CONTACT VAULT

SAVE YOUR CONTACTS

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ABSTRACT

The Ice Cream Inventory System is an Android-based mobile application designed for Swastik Enterprise, an ice cream company, to manage their inventory and shops. The app allows users to add and view shop details, manage inventory, and maintain a comprehensive record of ice cream products. This project involves using Kotlin, Jetpack Compose, and Firebase to develop a smooth, user-friendly interface and real-time data storage.

INTRODUCTION

Project Name: Icecream

Description: Swastik Enterprise, a leading ice cream company, needed an Android app to streamline their ice cream inventory and shop management. The app will enable store managers to easily add new shops, view ice cream inventory, and track inventory quantities in real-time. This project is being developed as a freelance task for Swastik Enterprise, and Dolphin IT company is coordinating the task.

Project Objectives

- **Inventory Management:** Enable the management of ice cream stock, including adding, updating, and removing products from the inventory.
- **Shop Management:** Allow users to add and view shop details and manage shop-related information.
- **Real-Time Data:** Provide real-time updates on stock levels and shop availability.
- **User-Friendly Interface:** Create an easy-to-use interface for employees and shop owners to interact with the system.
- **Efficient Searching and Filtering:** Implement search and filter functionalities to quickly find products or shop details.
- **Scalable and Maintainable:** Build a system that can be scaled as the business grows, with a strong focus on code quality and maintainability.

FEATURES

- **Shop Management**: Add new shops and view shop details.
- **Inventory Management**: Add ice cream products and track inventory.
- **Real-time Data**: Fetch and display real-time data using Firebase.
- **Search and Filter**: Search shops based on name, owner, and phone number.
- **Shop Selection**: Allow users to select a shop to manage its inventory.

USED TECHNOLOGIES

- **Android Studio**: The primary IDE for development.
- **Kotlin**: The programming language used for the application.
- **Jetpack Compose**: The UI toolkit for building the app's user interface.
- **Retrofit**: Used for communication with external APIs to handle tasks.
- **Coroutines**: For managing asynchronous tasks such as fetching data.
- **Material3**: For UI components like buttons, text fields, and cards.
- **Icons**: Material icons for an intuitive user experience.

SYSTEM ARCHITECTURE AND REQUIREMENTS

Architecture:
The application follows a client-server architecture where the Android app acts as the client, and the external API handles backend operations, including fetching and managing shop and inventory data.

- **Client:** The Android app is built using Kotlin and Jetpack Compose, utilizing modern Android development practices for building the user interface and handling application logic.
- **Backend:** The API provided by Code with Dolphin acts as the backend to manage data tasks such as adding, updating, and retrieving shop and inventory information.
- **UI Design:** The user interface is designed using Material3 and Jetpack Compose, ensuring a modern, responsive, and seamless user experience.

Hardware Requirements:

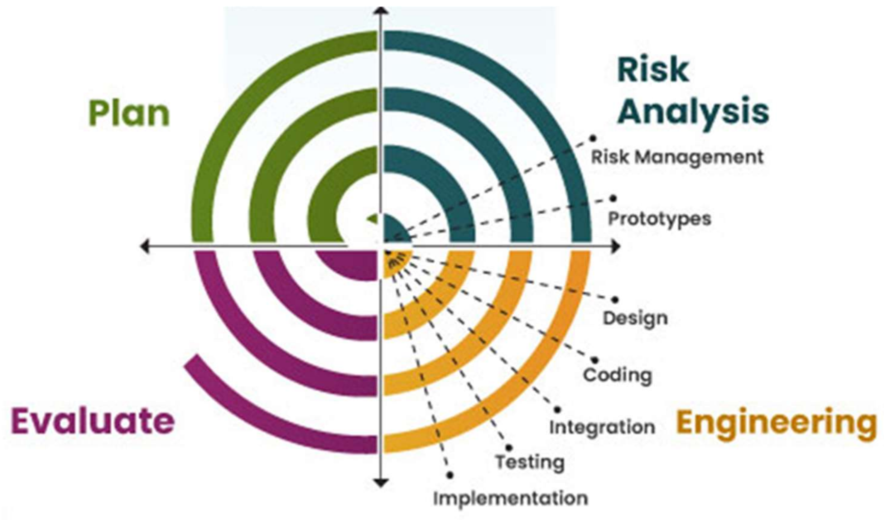
- Android smartphone or tablet running Android 5.0 (Lollipop) or higher.

