

Customer Sign-Up Behavior Analysis

Introduction

This project explores how customers are signing up to Rapid Scale's platform, where they're coming from, what plans they choose, and whether they opt into marketing.

The goal is to spot patterns in sign-up behavior, highlight data quality issues, and turn those insights into practical ideas for the Marketing and Onboarding teams.

By the end of this analysis, we aim to answer key business questions, support smarter decision-making, and improve how data is captured at the source.

Data Cleaning Summary

- Removed 1 duplicate record and dropped 2 rows with missing customer_id.
- Converted signup_date to datetime format.
- Standardized values for plan_selected (e.g., "PRO" → "Pro") and gender (e.g., "FEMALE" → "Female").
- Replaced invalid entries like 123 in gender with Unknown.
- Filled missing regions with "Unknown" and missing emails with "missing@example.com".
- Converted age to numeric and flagged invalid ages (e.g., 206).
- Final dataset: 298 cleaned records.

Key Findings & Trends

- **YouTube** was the top acquisition source with 56 users.
- The most selected plan was **Premium** (97 users), followed by **Pro** and **Basic**.
- Marketing opt-in rates were highest among users in their 30s and 40s.

- Regional data had 29 unknown values, indicating gaps in data capture.
- A few extreme outliers in age suggest the need for validation at the data entry level.

Business Questions Answered

1. Which acquisition source brought in the most users?

YouTube, with 56 sign-ups, led all sources. This suggests it's a strong performer worth prioritizing in future campaigns.

2. Which region shows signs of missing data?

29 users had no region recorded, flagged as Unknown. Improving form completion here would enhance regional analysis.

3. Are older users more or less likely to opt in to marketing?

Opt-in users averaged **36 years old** (median 34). This suggests users in their 30s - 40s are most receptive to marketing emails.

4. Which plan is most selected, and by which age group?

Premium was the most popular plan (97 users). Age distribution wasn't grouped, but future segmentation by age band would provide clarity.

5. Which plan's users are most likely to contact support?

Basic and **Pro** plan users submitted the most support tickets within 2 weeks of sign-up (24 and 23 respectively). Premium had 15.

Recommendations

1. Double down on YouTube

Reallocate budget or testing efforts toward YouTube campaigns based on strong acquisition numbers.

2. Tailor onboarding to Premium users

As the most selected plan, targeted onboarding (tooltips, video walkthroughs) could increase retention.

3. Improve data capture at sign-up

Make key fields like region, age, and gender required and apply real-time validation (e.g., age between 13–100).

Data Quality Issue & Fix

The age column included extreme outliers, such as **age 206**, which isn't plausible.

Fix:

Implement validation rules at the point of entry e.g., allow only ages between 13 and 100. Flag invalid entries for review before they impact reporting.

Support Ticket Insights

- **47 users** contacted support within 2 weeks of signing up.
- **Basic** (24) and **Pro** (23) users made up most of those tickets.
- Premium users (15) had fewer early support needs.

Actionable Insight:

Create onboarding support for Basic and Pro users like tooltips or guided setup, based on early engagement signals.