Project Report Of

Snack Squad: A Customizable Snack Ordering and Delivery App

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1. INTRODUCTION

1.1 Project Overview

Snack Squad is a snack ordering and delivery application designed for social events like movie nights, parties, or casual meetups. The app simplifies snack discovery, selection, customization, and timely doorstep delivery.

1.2 Purpose

The purpose of this project is to provide users with a one-stop solution for ordering snacks conveniently through a mobile or web interface, enhancing user experience with real-time updates, multiple payment methods, and personalized recommendations.

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2. LITERATURE SURVEY

2.1 Existing Problem

Users often need to visit multiple apps or stores to get a variety of snacks for group events. Coordination, availability, and delivery delays often disrupt the experience.

2.2 References

- https://developer.ibm.com/patterns/
- https://www.atlassian.com/agile/
- Online food delivery apps like Zomato, Swiggy

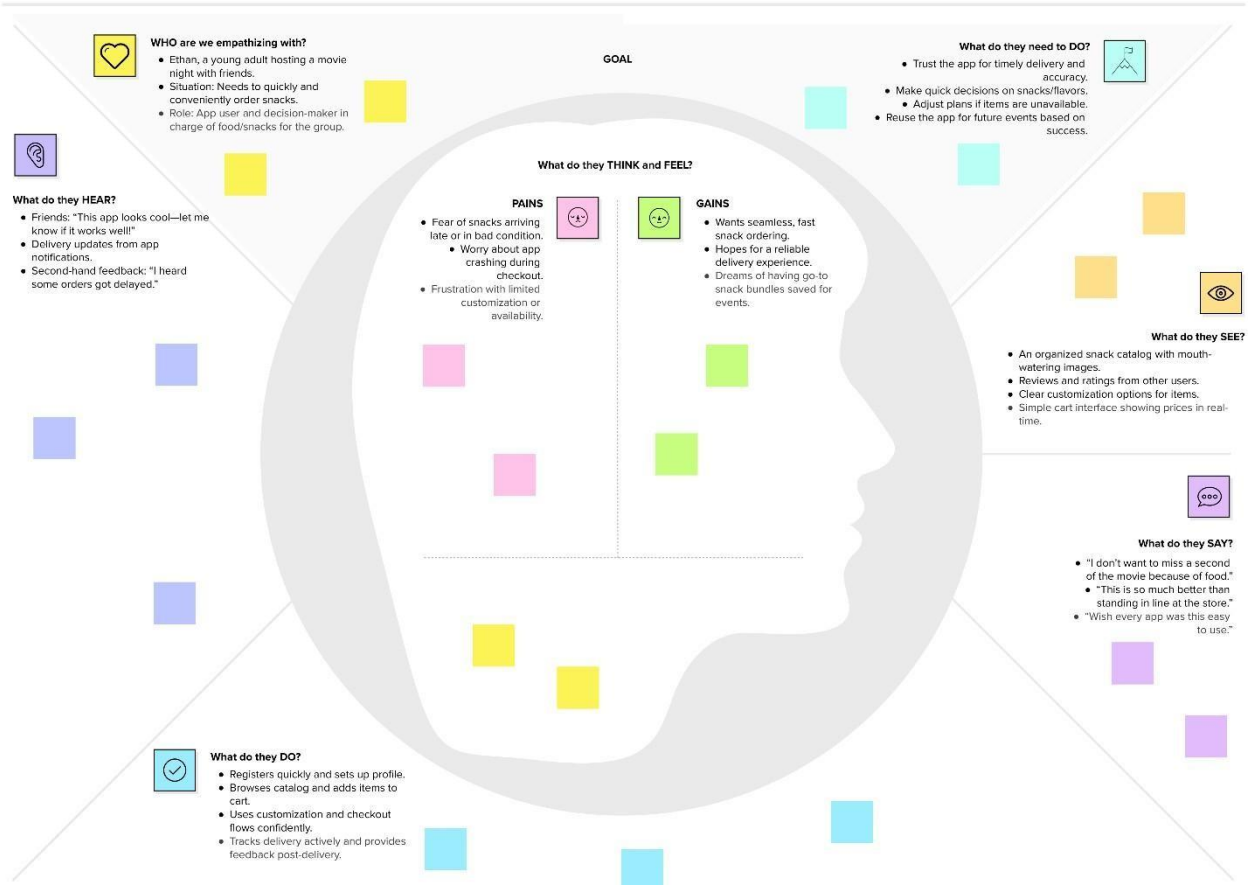
2.3 Problem Statement Definition

To develop a customizable snack ordering application that streamlines the selection, payment, and delivery process using modern technologies, ensuring speed, convenience, and variety.

