

MAY 03, 2024

Optimizing Canteen Management System

Proposed Solution, Systems Thinking, & Design Prototype

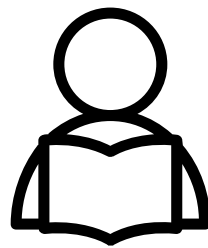
Group 6

Ketki Bhatia– DT2023007

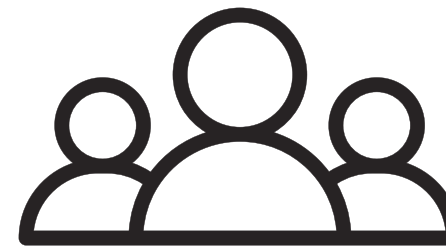
Murali Jayam – IMT2020035

Introduction

- Our project aims to optimize the canteen management system by addressing critical issues faced by different stakeholders (Students, Staff, management).

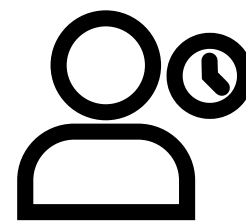


Students



Staff & Management

- Key challenges include long waiting times, payment discrepancies, and the lack of real-time information about item availability.



Waiting time



Payment
Discrepancy



Lack of real-time
information

Applying **Systems approaches** to Canteen Management Optimization

1. Examining the relationships between various elements within the canteen environment:

- Waiting times can be affected by factors such as order complexity, staff availability, and kitchen efficiency.
- Real-time availability of items also depends on factors such as inventory management, ordering patterns, and communication between staff and customers.
- Payment discrepancies may arise from errors in transaction processing, bank server issues or lack of oversight.

2. Dealing with different contrasting perspectives associated with complex situations:

- Our approach involved interviewing a range of stakeholders, including students, staff, and management representative.

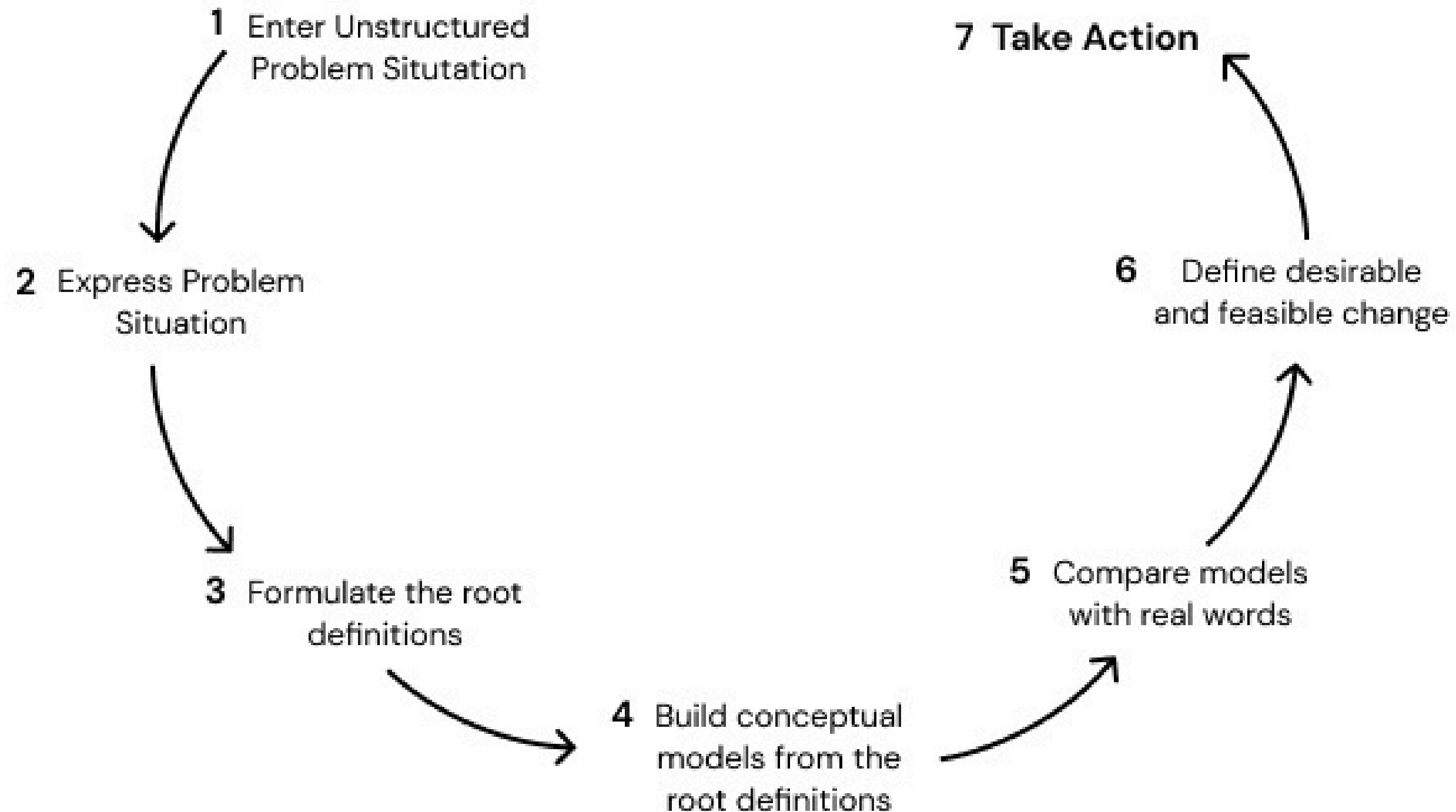
3. Acknowledged part of the problem is to establish and agree on what the problem is, and where there will rarely be a single 'right' resolution.

4. Supported by (sub) frameworks including framework for understanding (fwU), framework for practice fwP):

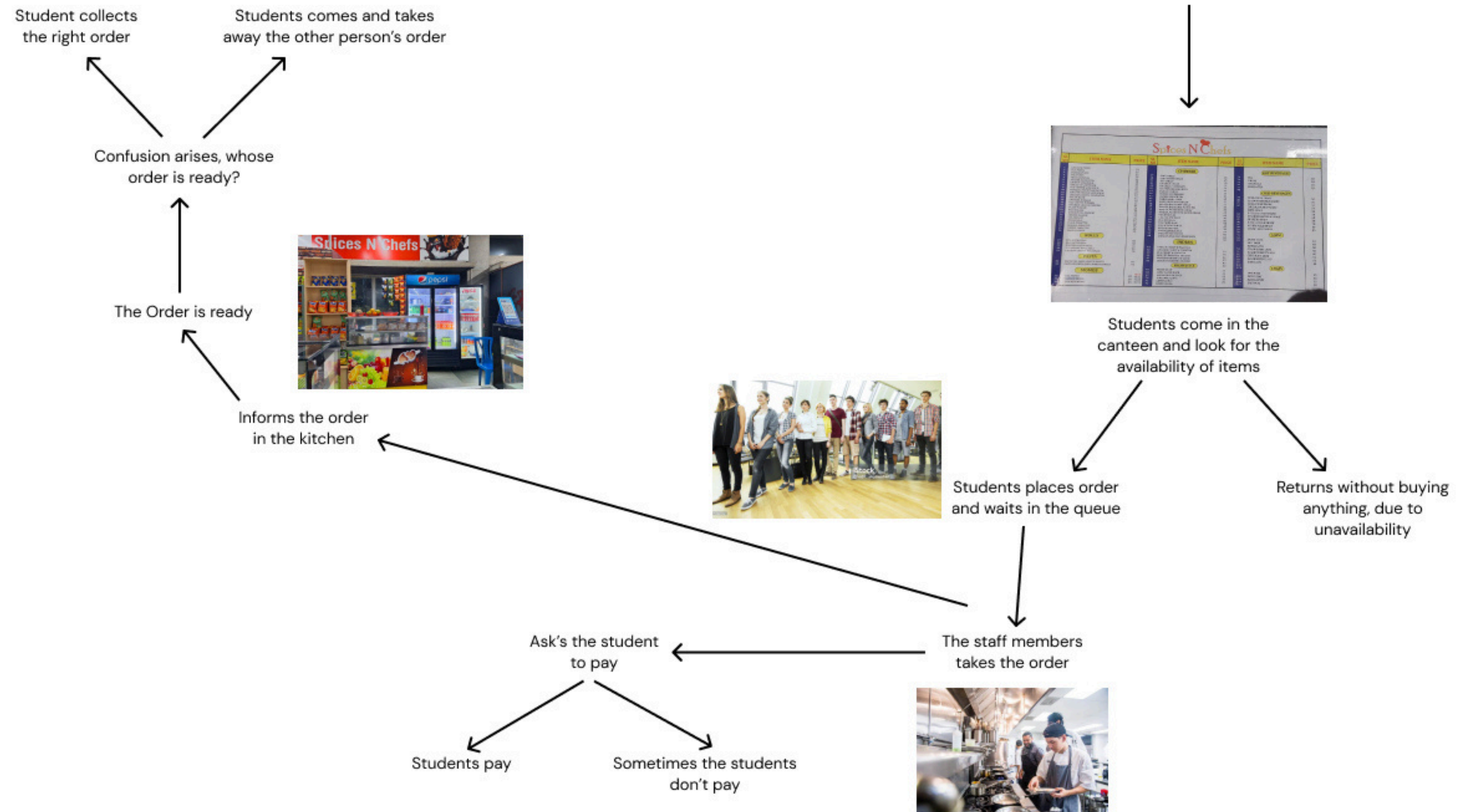
For instance, fwU helps us analyze the root causes of long waiting queues, need for repeated reminders to staff, delays caused by other customers taking orders, and inefficiencies in order processing by the staff handling the system. It also allows us to explore the factors contributing to payment discrepancies and the problems associated with lack of real-time information about item availability.