Software Requirements:

- Android Studio with Kotlin support.
- An active Firebase account (for potential integration purposes like authentication or analytics).
- Retrofit library for API communication.

PROJECT IMPLEMENTETION USING SPIRAL MODEL

SPIRAL MODEL Spiral model is one of the most important Software Development Life Cycle models, which provides support for Risk Handling. In its diagrammatic representation, it looks like a spiral with many loops. The exact number of loops of the spiral is unknown and can vary from project to project. Each loop of the spiral is called a Phase of the software development process. The exact number of phases needed to develop the product can be varied by the project manager depending upon the project risks. As the project manager dynamically determines the number of phases, so the project manager has an important role to develop a product using the spiral model. The Spiral Model is a software development life cycle (SDLC) model that provides a systematic and iterative approach to software development. It is based on the idea of a spiral, with each iteration of the spiral representing a complete software development cycle, from requirements gathering and analysis to design, implementation, testing, and maintenance.



SYSTEM PLANNING

System Planning Project Planning:
The objective of software project planning is to provide a framework that enables the manager to make reasonable estimates of resources, cost, and schedule, These estimates are made within a limited time frame at the beginning of a software project and should be updated regularly as the project progresses, In addition, estimates should attempt to define best case worst case scenarios that project outcomes can be bounded, The planning objective is achieved through a process of information discovery that leads to reasonable estimates.

Project Scheduling:
Project scheduling is an activity that distributes estimated effort across the planned project duration by allocating the effort to specific software engineering tasks. The number of basic principles guide the project scheduling is as follows:

- **Compartmentalization:** The project must be compartmentalized into a number of manageable activities and tasks. To accomplish compartmentalization, both the product and the process are decomposed.
- **Interdependence:** The interdependence of each compartmentalized activity or task must be determined. Some tasks must occur in-sequence while others can occur in parallel. Some activities cannot commence until the work product produced by another is available. Other activities can occur independently.
- **Time allocation:** Each task is scheduled must be allocated some number of work units. In addition, each task must be assigned a start date and a completion date.

- **Defined outcomes:** Every task that is scheduled should have a defined outcome. For software projects the outcome is normally a work product or a part of a work product.
- **Defined milestones:** Every tasks or group of tasks should be associated with a project milestone. A milestone is accomplished when one or more work products has been reviewed for quality and has been approved.

Methodology

The **Agile methodology** is followed, with iterative development cycles and regular updates. The features are prioritized based on client needs, and the development is adjusted after each phase.