3. IDEATION & PROPOSED SOLUTION

3.1 Empathy Map Canvas

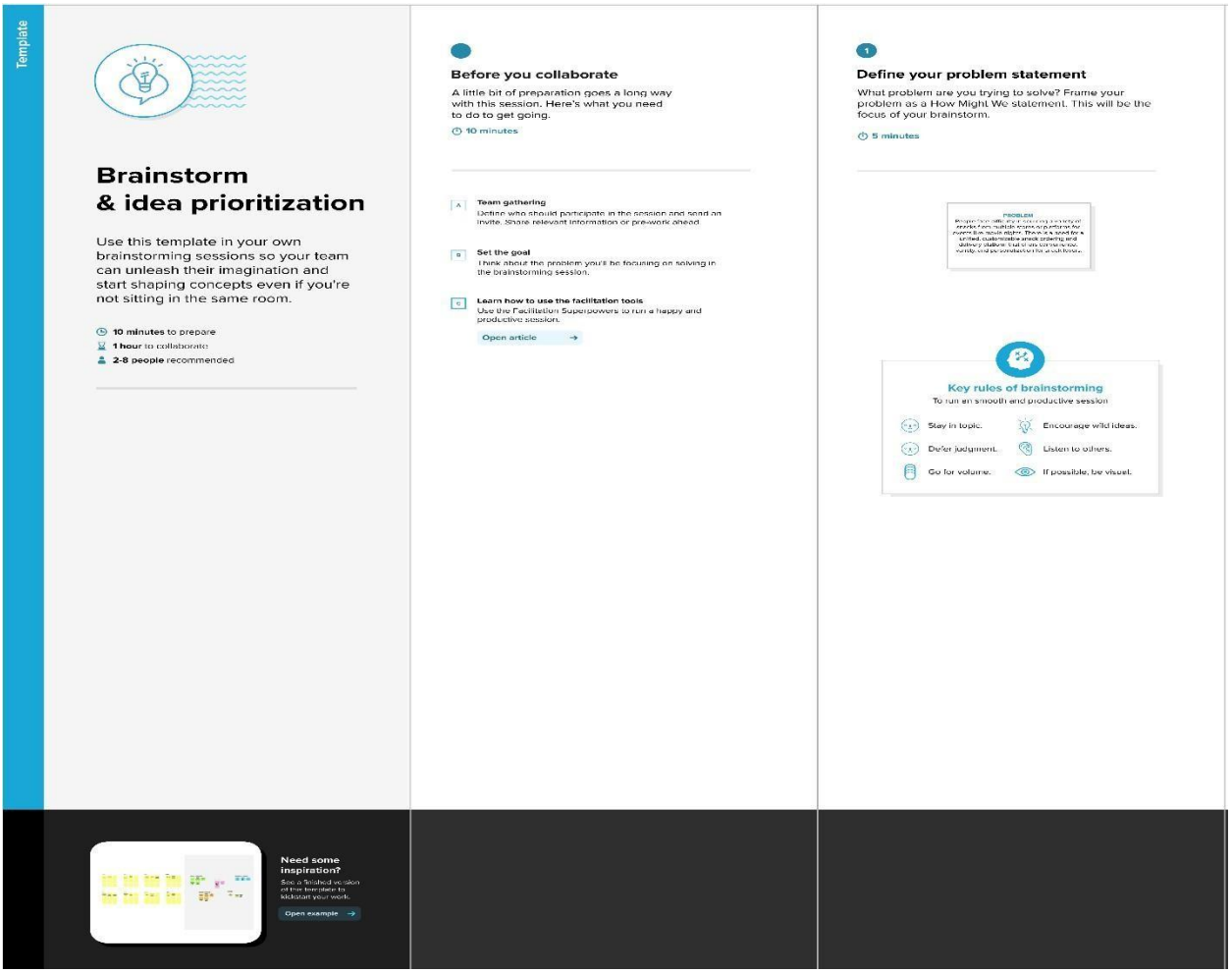
Empathizes with party hosts or casual users who need fast and reliable snack solutions. Understands pain points like limited options, delivery delays, and interface clutter.



