Development of an iOS & Android Application for Mobile Commerce

Colin Christophe, Maxwell Kepler, John McMurtry, Arindam Mishra, Kaumil Patel, & Jaxson Waterstreet
Schulich School of Engineering, University of Calgary

Motivation

Our project sponsor is YYC Beeswax, a Calgary-based small business that sells household, cosmetic, and novelty beeswax products through an online website. Some of the products that they sell include lip balm, candles, honey, and various types of lotion. Currently, YYC Beeswax does not have a mobile application platform to promote and sell its household and cosmetic products, severely limiting their customer reach. This project is an opportunity for our team to utilize our skills and expertise to support a local business in reaching its goals.

- A mobile application will allow YYC Beeswax to reach a wider range of customers in hopes of generating sales growth while effectively managing its products and resources.
- Additionally, this application allows for an improved user experience while fostering community engagement around YYC Beeswax product and service offerings.
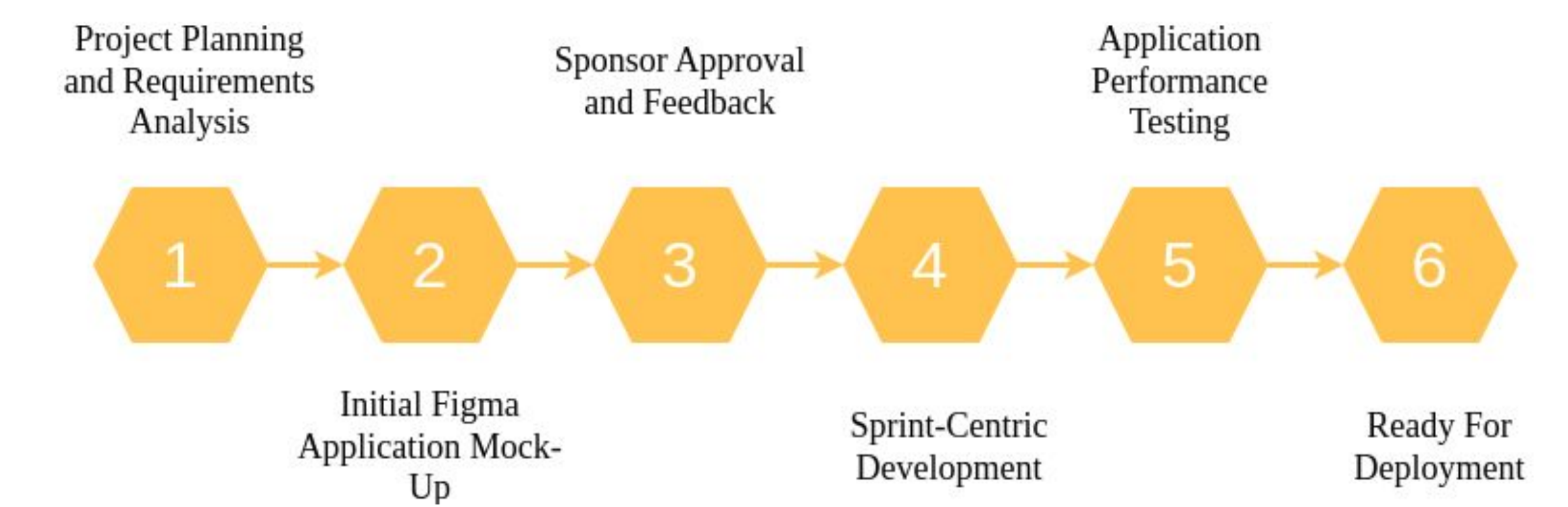
Requirements

The main scope of this project was to create a fully functional iOS and Android application for YYC Beeswax that can be easily managed from a singular codebase. Our team had to implement the following functional requirements:

- User account creation and configuration with numerous profile options including language changing capabilities.
- Product search and add to cart functionality with a streamlined and secure checkout process.
- Upcoming event displays with ticket purchase options.
- In-app quizzes to recommend products and drive engagement.
- Administrator analytics and sales reports with the ability to edit in-app content via a separate panel.

