User Behaviour Analysis

Insights from Public Card & Transaction Data

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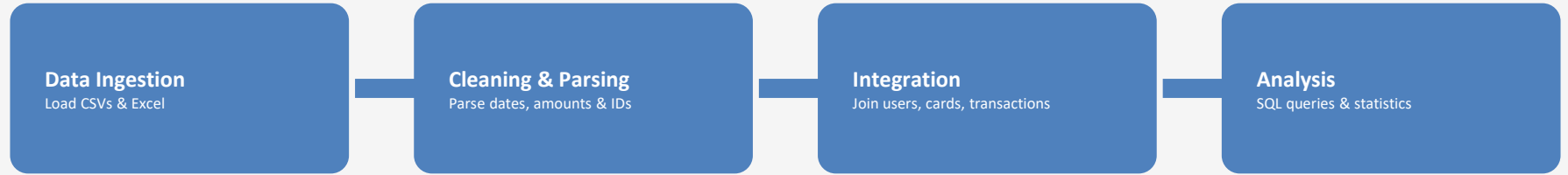20 August 2025

Overview & Objectives

Dataset	Records	Fields
Users	2000	14
Cards	6146	13
Transactions	13305915	12

- Extract and clean user, card and transaction data
- Perform SQL queries and descriptive analysis
- Visualise demographics, portfolio and behaviour
- Derive insights and actionable recommendations

We analysed 2k users, 6k+ cards and over 13 million transactions to understand the demographic profile, card portfolio composition, and spending behaviour across various segments.
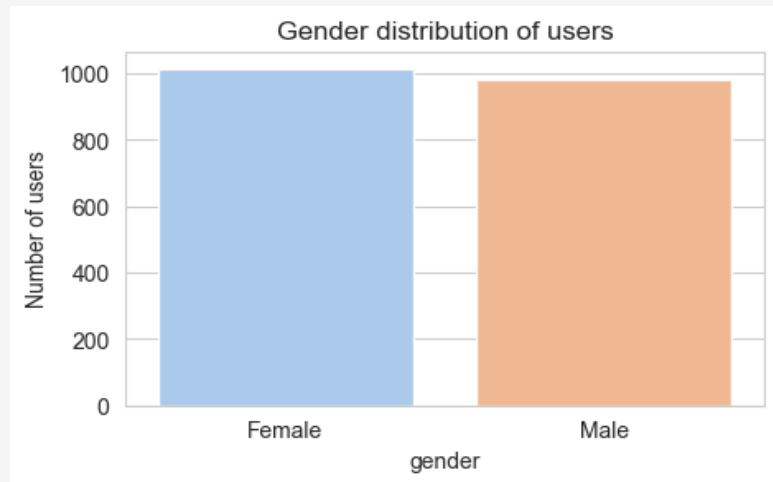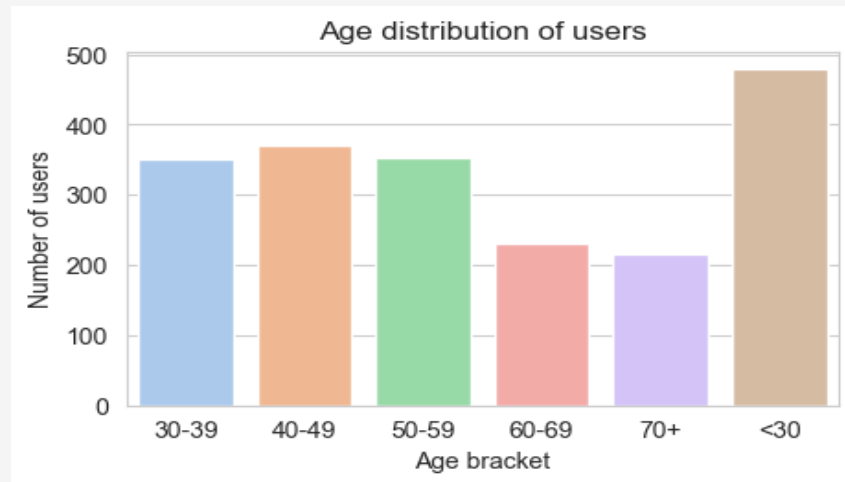
Methodology