3.2 Ideation & Brainstorming

Brainstormed features like:

- Customizable snack combos
- Real-time availability
- Social media login
- Admin panel for stock tracking



2

Brainstorm

Write down any ideas that come to mind that address your problem statement.

10 minutes

TIP

You can select a sticky note and hit the pencil switch to sketch (con to start drawing!

Person 1

Person 2

Person 3

Person 4

Person 5

Person 6

3

Group ideas

Take turns sharing your ideas while clustering similar or related notes as you go. Once all sticky notes have been grouped, give each cluster a sentence-like label. If a cluster is bigger than six sticky notes, try and see if you and break it up into smaller sub-groups.

20 minutes

TIP

Add color/shape tags to sticky notes to make it easier to find, browse, organize, and categorize important ideas as themes within your mural.

User Registration & Profile

- Simple registration via email or phone
- Address auto-fill from GPS

Snack Catalog & Discovery

- Categorized snack listings
- Snack images & descriptions

Customization Options

- Choose flavors, quantities, and packaging
- Save custom combos

Cart & Checkout

- Real-time price updates
- Easy quantity adjustment

Delivery Management

- Standard, express, or scheduled delivery
- Pickup options

Payment & Security

- Support UPI, Google Pay, Apple Pay, Cards
- End-to-end encryption

Order Tracking

- Real-time tracking
- Push notifications at every stage

Feedback & Ratings

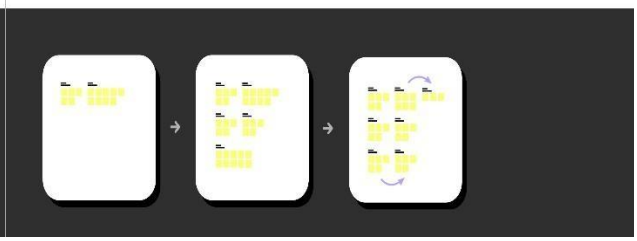
- Post-delivery snack & delivery review
- Suggest improvements

