Customer Service Insights and Recommendations

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1a. Case Overview

- **Objective**
  - *Identify patterns* in customer service interactions
  - Provide *actionable recommendations* to improve customer service and reduce costs
  - Reduce customer service contact volume and improve first-response efficiency
- **Approach**
  - Conduct exploratory data analysis (EDA)
  - *Identify trends* and *actionable insights* from `errands` and `orders` datasets
  - Deliver recommendations based on findings
- **Value**
  - *Reduce* customer service contacts, reducing expenses
- **Deliverables**
  - EDA, insights, recommendations, model prototypes

1b. Technical Approach

- **Data Preparation**
  - Created an SQLite database as local source.
- **EDA and Insights**
  - Analyzed errand frequency, top categories, and channel preferences using Python.
 - Identified actionable patterns through clustering and feature analysis.
- **Machine Learning**
  - Prepared data for predictive modeling with feature engineering (e.g., weekdays).
 - Conducted initial experiments for feature importance.

2. Data Exploration and Key Metrics

- Average number of customer contacts per order: **0.4 errands/order**
- Most orders (**83%**) require no follow-up, indicating potential to reduce contacts among the remaining 17%
- Top Errand Categories
  - Cancellation/Refund (24%)
  - Rebooking (23%)
  - Schedule Change (17%)

