Inventory Management System
Mobile Application

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CERTIFICATE

This is to certify that the Minor Project entitled *"Inventory Management System"* submitted by *Saurin Prajapati (19BCE239)* towards the partial fulfilment of the requirements for the degree of Bachelor of Technology in Computer Science and Engineering of Nirma University is the record of work carried out by him/her under my supervision and guidance. In my opinion, the submitted work has reached a level required for being accepted for examination.

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ACKNOWLEDGEMENT

I would like to express my greatest appreciation to the all individuals who have helped and supported me throughout the project. I am thankful to my professor Dr.Tarjni Vyas ma'am for his ongoing support during the project, from initial advice and encouragement, which led to the final report of this project. I would also like to thank Mr.Maximilian Schwarzmuller for amazing flutter online masterclass, which was a great aid to this app project.

A special acknowledgement goes to my classmates who helped me in completing the project by exchanging interesting ideas and sharing their experience by using my mobile application. Moreover, in testing part they contributed by pointing out some unusual behaviour and errors in the app. UI changes were also suggested by some of the faculties to improve User experience of the app.

I wish to thank my parents as well for their undivided support and interest who inspired me and encouraged me to go my own way, without whom I would be unable to complete my project.

At the end, I want to thank my friends who displayed appreciation to my work and motivated me to continue my work.

ABSTRACT/ Outline

In this project, we have developed a cross-plateform mobile application for inventory management system as well as managing products for individuals users. We have developed an easy and intuitive user interface for workers who are naive in technology so that they can update the database with new arrivals of products and based on specific invoice, they can link the photographs of the same to it. It basically uses firebase as a backend for storing images and which can be accessed by any devices irrespective of the operating system as it make uses of flutter as frontend which is an emerging framework developed by google and can generate software for all major mobile and desktop operating systems including android, iOS, linux, windows and MacOS. Moreover, we also included an onboarding screen which serves as a tutorial purpose for first time users and walks user through the different screens of the app and how to make use of it. Simple animations, transitions, loading bars are also added to engage user into the app in between the screens where data is being fetched from the internet. Authentication module is also added so that admin can recognise the worker who added particular photos and products.

LIST OF FIGURES

CONTENTS

Chapter 1. Introduction

1.1 Topic Title and Brief

Title: Inventory Management System

An Inventory Management System helps us keep a track and control over stocks of goods. The required application in this case needs to effectively map and store images of incoming goods and their corresponding InvoiceNumber into a database.

