Problem Statement:
FairPrice Group's NE division's current employee claims system is built primarily for processing reimbursements and lacks the capability for effective monitoring or anomaly detection.

SMU SINGAPORE MANAGEMENT UNIVERSITY
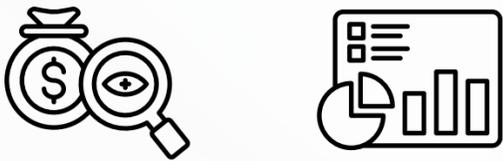
FairPriceGroup Every Day, Made A Little Better

Background

Current claims management system presents opportunity for improvement:

- Better **oversight and control** over employee expense claims

- Automatically **generate exception reports** to flag potential anomalies.

Mitigate financial and operational risk

Data Exploration & Transformation

Through correspondences with **IA team** and investigating the **data structure**, several areas were highlighted and serves as our <u>basis of analysis</u>:

- Misclassification
- Omissions
- Duplicate entries
- High Value / Frequency
- Nature of claims / Outliers

AUDIT

Python was utilized for advanced data cleaning, removal of redundant fields and creation of calculated field to enhance analytical depth

Accounting Entries → Claims Transactions

Anomaly Detection Analysis

BigQuery served as the foundation for our rule-based anomaly detection to evaluate claims transactions
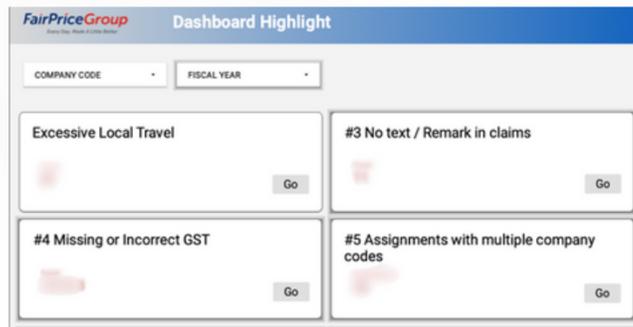
Test 02 — High-risk claimants
Test 03 — Claim Duration
Test 01 — Document Matching
Test 04 — Policy Limit

SQL

Samples from flagging codes were submitted to IA for subsequent testing

YIN PHNG

KAI WEI

TING KANG

JUSTIN

SNEHA

Investigative Dashboard & Statistical Analysis

Looker Studio was leveraged to transform anomaly detection outputs into dynamic, interactive dashboards that effectively visualize key insights

01 Highlight Anomalies
Summary of anomalies being flagged out

02 Company Overview
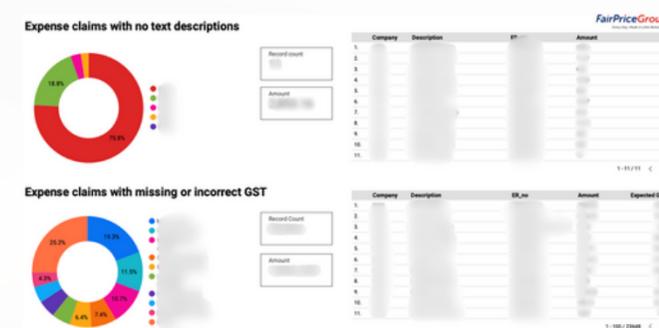Claims summary by company, Top expenses

03 Employee Overview
Top employees claimed by value/frequency

04 Anomalies Overview
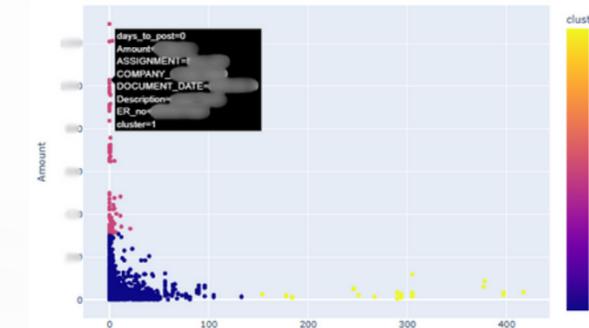Summary from internal control analysis

05 Outliers Analysis
Claims > 99th percentile

06 Clustering Analysis
By Value and Duration

Google Collab was employed to perform clustering analysis and uncover underlying patterns within the dataset. It acts as our ecosystem of various tools integration

The data used here are for illustrative purposes only