Requirements are gathered and solutions are designed to specifically target these root causes, including implementing order management systems, real-time inventory tracking, and digital payment options. We would try to engage the stakeholders throughout the process to gather feedback and ensure that the proposed solutions meet their needs.

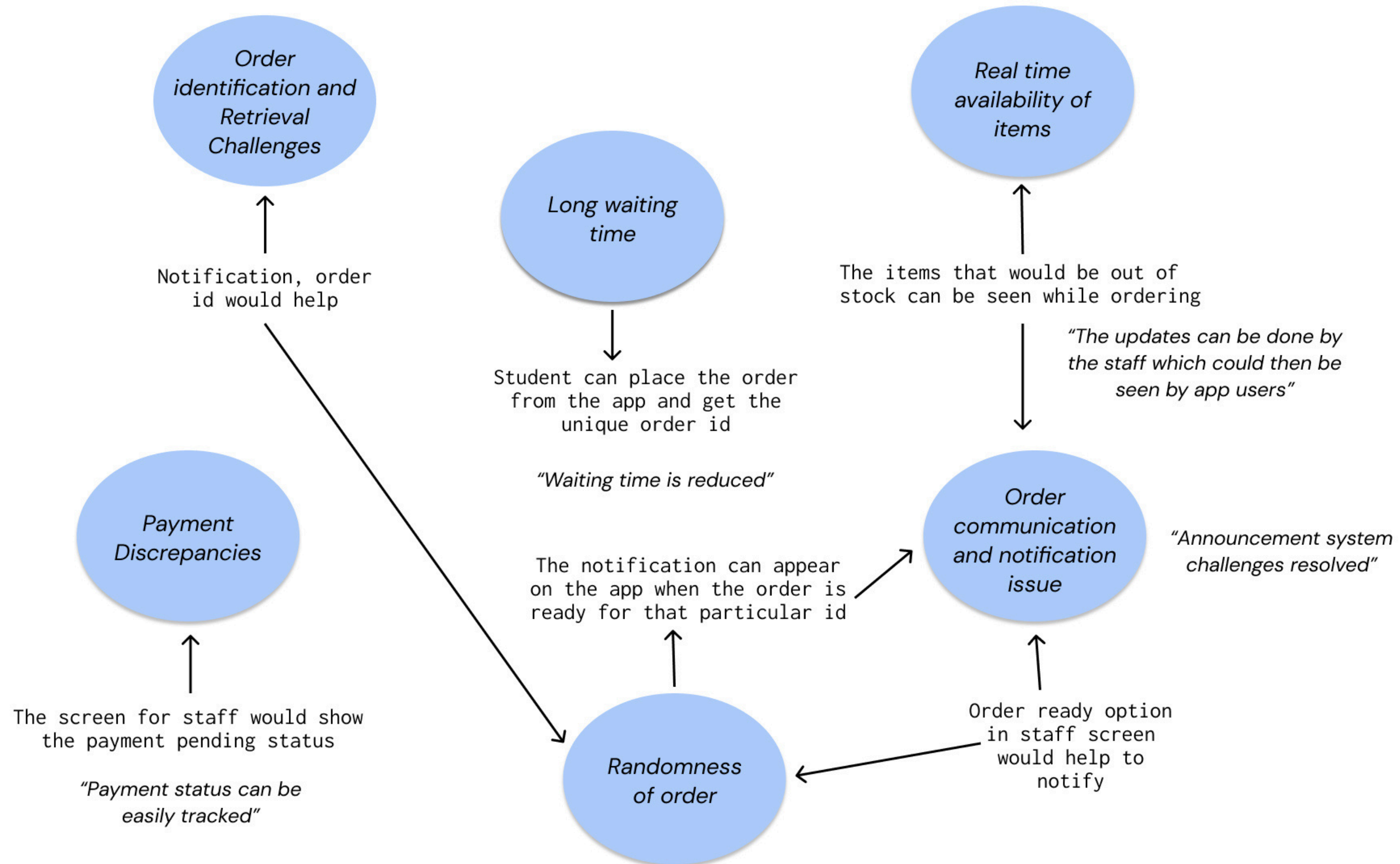
The 7 stages of soft systems methodology



Stage 1 & 2: the situation defined



Stage 3 & 4: purposeful action and developing models



Stage 5: Comparing Real World and Proposed Model

Real World

Long waiting time to place the order, have to remind the staff repeatedly for the order, other person comes and takes away the order

The problem in recognizing which food is available and which is not has to come a long way from rooms to find out that the required item is not there.

Accidentally paying extra, unable to get a refund after that, some students miss payments, scanner accessibility and inefficiency

Students end up mistakenly taking someone else's food, the staff member shouts and communicates about the order which often leads to students missing the call

During peak hours, after the placement of multiple orders, there exists no order sequence, sometimes the staff forgets about the actual order and gives the wrong order.

Proposed Model

The order can be easily placed through the app, issuing the unique order ID.
"No requirement of standing in line to place order".

The categories option in the app gives updated information regarding the availability of food items.

After adding the food items to the cart, the user will be directed to pay using UPI and the payment status will be updated in the staff person's app (payment pending or paid).

The order status would get updated in the sequence of order ID and the notification then appears stating that the order is ready.

The order would be directly taken through the app and would be prepared in accordance of this same sequence.

Stage 6: Developing interventions

A digital ordering system to reduce waiting times by allowing customers to place orders in advance or from their mobile devices.

Real-time inventory tracking to provide customers with up-to-date information about item availability and prevent out-of-stock situations.

Payment integration to minimize payment discrepancies and streamline the payment process.

Order accuracy features such as customizable order options, clear item descriptions, and order confirmation prompts to reduce order randomness and errors.