1.2 System Flow

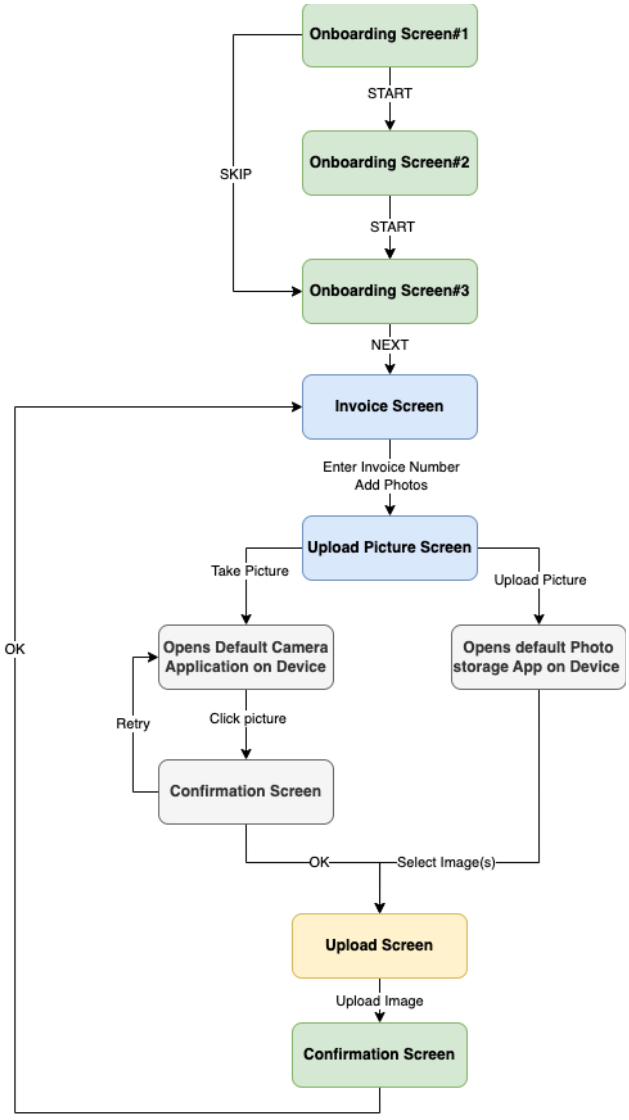

Fig 1.1 System flow for Application#1

1.3 Need for this Application

- Currently the Organization for which this Application is developed, completes this functionality in the following way; driver sends WhatsApp messages of photos of delivered goods and their corresponding InvoiceNumber. Owner of the business or company manager sorts through these messages and uploads these invoices and corresponding images manually to the server of the company for record keeping.
- But this is not efficient, our Application is the perfect solution to this misery. It has easy and simple working, which can be used directly by the Driver/Deliverer of the goods. Making record keeping of the invoices easier and reducing manual workload of the manager.

1.4 Objectives

- To build an inventory management app in order to ease the process for managing pictures and invoices for naive workers in the company.
- App should work on any device types.

Chapter 2. Tools and Technology used

2.1 Flutter : framework for crossplatform application development

Flutter is Google's portable UI toolkit for crafting beautiful, natively compiled applications for mobile, web, and desktop from a single codebase. Flutter works with existing code, is used by developers and organizations around the world, and is free and open source.

2.2 Firebase : provides hosting services

Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and Web apps. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiment.

Chapter 3. Key Modules of Application#1

Main purpose of this app is to get the snapshots of the arrived inventories in the pharmaceutical store and upload it on the cloud server and then load it in the local server. Onboarding screen of this app describes the process of capturing photos through mobile and attach it with respective reference number.

3.1 Onboarding Screen

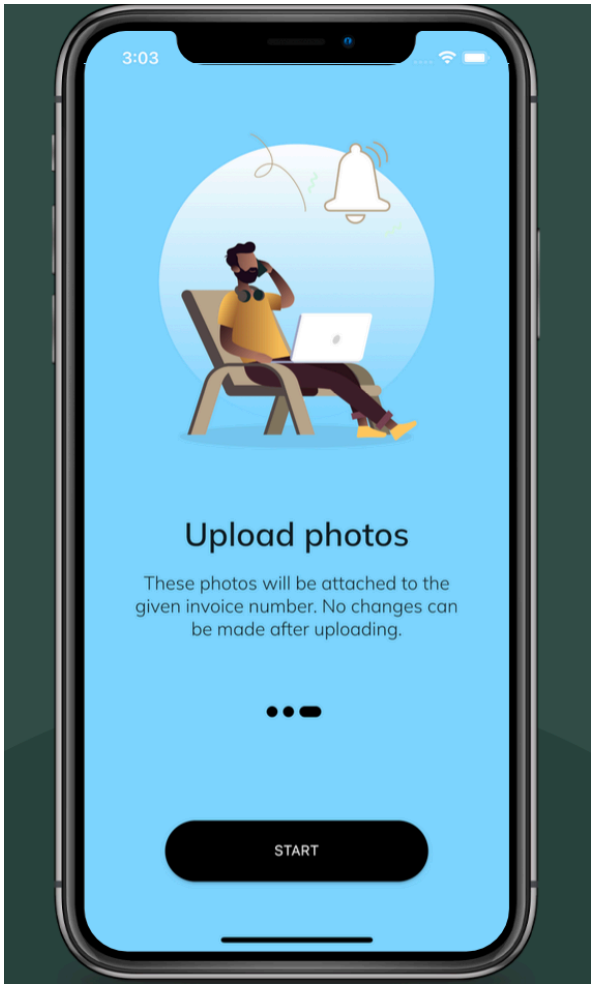

Fig 3.1 Onboarding Screen

What is onboarding screen?

