Template-dependent; limited financial insights
LayoutLM (Microsoft Research)	Transformer model combining text + layout + visual info	Strong document understanding; good for custom training	Needs labeled data; not end-to-end
Donut (Naver Clova)	OCR-free Transformer for document-to-text	Avoids OCR errors; handles varied layouts	Sensitive to low-quality photos; training required

4. Objectives of Project

Main Objective:

- Build an AI tool that reads financial documents automatically and gives simple, clear money insights.

Sub-Objective:

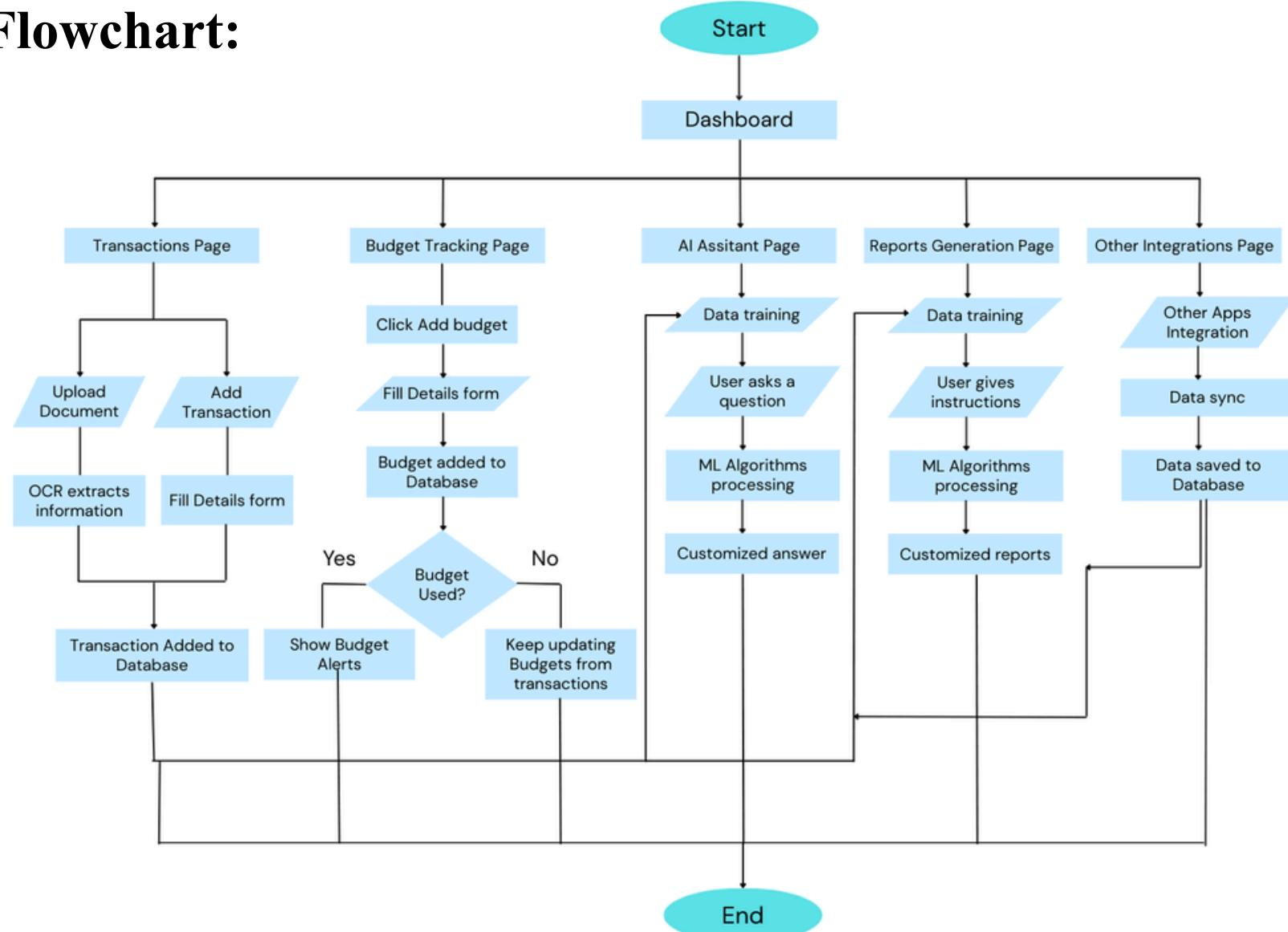
- Automatically pull data from receipts, invoices, and bank statements.
- Sort and analyze expenses without manual work.
- Give smart tips for budgeting, saving, and tax prep.