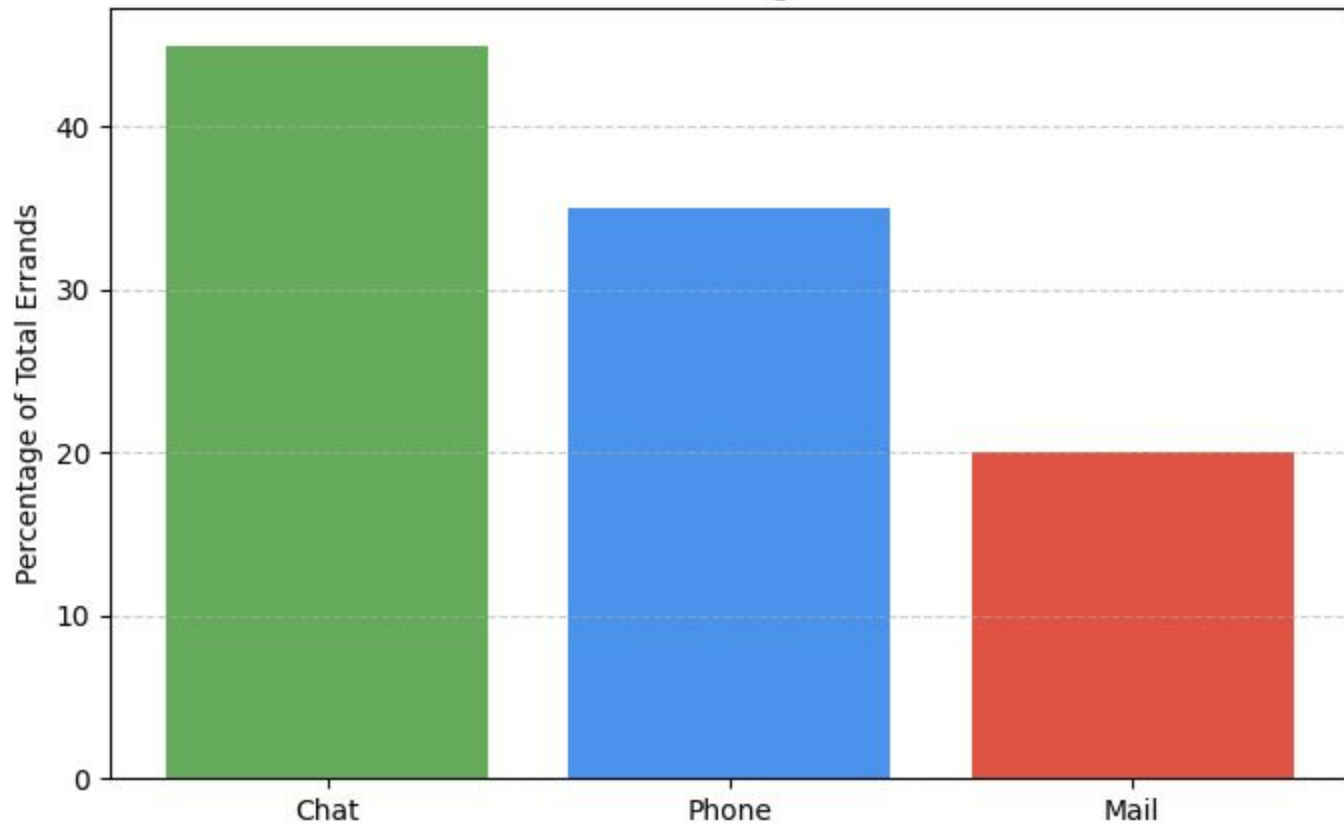Distribution of Orders by Customer Contacts