Onboarding screens have become very common nowadays. They can be referred to as the simple walkthroughs that introduce users to how an app can be used and what it can

accomplish. This obviously increases the likelihood that new users understand what it is about, what tasks it can do and how to use it to do them.

Why it is needed for this app?

As most of users of this app will be naive and are from non technical background. We need to let them know what to do and how to do to accomplish the required task easily. We can demonstrate the same using creative visuals and simple steps portrayed in this three screens.

3.2 Invoice Number Input Screen

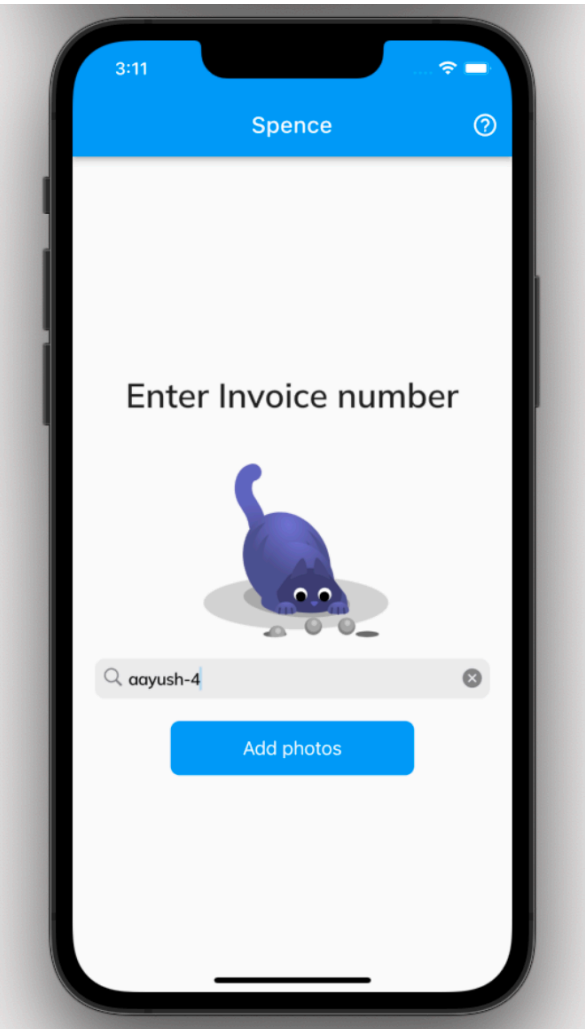

Fig 3.2 Invoice Number Input

- This screen requires the invoice number from the user.

- The input field also has some syntax checks applied.
- Animation on this screen will be controlled automatically based on the focus of input field

