USER BEHAVIOR ANALYSIS

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PROBLEM STATEMENT

Lack of **granular visibility** into how users interact with their cards & transactions.

Credit risk detection is **reactive**, not proactive.

Current segmentation is **too broad**, limiting product targeting & risk mitigation.

Absence of **real-time fraud monitoring** (dark web exposure, identity risks).

Why it matters: Without addressing these, financial institutions risk higher defaults, poor targeting, and potential losses.

Key Pain Points

High-risk dominance
- 53% of users are in *Low Income High Debt* → this group drives most defaults.

Low Chip Card Adoption
- Only 1.43K chip cards out of 12K total → vulnerability to fraud remains.

Spending Misalignment
- Low-income users exhibit **disproportionately high spending**, increasing credit stress.

Risk is not exclusive
- Even High-Income groups show notable risk, suggesting lifestyle-driven debt.

Minimal Gender Gap
- Male vs Female income & credit score differences are marginal → gender isn't a strong segmentation factor.
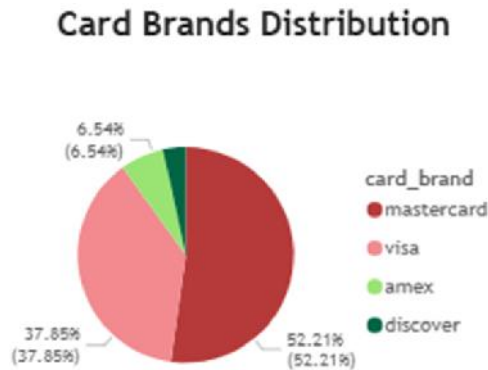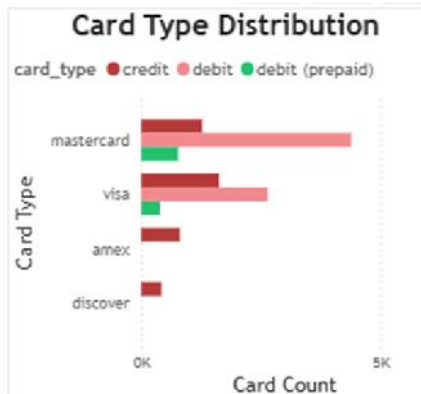
💡 **Implication:** Strategies should be income/risk-driven, not gender-driven.

Cards & Transaction Behavior

Cards Total

12K

Card Type Distribution

card_type ● credit ● debit ● debit (prepaid)

Card Brands Distribution

6.54%
(6.54%)

card_brand
● mastercard
● visa
● amex
● discover

37.85%
(37.85%)

52.21%
(52.21%)

Mastercard dominates (52%) → negotiation leverage for fees & partnerships.

**Credit Cards > Debit Cards** → users prefer credit leverage, increasing exposure.

Spending Pattern → low-income group shows the **highest total spend** → unsustainable.

Chip Card Penetration: 1.43K / 12K (≈12%) → still low adoption.

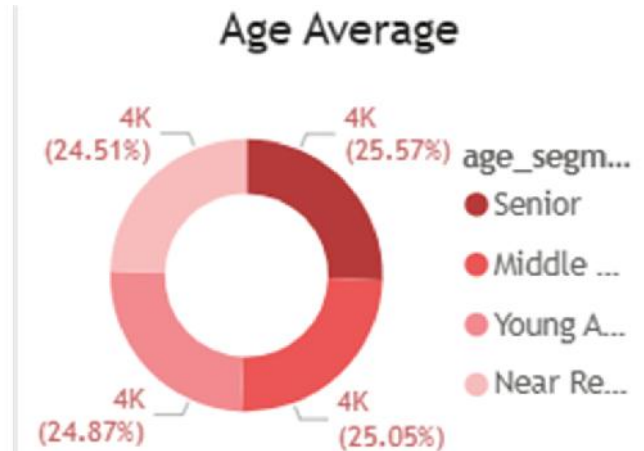**Dark Web Risk = 0%** → current environment safe, but must maintain vigilance.
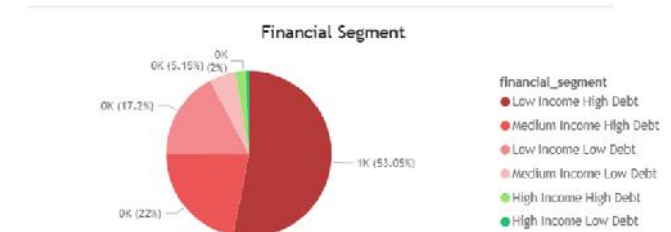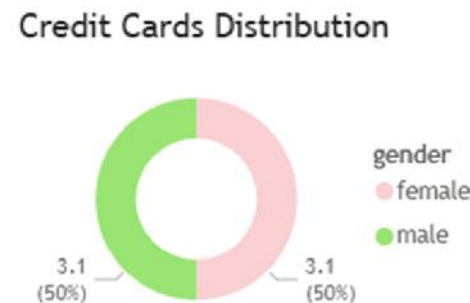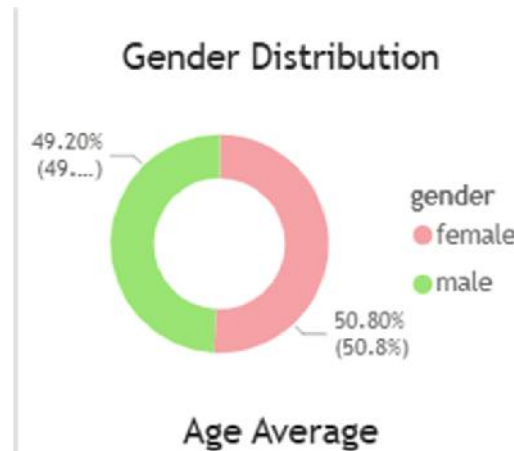
Risk & DTI

