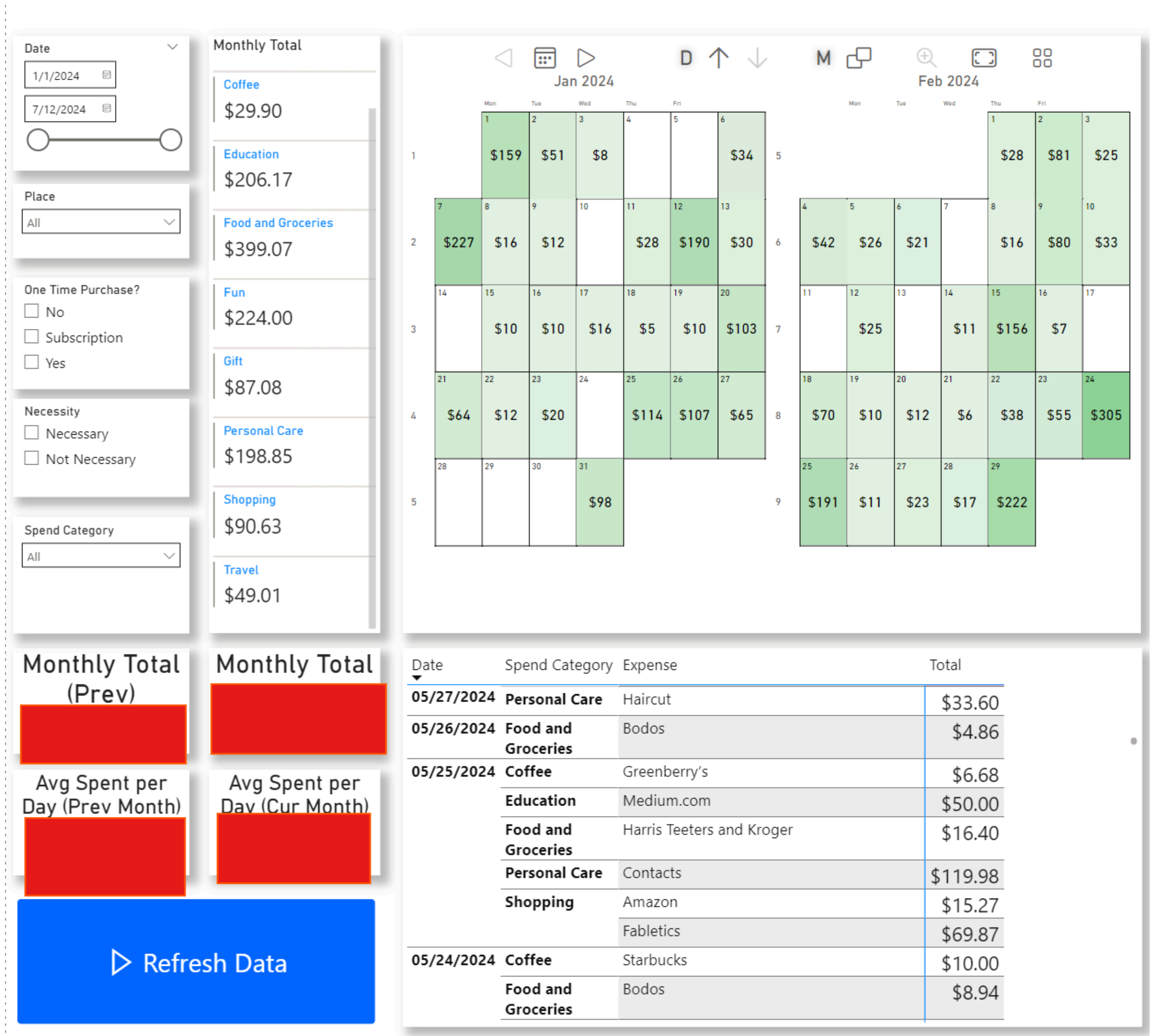
*Finance Tracker: Centralized View of Spending*



*Goal*

| |
|---|
| Create a single dashboard to visualize current and historical spending, categorize purchases, and track progress toward financial goals. |

*Context*

Last year, my New Year's resolution was to **become financially stronger by improving my long-term spending habits**. This meant two things: first, I needed to **understand how I spend my money daily and over long periods**. Sometimes, I would print out my bank statements and go line-by-line with a highlighter to determine what was necessary and what wasn't. This took a long time, and the effect only lasted for a short time since this reminder was only occasional.