3.3 Modes of Uploading Pictures

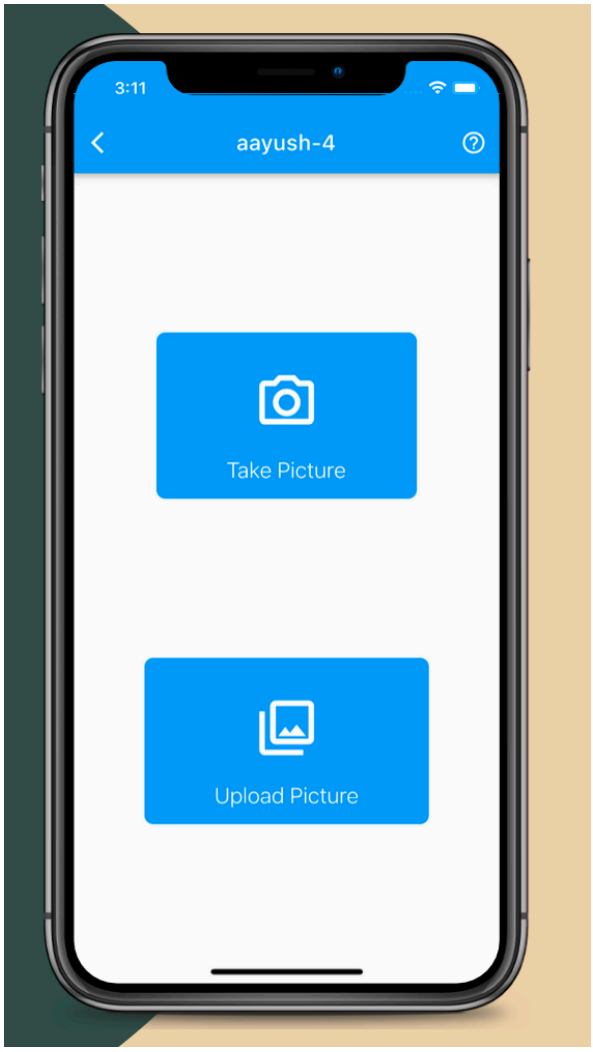

Fig 3.3 Modes of Uploading Pictures

Here, we have given two modes for uploading pictures.

- Through device camera (front/rear)
- Through gallery (local storage)

On the appbar, invoice number which user entered in previous screen is displayed for reference.

Chapter 4. Application#1 Highlights/Benefits

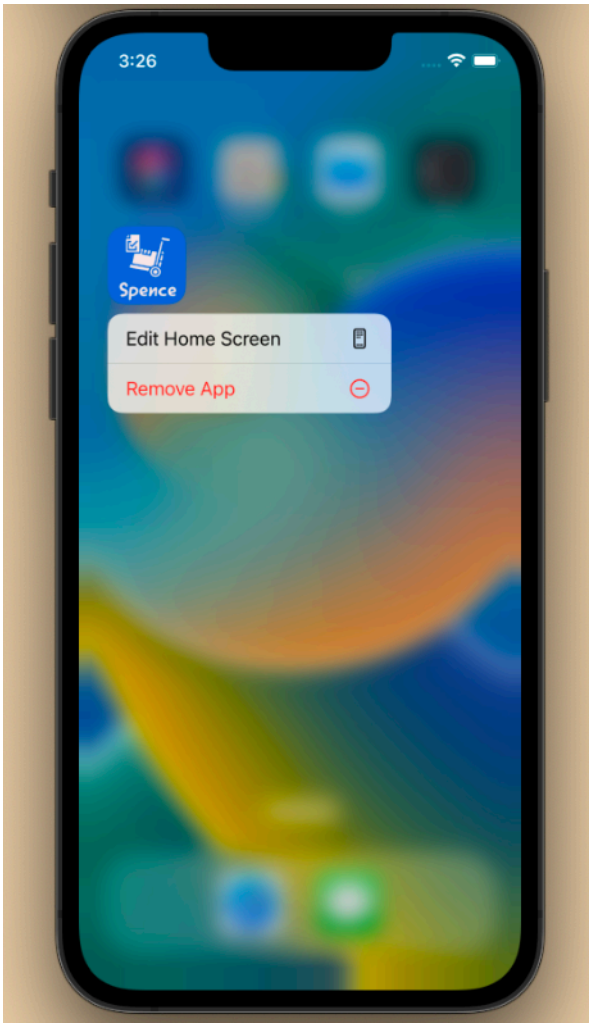

Fig 4.1 App logo/icon

- **Cross platform** : works on any devices and OS.
- Easy to use, Intuitive UI

Chapter 5. Application#2: Modified Shop Application

5.1 Key Features

- User authentication and Realtime product data stored with firebase.

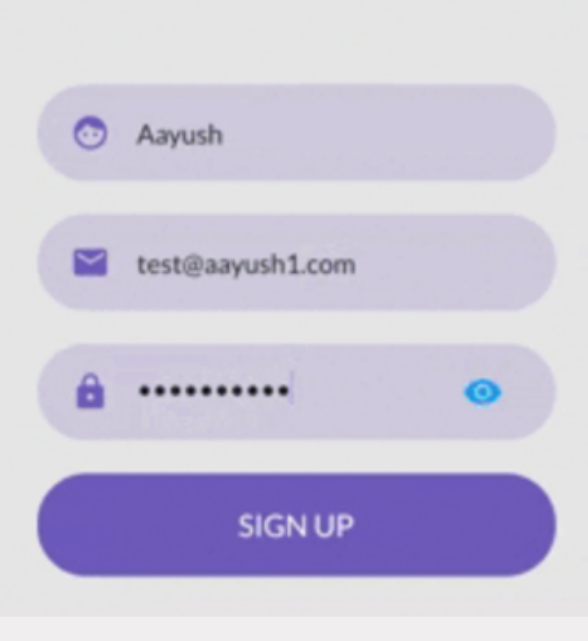

Fig 5.2 Signup Module Snippet(Cropped)

- User can add/edit own products only.
- Efficient State management of the app.
- User Input and forms used in add/edit products.
- Cupertino and Material Design UI for respective platforms.
- Animations, transition of widgets along with Custom Page Transition.
- Auto login and logout with on device auth-token storage.