In addition to these, an emphasis was placed on ensuring cross platform compatibility, application security, and quick loading times to provide users with a smooth and enjoyable experience.
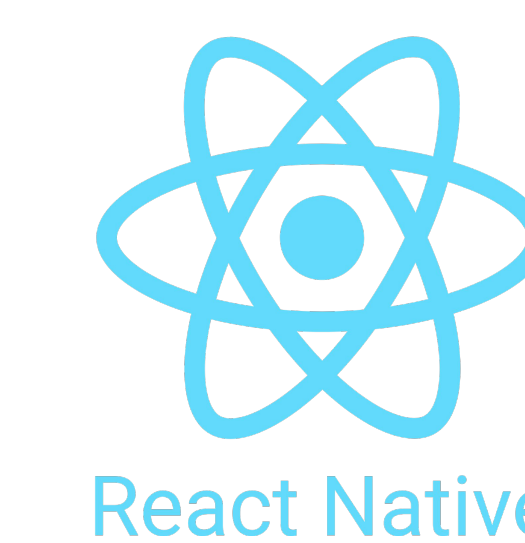
Application Development

Development of this application started with requirements analysis which then led to the creation of a mock up of the front-end using Figma. This helped our team and the project sponsor understand the look and flow of the application while ensuring it adhered to brand guidelines. After this, our team followed an agile software development process that was broken down into 2 week sprints. At the end of each sprint, a review was conducted among all team members to discuss progress, assess challenges, and plan for the next sprint.

1	2	3	4	5	6
Project Planning and Requirements Analysis	Sponsor Approval and Feedback			Application Performance Testing	
Initial Figma Application Mock-Up		Sprint-Centric Development		Ready For Deployment	

Technologies

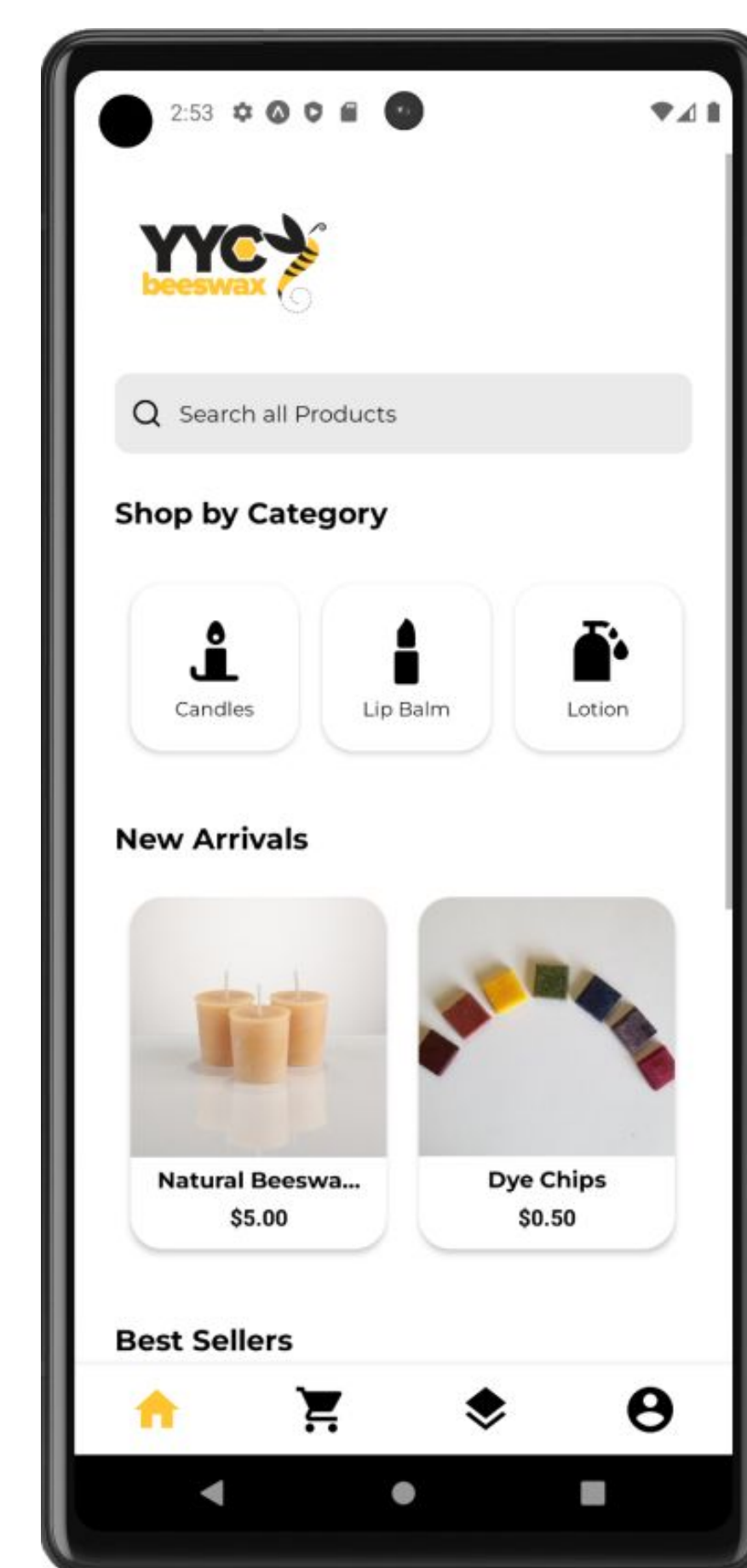This application was built using the following industry standard mobile development technologies:

- **React Native:** A front-end Javascript framework used to develop mobile applications based on the React web development framework, which serves as the foundation for our application.
- **Expo:** A framework built on top of React Native that allows our team to maintain a singular codebase for cross platform iOS and Android development.
- **Firebase:** A NoSQL cloud database and computing service created by Google that provides our application with secure data storage, user authentication, and additional backend services.
- **Stripe React Native SDK:** A software development kit (SDK) that we used to integrate Stripe payment processing services into our application.
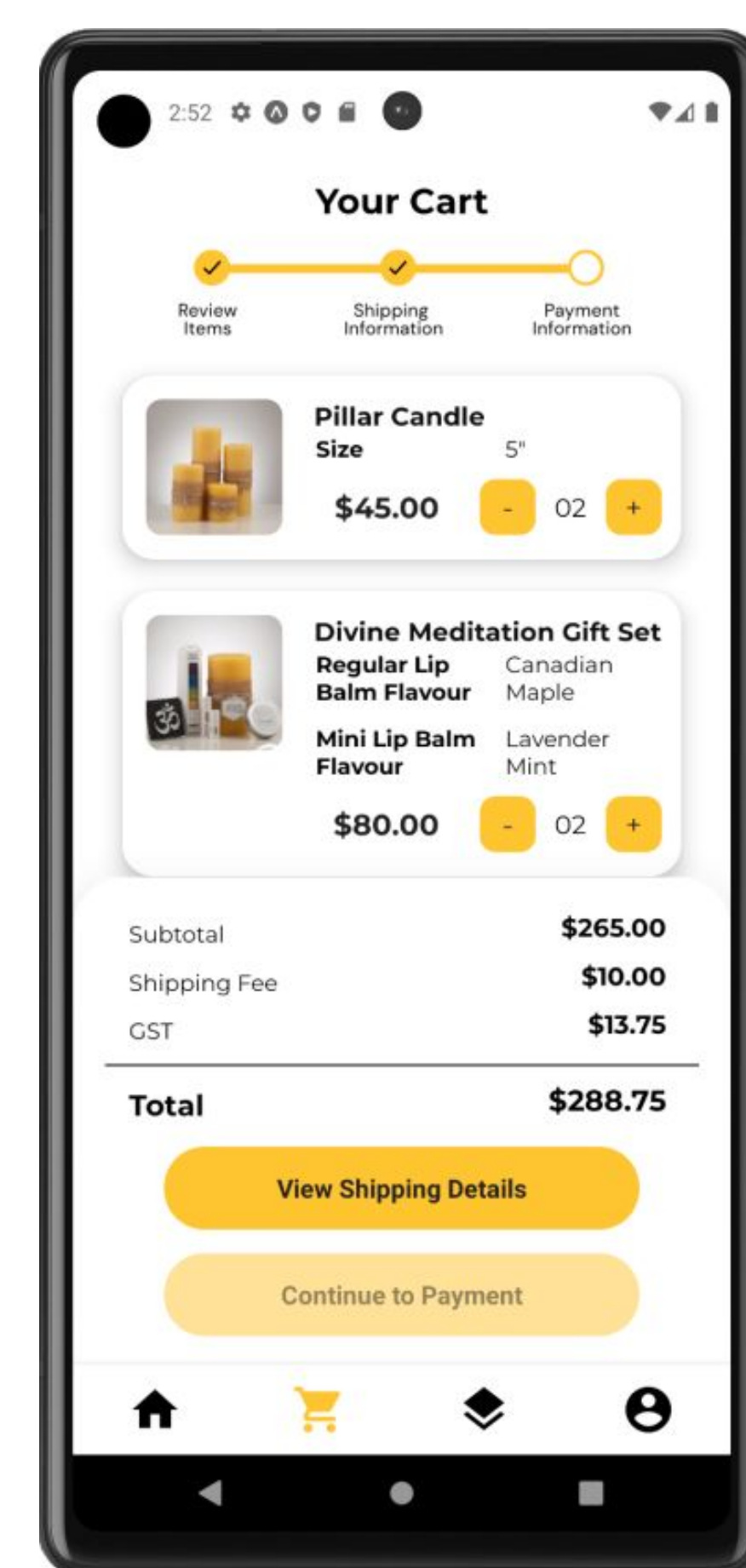