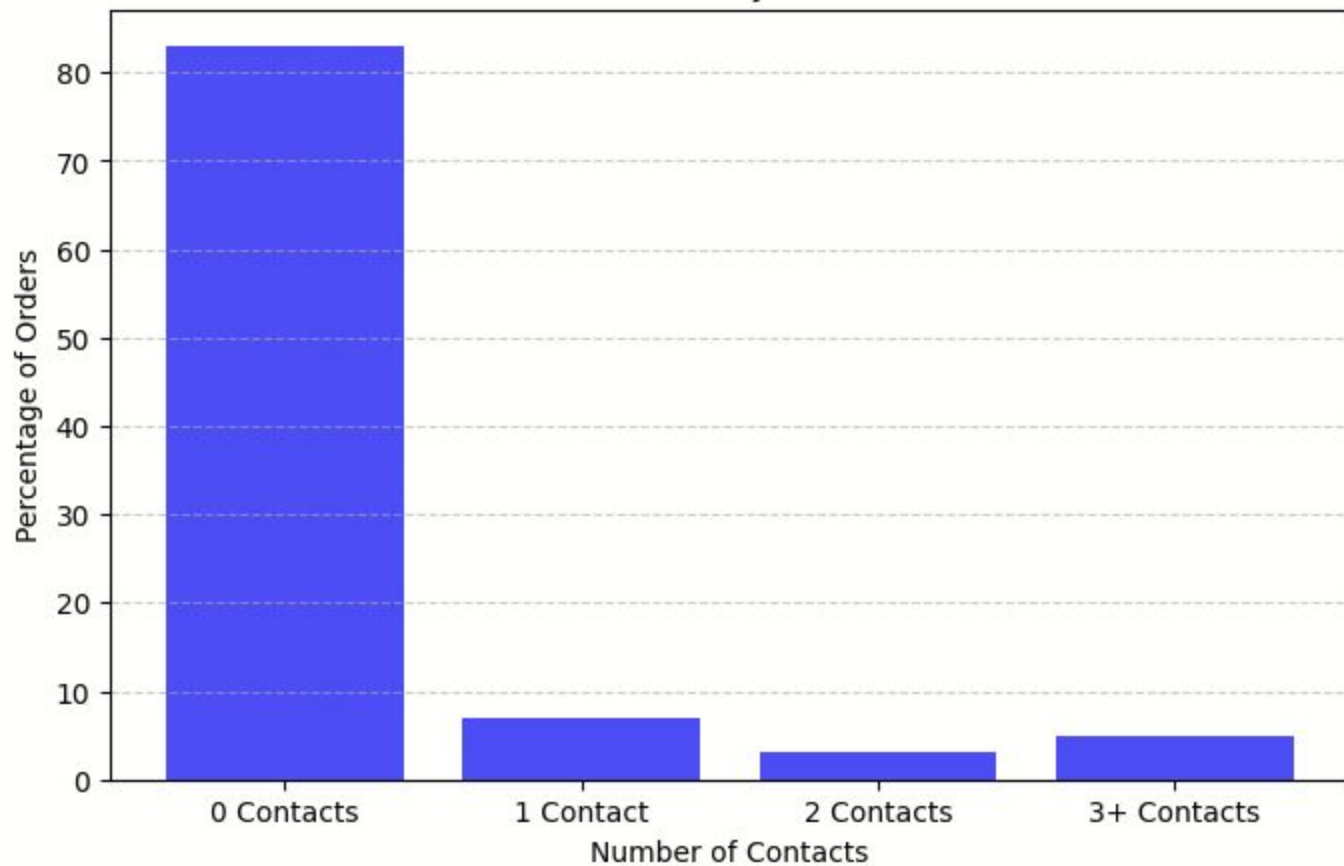
Top Errand Categories Contribution