- **DTI ratios high** for Low & Medium Income segments → repayment capacity stressed.
- **High-Risk users** exist across all segments, proving **risk is not only low-income specific**.
- **Vulnerable Categories:**
- *Poor Credit* → already struggling with repayment.
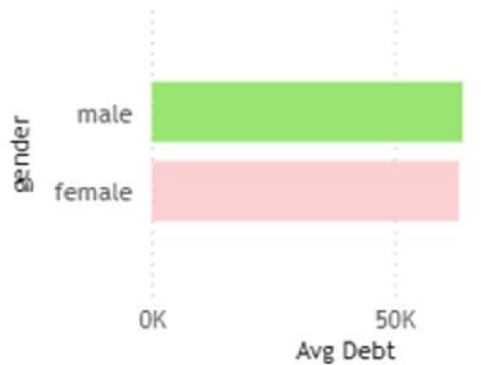- *Near Retirement* → limited time to recover from financial setbacks.
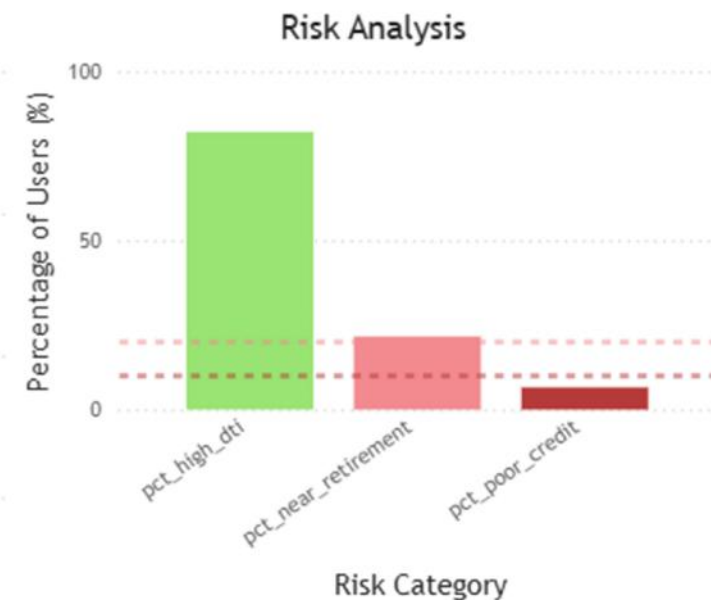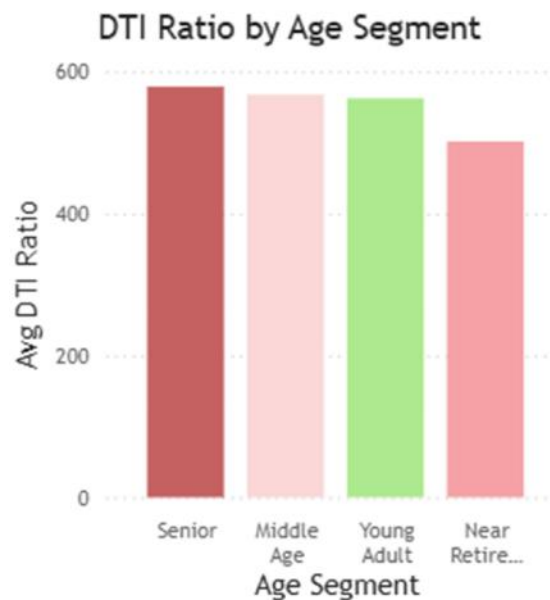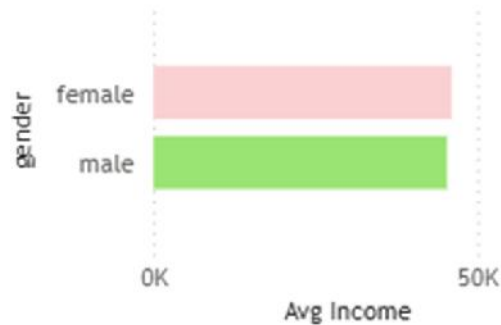
Profiling & Segmentation