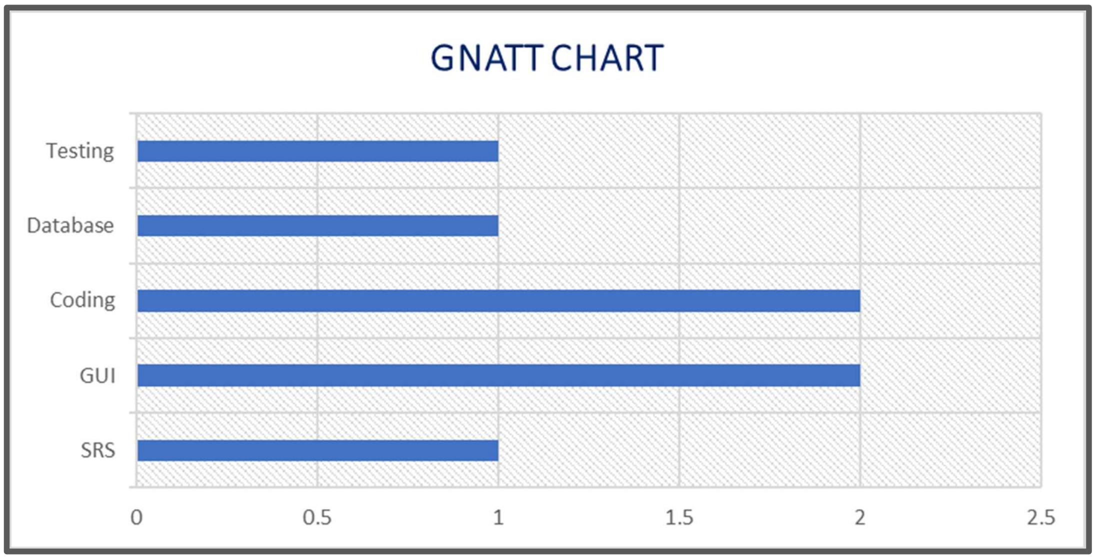
USER MANUAL

- **Launching the App**: Once the app is installed, open the application.
- **Adding a Shop**: Use the "Add Shop" button to add a new shop with details like name, owner, phone number, and location.
- **Managing Inventory**: Click on a shop to add inventory items, view quantities, and manage product details.
- **Searching Shops**: Use the search bar to filter shops based on name, owner, or phone number.

PROJECT MANAGEMENT

Timeline

- **Research and Planning**: 1 days
- **Design**: 2 days
- **Development**: 3 days
- **Testing**: 1 days
- **Deployment**: 1 week



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CODE SNIPPETS

Connection File code:

```
package itstack.nil.icecream.RetrofitProps

import okhttp3.OkHttpClient
import okhttp3.logging.HttpLoggingInterceptor
import retrofit2.Retrofit
import retrofit2.converter.gson.GsonConverterFactory
import com.google.gson.GsonBuilder

object RetrofitInstance {
    private const val BASE_URL = "https://codeofdolphins.com/"

    fun getInstance(): Retrofit {
        val interceptor = HttpLoggingInterceptor().apply {
            level = HttpLoggingInterceptor.Level.BODY
        }

        val client = OkHttpClient.Builder()
            .addInterceptor(interceptor)
            .build()

        val gson = GsonBuilder().setLenient().create()

        return Retrofit.Builder()
            .baseUrl(BASE_URL)
            .addConverterFactory(GsonConverterFactory.create(gson))
            .client(client)
            .build()
    }
}
```

Queries Used In Application:

```
package itstack.nil.icecream.RetrofitProps
import itstack.nil.icecream.Responses.AllOrderResponse
import itstack.nil.icecream.Responses.CategoriesResponses
import itstack.nil.icecream.Responses.GetAllShopResponses
import itstack.nil.icecream.Responses.LoginResponse
import retrofit2.Call
import retrofit2.http.Body
import retrofit2.http.Field
import retrofit2.http.FormUrlEncoded
import retrofit2.http.GET
import retrofit2.http.Header
import retrofit2.http.POST

interface ApiInterface {
    @FormUrlEncoded
    @POST("inventory/api/login")
    fun userLogin(
        @Field("phone") phone: String,
        @Field("password") password: String

    ): Call<LoginResponse>

    @GET("inventory/api/get-all-orders")
    fun getOrderData(
        @Header("Authorization") token: String
    ): Call<AllOrderResponse> // Expecting the root object here

    @GET("inventory/api/get-all-shops")
    fun getAllShop(
        @Header("Authorization") token: String
    ): Call<GetAllShopResponses>

    @GET("inventory/api/get-gategory")
    fun getAllCategories(
        @Header("Authorization") token: String
    ): Call<CategoriesResponses>

    @POST("inventory/api/add-new-shop")
    fun addNewShop(
        @Field("shop_name") shop_name: String,
        @Field("owner_name") owner_name: String,
        @Field("whatsapp_number") whatsapp_number: String,
        @Field("address") address: String
    ): Call<CategoriesResponses>
}
```