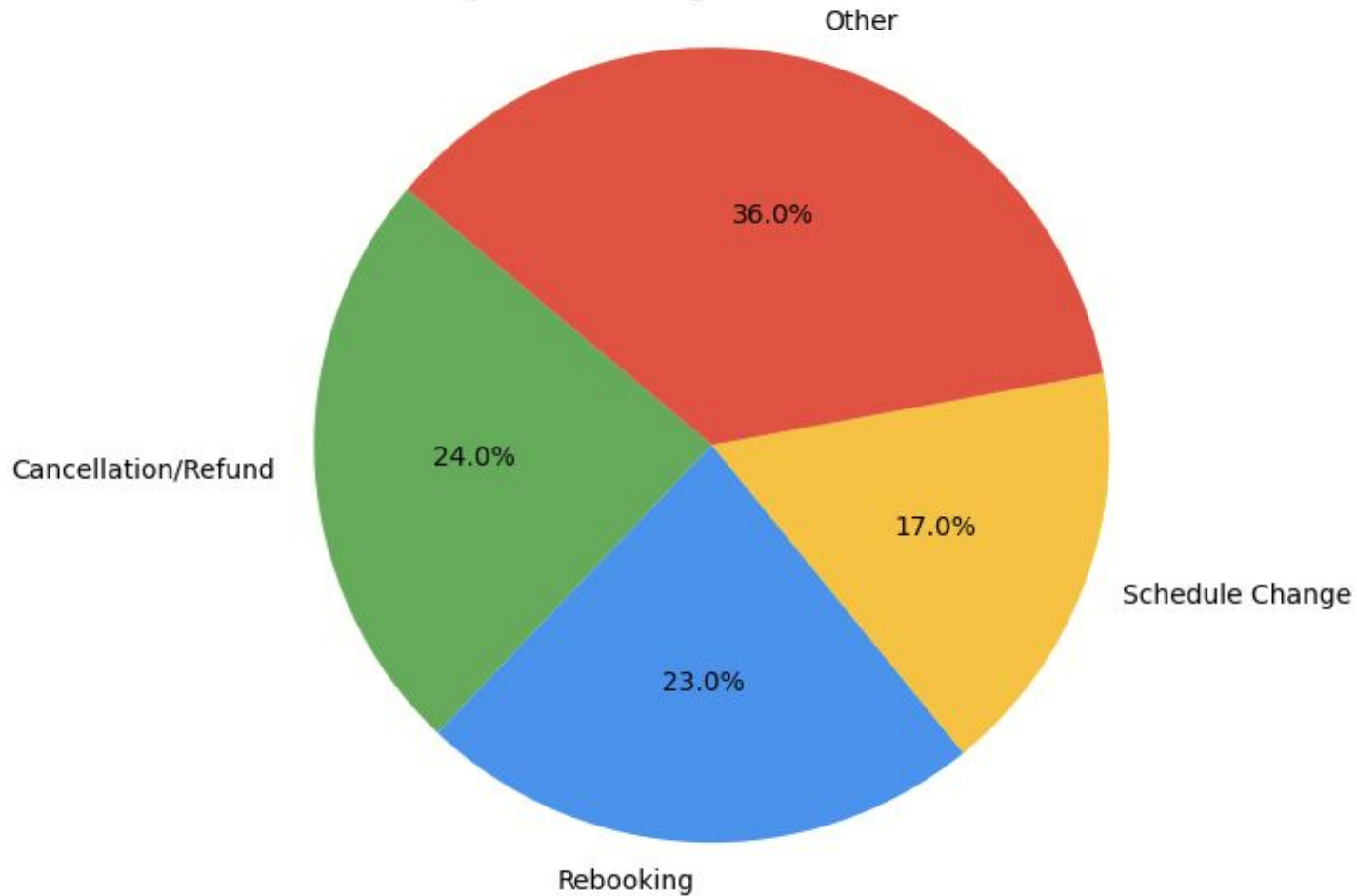
3a. Patterns in Customer Service Interactions