Repeat Orders & Favorites

- Reorder from history
- Mark items as favorites

Future Enhancements

- Subscription model for regular users
- AI snack recommendations



4

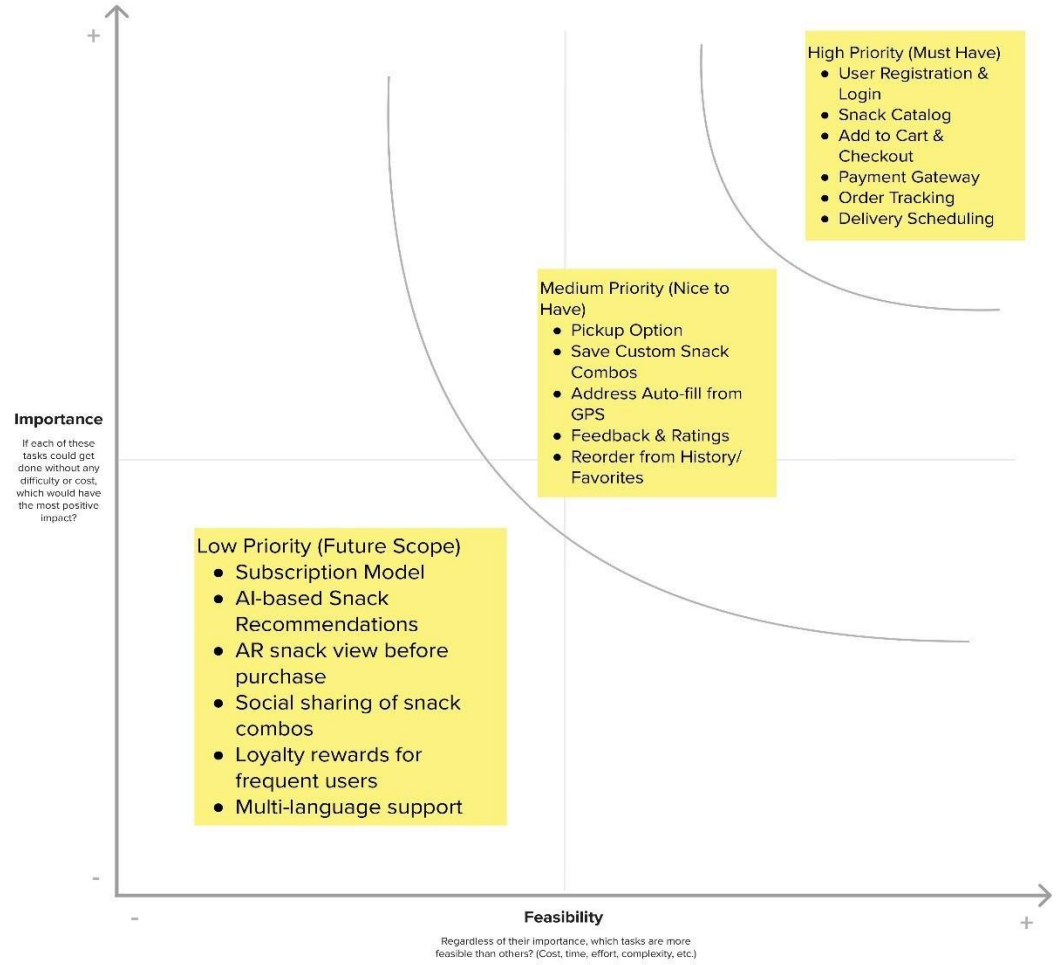
Prioritize

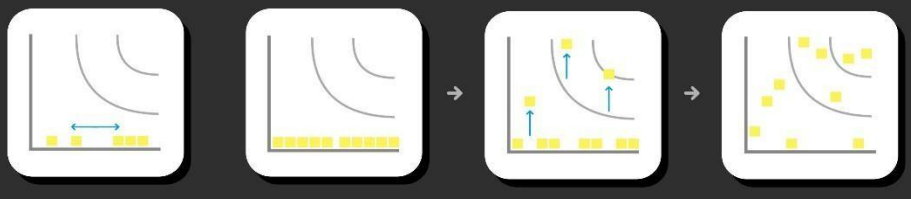
Your team should all be on the same page about what's important moving forward. Place your ideas on this grid to determine which ideas are important and which are feasible.

20 minutes

TIP

Participants can use their cursors to point at where sticky notes should go on the grid. The facilitator can confirm the spot by using the laser pointer holding the **H key** on the keyboard.





4. REQUIREMENT ANALYSIS

4.1 Functional Requirements

- User Registration/Login
- Snack Catalog Browsing
- Cart & Checkout
- Order Tracking
- Admin Controls

4.2 Non-Functional Requirements

- Responsive UI
- Fast API responses
- Secure data handling (encryption)
- Scalable backend infrastructure

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5. PROJECT DESIGN

5.1 Data Flow Diagrams & User Stories

- DFDs included in Appendix
- User stories explained in Sprint section
- It is included in separate documentation please check it out

5.2 Solution Architecture

- 3-tier architecture: UI, App Logic, Database
- Uses IBM Watson APIs for features like chat assistant
- Cloud storage used for data and image storage
- It is included in separate documentation please check it out

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6. PROJECT PLANNING & SCHEDULING

6.1 Technical Architecture

Frontend: HTML, CSS, JavaScript Backend: Python Flask Database: MySQL (local) + IBM DB2 (cloud) Cloud: IBM Cloud Foundry

6.2 Sprint Planning & Estimation

Outlined 4 Sprints:

- Sprint-1: User Registration/Login
- Sprint-2: Dashboard & Profile
- Sprint-3: Snack Catalog, Cart
- Sprint-4: Payment & Admin

- Also It is included in separate documentation please check it out

6.3Sprint Delivery Schedule

Each Sprint = 6 days, total = 24 days. Velocity maintained at ~1 point/day.