Login Frontend Code:

```
package itstack.nil.icecream.LoginScreen

import android.util.Log
import androidx.compose.foundation.Image
import androidx.compose.foundation.background
import androidx.compose.foundation.layout.Column
import androidx.compose.foundation.layout.Row
import androidx.compose.foundation.layout.Spacer
import androidx.compose.foundation.layout.fillMaxSize
import androidx.compose.foundation.layout.fillMaxWidth
import androidx.compose.foundation.layout.padding
import androidx.compose.foundation.layout.width
import androidx.compose.foundation.shape.RoundedCornerShape
import androidx.compose.material.icons.Icons
import androidx.compose.material.icons.automirrored.filled.Send
import androidx.compose.material.icons.filled.Person
import androidx.compose.material.icons.filled.Phone
import androidx.compose.material.icons.filled.Send
import androidx.compose.material3.Button
import androidx.compose.material3.ButtonDefaults
import androidx.compose.material3.Icon
import androidx.compose.material3.OutlinedTextField
import androidx.compose.material3.Text
import androidx.compose.runtime.Composable
import androidx.compose.ui.Modifier
import androidx.compose.ui.graphics.Color
import androidx.compose.ui.res.painterResource
import androidx.compose.ui.tooling.preview.Preview
import androidx.compose.ui.unit.dp
import androidx.compose.runtime.*
import itstack.nil.icecream.R
import itstack.nil.icecream.ui.theme.LoginBG
import android.widget.Toast
import androidx.compose.ui.platform.LocalContext
import androidx.navigation.NavController

@Composable
fun loginScreen(navController: NavController){
   var phone by remember { mutableStateOf("") }
   var password by remember { mutableStateOf("") }
   val context = LocalContext.current
   Column(
         modifier = Modifier.fillMaxSize()
   ) {
      Row (modifier = Modifier.fillMaxWidth()
         .background(LoginBG)
         .weight(.6f)){
            Image(painter = painterResource(R.drawable.icecream),
                contentDescription = null,
              modifier = Modifier.fillMaxSize()
              )
        }
        Row(modifier = Modifier.fillMaxWidth()
            .weight(.4f)) {
            Column(
              modifier = Modifier.fillMaxSize()
                .padding(top = 50.dp)
            ) {
              OutlinedTextField(
                value = phone,
                onValueChange = { phone = it },
                label = { Text("Phone Number") },
                placeholder = { Text("Enter phone number") },
                leadingIcon = { Icon(Icons.Default.Phone, contentDescription = "Person Icon") },
                modifier = Modifier
                  .fillMaxWidth()
                  .padding(horizontal = 8.dp)
              )

              OutlinedTextField(
                value = password,
                onValueChange = { password = it },
                label = { Text("Password") },
                placeholder = { Text("Enter password") },
                leadingIcon = { Image(painter = painterResource(R.drawable.password),
contentDescription = "Person Icon") },
                modifier = Modifier
                  .fillMaxWidth()
                  .padding(horizontal = 8.dp)
              )
              Button(
                onClick = {
                  when {
                    phone.isEmpty() -> {
                      Toast.makeText(context, "Phone number is required!",
Toast.LENGTH_SHORT).show()
                    }
                    !phone.matches("\\d{10}".toRegex()) -> {
                      Toast.makeText(context, "Enter a valid 10-digit phone number!",
Toast.LENGTH_SHORT).show()
                    }
                    password.isEmpty() -> {
                      Toast.makeText(context, "Password is required!",
Toast.LENGTH_SHORT).show()
                    }
                password.length < 6 -> {
                    Toast.makeText(context, "Password must be at least 6 characters!",
Toast.LENGTH_SHORT).show()
                }
                else -> {
                    val loginHandler = LoginHandler(phone, password, context)
                    loginHandler.logMeIn(navController)
                }
            }
        },
        colors = ButtonDefaults.buttonColors(containerColor = Color.Blue),
        modifier = Modifier
            .fillMaxWidth()
            .padding(vertical = 20.dp, horizontal = 10.dp),
        shape = RoundedCornerShape(8.dp)
    ) {
        Icon(Icons.Default.Send, contentDescription = "Send Icon", tint = Color.White)
        Spacer(modifier = Modifier.width(8.dp))
        Text(text = "Login", color = Color.White)
    }


   }
  }
 }
}
```