Data Ingestion	Cleaning & Parsing	Integration	Analysis
Load CSVs & Excel	Parse dates, amounts & IDs	Join users, cards, transactions	SQL queries & statistics

This sequential pipeline ensures clean, integrated data ready for SQL analysis and visualisation.
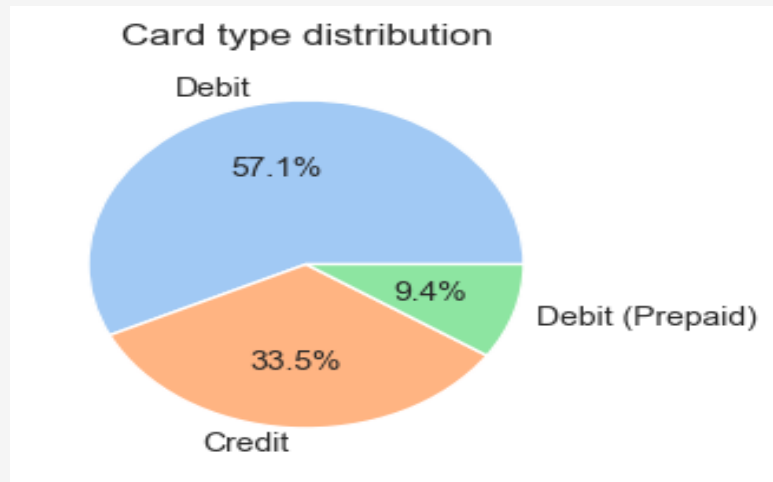
User Demographics

Gender Distribution

Age Distribution
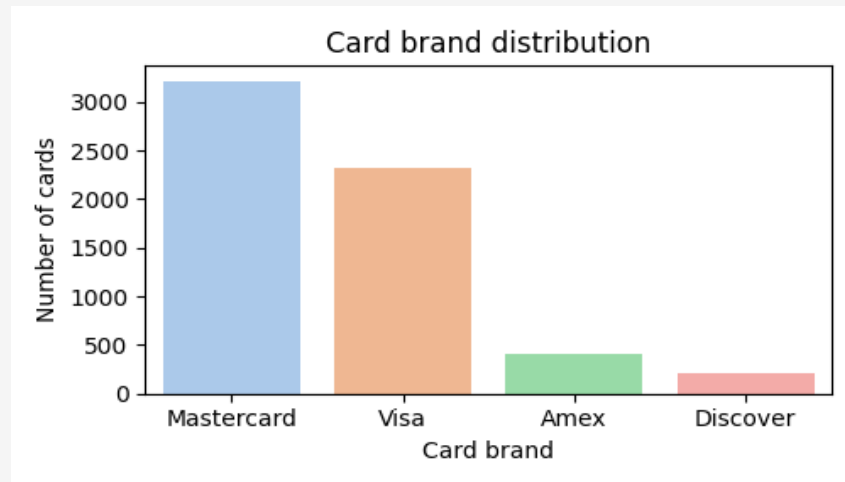

- Balanced gender split (≈51% female, 49% male)
- Young adults (<30) form the largest cohort (480 users)
- Age groups 30–59 are evenly represented; seniors 60+ are smaller segments

[1]

Card Portfolio

Card Types

Card type distribution

Debit 57.1%
Credit 33.5%
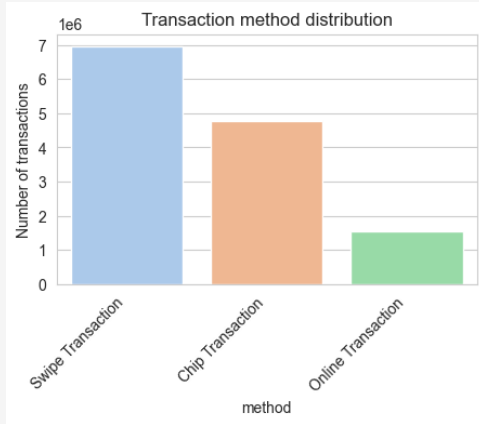Debit (Prepaid) 9.4%