Results

After a thorough development process, we are proud to present the results of our project for YYC Beeswax:
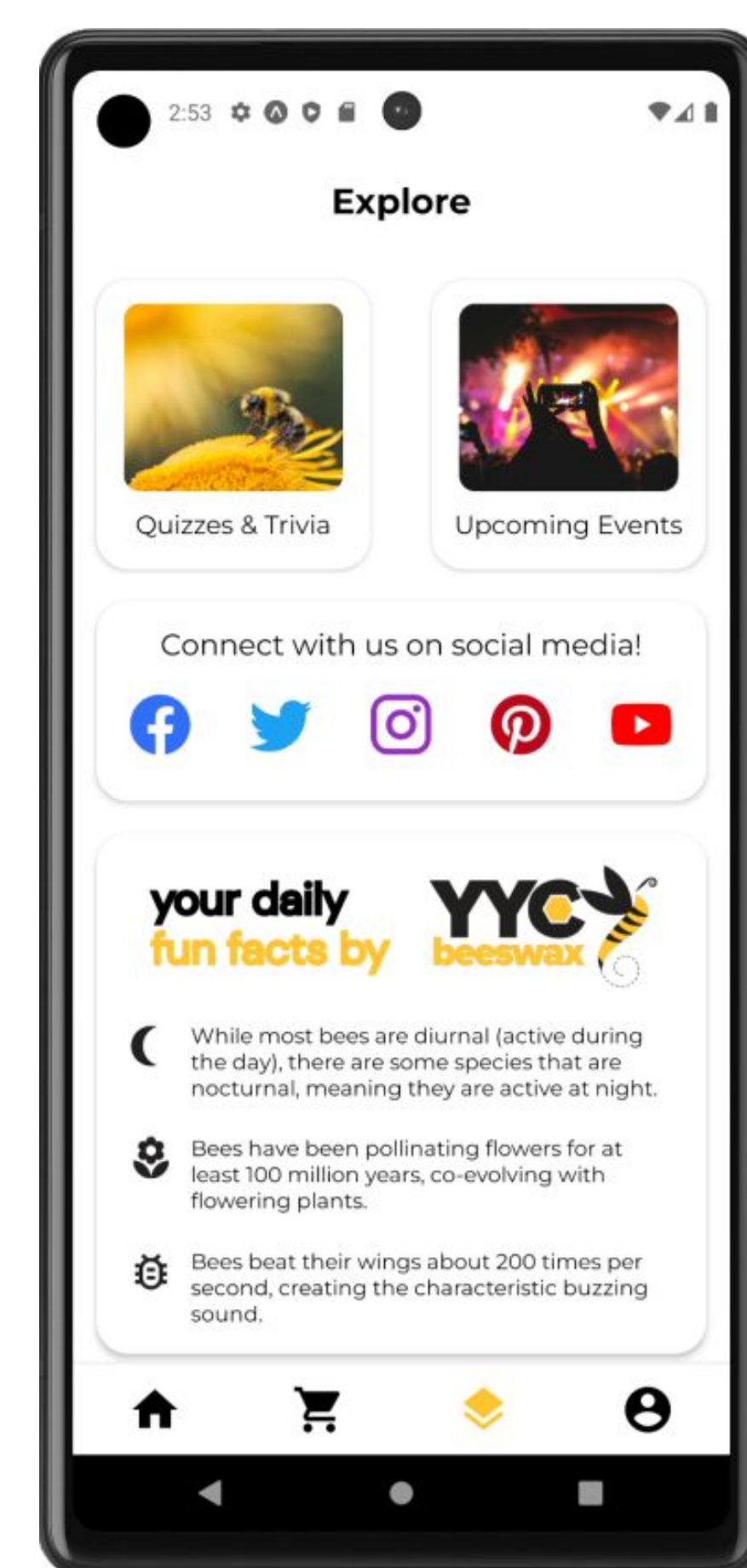
- A fully-integrated stand alone app that can be built for deployment to the Apple App store and Google Play store.
- Full compatibility across various screen sizes on both Android and iOS devices.
- Secure end-to-end payment processing and customer data storage capabilities.