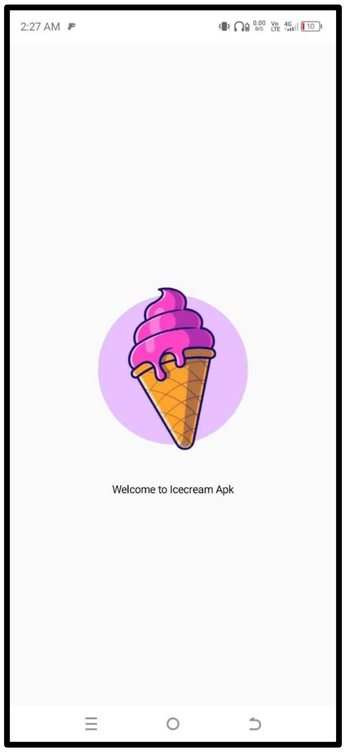
Login Backend Code

```
package itstack.nil.icecream.LoginScreen

import android.content.Context
import android.content.Intent
import itstack.nil.icecream.RetrofitProps.ApiInterface
import itstack.nil.icecream.RetrofitProps.RetrofitInstance
import retrofit2.Call
import retrofit2.Callback
import retrofit2.Response
import android.util.Log
import android.widget.Toast
import androidx.navigation.NavController
import itstack.nil.icecream.Responses.LoginResponse

class LoginHandler(private val phone: String, private val password: String, private val context:
Context) {
    val sharedPreferences = context.getSharedPreferences("token", Context.MODE_PRIVATE)

    // Login function
    fun logMeIn(navController: NavController) {
        val apiService = RetrofitInstance.getInstance().create(ApiInterface::class.java)
        val call = apiService.userLogin(phone, password)

        call.enqueue(object : Callback<LoginResponse> {
            override fun onResponse(call: Call<LoginResponse>, response:
Response<LoginResponse>) {
                if (response.isSuccessful && response.body() != null) {
                    val token = response.body()?.token
                    if (!token.isNullOrEmpty()) {
                        saveTokenToPreferences(token)
                        Toast.makeText(context, "Login successful!", Toast.LENGTH_SHORT).show()
                        navController.navigate("app") // navigate to the app screen
                    } else {
                        Toast.makeText(context, "Login failed: Token is empty!", Toast.LENGTH_SHORT)
                            .show()
                    }
                } else {
                    Toast.makeText(
                        context,
                        "Login failed: ${response.message()}",
                        Toast.LENGTH_SHORT
                    ).show()
                }
            }

            override fun onFailure(call: Call<LoginResponse>, t: Throwable) {
                Log.e("LoginHandler", "Error: ${t.message}")
                Toast.makeText(context, "Login failed: ${t.message}", Toast.LENGTH_SHORT).show()
            }
        })
    }

    // Save the token to shared preferences
    private fun saveTokenToPreferences(token: String) {
        sharedPreferences.edit().putString("user_token", token).apply()
    }
}
```