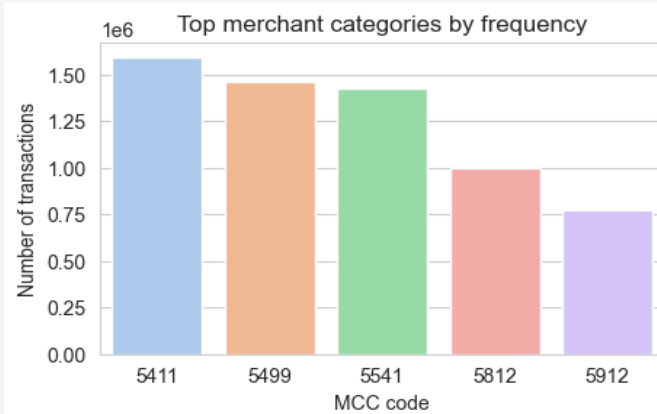**Card Brands**

Card brand distribution

- Debit cards dominate (~57%), credit cards account for ~33%, prepaid ~9%
- Mastercard is the most common brand (~52%), followed by Visa (~38%); Amex and Discover are niche
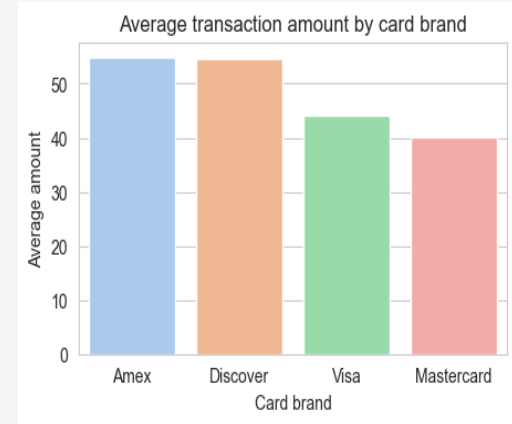
Transaction Behaviour

Method

**Top Merchant Categories**

Avg Amount by Brand

• Swipe transactions dominate (~52%), followed by chip (~36%) and online (~12%)

• Top merchant categories: groceries (5411), miscellaneous food stores (5499), service stations (5541), restaurants (5812), drug stores (5912)

• Amex and Discover customers have the highest average spend per transaction (~$55); Visa (~$44), Mastercard (~$40)

[2]

Debt & Credit Dynamics

Cards vs Average Debt

Average debt by number of cards
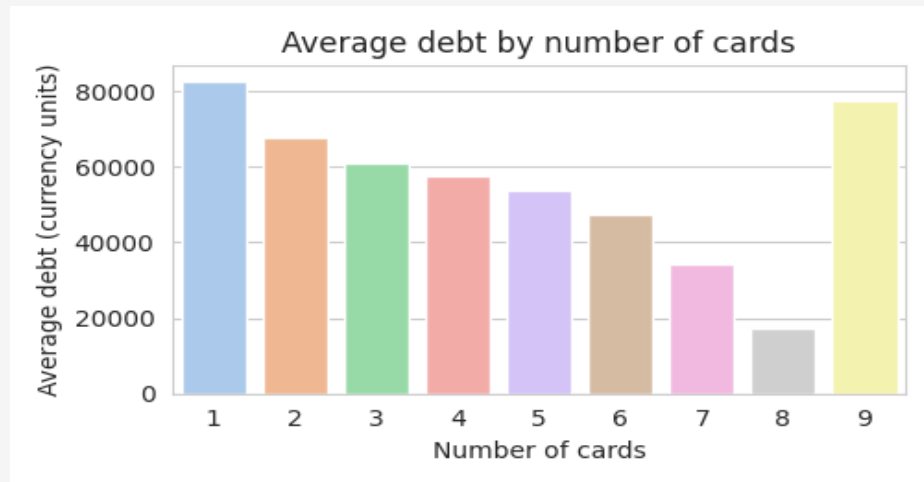
Credit Score Group vs Avg Txn