Novelty:

- Fully automatic (no typing needed).
- Gives personalized finance advice, not just expense lists.
- Made for normal users and small businesses, not experts.

5.Flowchart

Flowchart:



6. Technology used

Frontend Technology

- HTML – Structure of web pages
- CSS – Styling and layout
- JavaScript – Interactive elements and dynamic UI

Backend Technologies

- Python – Core logic and processing
- Flask – Lightweight web framework for routing, APIs, and server-side integration

Database

- SQLite – Simple, fast, file-based database for storing transactions, users, and insights

AI & Data Processing

- NLP (Natural Language Processing) – Extracting text and key fields from receipts/invoices
- Machine Learning – Categorizing expenses, identifying patterns, and generating insights

7. Project Timeline and Progress

Project Timeline and Progress:

Task / Module	Timeline	Status	Progress
Project planning & requirement analysis	Week 1	Completed	100%
UI/HTML page creation (index, budgets, insights, reports, upload, etc.)	Week 2	Completed	100%
Backend setup & routing	Week 3	Completed	100%
Document upload & processing module	Week 4	Completed	100%
NLP/ML extraction for receipts & invoices	Week 5	Completed	100%
Expense categorization & transaction management	Week 6	Completed	100%

7. Project Timeline and Progress

Project Timeline and Progress:

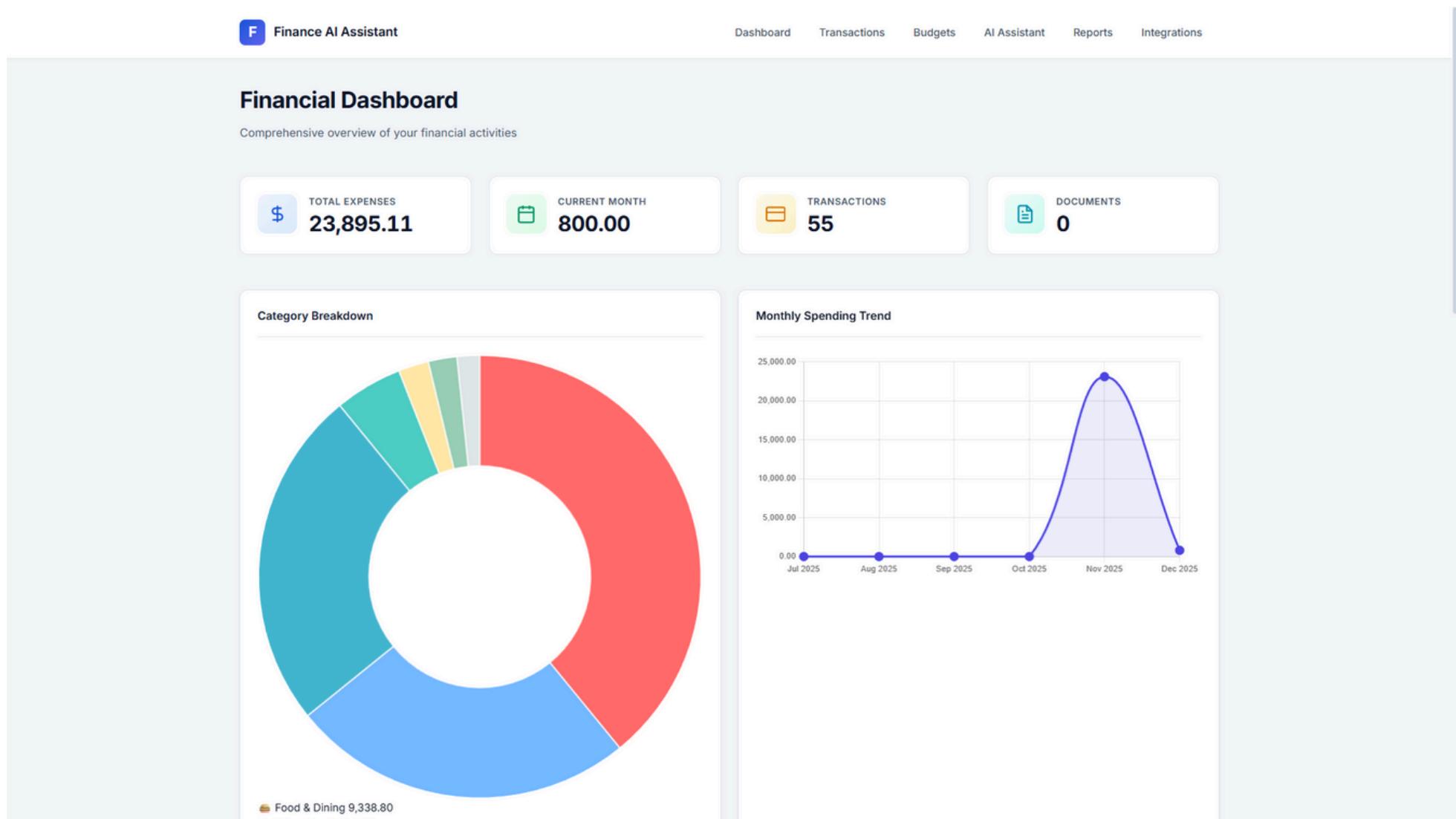
Task / Module	Timeline	Status	Progress
Insights generation (charts, spending patterns)	Week 7	Completed	100%
Reports module (tax-ready, summaries)	Week 8	Completed	100%
Chatbot module	Week 9	Completed	100%
Advanced features (AI recommendations, auto-sync, improvements)	Week 10	In progress	~20–30%
Multi-user Login	Week 11	In progress	~10%
Deployment	Week 11	In progress	0%

