FinanceGuru – Manage your personal finances with ease

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The problem - People have several bank accounts and financial sources and loose personal overview

According to GoBankingRates's Best Banks Survey in 2023:

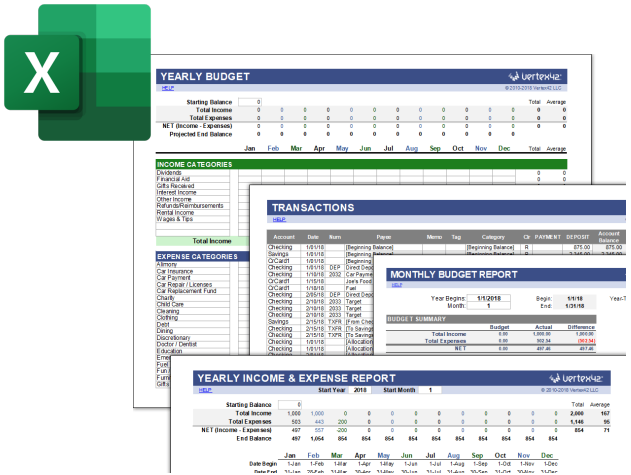
" **76%** of overall respondents said they would have **different types of accounts across various banks.**"

According to a survey by J.D. Power in 2022:

"**51%** of bank customers who hold accounts with multiple banks **report challenges in managing their finances effectively**."

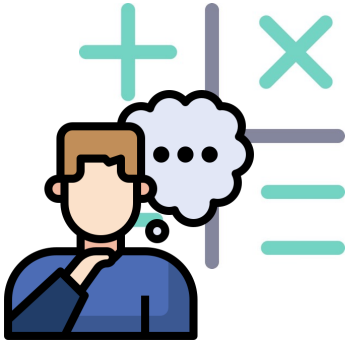
Resource: Yahoo Finance, J.D. Power. (2022). *U.S. Retail Banking Satisfaction Study*.

Current solution: User are deciding on Good-feel or spent a lot of time setting up Excel



Excel Spreadsheets

About 40% of users with multiple accounts use Excel for tracking their finances



Just By Feeling

Around 36% of Americans do not have a formal method for tracking their spending, often relying on memory or intuition instead.

Resource: Experian, MyBillBook, Financial Health Network Survey, Enterprise Apps Today, ValuePenguin

The consequence: People spent on average 2-4h on personal accounting per month, with risk of financial mismanagement

Individuals spend between **2 to 4 hours per month** to track their personal finances.

And even more problems:

Manual Data Entry Error
Occur in about 88% of spreadsheets used in corporate finance

Missed Payments and Overdrafts
27% of consumers have experienced overdrafts due to inadequate tracking of account balances

Financial Disorganisation
33% of people who use manual methods like Excel for budgeting report feeling disorganized in their financial management

Missed Opportunity
40% of people who do not use automated tools for financial management miss out on optimal investment and savings opportunities

Resource: SMM Dashboard, BEA

Problem solution breakdown: Our solution should fulfil three subgoals

Main Goal

How can we provide a **smart** application that can give users a **full overview** about their **personal finances**, and enable them to make **data based** financial decisions?

Sub Goals

Access to personal finances

- We need **access to the financial** transactions of users from different sources

Full financial overview

- A user-friendly **application interface for data-based** decisions including **in depth analytics**

Smart features

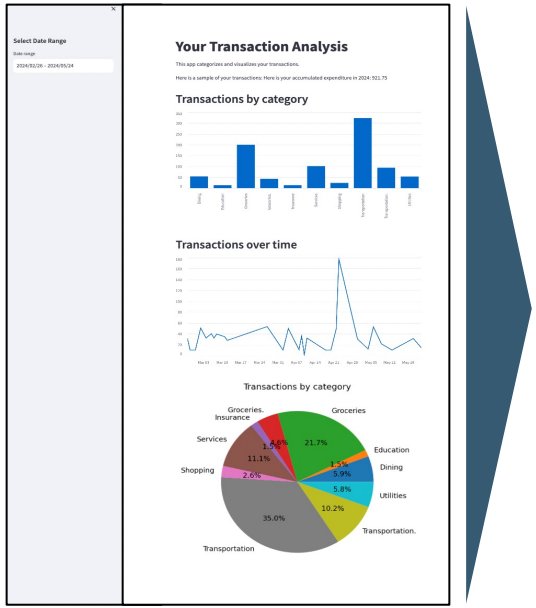
- Integration of Analytics and an AI chatbot to gain insights

