

WASTE MANAGEMENT



Problem

Urban waste collection faces inefficiencies like poor route planning, unpredictable pickups, high fuel costs, and missed recycling opportunities. Households and waste management companies are affected by wasted time, resources, and lost revenue from recyclables.

Project Objectives

- Optimize waste collection routes using real-time geolocation.
- Enable households to schedule pickups and sell sorted recyclables.
- Reduce environmental impact by promoting recycling.

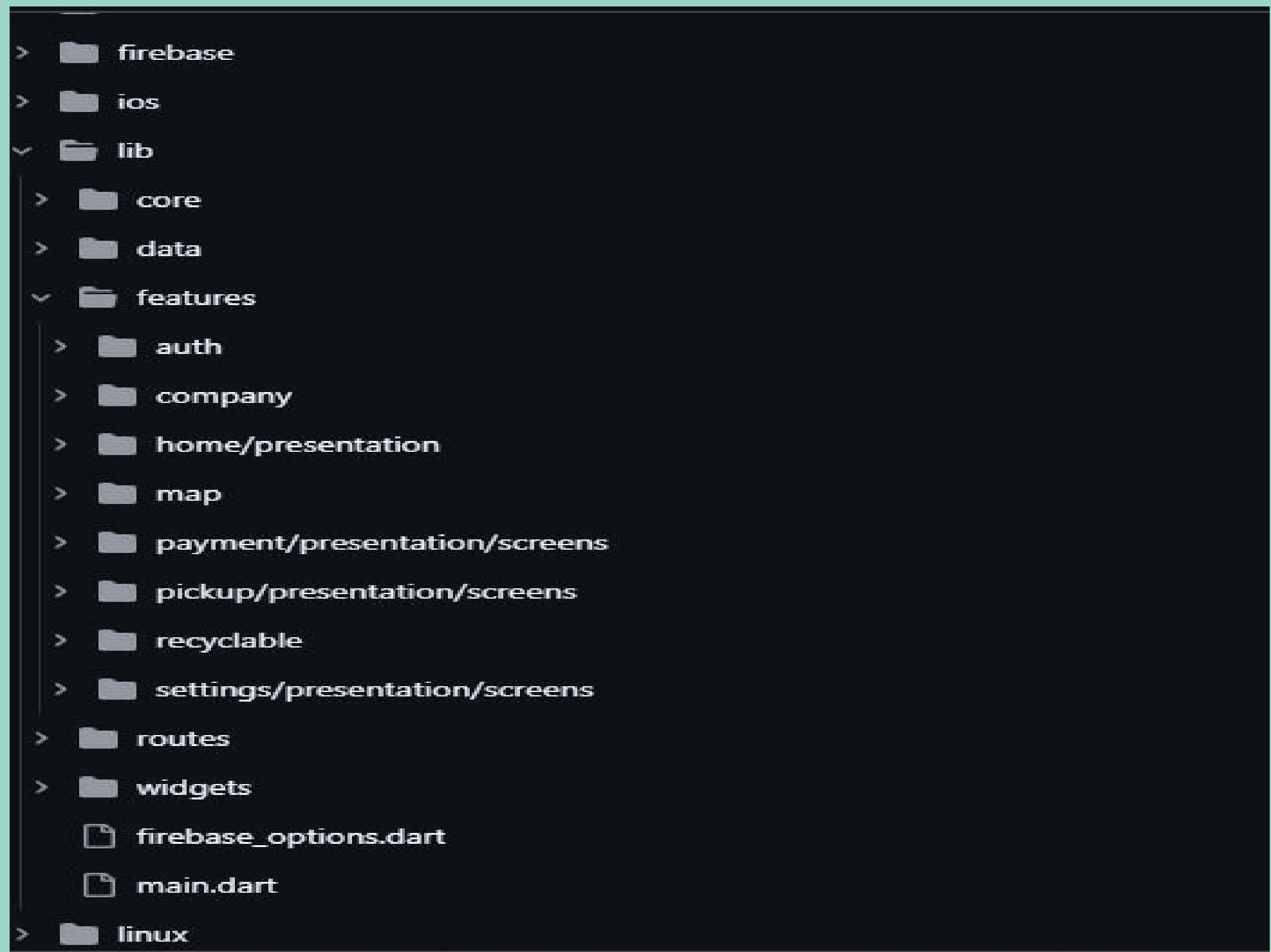
Project Requirements

- R1:** Flutter app with Google Maps API integration.
- R2:** Mobile money payment system for transactions.
- R3:** Real-time communication between users and companies.