Second, I aimed to **grow my credit score by getting credit cards**. Previously, I only used my debit card, which led to a single location to view transactions. However, using credit cards led to **spending between multiple cards**, and credit companies delayed transactions for days by claiming them as “pending.” This made it **difficult to have transparent financial details**.

**I needed a central place to view all my transactions**. This must allow me to have **up-to-date transaction logs and historical data** to verify my prior purchases. I also need to be able to see **daily, weekly, and monthly views** to adjust my spending habits more immediately.

*General Objectives*

GO1: Centralized Transactions

a. Combine credit and debit transactions from credit and debit cards.
b. Include both online and in-person purchases.

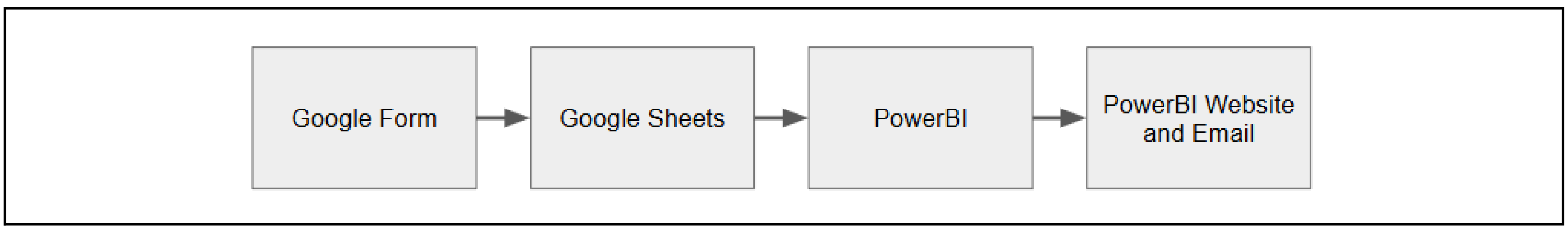
GO2: Categorization

a. Classify expenses (e.g., Food & Groceries, Coffee, Personal Care, Shopping, Travel, Education, etc.).
b. Enable slicing and dicing of spending data (by date range, type of purchase, necessity, etc.).

GO3: Set and Track Financial Goals

a. Provide insights on monthly totals and compare them to previous months.
b. Monitor average daily spending, highlight overspending in specific categories, and encourage better budgeting.

*Strategy*




1. Create a form.
2. Log form responses to a spreadsheet.
3. Load spreadsheet into PowerBI.
4. Create visualizations and filters in PowerBI.
5. Publish the report.
6. Set auto-update rules.

*Implementation: Google Form*

These two tables contain the questions for the Google Form:

Page One:

| Question | Definition | Format | Answers | Reasoning |
|---|---|---|---|---|
| Spend Category* | What category purchase falls into | Select | Coffee<br>Food and Groceries<br>Shopping<br>Alcohol<br>Fun<br>Education<br>Personal Care<br>Other | [GO2.a] Classify to better understand habits |
| Amount* | Transaction cost | Write | 14.22 | [GO1] Determine amounts |
| Method* | Payment Method | Select | Truist<br>Capital One<br>Paypal<br>Other | [GO1] Determine spend by account type |
| Alternate Transaction Date | Original transaction date if current date is not day of transaction. | Date Select (mm/dd/yyyy) | 09/02/2024 | [GO2.b] Allow for logging transactions later if I delay |
| One Time Purchase* | Purchase was either necessary, or something I was prompted to buy by circumstance. | Select | Yes<br>No<br>Subscription | [GO2.b] Distinguish one time purchases (Yes) from others (No) that are adjustable. This means figuring out which transactions I could've limited or did not need, which helps me target potential areas to decrease spending. |
| Place* | Where transaction was made | Select | Charlottesville<br>Other | [GO2.b] Distinguish between vacation spending and regular spending |

* indicates required question.