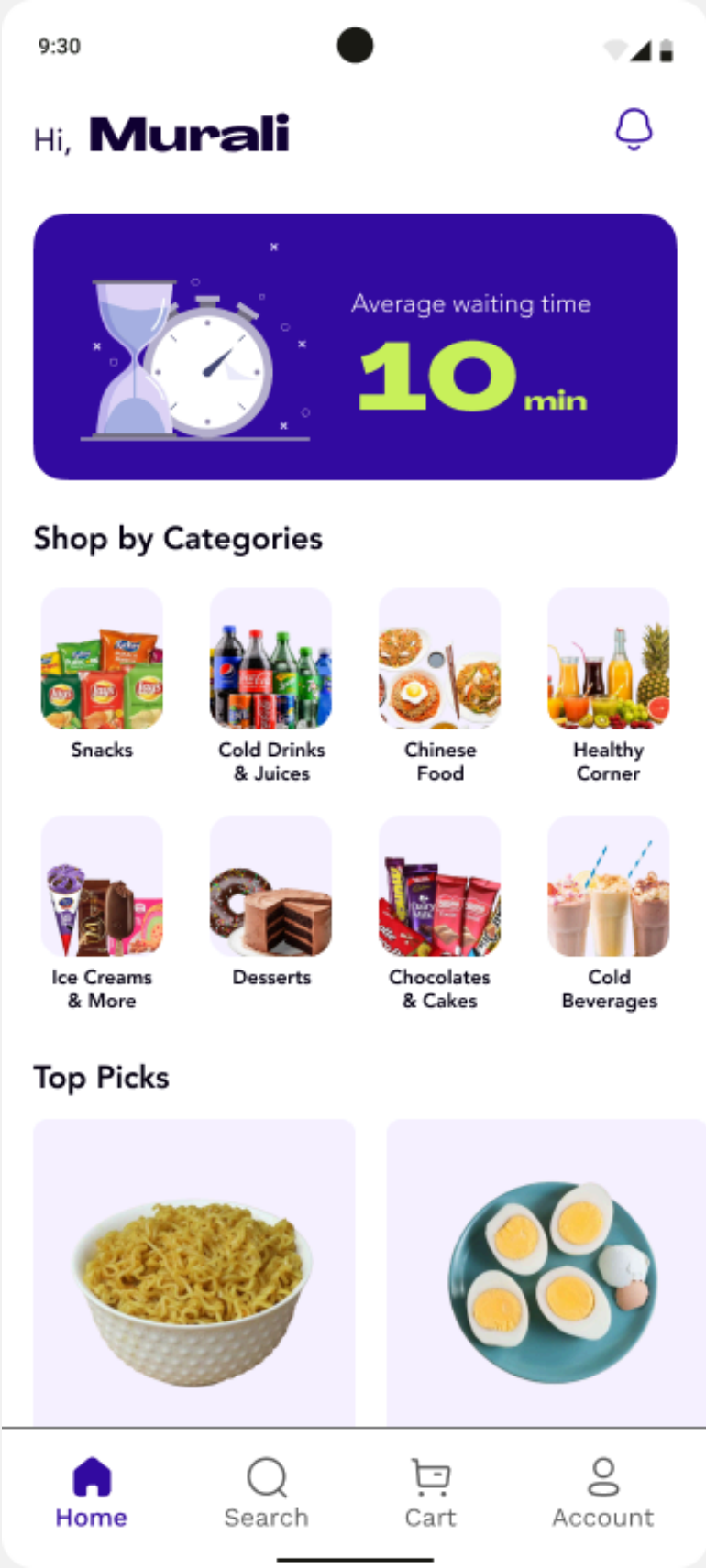
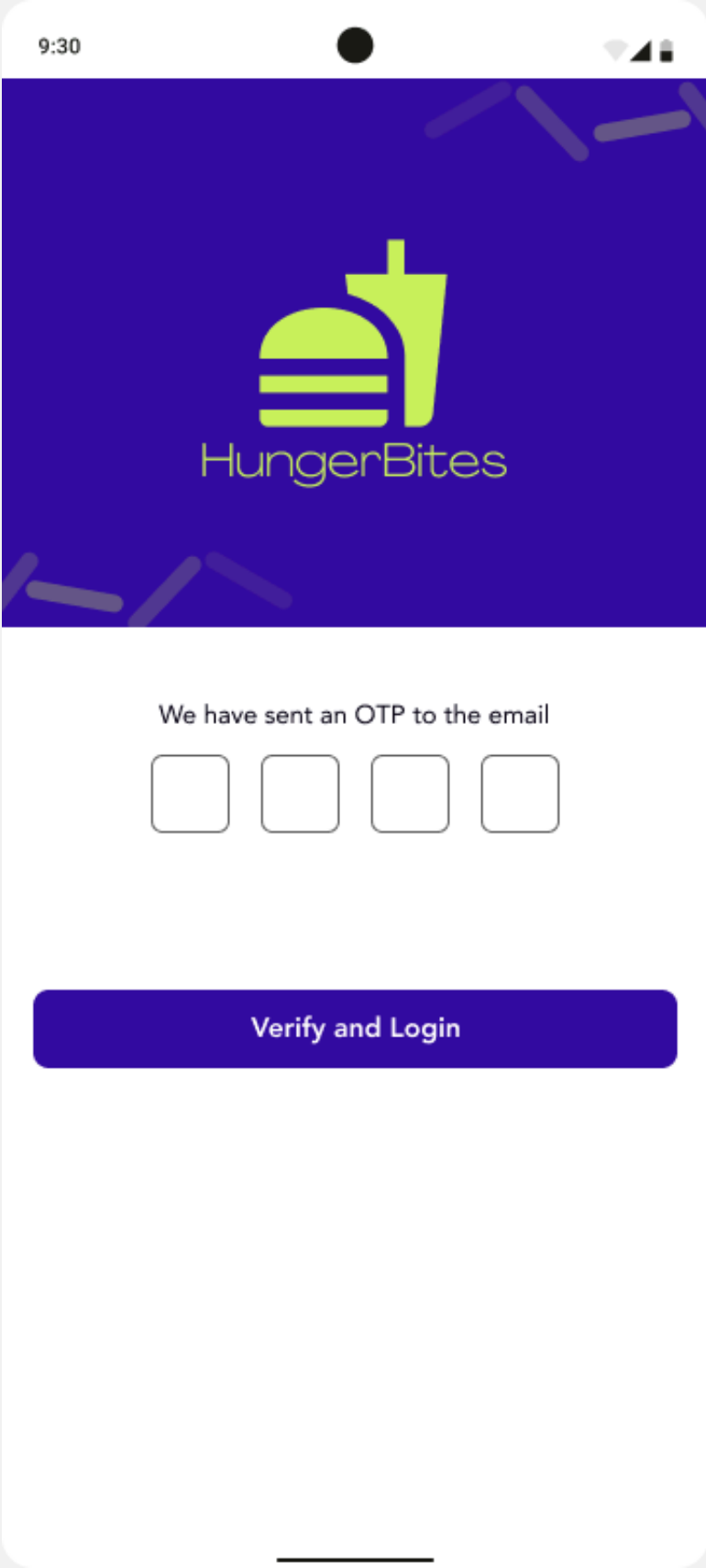
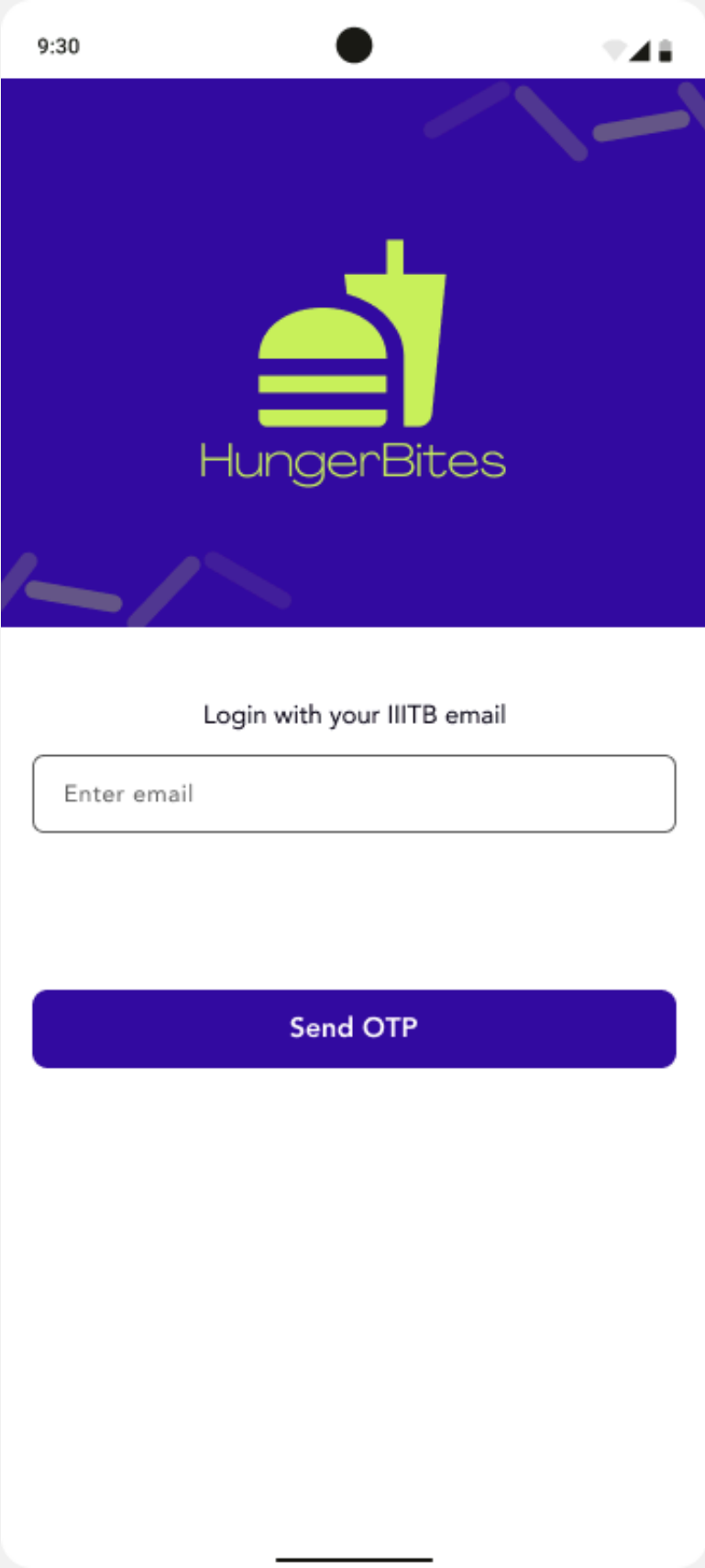
The features of the app are framed as such that align with the goals and objectives of improving efficiency, accuracy, and customer satisfaction in the canteen management system.