Target Users

| Households | Waste Management Companies | Recycling Buyers |
|---|--|---|
| <ul style="list-style-type: none">Schedule pickups, sell recyclables, and track payments. | <ul style="list-style-type: none">View pickup requests, plan efficient routes, and purchase recyclables. | <ul style="list-style-type: none">Access sorted materials and coordinate collections. |

Project Design



Results

Step 1

App Development: Build Flutter UI and integrate APIs.

Step 2

Route Optimization: Use geolocation to map efficient pickup paths

Step 3

Recycling Marketplace: Implement listing/purchasing features.

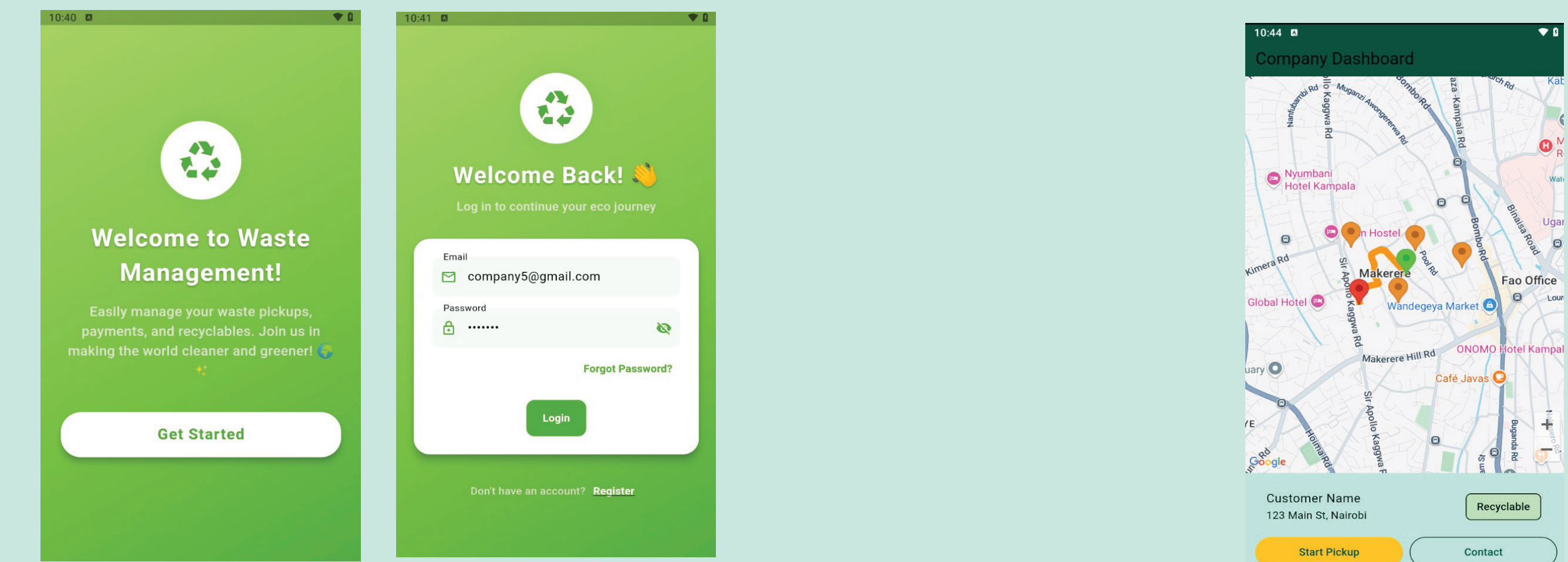
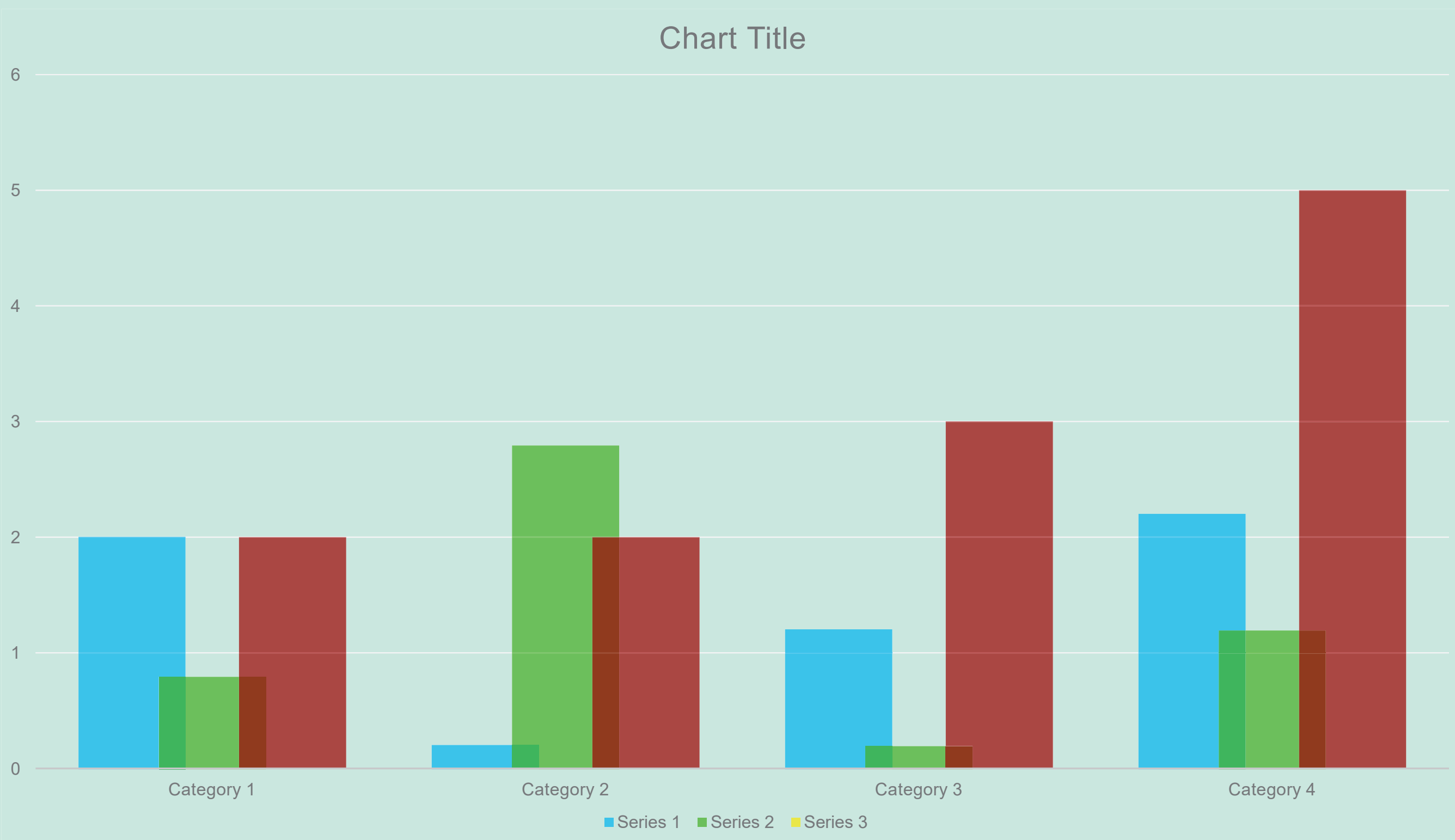
Step 4

Testing: Validate functionality with real users.

Future Work

- Observation 1
- Observation 2
- Observation 3
- Expand to rural areas with limited waste services.
- Add AI for dynamic route adjustments.
- Partner with more recycling industries.

Results



Conclusion

- Brief summary of what you discovered based on results
- Indicate and explain whether or not the data supports your hypothesis
- The app successfully streamlined waste collection, supported recycling, and cut costs. Data confirmed reduced travel time and increased recyclable sales, validating the solution.

References

- Include print and electronic sources in alphabetical order
- Google Maps API Documentation.
- Flutter Framework Guides.
- Waste Management Industry Reports.