American Fidelity Claims Quality Dashboard

Prepared by: Will Thompson

Contact: Will.j.Thompson@outlook.com | (405) 802-5252

GitHub Repo: https://github.com/Willthompson99/american-fidelity-claims-dashboard

Executive Summary

This project simulates how American Fidelity can detect claims anomalies, monitor data quality, and enhance audit readiness using open-source tools. It demonstrates a full-stack analytics pipeline from raw claims CSV data to interactive visualization in Power BI, powered by Power Query logic and DAX.

It aligns directly with the company's mission to ensure accuracy in insurance operations, and illustrates the capabilities expected in a modern data analytics role.

Project Goals

- Identify and flag erroneous or suspicious claim records

- Create a reproducible, Git-tracked solution using Power BI and Excel-based claims data

- Visualize findings with a clean, interactive dashboard for decision-makers

- Propose quality control processes rooted in actual data evidence

Technical Stack

- Data Load: Power Query in Power BI used to clean and transform CSV data

- Rule Logic: Power Query conditional logic to flag data quality errors

- Dashboard: Built in Power BI with dynamic filters, KPI cards, and error visualizations

- Version Control: GitHub-hosted project with documentation and PBIX file

Power Query Logic (Examples)

- Negative Payment Check: if [Claim_Payment] > 0 then "Error" else null

- Early Payment Check: if [Payment_Date] < [Claim_Date] then "Error" else null

- Missing Value Check: if [Claim_Payment] is null or [Annual_Premium] is null then "Error" else null

- Excessive Claim Check: if Number.Abs([Claim_Payment]) > 0.5 * [Annual_Premium] then "Error" else null

Data Quality Rules

Rule ID	Description	Logic
1	Negative Payments	Claim_Payment > 0
2	Early Payment	Payment_Date < Claim_Date
3	Missing Values	Claim_Payment or Annual_Premium is null
4	Excessive Claim	ABS(Claim_Payment) > 0.5 * Annual_Premium

Power BI Dashboard Features

- KPI Cards: Show total claims, average, highest, and lowest payment values

- Filters: Audit flags, claim date, quarter, region, and issue flags

- Error Count Visuals: Bar chart showing number of claims per error type

- Detailed Table: Drill-through enabled, sortable by region, date, and audit flag

Reproducibility & Domain Alignment

✓ Fully self-contained PBIX with included CSV source

✓ Uses Power BI, Power Query, and DAX for all logic

✓ Models claims quality assurance aligned with insurance workflows

✓ Clean, stakeholder-facing dashboard that reflects business rule enforcement

Dashboard Snapshot

Below is a sample snapshot of the Power BI dashboard used to visualize claims data quality. The dashboard includes KPI cards, error-type breakdowns, filters for region and audit flag, and a detailed claims table for drill-through analysis.

American Fidelity Claims Quality Dashboard

23
Total Claims

5.77K
Average Claim Payment

57.48K
Highest Claim

-11.48K
Lowest Claim

Count of Member_ID	Count of Claim_ID	Region	Audit_Flag	Year	Quarter	Month	Day	Sum of Claim_Payment	Sum of Annual_Premium
1	1	Central	No	2020	Qtr 2	May	25	3,511.23	
1	1	Central	No	2020	Qtr 2	June	4	9,445.91	7,060.84
1	1	Central	No	2020	Qtr 3	July	8	4,222.54	4,523.97
1	1	Central	No	2020	Qtr 3	July	17	-9,095.52	8,551.20
1	1	Central	No	2020	Qtr 4	November	22	5,799.87	7,162.14
1	1	Central	No	2021	Qtr 2	May	14	182.62	6,732.55
1	1	Central	No	2021	Qtr 2	May	29	271.07	8,677.41
1	1	Central	No	2021	Qtr 4	October	26	933.48	7,798.98
1	1	Central	No	2023	Qtr 2	May	14	14,759.28	1,650.02
1	1	Central	No	2023	Qtr 3	August	9	6,979.31	1,789.15
1	1	Central	No	2023	Qtr 3	August	15	11,914.70	5,162.80
1	1	Central	No	2023	Qtr 3	September	13	4,251.19	4,285.43
1	1	Central	Yes	2020	Qtr 3	July	17	57,475.00	4,594.99
1	1	Central	Yes	2020	Qtr 3	July	22	3,244.28	2,473.99
1	1	Central	Yes	2020	Qtr 4	December	26	7,817.57	9,600.68
1	1	Central	Yes	2021	Qtr 1	March	25	1,454.55	5,340.50
1	1	Central	Yes	2021	Qtr 2	April	4	14,363.56	1,151.87
1	1	Central	Yes	2021	Qtr 3	July	23	-11,476.06	2,545.48
1	1	Central	Yes	2021	Qtr 4	December	28	-10,557.12	6,866.66
23	**23**							**132,776.31**	**121,896.05**

Error Type

Quarter
- ☐ Qtr 1
- ☐ Qtr 2
- ☐ Qtr 3
- ☐ Qtr 4

Region
- ■ Central
- ☐ Northeast
- ☐ Northwest
- ☐ Southeast
- ☐ Southwest

Claim_Date
3/7/2020 – 12/17/2023

Has Issue
- ☐ No
- ☐ Yes

Audit_Flag
- ☐ No
- ☐ Yes

22
Claims with Errors

Data based on sample claims for quality monitoring – American Fidelity