Iteration 1 (bottom-up) : Classified transaction categories and simple charts

#Transactions by category

#Transactions over time

#Transaction categorization



Mediocore user feedback:

“think about the user”

“absolute values”

“rather no pie charts”

Bottom-up approach (built something with best intention and hope):

-> Pro: Flexible fo fast user feedback

-> Con: Easy to loose the red line without the end product in mind

Iteration 2 (Top-down): Ideating the vision – How could our perfect solution look like

User Data Access

- Financial account aggregation
- Connection with all banks, stock brokers, paypal etc.

The Interface

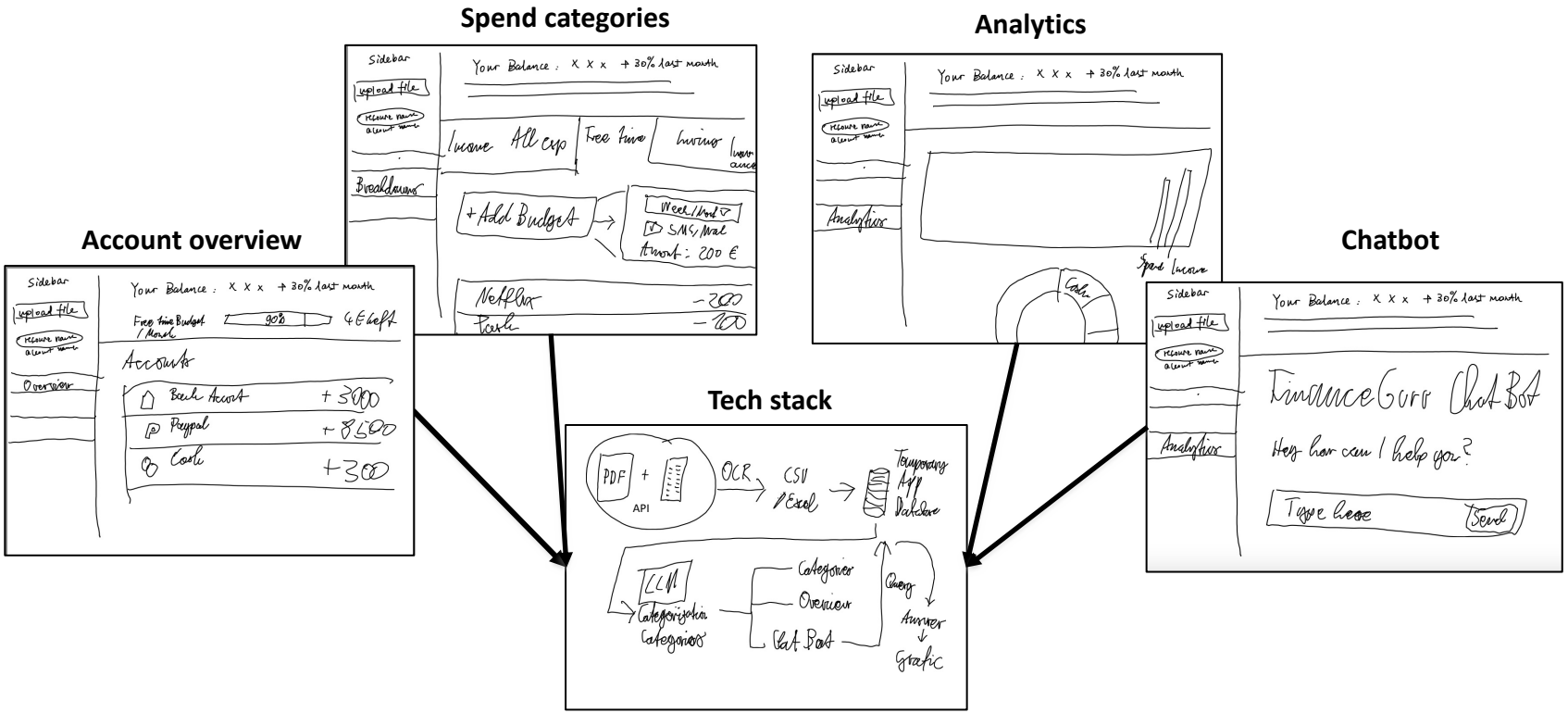
- Total Accounts
- Spending overview per category
- Bar chart for total income/expenses
- Sankey charts
- Pie chart to see spending distribution