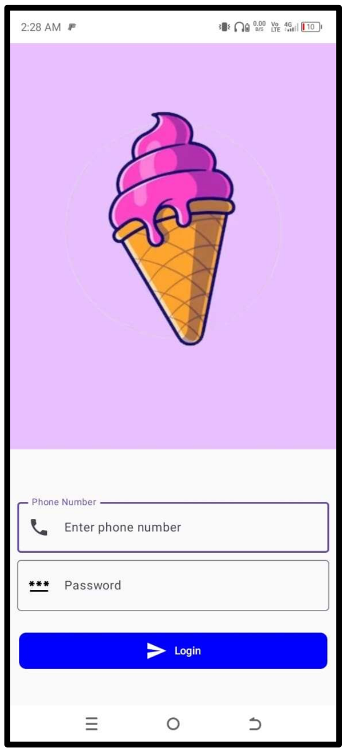
Logout Code:

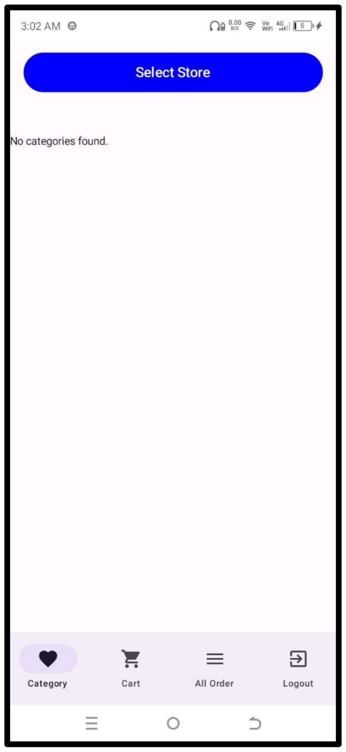
```
package itstack.nil.icecream.LoginScreen

import android.content.Context
import android.widget.Toast
import androidx.navigation.NavController

fun logOut(navController: NavController, context: Context) {
    val sharedPreferences = context.getSharedPreferences("token", Context.MODE_PRIVATE)

    sharedPreferences.edit().remove("user_token").apply()

    Toast.makeText(context, "Logged out successfully!", Toast.LENGTH_SHORT).show()

    navController.navigate("login") {
        popUpTo("login") { inclusive = true }
        launchSingleTop = true
    }
}
```

SCREENSHOTS

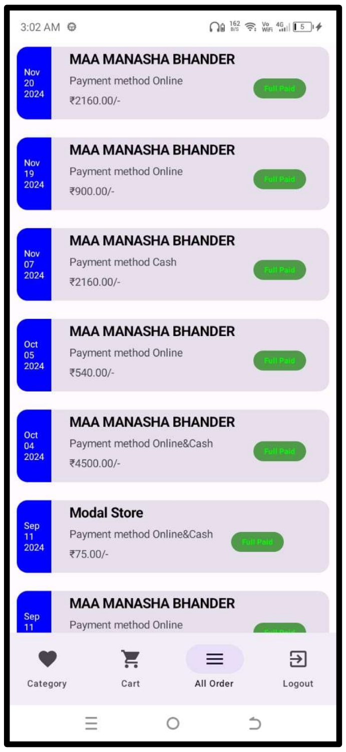

2:27 AM

Welcome to Icecream Apk

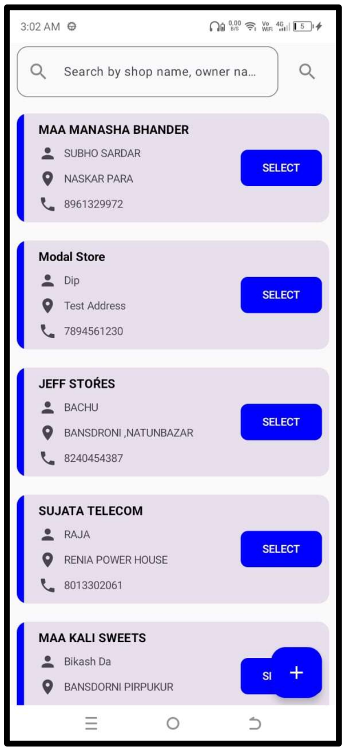

2:28 AM


3:02 AM

No categories found.