8. Interaction with guide

Interaction with guide:

- Had regular meetings with guide about project progress and challenges.
- Got advice on using AI/ML effectively for document processing.
- Key suggestion: Connect the system with a banking apps so transactions update the dashboard automatically.
- Guide's feedback helped make the app smarter, easier to use, and more practical.

9. Output Screenshots



[Figure 1: Dashboard]

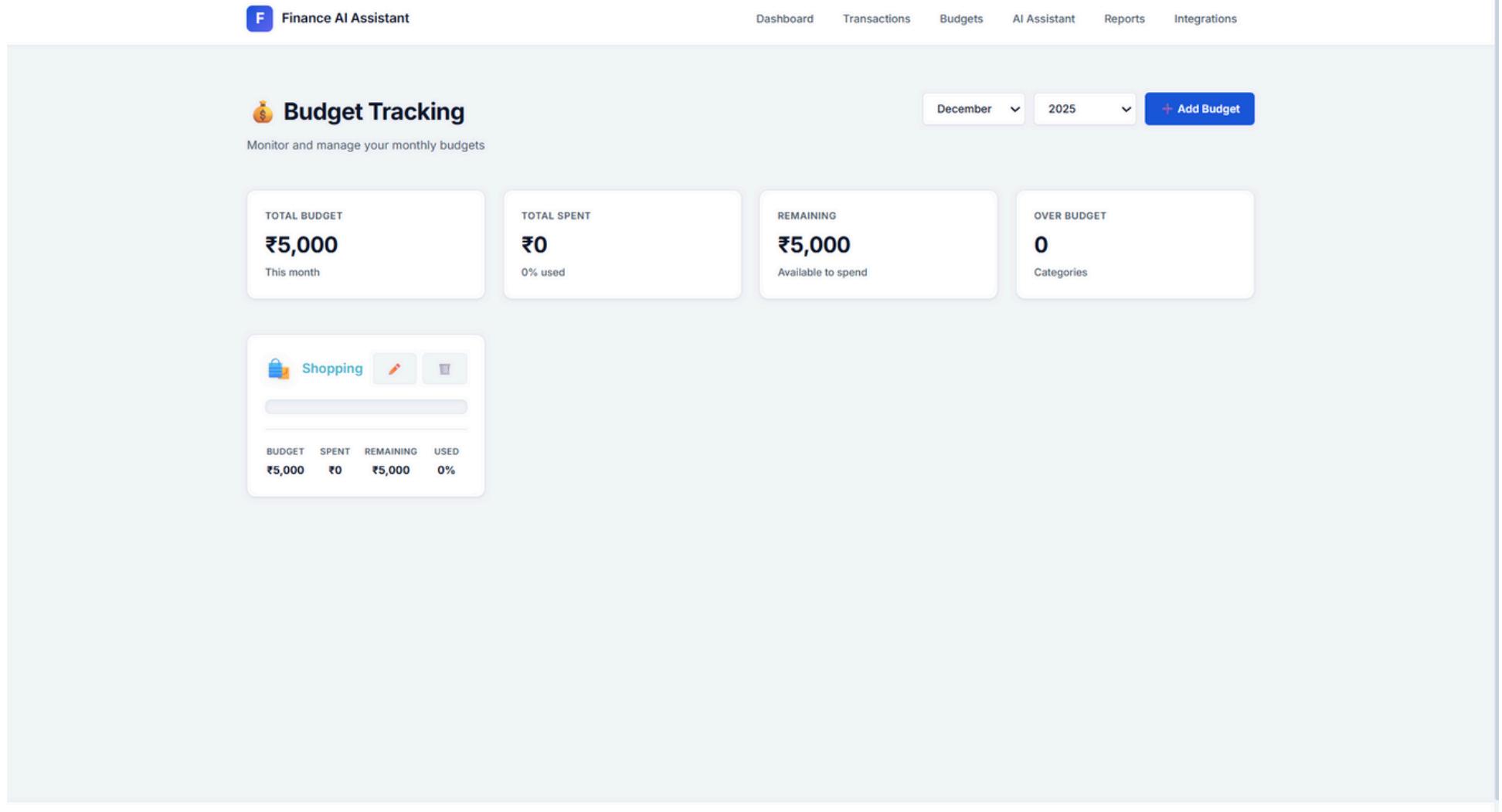
9. Output Screenshots

The screenshot shows the 'Transactions' page of the Finance AI Assistant web application. At the top, there are three summary boxes: 'Total Transactions' (0), 'Total Amount' (₹23,895.11), and 'This Month' (₹0). Below these are filtering options for Category (All Categories), Start Date (mm/dd/yyyy), End Date (mm/dd/yyyy), and Payment Method (All Methods), with buttons for 'Apply Filters' and 'Clear'. The main area displays a table of transaction history:

DATE	VENDOR	AMOUNT	CATEGORY	PAYMENT	DESCRIPTION	ACTIONS
2025-12-01	Cca.3096240	₹800.00	Food & Dining	UPI	HDFC: You have done a ...	Edit Delete
2025-11-30	Gpayrecharge	₹69.00	Utilities	UPI	HDFC: You have done a ...	Edit Delete
2025-11-30	Zeptonow	₹99.00	Shopping	UPI	HDFC: You have done a ...	Edit Delete
2025-11-29	Zepto	₹289.00	Shopping	UPI	HDFC: You have done a ...	Edit Delete
2025-11-27	Zeptonow	₹106.00	Shopping	UPI	HDFC: You have done a ...	Edit Delete
2025-11-27	Ep061900	₹465.00	Food & Dining	UPI	HDFC: You have done a ...	Edit Delete
2025-11-27	Netflix	₹500.00	Entertainment	Cash	movie	Edit Delete