Smart Features

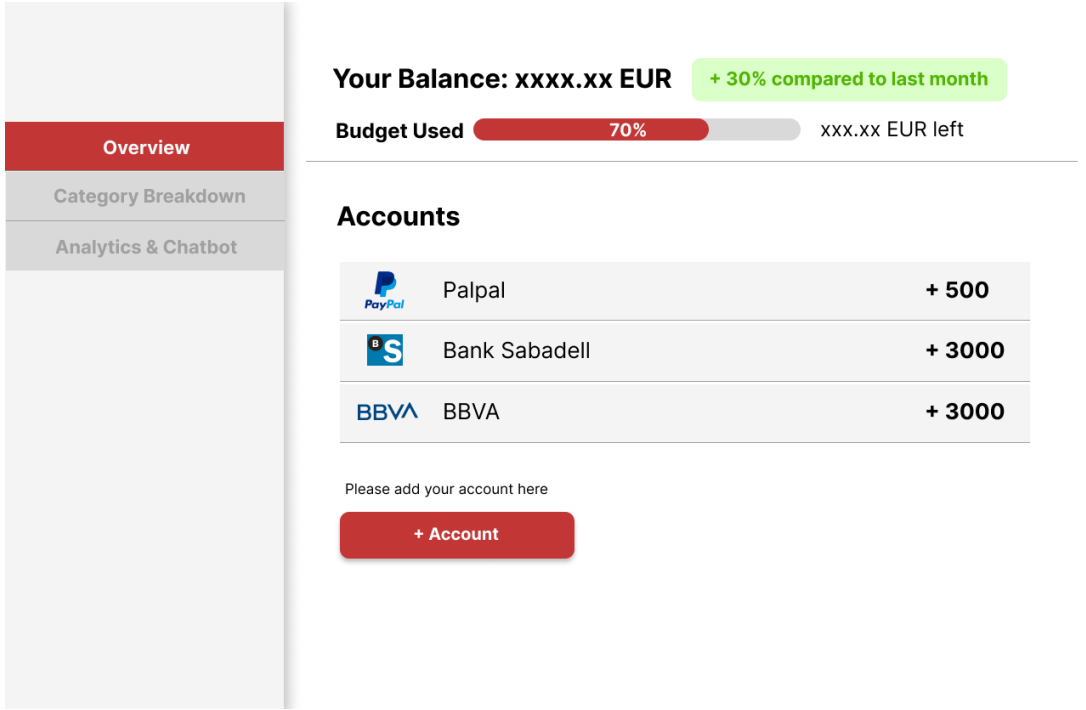
- Transaction categorization
- Budgeting
- Tax management
- Bill reminder
- Credit score monitoring

Top-down approach:
-> Pro: aligned vision in the team
-> Con: Less flexible for user feedback

Iteration 2: Ideating the vision – We used paper prototyping to get a quick iteration of the interface



Iteration 2: Ideating the vision – We used Figma to build a “looks real” version for more user feedback

