

FOOD SNAP

We use artificial intelligence to simplify your diet

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“Food” is a massive global health issues



Risk Factor
For morbidity and
mortality



Diabetes, heart disease,
stroke and cancers can
be related to food



Overweight and
Obesity
Increased these days

INTRODUCTION

- Food snap is an end to end CNN Image Classification Model recognizes the food in your image to help people understand the nutritional composition of the food they eat in a more simple way.
- Also provide food information for people with diabetes.

OBJECTIVE

- To develop an efficient image classification app, which employs state-of-the-art AI to recognize foods and provide nutrition content and diabetic recommendation

BENEFITS

- Eat Better with Quick Nutritional Info
- Receives Diabetic Recommendation

“Food” Learning

1. Classification:

Dataset:

1. 3 different sources
2. 101 labels
3. 100,000 images

EfficientNetB1:

1. Architecture for image classification
2. strike a good balance between model size and accuracy.

Faster Working:

1. T4 GPU(7.5 capacity)
2. Tensorflow

Table 1 :DataSet

FOOD 101 datasets (Bossard, Lukas and Guillaumin, Matthieu and Van Gool, Luc, 2022)	1000 images of 101 food each
Nutrients datasets (<i>Nutrition Dataset</i> , 2022)	60 food
Diabetic Food Datasets(Horn, 2018)	56 food

Table 2 :Splits

Split	Examples
‘train’	75,750
‘validation’	25,250

Provide nutrition based on the datasets we have per 100grams

Also early stopping while training is done

Using VGG16:

loss: 0.5758 - accuracy: 0.7645

Using EfficientNetB1: Sklearn's Accuracy Score without using RELU

loss: 0.7474 - accuracy: 0.8364

Using EfficientNetB1: Sklearn's Accuracy Score using RELU

loss: 0.6977 - accuracy: 0.8384

BLOCK DIAGRAM

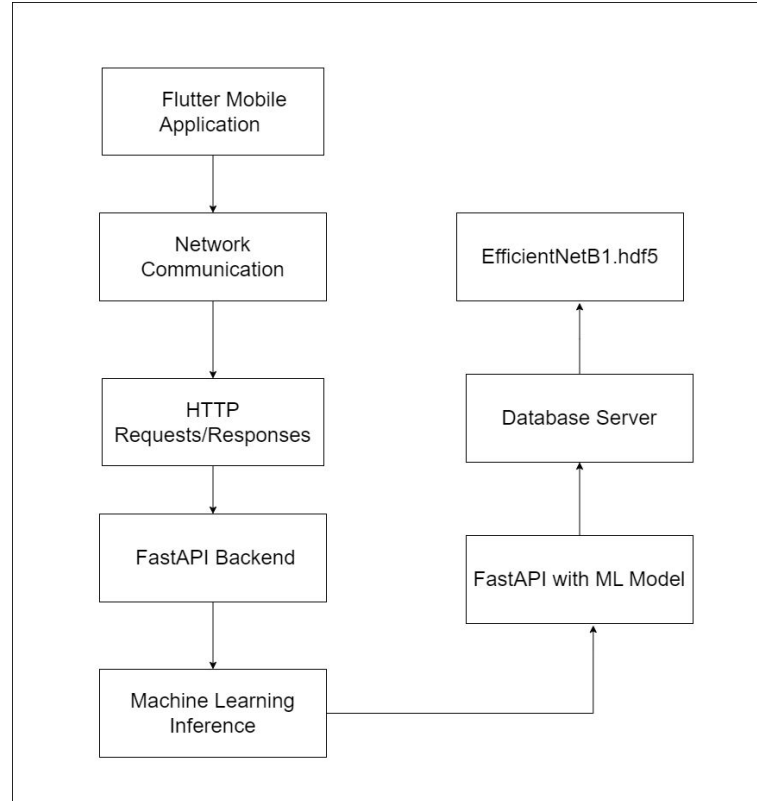


Figure: Food snap Block Diagram