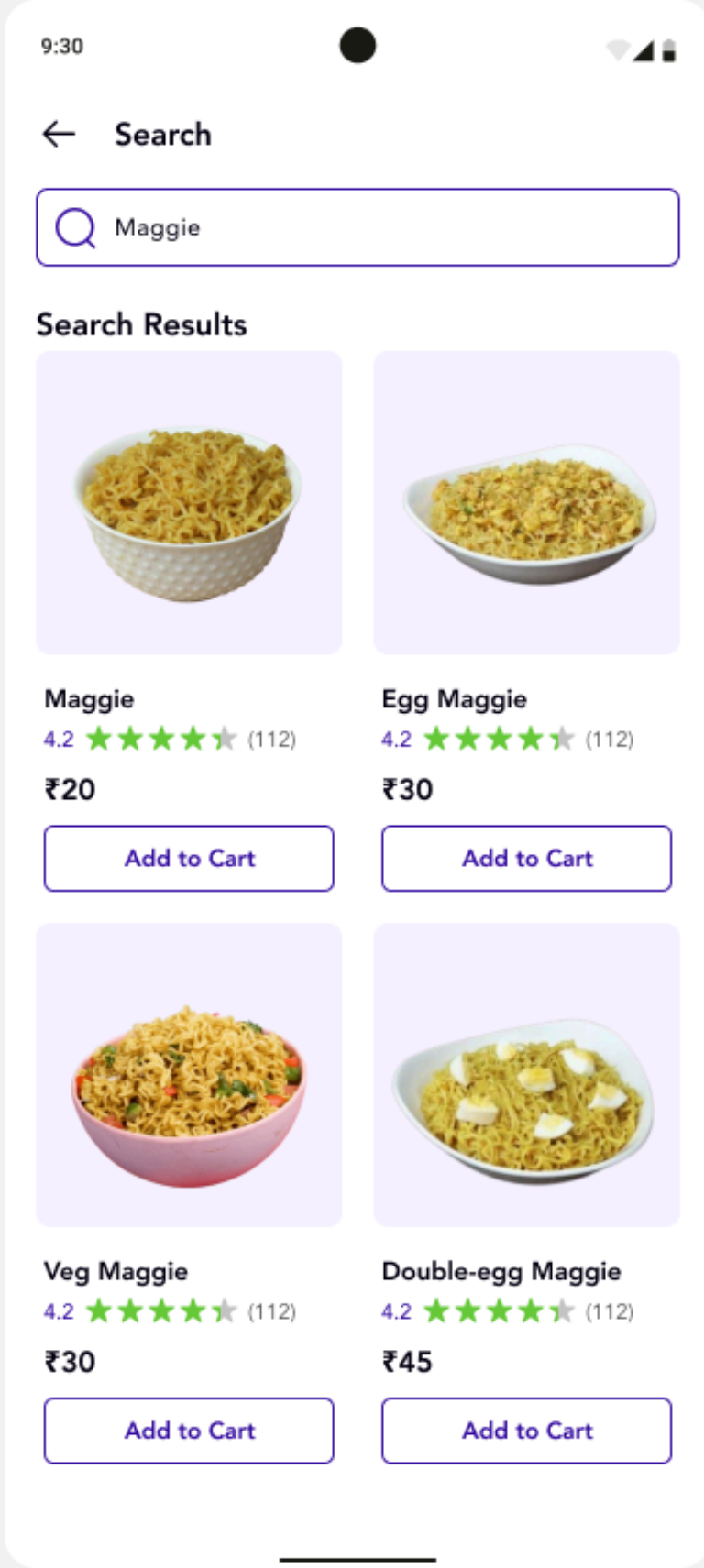
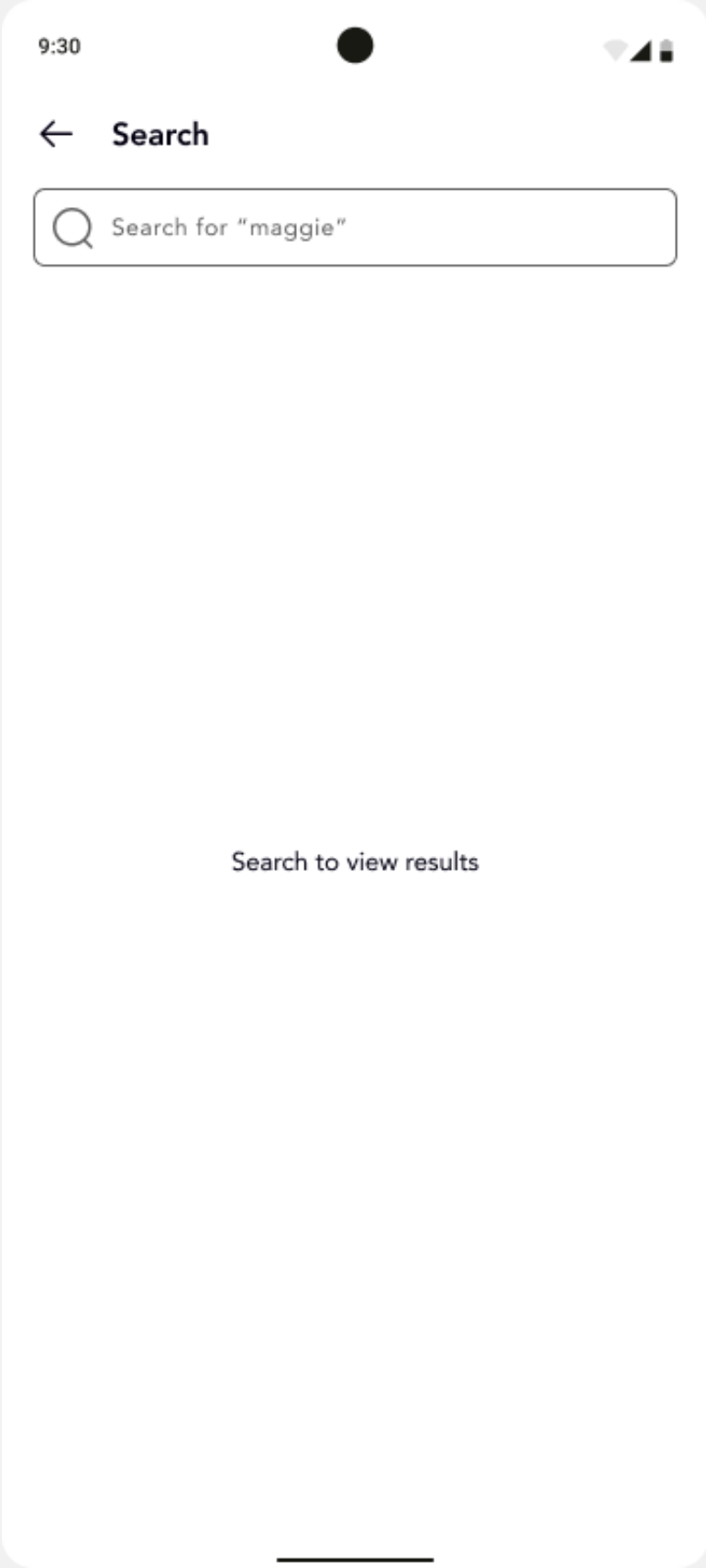