3:02 AM

Nov 20 2024	MAA MANASHA BHANDER Payment method Online ₹2160.00/-	Full Paid
Nov 19 2024	MAA MANASHA BHANDER Payment method Online ₹900.00/-	Full Paid
Nov 07 2024	MAA MANASHA BHANDER Payment method Cash ₹2160.00/-	Full Paid
Oct 05 2024	MAA MANASHA BHANDER Payment method Online ₹540.00/-	Full Paid
Oct 04 2024	MAA MANASHA BHANDER Payment method Online&Cash ₹4500.00/-	Full Paid
Sep 11 2024	Modal Store Payment method Online&Cash ₹75.00/-	Full Paid
Sep 11	MAA MANASHA BHANDER Payment method Online	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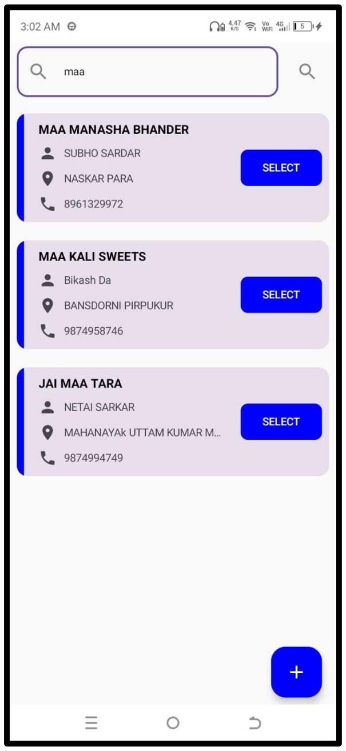
MAA MANASHA BHANDER	SUBHO SARDAR	NASKAR PARA	8961329972
Modal Store	Dip	Test Address	7894561230
JEFF STORES	BACHU	BANSDRONI ,NATUNBAZAR	8240454387
SUJATA TELECOM	RAJA	RENIA POWER HOUSE	8013302061
MAA KALI SWEETS	Bikash Da	BANSDORNI PIRPUKUR	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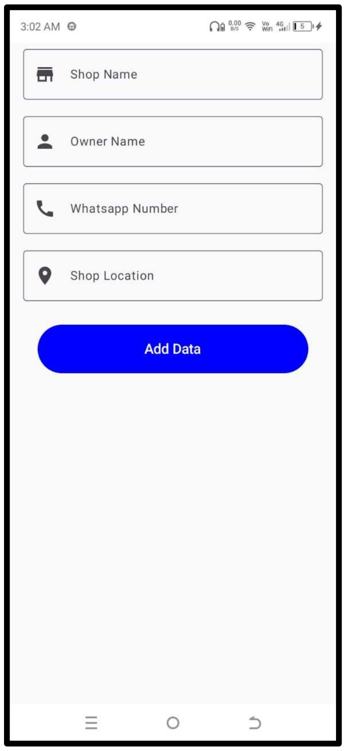
MAA MANASHA BHANDER	SUBHO SARDAR	NASKAR PARA	8961329972
MAA KALI SWEETS	Bikash Da	BANSDORNI PIRPUKUR	9874958746
JAI MAA TARA	NETAI SARKAR	MAHANAYAk UTTAM KUMAR M...	9874994749


3:02 AM
Shop Name
Owner Name
Whatsapp Number
Shop Location
Add Data

Future Scop

- **Multi-language Support**: Adding language localization for wider user adoption.
- **Cloud Integration**: Storing data on cloud for better scalability.
- **Product Management**: Adding features for managing product sales and stock.
- **Analytics Integration**: Adding analytics to track usage and sales.

Conclusion

The Ice Cream Inventory System successfully meets the requirements of Swastik Enterprise, providing a streamlined way to manage their shops and inventory. The app is easy to use, secure, and scalable, offering real-time updates through Firebase integration. The project was completed successfully within the allocated time frame and offers potential for future enhancements.