- **Observation 1**: *Multistop* orders 2x more likely to generate errands than *round-trip* and 3x more than *one-way* ones.
- **Observation 2**:
  - *Chat* is the go-to channel for high-volume errands.
  - *Phone In* is a critical for complex errands such as language issues and schedule changes.
  - *Mail In* is significant for documentation-heavy tasks.
  - **Actions**:
    - Automate common chat inquiries
    - Transition simpler errands from phone to chat/self-service.

Errand Channel Usage Distribution

Top Errand Categories by Channel
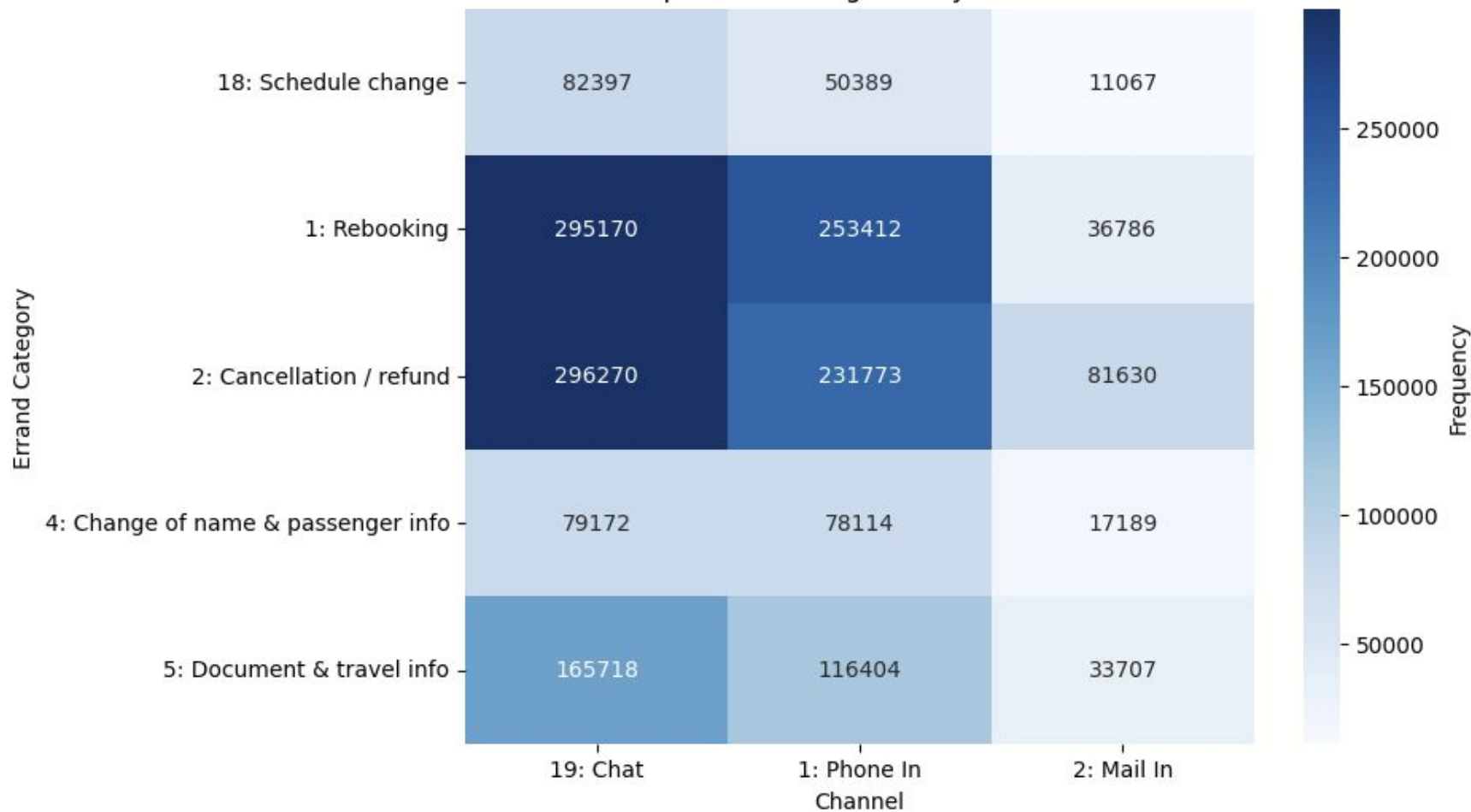
3b. Patterns in Customer Service Interactions