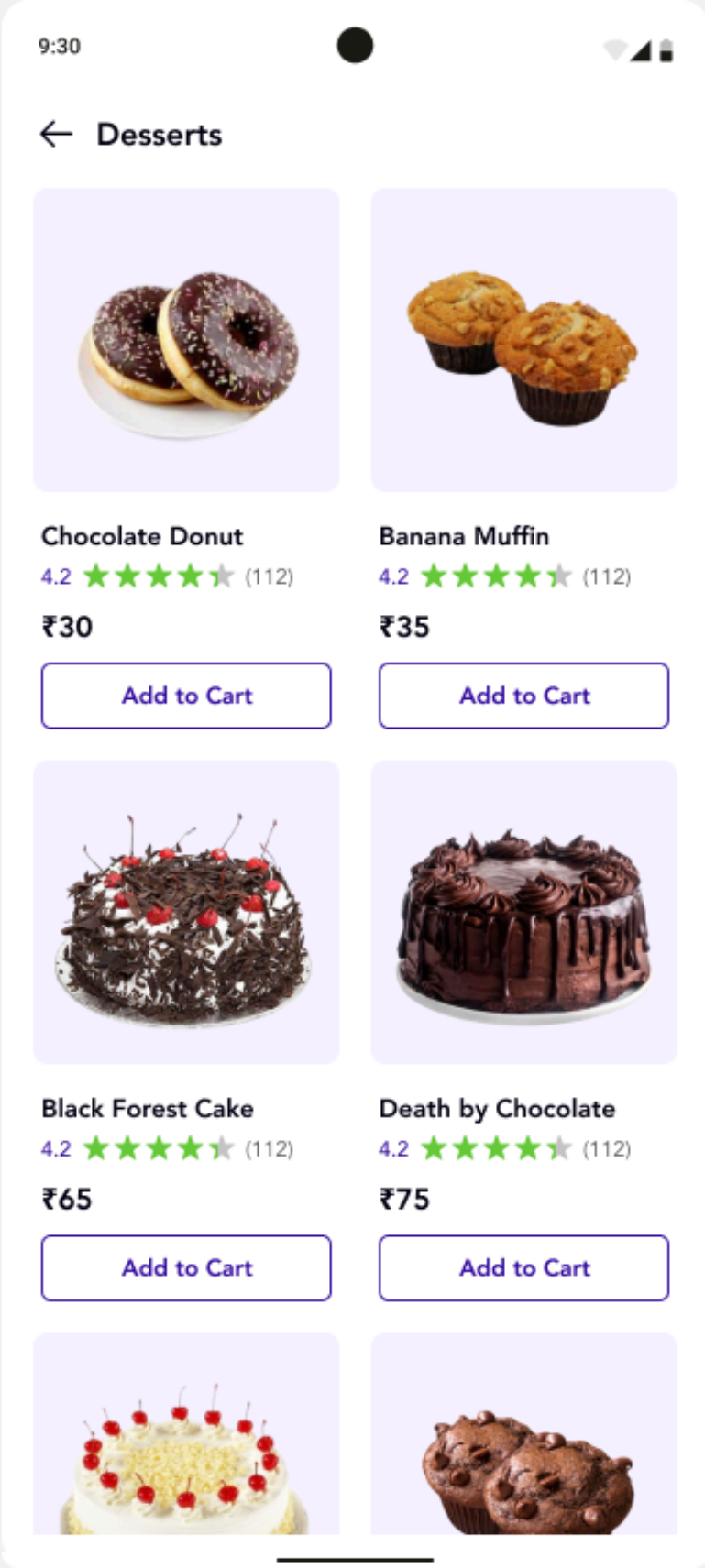
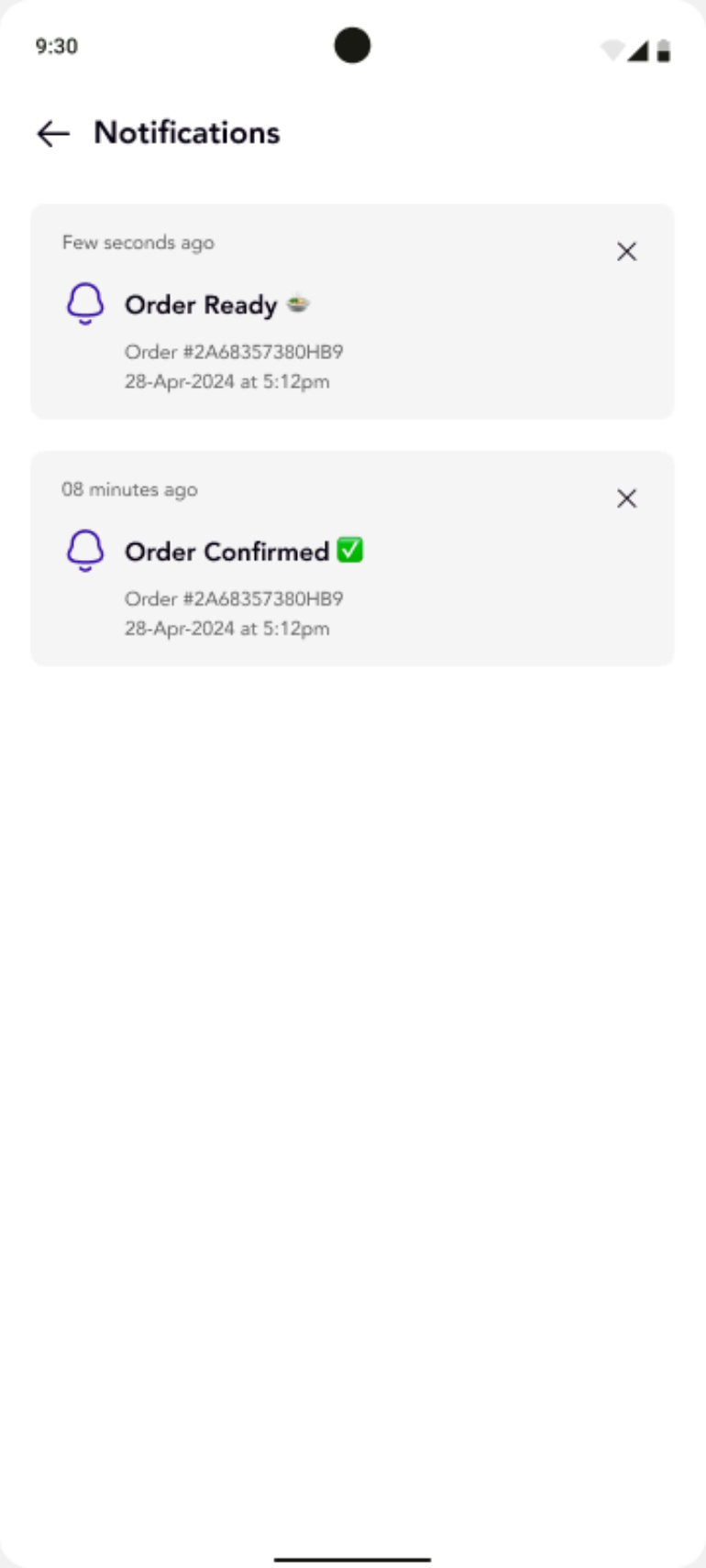
Stage 7: Put to Action

