Product Analytics Case Study
Improving User Retention & Conversion for a Fitness App

Background

I analyzed user engagement data from a subscription-based fitness app to understand:
- How users engage with the product over time
- Where users drop off
- Which behaviors are most associated with conversion to paid plans

The dataset included:
- 2,200+ users
- 32,000+ user sessions
- Feature usage, session duration, and subscription outcomes

The goal was to identify actionable product insights that could improve retention and revenue.
Key Product Questions:
1. How many users stay active after signing up?
2. Which features drive deeper engagement?
3. What early behaviors predict conversion to paid plans?
4. Where does user drop-off occur in the lifecycle?

Methodology

I built a Tableau dashboard using session-level data and user-level outcomes. The analysis included:
- DAU trends to measure ongoing engagement
- Cohort retention analysis to track how long users stay active after signup
- Feature usage analysis to understand which product areas drive longer sessions
- Conversion analysis to identify behaviors linked to subscription upgrades

All conversion metrics were calculated at the user level (not session level) to ensure accurate rates.

Key Insights

1) Early Engagement Strongly Predicts Conversion
   a) Users with 5+ sessions in their first week were significantly more likely to subscribe to a paid plan.
   b) Implication: Improving onboarding and encouraging early usage could directly increase revenue.

2) Workout & Progress Features Drive Deep Engagement
   a) Users who interacted with Workout Plan and Progress Dashboard features had longer average sessions and higher conversion rates.
   b) <u>Implication</u>: These features are core value drivers and should be made more visible during onboarding.

3) Major Drop-Off Happens After Week 1
   a) Cohort analysis showed a sharp retention decline after the first week, especially among low-engagement users.
   b) <u>Implication</u>: The product needs better habit-forming mechanisms, such as reminders, streaks, or personalized nudges during Week 1–2.

4) Retained Users Show Compounding Value
   a) Users who remained active past Week 3 demonstrated both higher engagement and higher likelihood of upgrading to paid plans.
   b) <u>Implication</u>: Retention improvements can have a multiplicative impact on long-term monetization.

Recommendations

Area	Recommendation
Onboarding	Introduce guided "first week" plans to increase early sessions
Feature Discovery	Highlight Workout Plans and Progress tracking earlier in the user journey
Retention	Add push reminders and habit streak features during Week 1–2
Monetization	Trigger upgrade prompts after users hit engagement milestones (e.g., 5 sessions)

Outcome

This analysis demonstrates how product analytics can:
- Connect user behavior to business outcomes
- Identify high-impact engagement drivers
- Inform product roadmap decisions using data