- **Observation 3**: Orders originating from certain countries (e.g. Nigeria, Israel, China) tend to be 3x to 4x times more likely to generate errands then the least complex ones (e.g., Greece, Slovakia, Uzbekistan)
  - **Action**: Establish dedicated resources by region

- **Observation 4**: 11% of errands are created within the first hour, with two thirds being "Cancellation/Refund," "Change of Name & Passenger Info," and "Document & Travel Info"

Distribution of First Errand Creation Times (First 24 Hours)
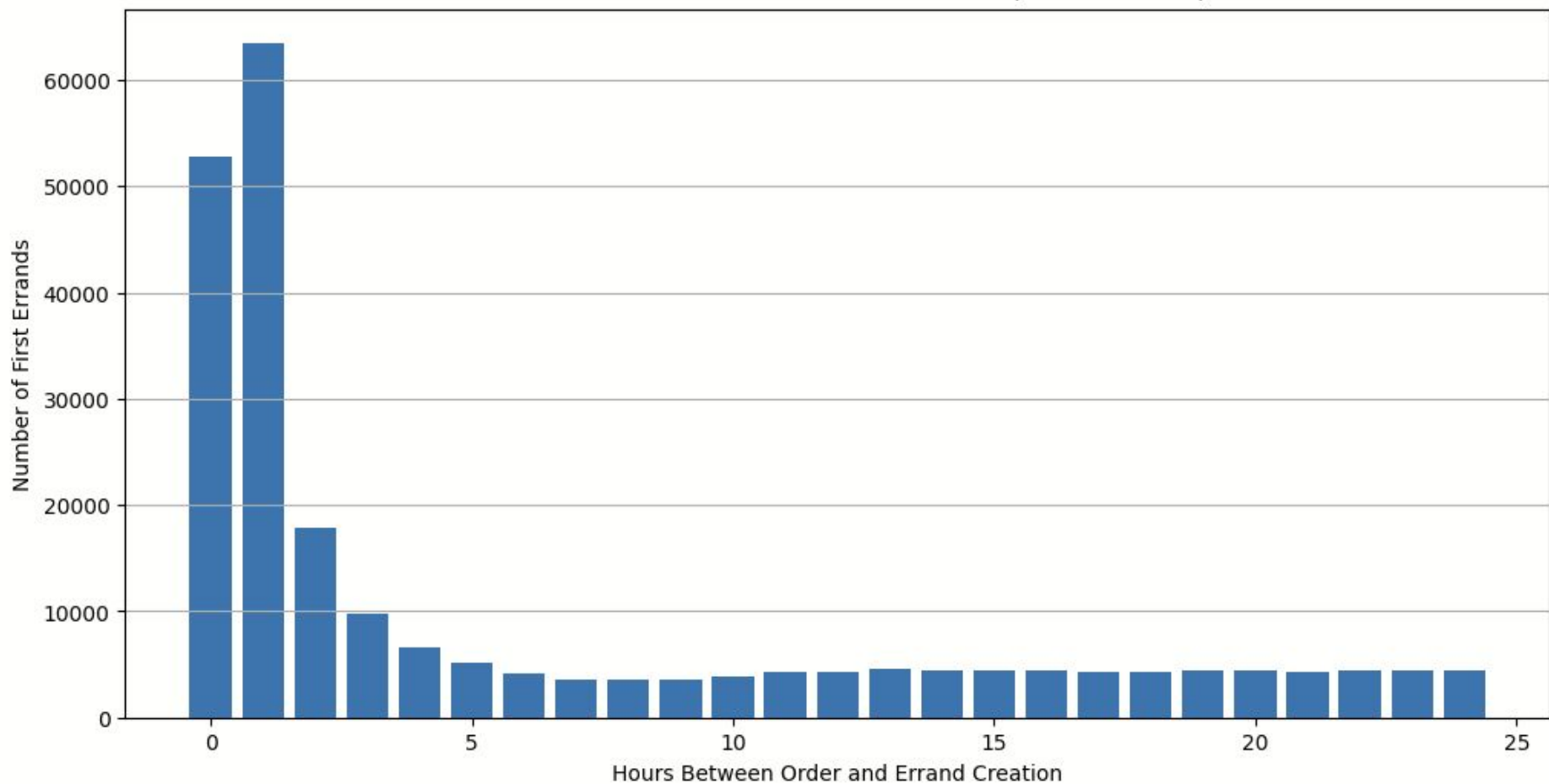
4. Root Causes of Frequent Contacts