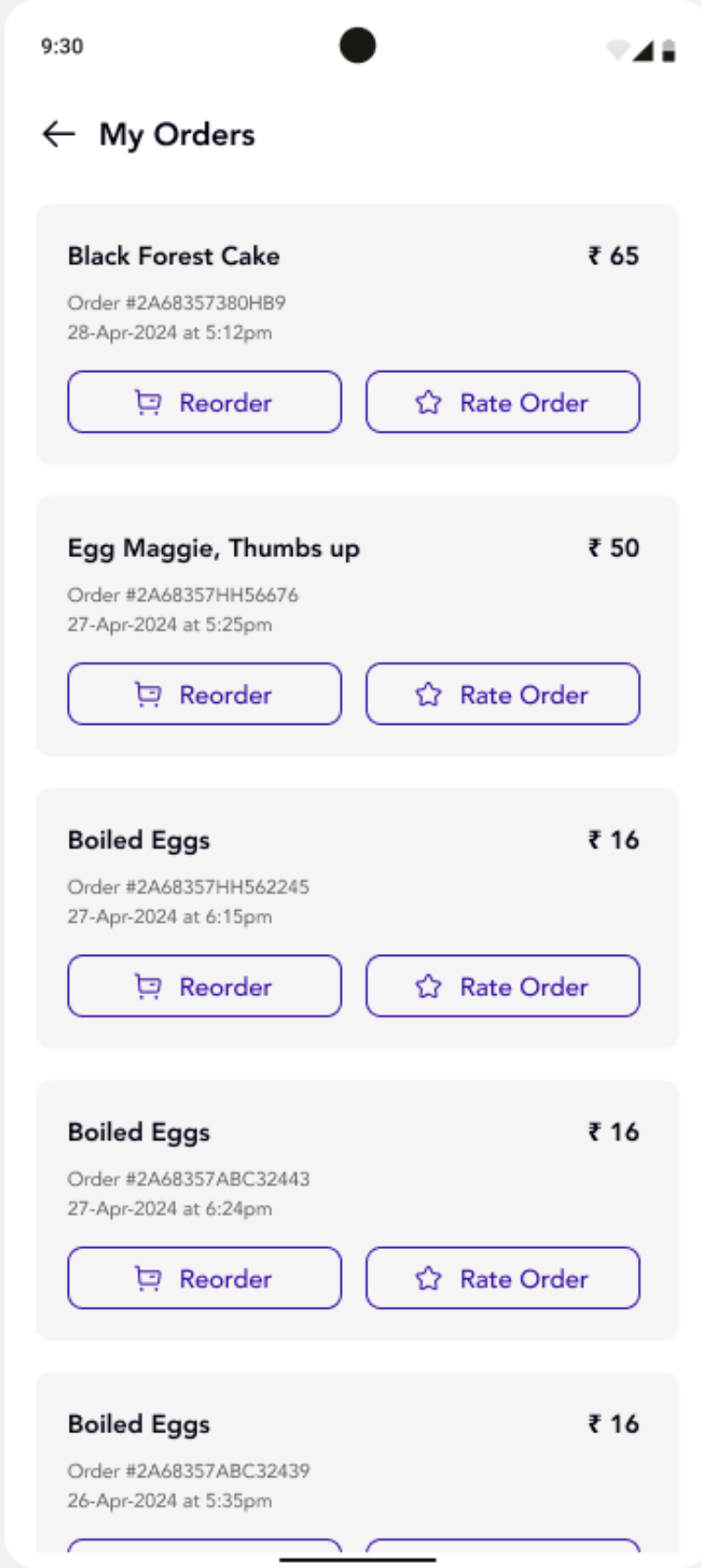
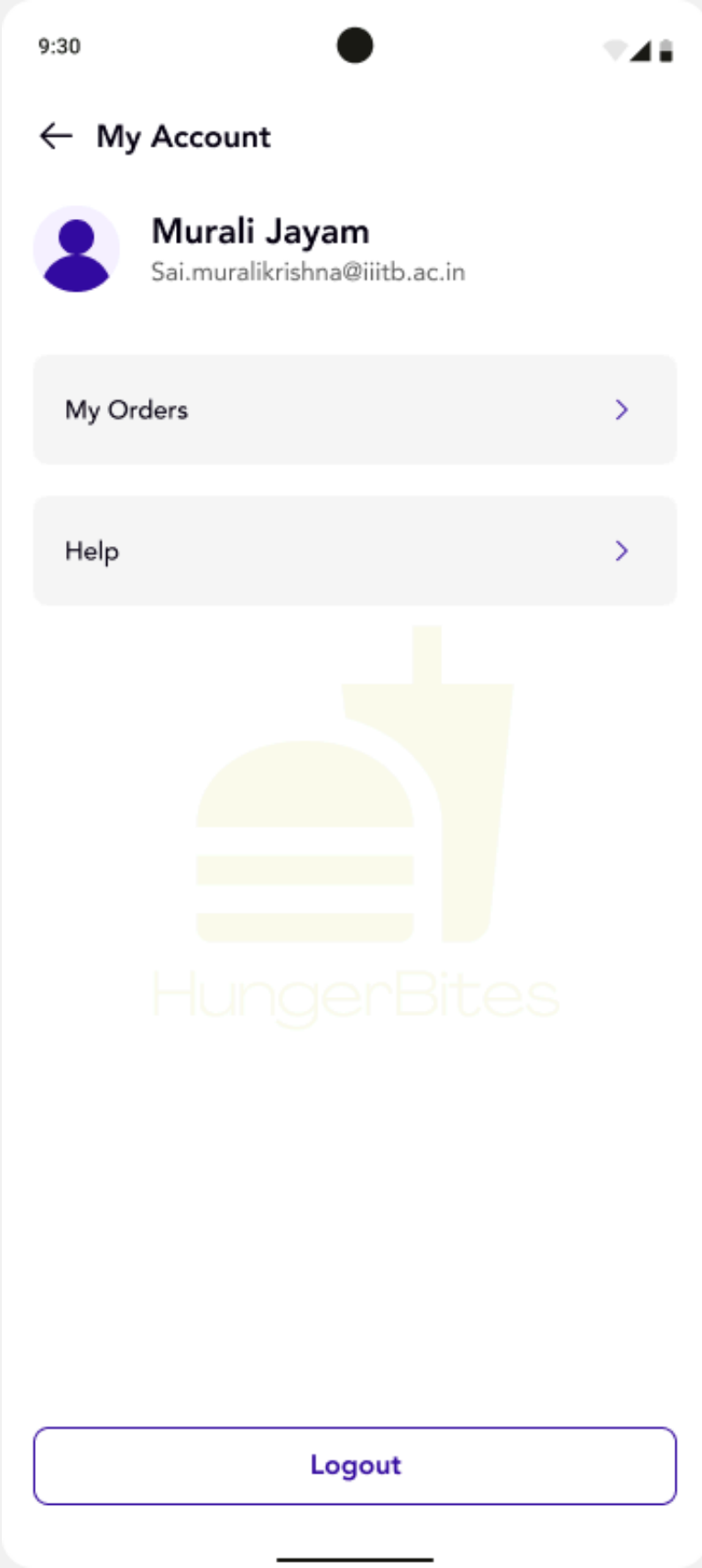
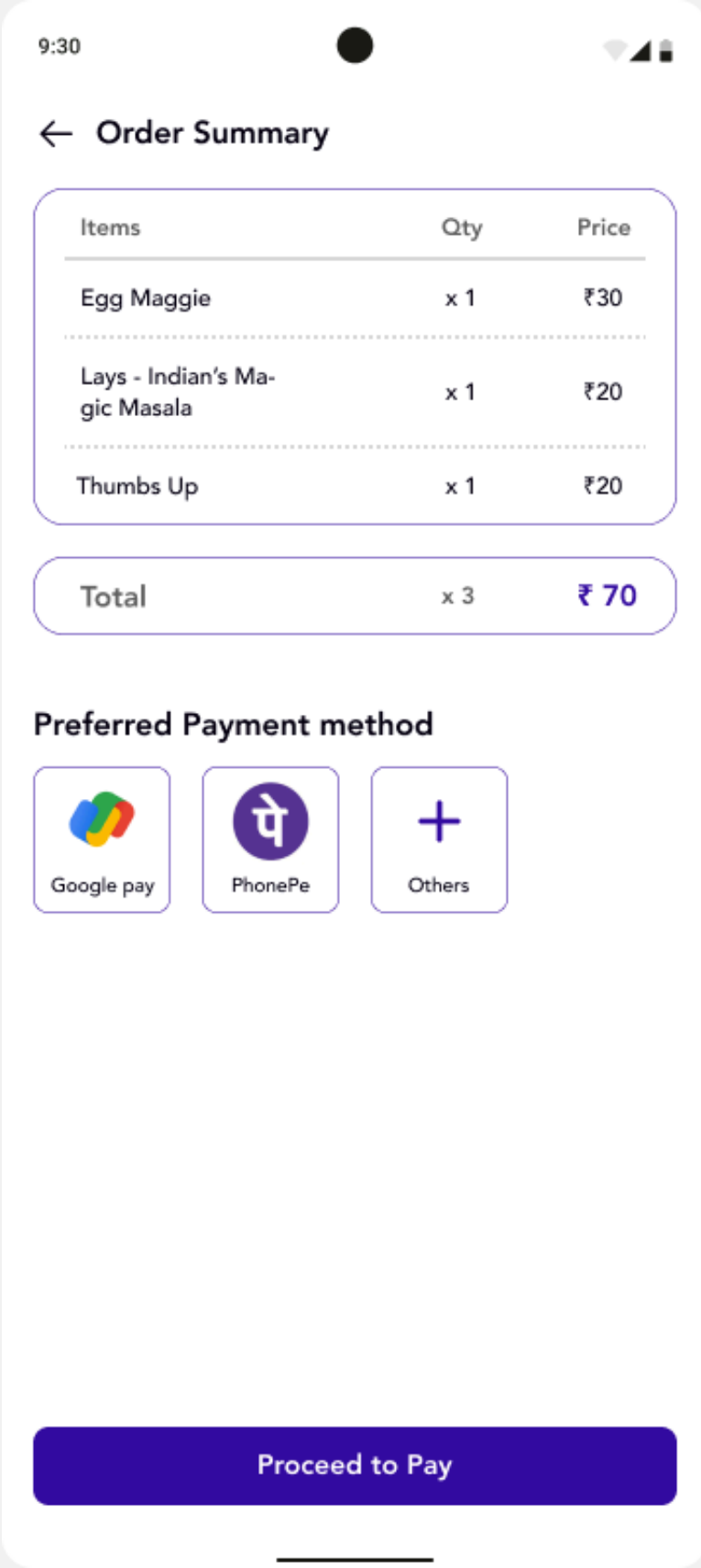
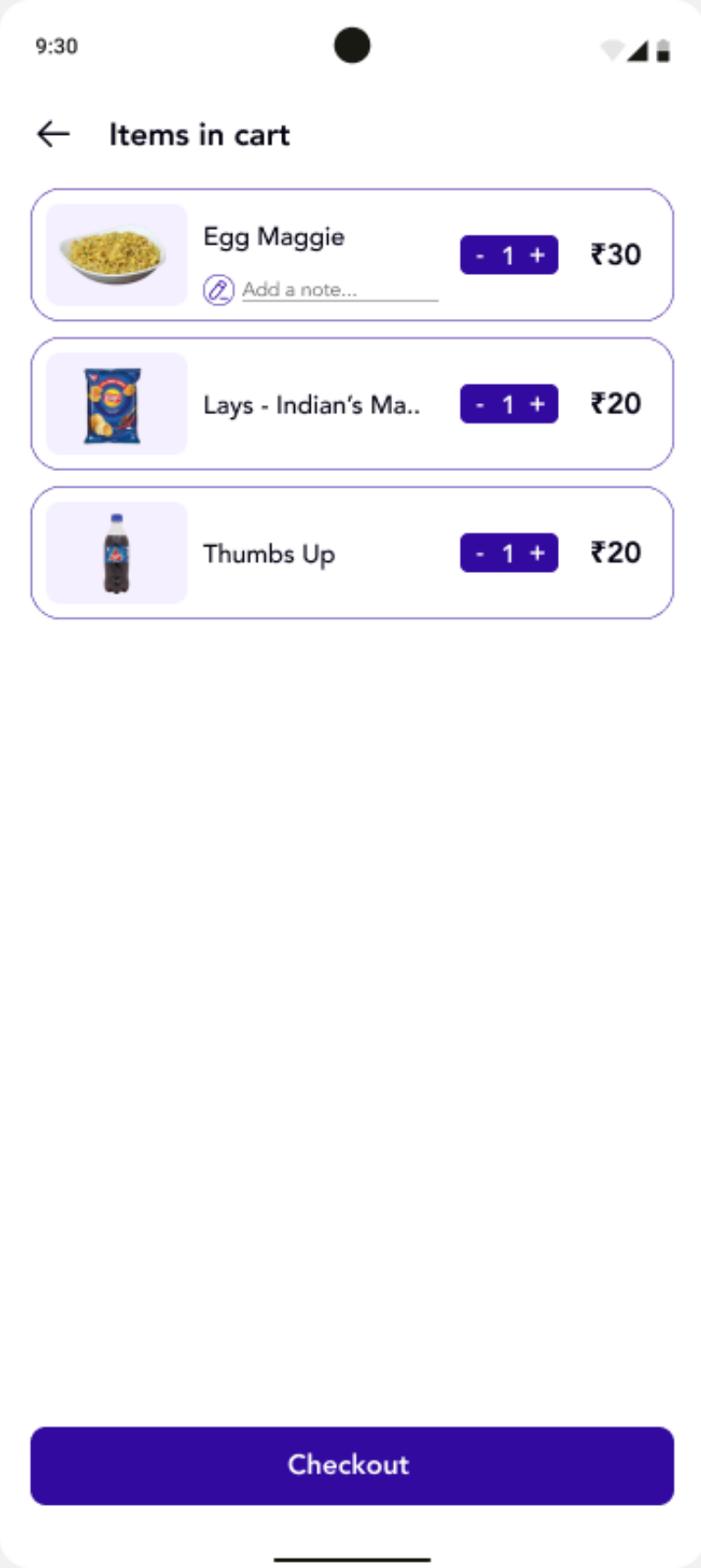
App Design & Prototype