- **Balanced Age Distribution** (~25% each: Young, Middle, Senior, Near Retiree).

- **Largest Segment:** *Low Income High Debt (53%)* → main risk driver.

- **Gender Split:** almost equal (Male 49.2% vs Female 50.8%) → neutral factor.

- **Credit Card Usage:** evenly distributed across genders.

Gender Distribution

49.20% (49....)

50.80% (50.8%)

gender
- female
- male

Financial Segment

0K (5.15%) (2%)   0K

0K (17.2%)

0K (22%)

1K (53.05%)

financial_segment
- Low Income High Debt
- Medium Income High Debt
- Low Income Low Debt
- Medium Income Low Debt
- High Income High Debt
- High Income Low Debt

Age Average

Credit Cards Distribution

3.1 (50%)

3.1 (50%)

gender
- female
- male

Age Average

4K (24.51%)   4K (25.57%)

4K (24.87%)   4K (25.05%)

age_segm...
- Senior
- Middle ...
- Young A...
- Near Re...

Average Debt by Gender

Average Income by Gender

Credit Score by Gender

Gender Perspective

- **Debt:** men slightly higher → aligns with marginally higher incomes.
- **Income:** men earn more, but gap is small (gender not significant).
- **Credit Score:** nearly identical → both genders show equal

Recommendations

Risk Management
- Tighten credit limits for Low Income High Debt group.
- Deploy early-warning scoring for Medium Income.