5.2 Need for Application

During Review#2 itself, our Spense - Inventory management Application was working upto the mentor's expectations. So on receiving further instructions from our Mentor(Dr. Tarjani Vyas) and Panel member(Dr. Shivani Desai), we developed a Shopping Application (login/signup, favourites, products exploration, individual product detail page, manage cart, past orders functionalities) using Flutter.

5.3 Key Modules of Application#2

5.3.1 Login Screen

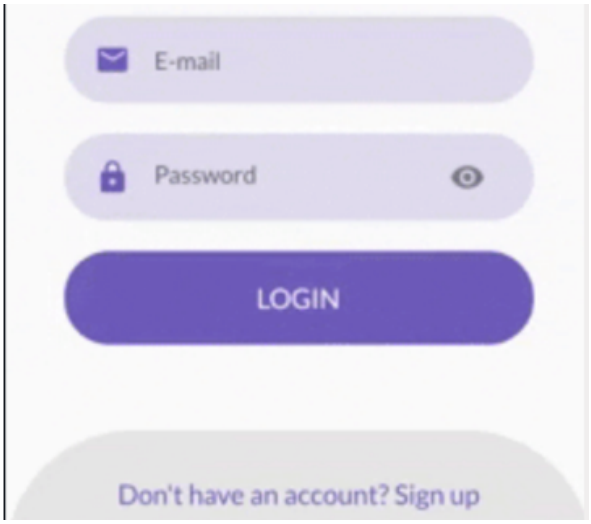

Fig 5.1 Login Module Snippet(Cropped)

This screen provides the login functionality to Registered users of our Application.

5.3.2 Signup Screen

This screen provides the signup functionality to new users of our Application.

5.3.3 Explore Screen

This screen provides the functionality to explore products for sale on MyShop Application to Logged-in users. This screen also provides the functionality to favourite & unfavourite specific products on MyShop Application to Logged-in users.

5.3.4 Product Details Screen

Fig 5.4 Add Products Module

Fig 5.3 Explore Screen

This screen provides the functionalities about specific product (including price, adding to cart functionality, and product description)

5.3.5 My Cart Screen

This screen provides the functionality to view items in cart.

5.3.6 Orders Screen

This screen provides the functionality to view details of past orders made by the User.

5.3.7 Add/Delete/Update Products Screen

This screen provides the user the functionality to add/delete/update products on the Application.

Chapter F. Conclusion and Future Scope

We satisfied the requirements of our Client in form of a Flutter cross-platform Mobile Application. Our Application held true to the client needs in the first iteration of development cycle(Approved). For advanced implementation of such Inventory management applications we also developed an advanced version of the application (2nd iteration of product cycle), in which we implemented Authentication on the application for added security and credibility. Also many new functionalities were implemented such as explore page, cart, previous orders, and so on. The future work that can be done on this application is in the performance Aspect, wherein it can be connected to a more reliable Cloud platform such as GCP, but for small scale of such an application, our version steadily functions.

Appendices

A. List of useful websites

- Udemy course on Flutter & Dart
- Firebase documentation for uploading files

B. Additional Materials

Inventory Management System GitHub Reposity

Shop mobile app GitHub Reposity

Presentation Slides

Undertaking for Originality of the Work

I, Saurin Anilkumar Prajapati Roll No. 19BCE239, give undertaking that the Minor Project entitled "Inventory Management System" submitted by me, towards the partial fulfilment of the requirements for the degree of Bachelor of Computer Science and Engineering of Nirma University, Ahmedabad, is the original work carried out by me and I give assurance that no attempt of plagiarism has been made.

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