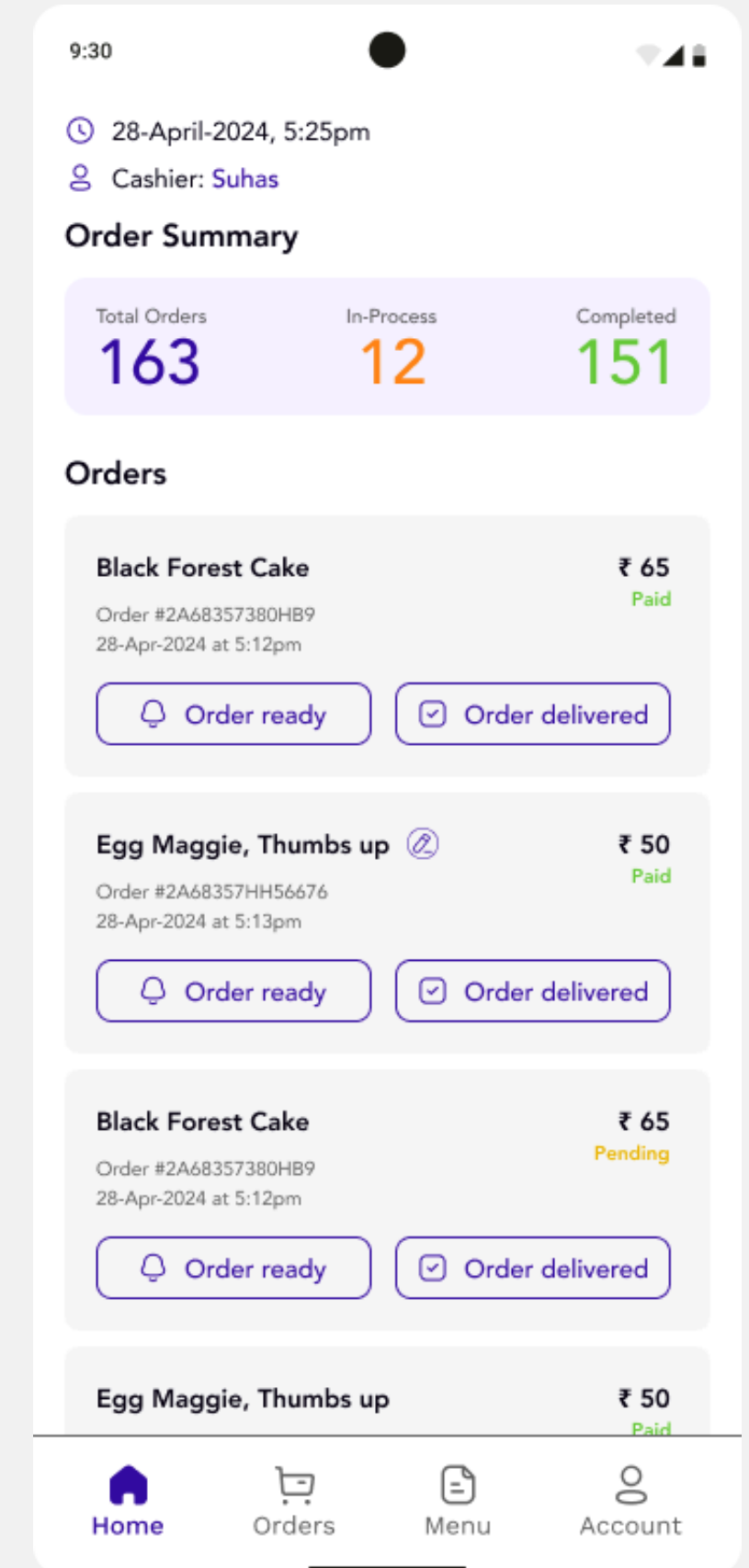
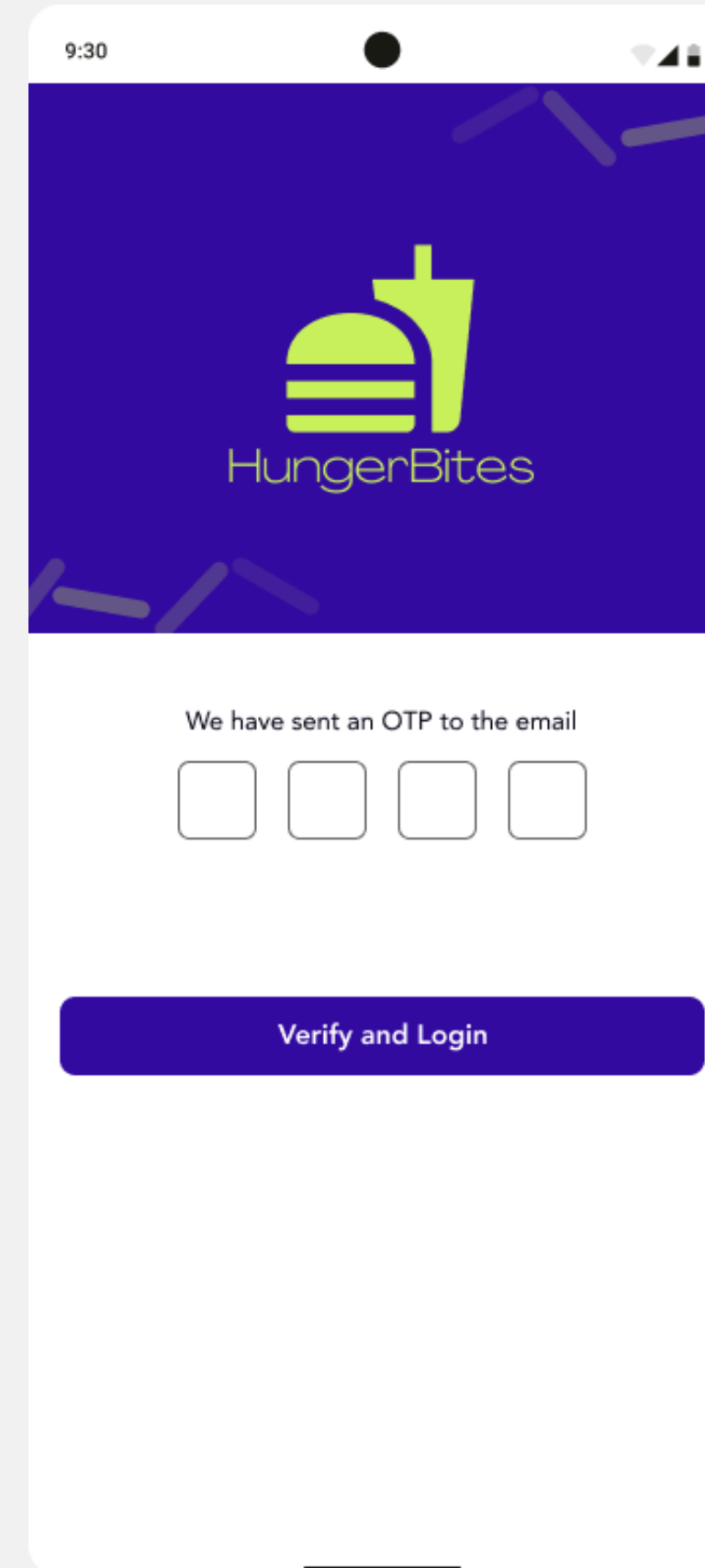
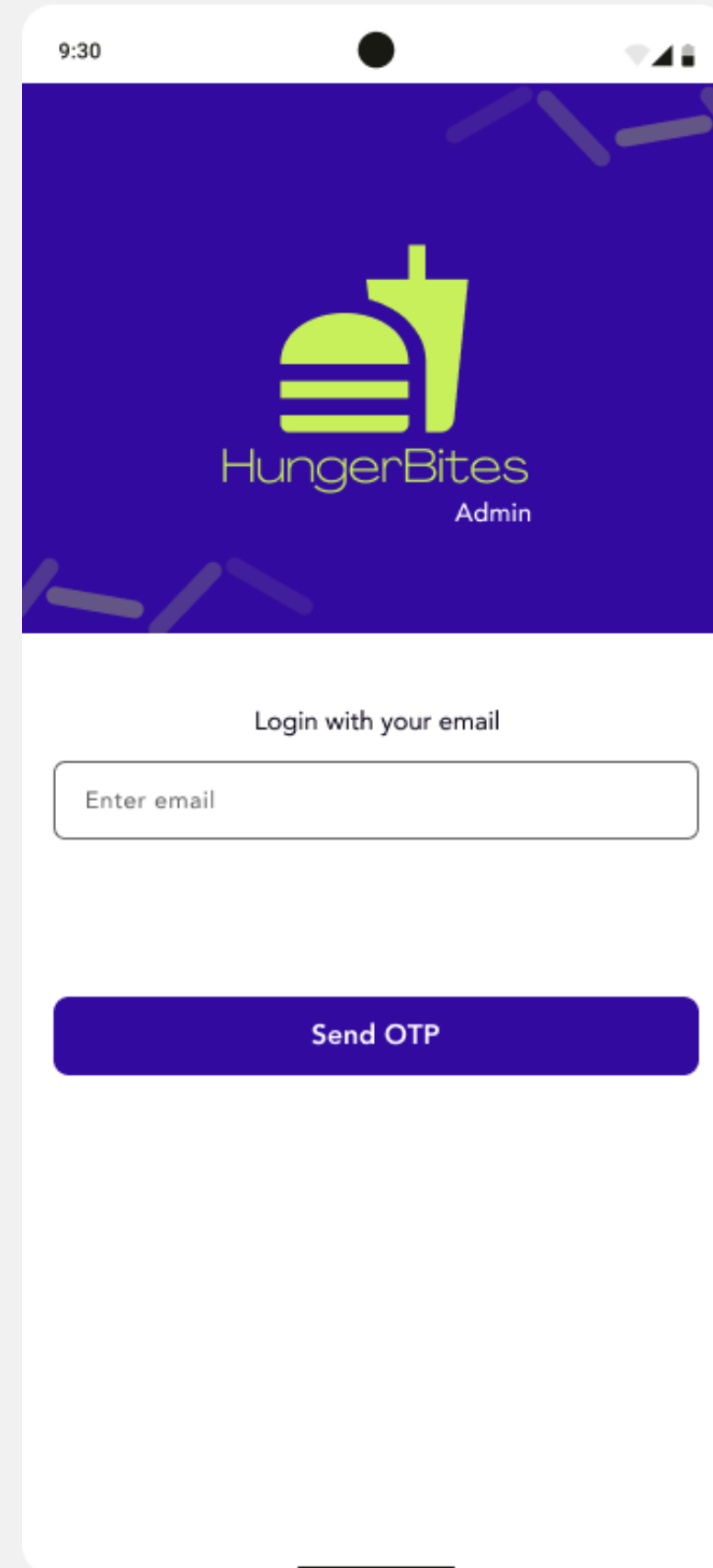
Scan to view the prototype