- Administrator functionality to analyze sales insights, key metrics, and allow for efficient content management.
- Interactive user content such as in-app Buzzfeed style quizzes and local YYC Beeswax event information designed to increase user engagement and foster community.
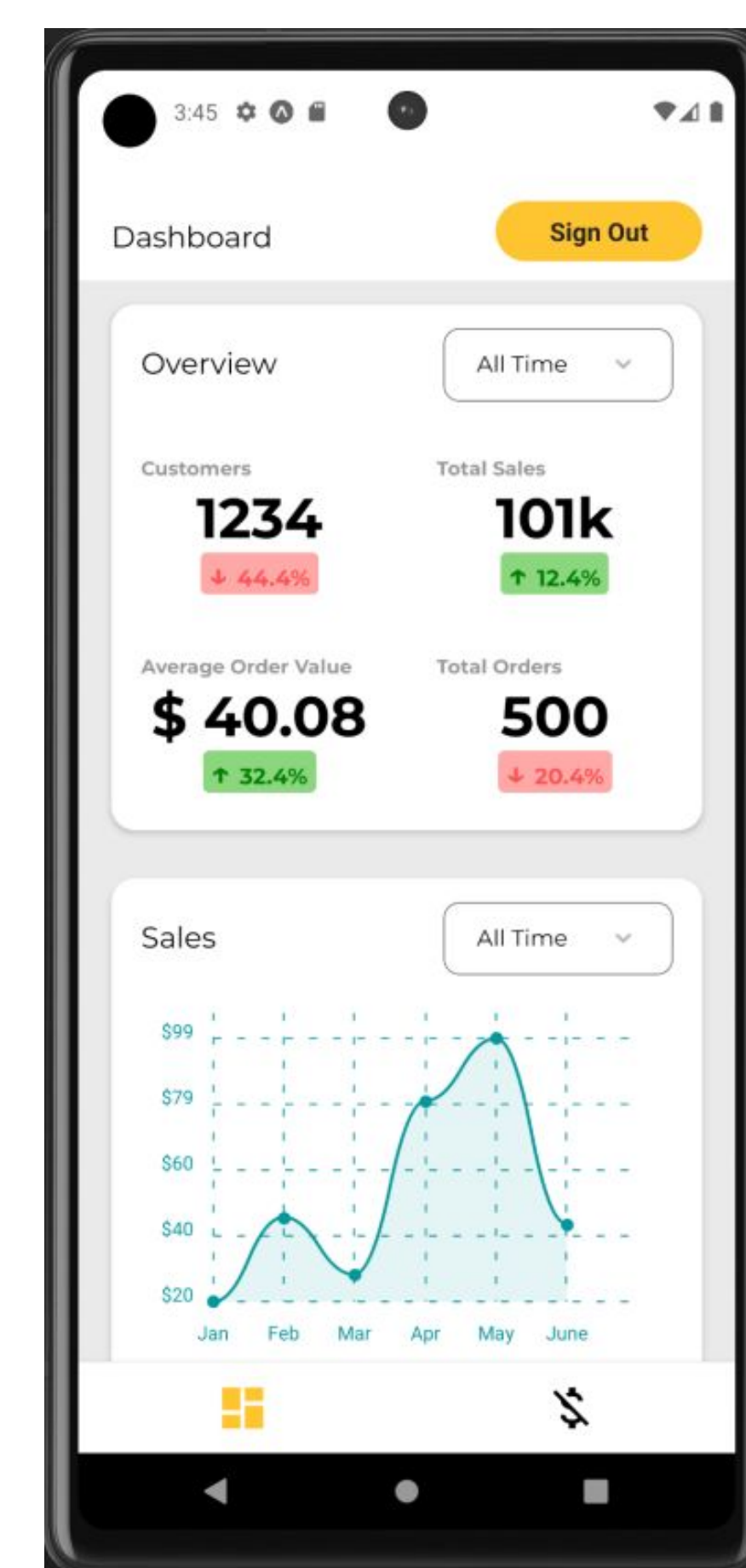

Home Page   Cart Page   Explore Page   Admin Panel

Acknowledgements