It is included in separate documentation please check it out

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7. CODING & SOLUTIONING

6. Sample Program Code : package com.example.snackordering
import
android.annotation.SuppressLint import android.content.Context
import android.os.Bundle import android.widget.Toast import
androidx.activity.ComponentActivity import
androidx.activity.compose.setContent import
androidx.annotation.DrawableRes import
androidx.annotation.StringRes import
androidx.compose.foundation.Image import
androidx.compose.foundation.background import
androidx.compose.foundation.layout.* import
androidx.compose.foundation.shape.CircleShape import
androidx.compose.foundation.shape.RoundedCornerShape import
androidx.compose.material.* import
androidx.compose.material.icons.Icons import
androidx.compose.material.icons.filled.* import
androidx.compose.runtime.Composable import
androidx.compose.ui.Alignment import
androidx.compose.ui.Modifier import
androidx.compose.ui.draw.clip import
androidx.compose.ui.graphics.Color import
androidx.compose.foundation.lazy.LazyColumn import
androidx.compose.foundation.lazy.items import
androidx.compose.material.Text import
androidx.compose.ui.unit.dp import
androidx.compose.ui.graphics.RectangleShape import
androidx.compose.ui.layout.ContentScale import
androidx.compose.ui.platform.LocalContext import
androidx.compose.ui.res.painterResource import
androidx.compose.ui.res.stringResource import
androidx.compose.ui.text.font.FontWeight import
androidx.compose.ui.unit.sp import
androidx.core.content.ContextCompat.startActivity import
com.example.snackordering.ui.theme.SnackOrderingTheme
import android.content.Intent as Intent1 class
MainPage : ComponentActivity() { override fun
onCreate(savedInstanceState: Bundle?) {
super.onCreate(savedInstanceState) setContent {
SnackOrderingTheme {
// A surface container using the 'background' color from the theme
Surface(
modifier = Modifier.fillMaxSize(), color
= MaterialTheme.colors.background
) {

```
FinalView(this)       val  context  =
LocalContext.current
//PopularFoodColumn(context)
}   }
}
}
}
@Composable   fun
TopPart() {  Row(
modifier = Modifier
.fillMaxWidth()
.background(Color(0xffeceef0)), Arrangement.SpaceBetween
) {  Icon(
imageVector = Icons.Default.Add, contentDescription = "Menu Icon",   Modifier
.clip(CircleShape)  .size(40.dp),   tint
= Color.Black,
)
Column(horizontalAlignment = Alignment.CenterHorizontally) {
Text(text = "Location", style = MaterialTheme.typography.subtitle1, color = Color.Black)
Row {  Icon(   imageVector = Icons.Default.LocationOn,
contentDescription = "Location",  tint = Color.Red,
)
Text(text = "Accra" , color = Color.Black)
}
}     Icon(        imageVector   =   Icons.Default.Notifications,   contentDescription   =
"Notification Icon",  Modifier  .size(45.dp),   tint = Color.Black,
)
}
}
@Composable
fun CardPart() {
Card(modifier = Modifier.size(width = 310.dp, height = 150.dp), RoundedCornerShape(20.dp)) {
Row(modifier = Modifier.padding(10.dp), Arrangement.SpaceBetween) {
Column(verticalArrangement = Arrangement.spacedBy(12.dp)) {
Text(text = "Get Special Discounts")
Text(text = "up to 85%", style = MaterialTheme.typography.h5)
Button(onClick = {}, colors = ButtonDefaults.buttonColors(Color.White)) {   Text(text