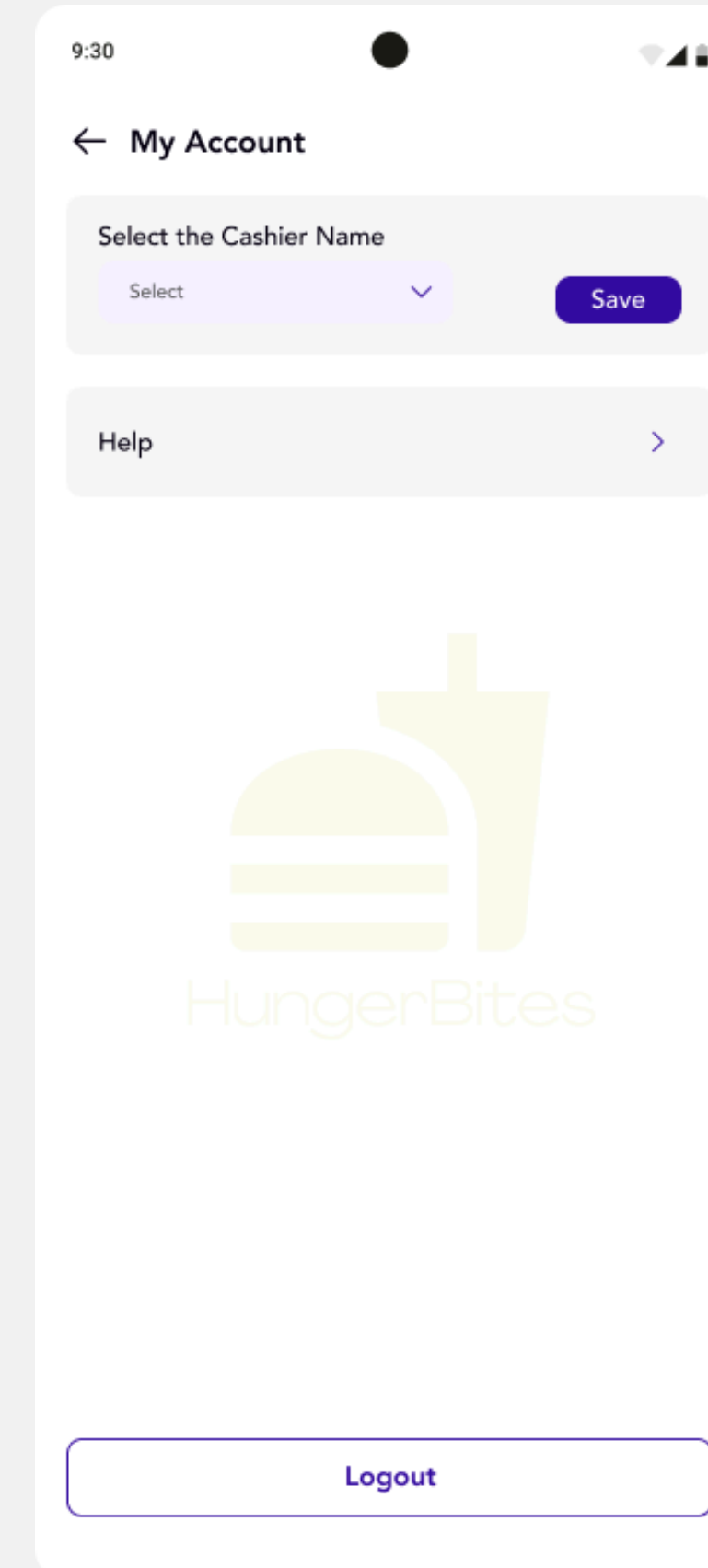
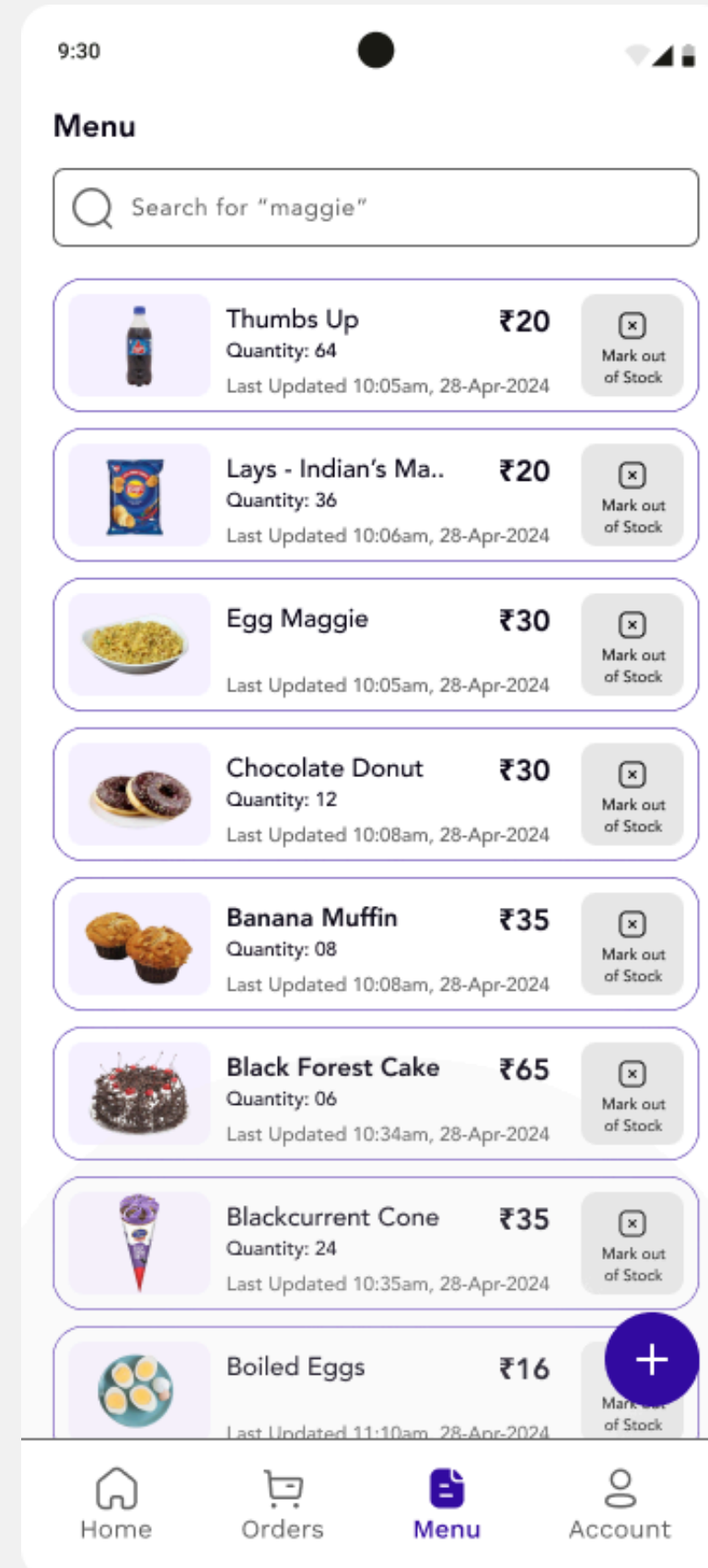
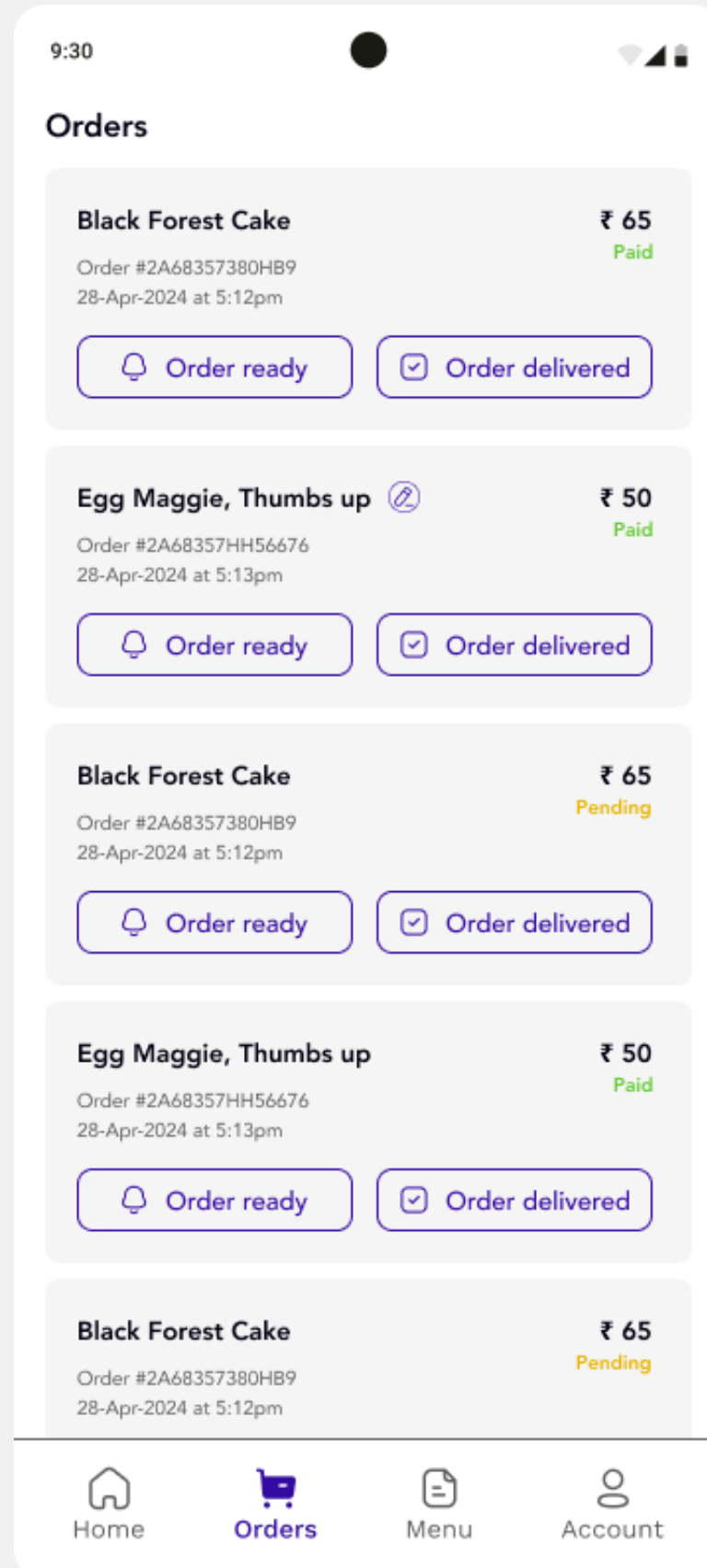












THANK YOU