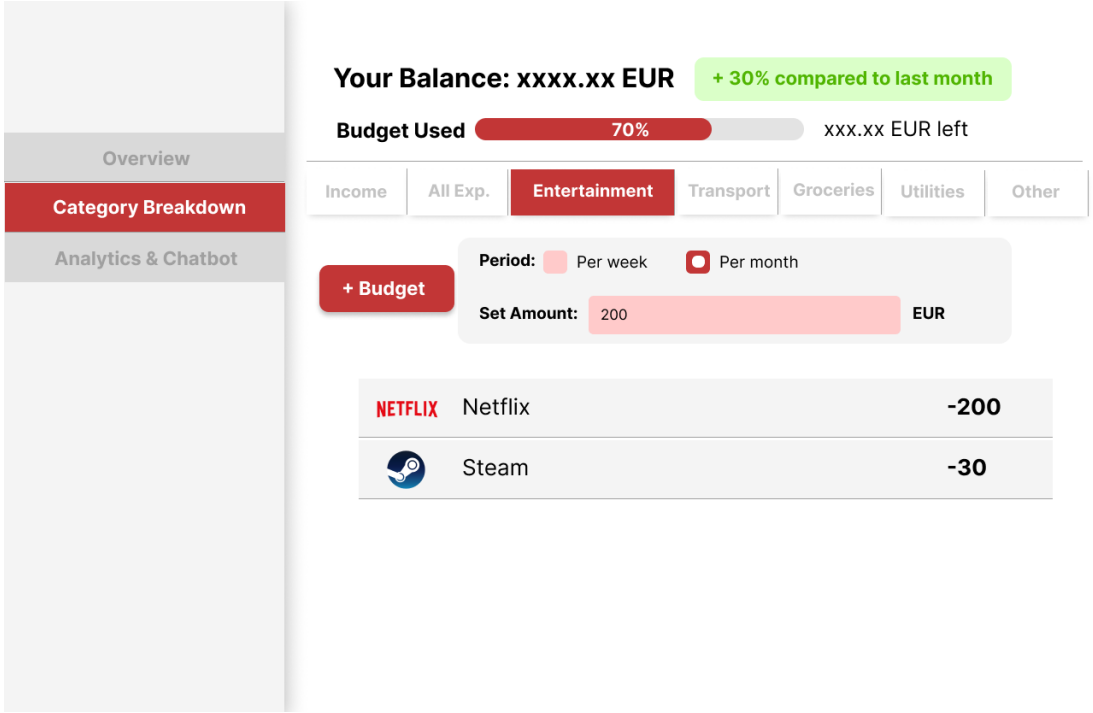


Adapt to feedback:

“Evolution of Balance”

“Absolute Values”

Iteration 2: Ideating the vision



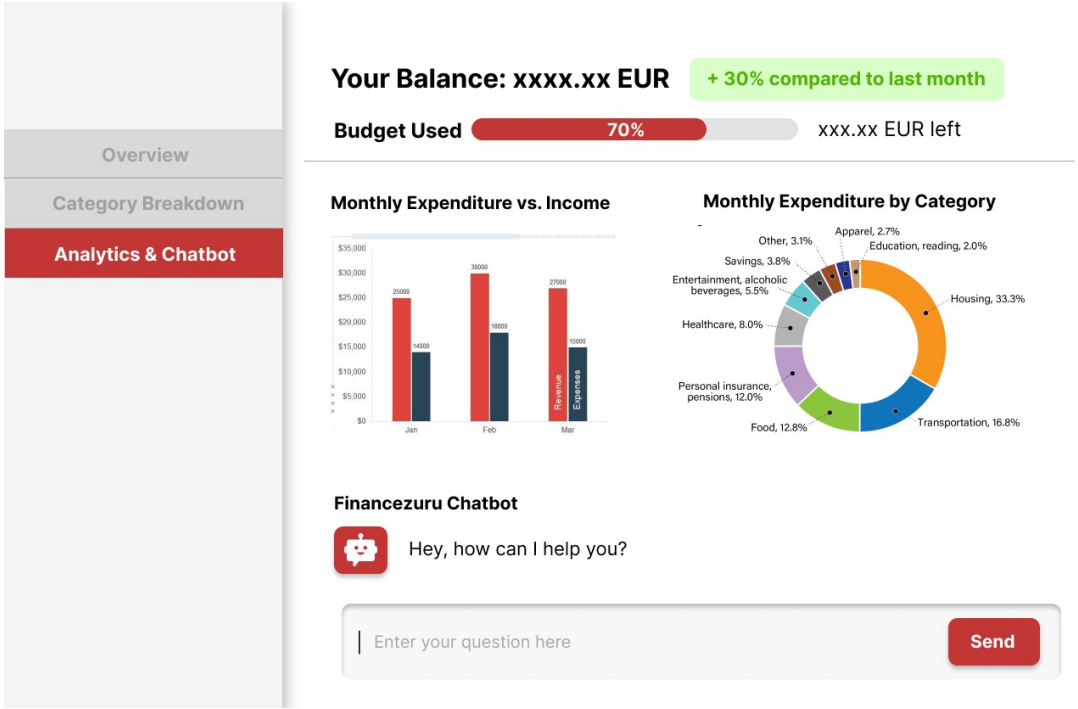
Adapt to feedback:

"Evolution of Balance"

"User-centric": Customize Budget Limit by period

"Absolute values of expenditure per category"

Iteration 2: Ideating the vision



Adapt to feedback:

"Evolution of Balance"

"Rather no pie chart":
-> we still think its useful to show the proportion to total spending

Other visualization:
Grouped bar chart for expenditure and Income

Break down the vision – We accessed the features for our MVP by development effort and assumed user value

User Data Access

- Financial account aggregation
- API Connection with banks, stock brockers etc. -> CSV upload for the first iteration

-> start with a **Excel/CSV** upload for second customer feedback

The Interface

- Total account tracking
- Spending per category
- Date/ category filter
- Spending over time
- Bar chart for total expenses
- Sankey charts
- Pie chart to see spending share

-> We integrated the most relevant interface features

Smart Features

- Transaction categorization
- Chatbot
- Budgeting
- Tax management
- Bill reminder

-> Categorizing the spendings was a must have

Break down the vision – We accessed the featuresfor our MVP by development effort and assumed user value

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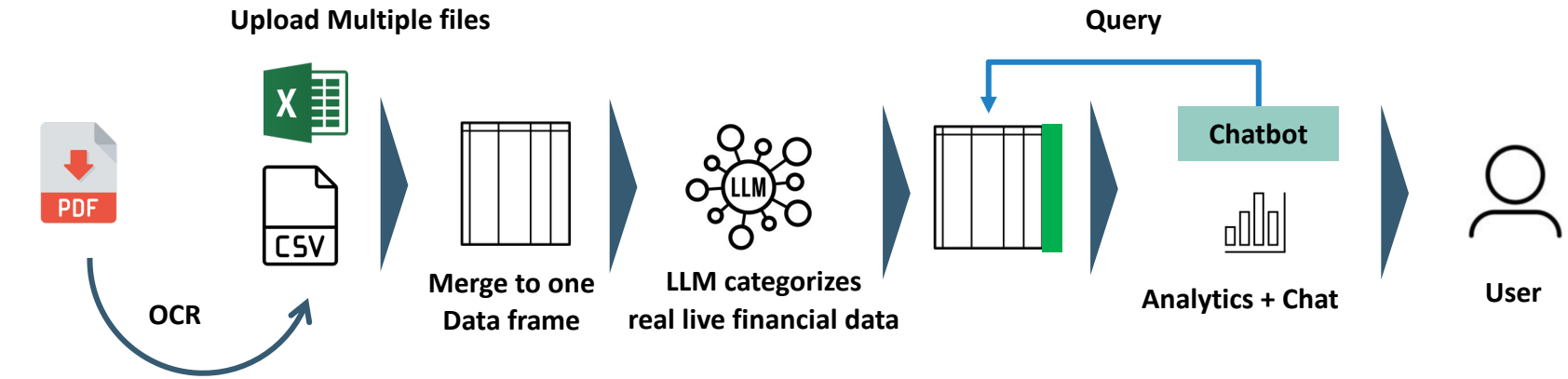
The tech stack: We use Streamlit for the UI, OpenAI for categorization and LangChain/OpenAI for the chatbot functionality



Tech

- Streamlit: UI Design & Setup
- PDF Extractor
- Panda libraries: structure and merge data
- OpenAI LLM
- OpenAI LLM
- LangChain

Wrap-up & Learning

1

What have been achieved?

- Merged and structured dataframe from various files including PDF format
- Real-time LLM transaction categorization with accuracy
- User-centric analytics and visualization
- Functional chatbot that provide relevant info about dataframe and generate relevant charts

2

Key Learnings

1. **Prioritize goals and align with stre tool selection**
   Know what to focus (e.g. functionality or customized UI design), and use in-line tool to implement (Streamlit in this case)
2. **Chatbot Tradeoff**
   Precision vs. Capability: More capable, then the result is less accurate very fast
3. **Langchain Usage**
   Even different chat history tactics tend to give highly various answers

Demo Time!