Average transaction amount by credit score group
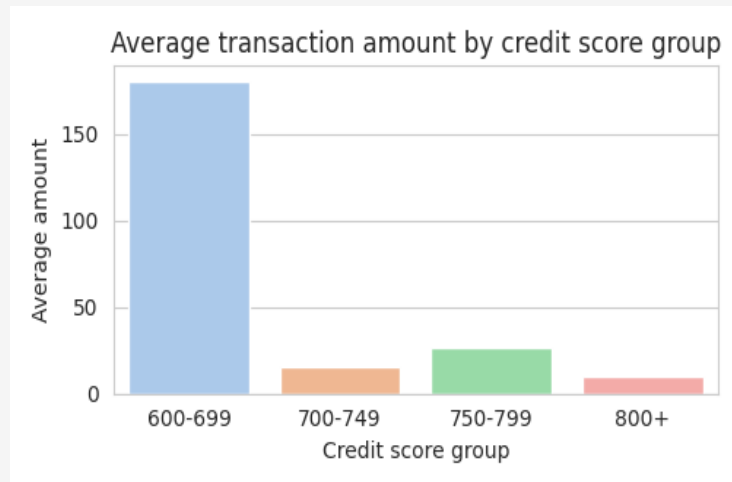
• Average debt declines as users hold more cards: from ~$82k for 1 card to ~$17k for 8 cards (slight uptick beyond 8 due to outliers)

• Customers with credit scores 600–699 spend the most per transaction (~$180); higher credit score groups spend far less (~$10–$26)

[1]

Income & Credit Scores

Income Bracket vs Average Credit Score

Average credit score by income bracket
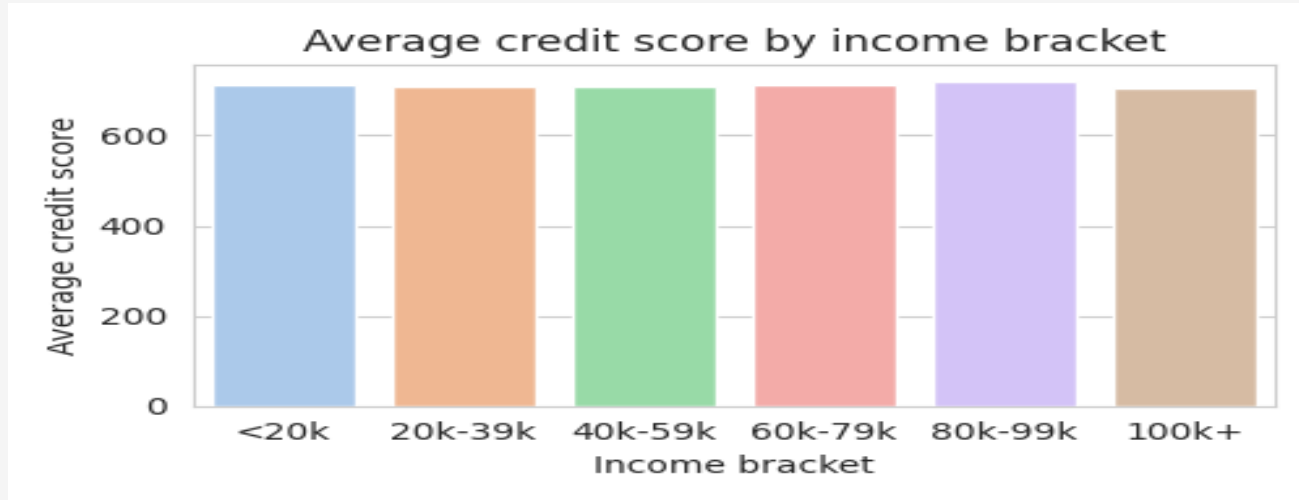
- Credit scores remain fairly consistent across most income bands (~708–720)
- Average scores peak in the 80–99k bracket (~720) but drop slightly for 100k+ incomes (~704)
- Even lowest income bracket (<20k) maintains healthy average scores (~713)

Insights & Recommendations

• Near-equal gender distribution with a youthful cohort (<30) leading
• Debit products represent the majority (~57%), credit (~33%), prepaid (~9%)
• Mastercard and Visa account for nearly 90% of cards; Amex and Discover are niche
• Swipe transactions are most common; chip and online payments less frequent
• Top merchant categories include groceries, miscellaneous food stores, service stations, restaurants and drug stores
• Amex and Discover cardholders exhibit higher average spend per transaction
• Credit scores are highest for the 80–99k income bracket (~720) and slightly lower for 100k+ incomes (~704)
• Target marketing campaigns to younger demographics and emphasize debit products
• Encourage adoption of chip and online transactions through incentives and education
• Offer tailored rewards for high-spending brands (Amex, Discover) and everyday categories
• Use interactive dashboards for ongoing monitoring and segment-specific strategies

[1] [2]