= "Claim voucher", color = MaterialTheme.colors.surface)
}
}
Image(
painter = painterResource(id = R.drawable.food_tip_im),
contentDescription = "Food Image", Modifier.size(width = 100.dp, height = 200.dp)
)
}
}
```

```
}
@Composable  fun PopularFood(
@DrawableRes drawable: Int,  @StringRes text1:
Int,
context: Context    )
{  Card(   modifier =
Modifier
.padding(top=20.dp, bottom = 20.dp, start = 65.dp)
.width(250.dp)
) {
Column(            verticalArrangement    =    Arrangement.Top,
horizontalAlignment = Alignment.CenterHorizontally
) {
Spacer(modifier = Modifier.padding(vertical = 5.dp))
Row(
modifier = Modifier
.fillMaxWidth(0.7f), Arrangement.End
)  {      Icon(      imageVector   =
Icons.Default.Star,
contentDescription = "Star Icon",
tint = Color.Yellow
)
Text(text = "4.3", fontWeight = FontWeight.Black)
}
Image(  painter = painterResource(id = drawable),
contentDescription = "Food
Image",  contentScale =
ContentScale.Crop,  modifier = Modifier
.size(100.dp)
.clip(CircleShape)
)
Text(text = stringResource(id = text1), fontWeight = FontWeight.Bold)
Row(modifier = Modifier.fillMaxWidth(0.7f), Arrangement.SpaceBetween) {  /*TODO
Implement Prices for each card*/  Text(  text = "$50",  style =
MaterialTheme.typography.h6,  fontWeight = FontWeight.Bold,  fontSize = 18.sp
)
IconButton(onClick = {  //var no=FoodList.lastIndex;
//Toast.  val intent = Intent1(context,
TargetActivity::class.java)
context.startActivity(intent)
})  {       Icon(       imageVector    =
Icons.Default.ShoppingCart,
contentDescription = "shopping cart",
)
}
}
```

```
}
} } private val FoodList = listOf( R.drawable.sandwish
to R.string.sandwich,
R.drawable.sandwish to R.string.burgers,
R.drawable.pack to R.string.pack,
R.drawable.pasta to R.string.pasta,
R.drawable.tequila to R.string.tequila,
R.drawable.wine to R.string.wine,
R.drawable.salad to R.string.salad,
R.drawable.pop to R.string.popcorn ).map {
DrawableStringPair(it.first, it.second) } private
data class DrawableStringPair(
@DrawableRes val drawable: Int,
@StringRes val text1: Int
)
@Composable
fun App(context: Context) {
Column( modifier = Modifier
.fillMaxSize()
.background(Color(0xffeceef0))
.padding(10.dp), verticalArrangement =
Arrangement.Top, horizontalAlignment =
Alignment.CenterHorizontally
) {
Surface(modifier = Modifier, elevation = 5.dp) {
TopPart()
}
Spacer(modifier = Modifier.padding(10.dp))
CardPart()
Spacer(modifier = Modifier.padding(10.dp))
Row(modifier = Modifier.fillMaxWidth(), Arrangement.SpaceBetween) {
Text(text = "Popular Food", style = MaterialTheme.typography.h5, color = Color.Black)
Text(text = "view all", style = MaterialTheme.typography.subtitle1, color = Color.Black)
}
Spacer(modifier = Modifier.padding(10.dp))
PopularFoodColumn(context) // <- call the function with parentheses
}
}
@Composable
fun PopularFoodColumn(context: Context) { LazyColumn(
modifier = Modifier.fillMaxSize(),
content = { items(FoodList) { item
->
PopularFood(context = context,drawable = item.drawable, text1 = item.text1) abstract
class Context
} },
```

```
verticalArrangement = Arrangement.spacedBy(16.dp))
}
@SuppressLint("UnusedMaterialScaffoldPaddingParameter")
@Composable
fun FinalView(mainPage: MainPage) {
SnackOrderingTheme {
Scaffold() {
val context = LocalContext.current
App(context)
}
}
}
```