- **Insight 1**: Many customers expect ticket flexibility but have ticket restrictions.
  - *Action*: Introduce dynamic booking messages to highlight upgrade options.
- **Insight 2**: Some customers with flexible tickets still face barriers when attempting changes.
  - *Action*: Ensure support staff are trained to handle flexible ticket rebooking efficiently.
- **Insight 3**: Refund-related inquiries make up a significant portion of cancellation contacts, potentially indicating delays or unclear timelines.
  - *Action*: Implement automated refund updates to notify customers about refund status in real-time.

5. Customer Segmentation

- **Segment A**: High-Value Customers
  - Characteristics: High Order_amount, multi-city itineraries.
  - Actions:
    - Offer dedicated support and clear ticketing policies.
    - Preemptive email communication about potential issues (e.g., schedule changes).
    - Add a "dedicated hotline" or "priority queue." for a price dynamically adjusted according to the order's risk.
- **Segment 2**: Budget Travelers
  - Characteristics: Low Order_amount, one-way trips.
  - Actions:
    - Automate self-service tools for rebooking and cancellation.
    - Detail self-service solutions, such as "guided FAQs" or "step-by-step rebooking"

Average Contacts by Customer Type
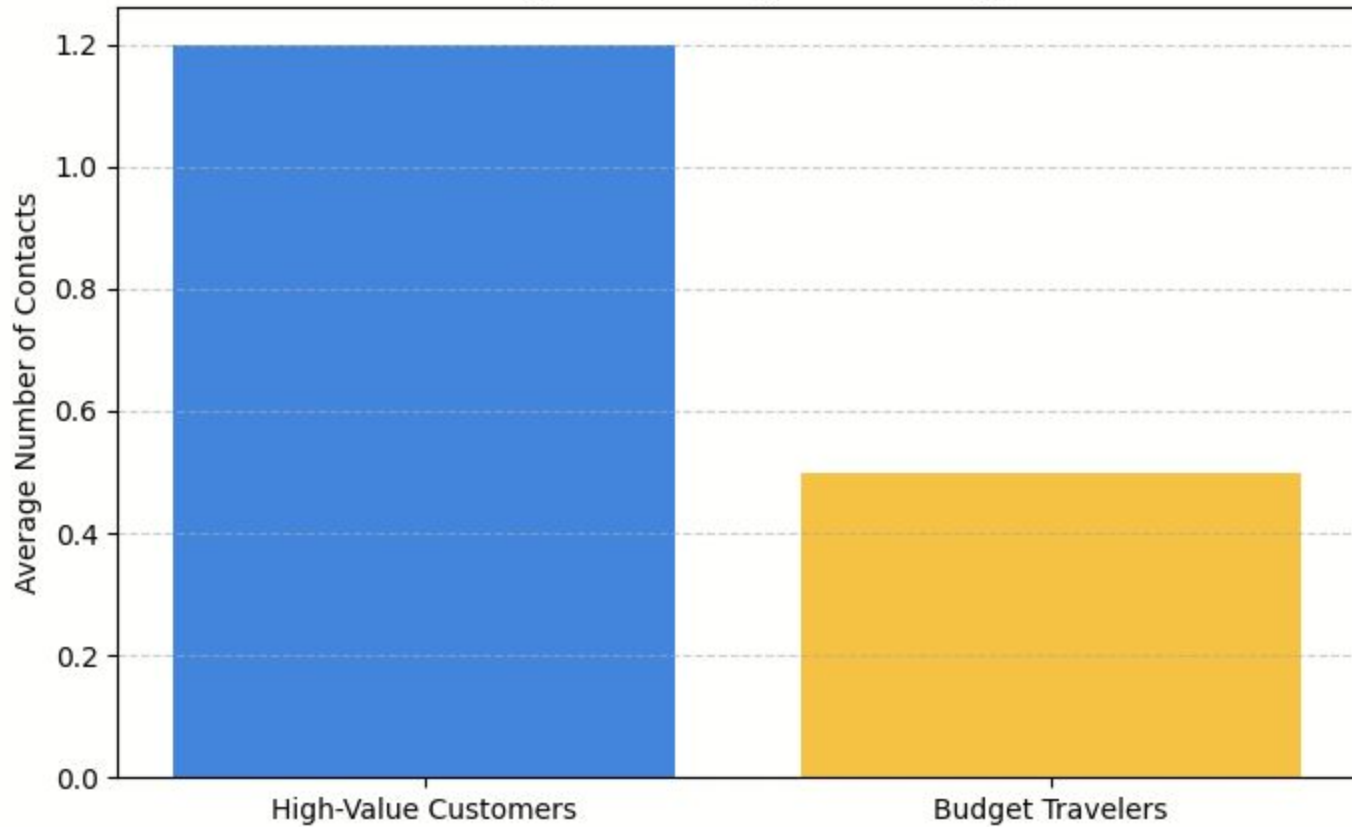
6. Recommendations

- **Short-term actions**
  - Implement *self-service tools* for frequent errands (e.g., cancellations).
  - Prioritize phone support for rebooking issues.
  - Train agents on flexible ticket handling to improve resolution rates (lower errand count).
- **Long-term actions**
  - Use *predictive analytics* to identify orders likely to generate multiple contacts.
    - Dynamic, updating the errand expectancy at each contact.
  - Enhance FAQ and automated responses for top contact categories.
  - Expand data on orders with *automatic analysis* of chat and phone conversations.
  - Expand data on agent performance by category for *better scheduling*.

7. Summary

- **Key insights**
  - In general, few options (e.g. "partner") account for the majority of the orders.
  - Despite differences, no category has abnormal rates of errands
    - Hard to reduce costs with simple actions.
  - High-value, complex orders drive a disproportionate number of customer contacts.
  - Rebooking and cancellations are the dominant errand categories.
  - Partner and system-specific issues contribute to significant contact volumes.
- **Next steps**
  - Execute recommendations to streamline customer service operations.
  - Monitor and evaluate the impact of changes through follow-up analysis.

Thank you!

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