Product Strategy
- Incentivize chip card adoption (discounts, rewards).
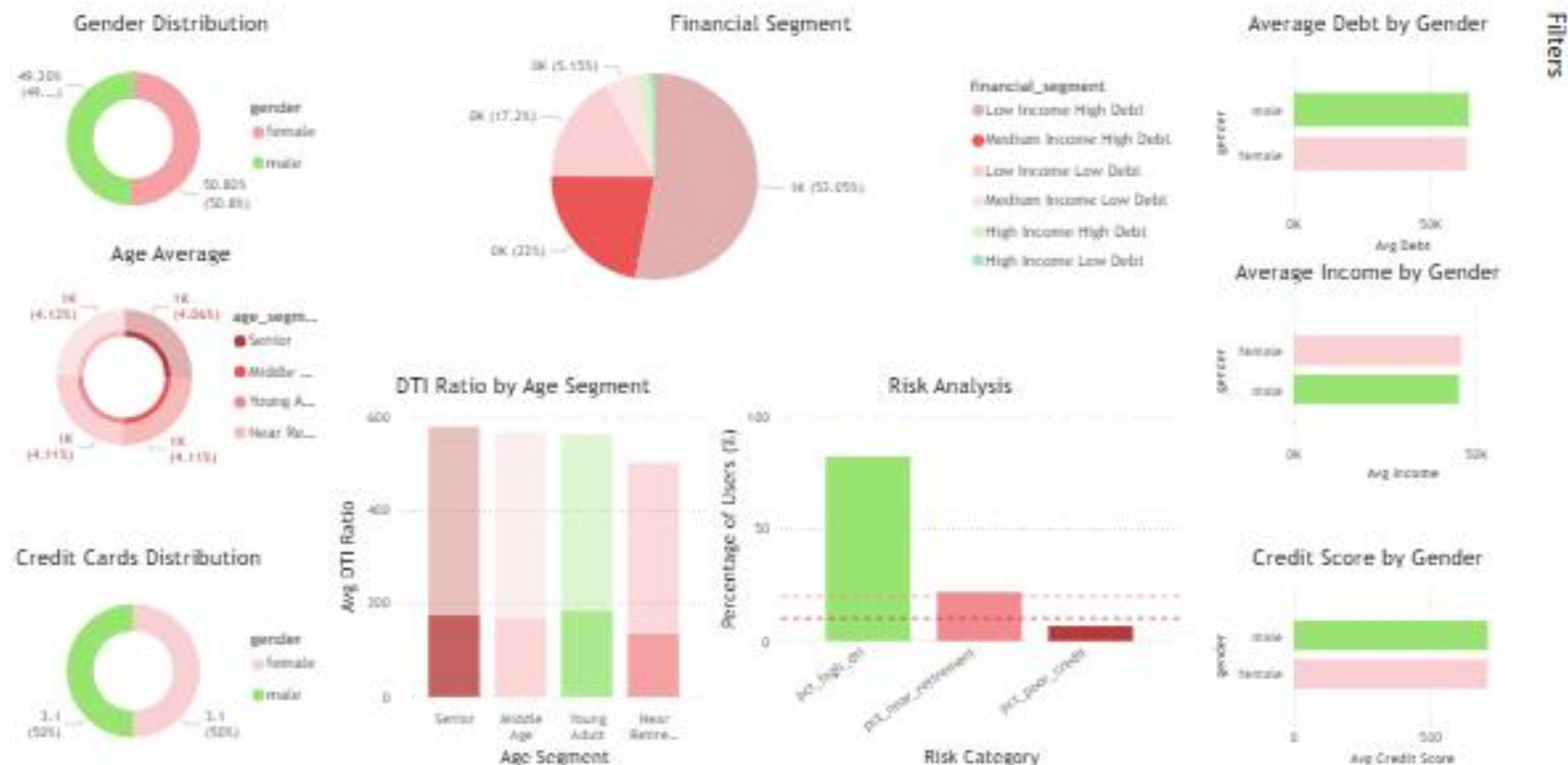- Leverage Mastercard dominance for stronger partnerships.

Marketing Strategy
- Use gender-neutral campaigns.
- Build financial literacy initiatives for low & medium income users.

Next Steps
- Add **time-series spending analysis** to monitor trends.
- Integrate **geographic segmentation** for regional targeting.
- Enhance **fraud detection integration**.

User Behavior Dashboard: Profiling and Segmentation

Gender Distribution

Financial Segment

Average Debt by Gender

Age Average

DTI Ratio by Age Segment

Risk Analysis

Average Income by Gender

Credit Cards Distribution

Credit Score by Gender

User Behavior Dashboard: Card and Transactions Behaviour

Cards Total

12K

Chip Cards

1.43K

Avegerage Credit Score ($)

17K

Dark Web Risk (%)

0

Card Brands Distribution

6.54% (6.54%)

card_brand
- mastercard
- visa
- amex
- discover

37.65% (37.65%)   52.21% (52.21%)
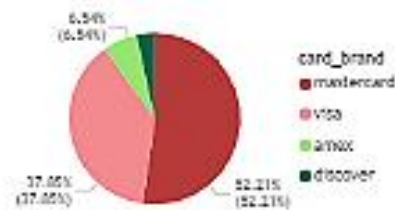
Chip Card Percentage
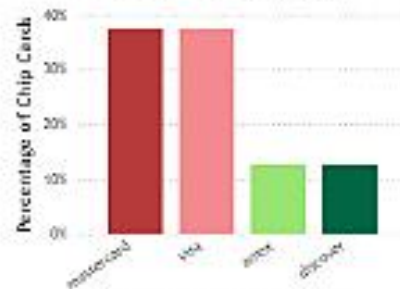
High Risk Percentage by Income Segment

Total User ● 5 ● 6 ● 15 ■ 26 ● 30 ● 45 ● 96

Income Segment
- Medium Income
- Low Income
- High Income

Card Type Distribution

card_type ● credit ● debit ● debit (prepaid)

Card Type:
- mastercard
- visa
- amex
- discover

Card Count

DTI by Income Segment

● Excellent ● Fair ● Good ● Poor

Income Segment:
- Medium Income
- Low Income
- High Income

Transaction Behavior

● Sum of avg_ti... ● Sum of Cust... ● Sum of av...

Income Segment:
- Low Income
- Medium Income
- High Income