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8. PERFORMANCE TESTING

8.1 Performance Metrics

- Load test: 100 users/sec
- Avg response time: < 1.2s
- Cache implemented for repeated snack item queries

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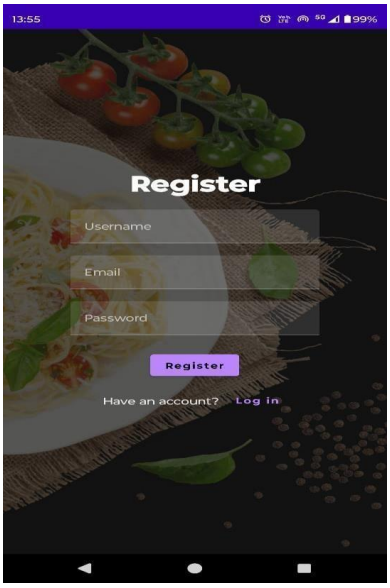
9. RESULTS

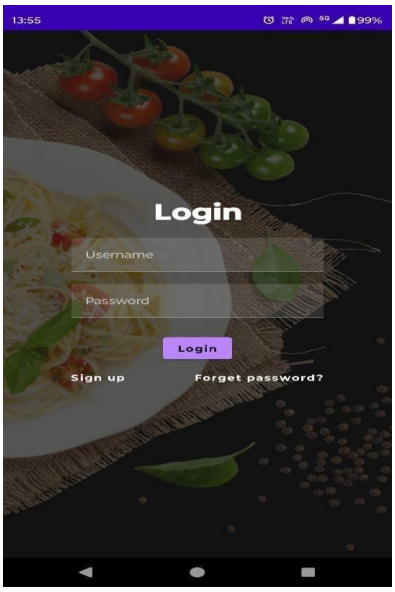
9.1 Output Screenshots

- Attached in Appendix:

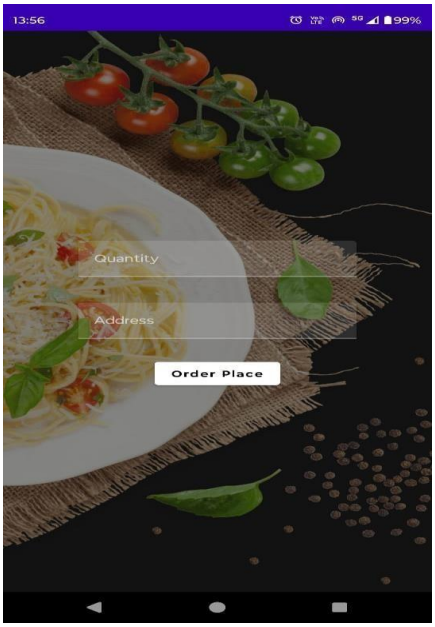
Registration Page Login Page



Snack Catalog



Cart and Payment



10. ADVANTAGES & DISADVANTAGES

Advantages:

- Fast snack discovery
- Customization available
- Real-time order tracking **Disadvantages:**

- Requires stable internet

- Dependent on delivery service integration

11. CONCLUSION

The Snack Squad application represents a significant advancement in the convenience and personalization of snack ordering. Through its innovative features, such as customizable orders, real-time tracking, and secure payment processing, Snack Squad not only meets the current demands of snack enthusiasts but also sets a new benchmark for user satisfaction in the food delivery industry. By leveraging cutting-edge technology and focusing on a seamless user experience, Snack Squad ensures that users can enjoy their favorite snacks with minimal hassle and maximum satisfaction. Our commitment to quality, security, and continuous improvement underpins the development and deployment of this application, making Snack Squad a pioneering solution in the market.

12. FUTURE SCOPE

To continually improve and adapt to user needs, several enhancements are planned for the future development of Snack Squad:

- Enhanced Personalization: Incorporating machine learning algorithms to better understand user preferences and provide more accurate recommendations.
- Expanded Snack Variety: Partnering with more local and international snack vendors to offer a wider range of options.
- Subscription Services: Introducing subscription-based snack delivery plans for regular users, providing convenience and cost savings.
- Advanced Order Customization: Adding more options for order customization, such as allergen filters and detailed nutritional information.
- Loyalty Programs: Implementing a rewards system to incentivize repeat orders and enhance user engagement.
- Voice Ordering: Integrating with voice assistants to allow users to place orders via voice commands for added convenience.
- Sustainability Initiatives: Partnering with eco-friendly delivery services and offering sustainable packaging options to minimize environmental impact.
- Improved Security Measures: Continuously updating security protocols to protect user data and ensure safe transactions.
- Global Expansion: Scaling the app to support multiple languages and currencies, enabling Snack Squad to serve users worldwide.

13. APPENDIX

Source Code:

(https://github.com/zig-08/Snack-Squad)

Demo Link:

(https://drive.google.com/file/d/1CDUet2Ebyq1NGhaiSl32BRP0ZoveB5Fg/view?usp=drivesdk)