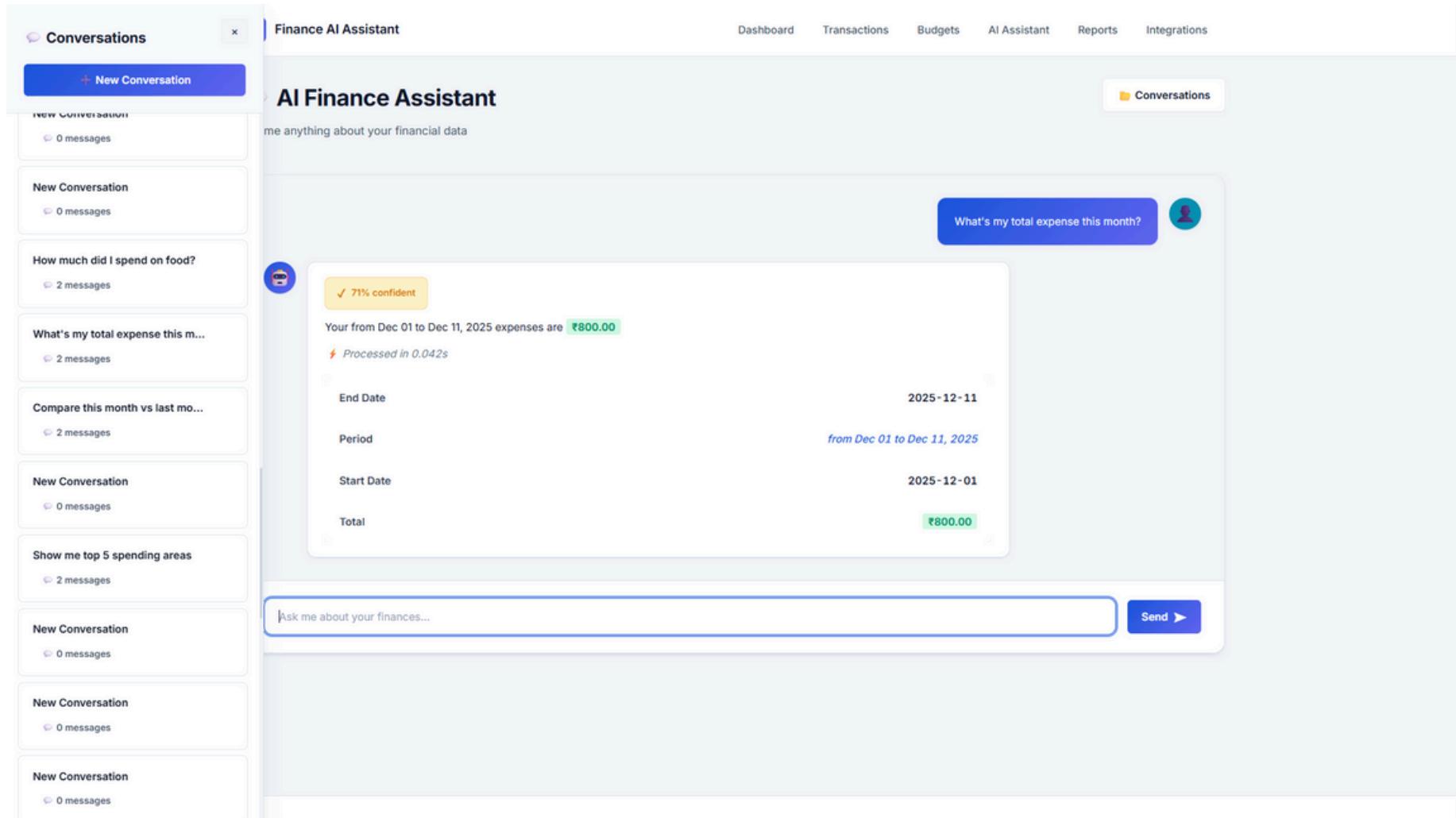
[Figure 2: Transactions list]