Page Two:

| Selected Spend Category | Question | Definition | Format | Answers |
|---|---|---|---|---|
| Alcohol | Purpose* | What the purchase is going towards | Select | *Go Out<br>Personal<br>Other |
| | *If selected “Go Out”, Where | Bar where I purchased the alcohol | Select | Crozet<br>The Virginian<br>Coupes and Bilt<br>Trin and Boylan<br>Other |
| | *If selected “Go Out”, With Whom | People I went out with | Select | NAME<br>Alone<br>Frat<br>Other |
| **Coffee** | Where* | Shop where I bought the coffee | Select | Starbucks<br>Grit<br>Other |
| | With Whom* | Who I grabbed coffee with | Select | Alone<br>NAME<br>Other: |
| **Food and Groceries** | Group* | Food spend group, whether campus restaurants (Flex), nearby local restaurant (Corner), or another type | Select | Flex Dollars<br>Corner<br>Delivery<br>*Grocery Store<br>Other |
| | *If selected “Grocery | Which grocery store I shopped at | Select | Costco<br>Harris Teeters<br>Wegmans |

| | | | | |
|---|---|---|---|---|
| | Store",<br>Which Store | | | Kroger<br>Other |
| **Education**, **Fun**, **Shopping**, **Personal Care**, or **Other** | What | What did I purchase | Write | Udemy.com subscription |

For logging the data, I saved the link to the Google Form as an app on my iPhone, so all I have to do is click a button on my homescreen for easy access. This form populates into a Google Spreadsheet. Then, I set the spreadsheet to load into PowerBI Desktop to create the visualizations.

*PowerBI Details*

**Filters**

1. Date
   a. The date on which the transaction occurred.
2. Place
   a. Where the transaction was made.
3. One Time Purchase
   a. Whether the purchase was necessary or circumstantial, or not.
4. Necessity
   a. If the purchase fell into one of these spend categories (Alcohol, Coffee, Fun, or Shopping), or if I selected “No” to One Time Purchase and it fell into one of these categories (Food, Other), I labeled “No” for Necessity.
5. Spend Category
   a. Which spend category the transaction falls into.

**Time Views**

1. Daily
   a. I included a calendar to view the total amount spent every single day (aggregated), along with a scrollable table to view every single transaction individually (not aggregated).
   b. To measure rate of spending, I included two cards indicating amount spent per day based off this month’s current total spend, and the prior month’s rate. (total spending amount this month / number of days so far in month).
2. Weekly
   a. The calendar was able to be adjusted to view by day, week, month, year.
3. Monthly
   a. Besides the calendar being adjustable, I included the monthly totals for each spend category to compare how much I spend and value different items.
   b. I included the aggregated monthly spend for the current month and the prior month as two separate cards

**Refresh Rates**

1. On-demand: In the bottom left, I attached a “Refresh Data” button that refreshes the spreadsheets.
2. Automatic refresh: At my most vulnerable spending times, I update the amount to see how much I have currently spent.
   a. 8am: Before I make any purchases for the day, and before I can arrive at a coffee shop.
   b. 12pm: Around the time I am hungry for lunch and do not want to cook.
   c. 4pm: Before I start to think about dinner for the evening, and before a late afternoon coffee.

For notifications, I receive emails with a screenshot of the main page at noon each day. I also can view the total spend cards on my Apple Watch.

*Future Enhancements*

1. Automated category prediction
    a. Given that I have logged purchases for a while now, I have enough data to use for models to classify my purchase categories automatically (in development right now with LangChain).
2. Automated notification log
    a. Since Apple Pay returns notifications with amounts, places, and dates for when a card is used, create a question to submit screenshots of the Pay notifications and automatically file it in the spreadsheet (in development right now with Python OpenCV).
3. Frequent expense question
    a. Look at the data, and have a dropdown for frequent expenses, so I do not have to click all the options for them, but only have to enter the amount.
4. Credit Card Percent Back
    a. Start to calculate percent back on each purchase with this table.
5. DONE: Marking unnecessary purchase in individual log
    a. In the individual transaction logs on the bottom-right, the lines are now highlighted in a red shade if the purchase is labeled as unnecessary to make it easier to distinguish.