9. Output Screenshots



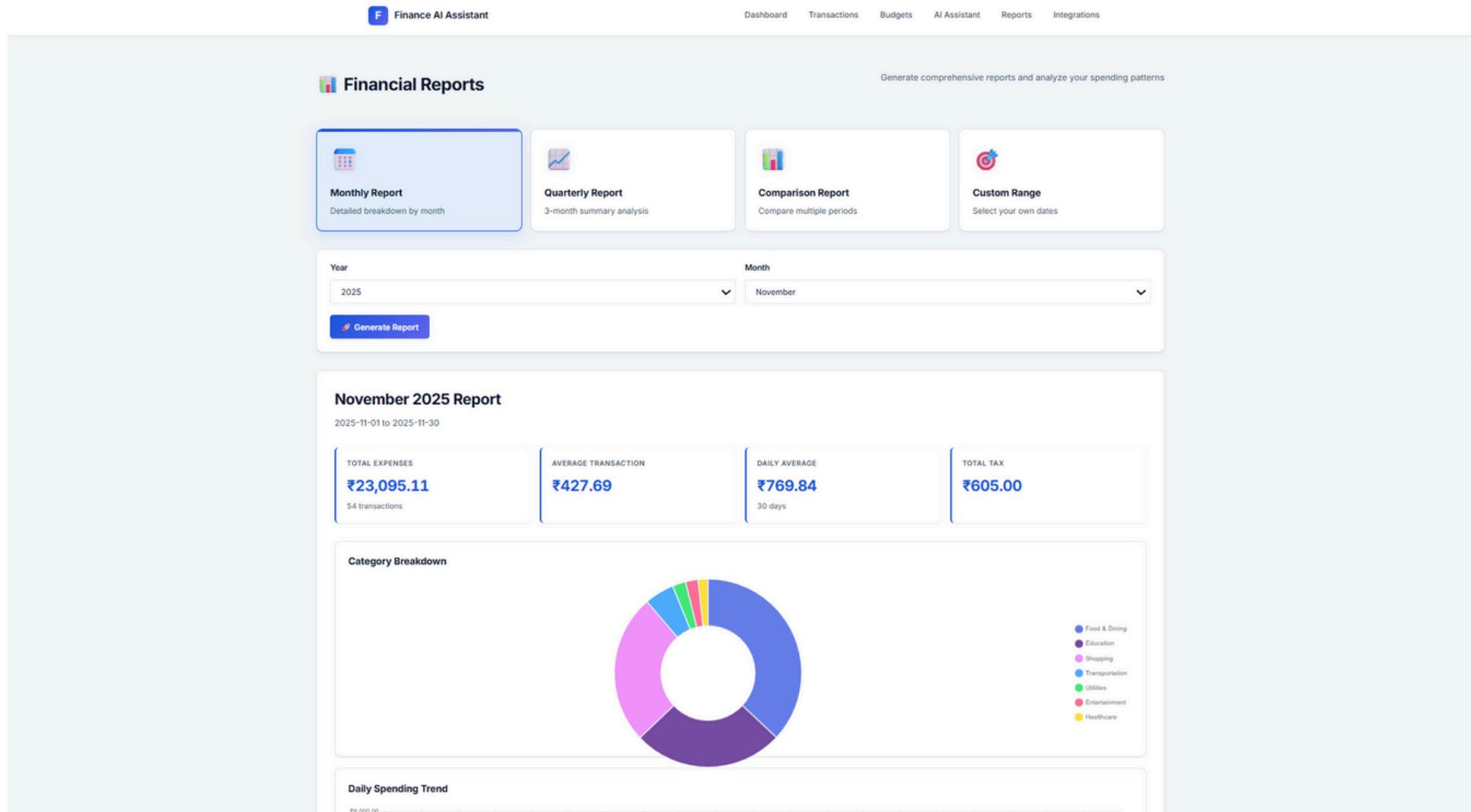
[Figure 3: Budget Tracking]

9. Output Screenshots



[Figure 4: Finance Assistant chatbot]

9. Output Screenshots



[Figure 5: Reports page]

9. Output Screenshots

The screenshot shows a web-based setup guide for the HDFC Bank Email Sync service. At the top, there's a header bar with the HDFC Bank logo, the text "HDFC Bank Email Sync", and a "Disconnected" status indicator. Below the header, a large button labeled "Setup Guide" is visible. The main content area is divided into sections:

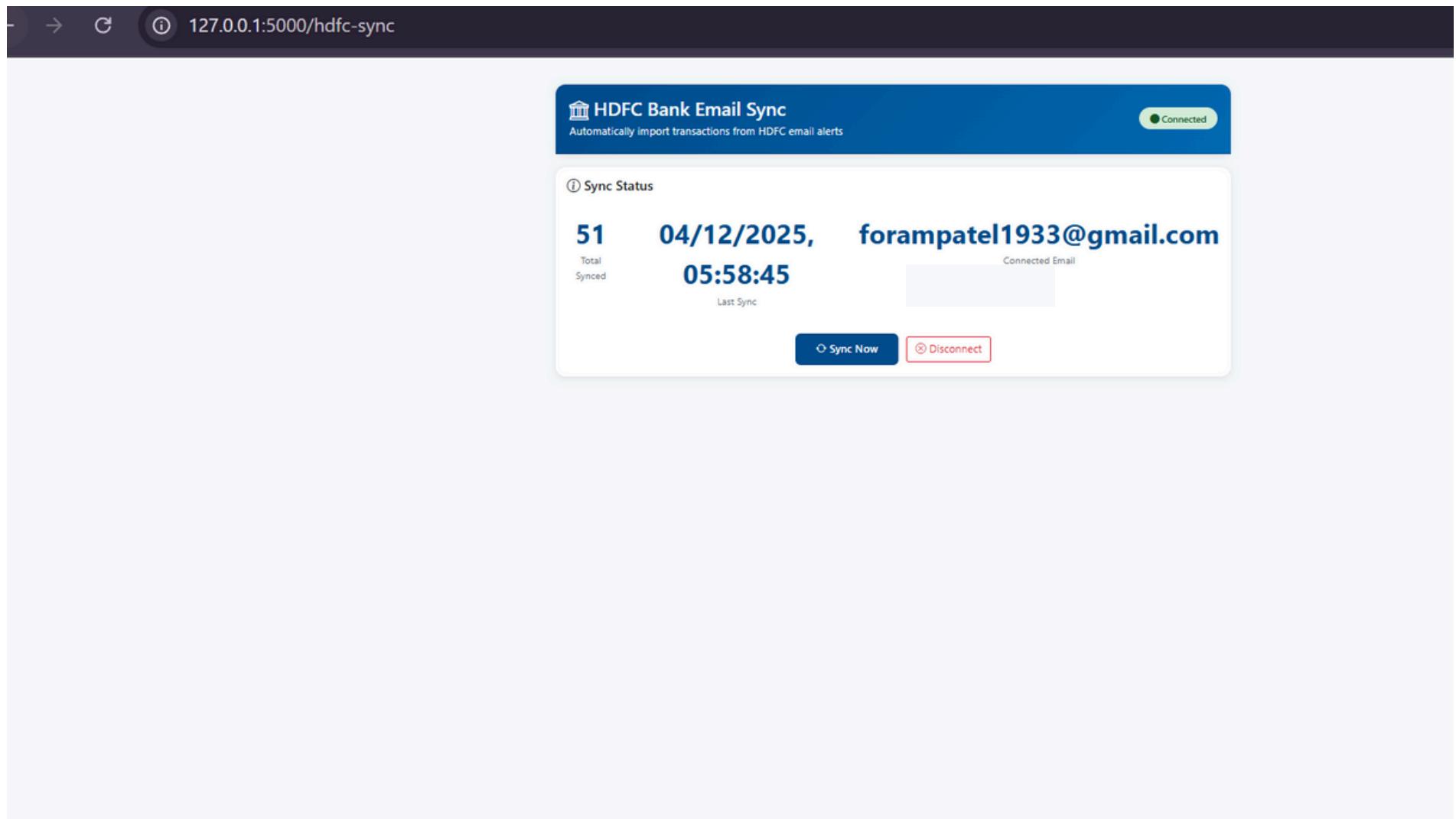
- Enable Gmail App Password**: A step-by-step guide for generating an app password:
 1. Go to [Google Account Security](#)
 2. Enable 2-Step Verification (if not already enabled)
 3. Go to [App Passwords section](#)
 4. Select Mail and Other (Custom name)
 5. Enter "Expense Tracker" and click **Generate**
 6. Copy the 16-character password (looks like: abcd_efgh_ijkl_mnop)

A note below states: "Security Note: App passwords are safer than your main password and can be revoked anytime."
- Connect Your Email**: Fields for entering Gmail address and app password:
 - Gmail Address:
 - The Gmail where you receive HDFC alerts:
 - App Password:
Remove spaces: abcdefghijklmnop

A blue "Connect Email" button is located below these fields.
- How It Works**: A list of features:
 - **Automatic Detection:** Finds all HDFC transaction alert emails
 - **Smart Parsing:** Extracts amount, vendor, date, payment method
 - **AI Categorization:** Automatically categorizes transactions
 - **Duplicate Prevention:** Skips transactions already in your database
 - **Budget Sync:** Automatically updates your budgets

[Figure 6:Banking System integration guide]

9. Output Screenshots



[Figure 7: Bank App synced successfully]

10. Challenges Faced

Challenges Faced:

- NLP accuracy issues while extracting data from diverse receipts and invoices.
- Chatbot sometimes misunderstood user queries or gave less relevant responses.
- Ensuring consistent performance across varied document formats and inputs was tricky.

11. Conclusion

Conclusion:

In this project, we developed an AI-powered finance assistant that can automatically read receipts, invoices, and bank statements, organize expenses, and generate meaningful insights. The system provides personalized financial recommendations, helping individuals, households, and small businesses manage their money more efficiently. With advanced AI features and the planned banking integration, the assistant not only simplifies day-to-day finance management but also prepares users for smarter budgeting, savings, and tax readiness.

Thank you

Any Question ?