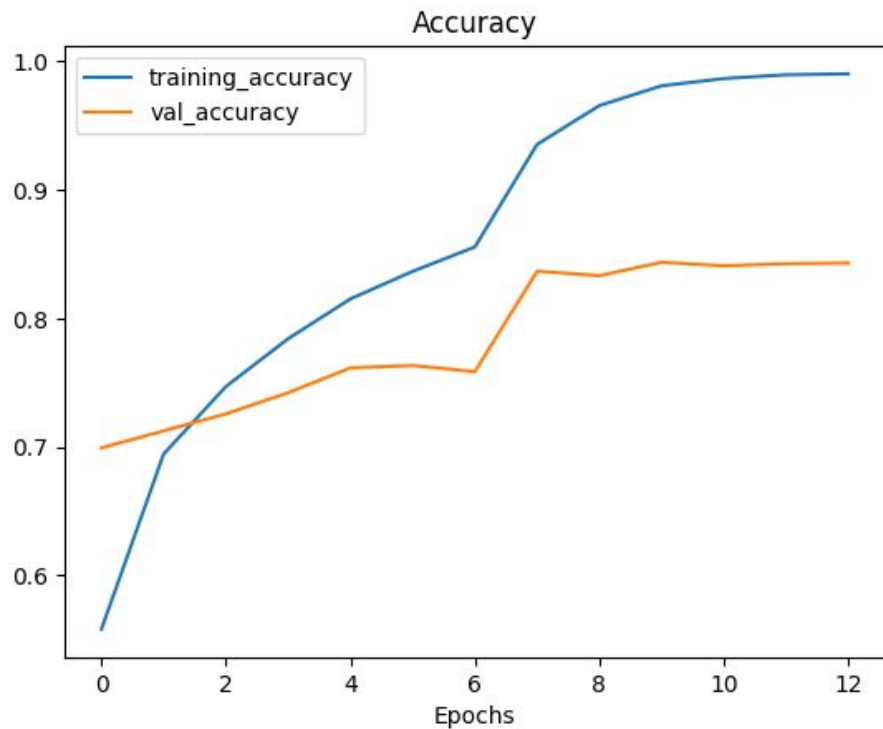


Figure : Accuracy Before Using RELU

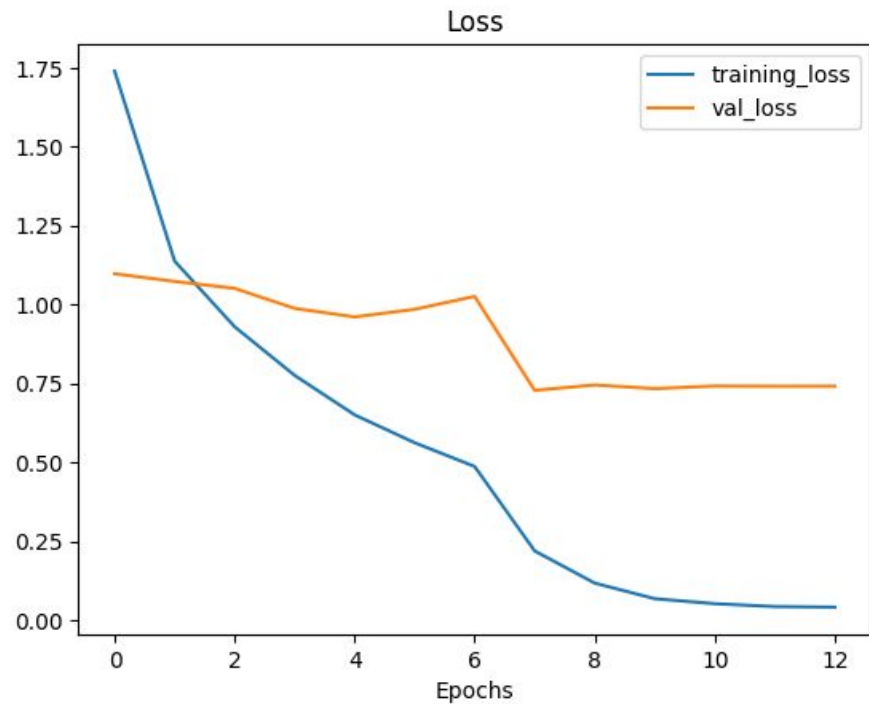


Figure : Loss Before Using RELU

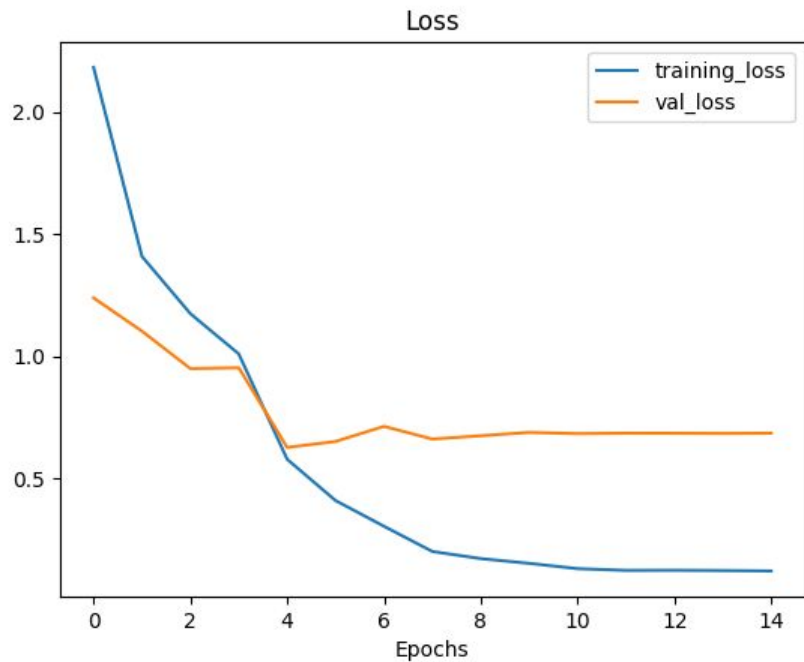


Figure : Loss After Using RELU

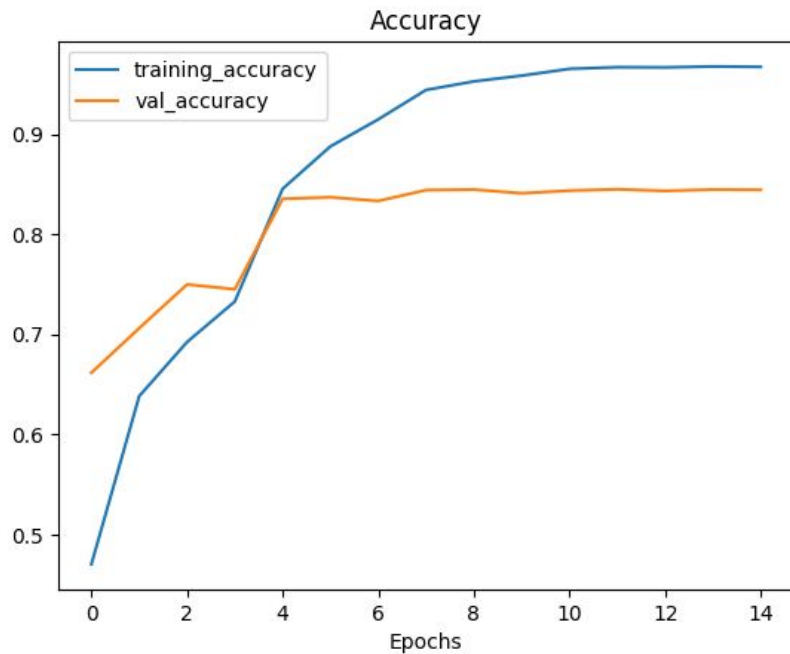
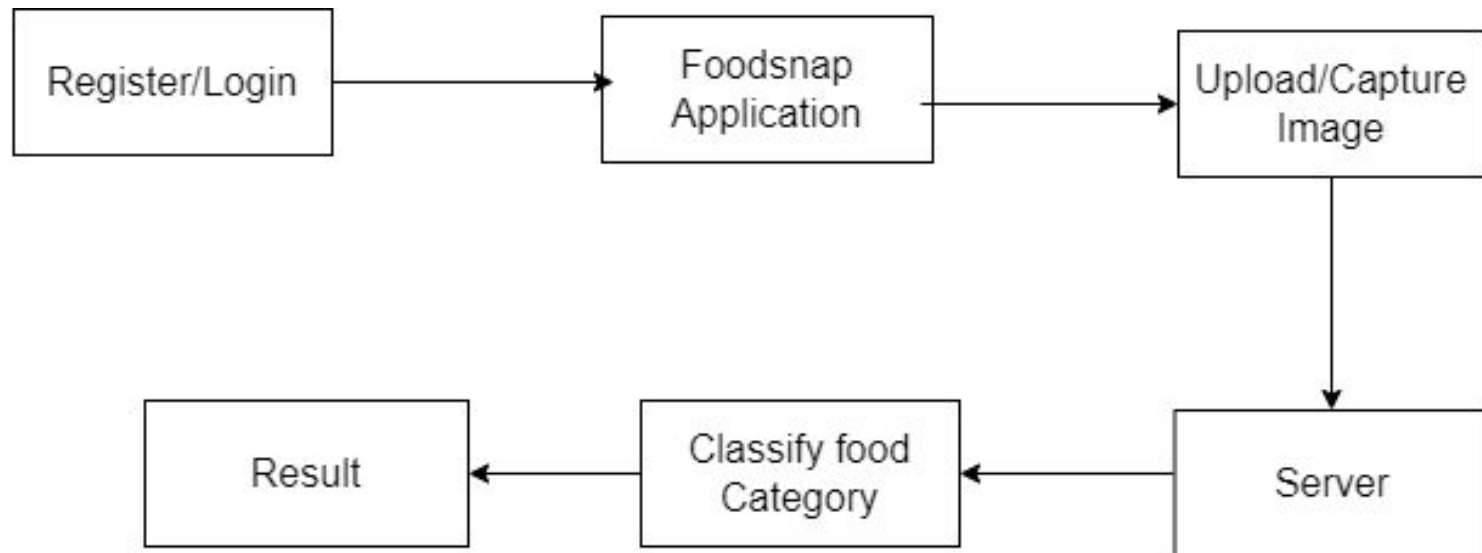
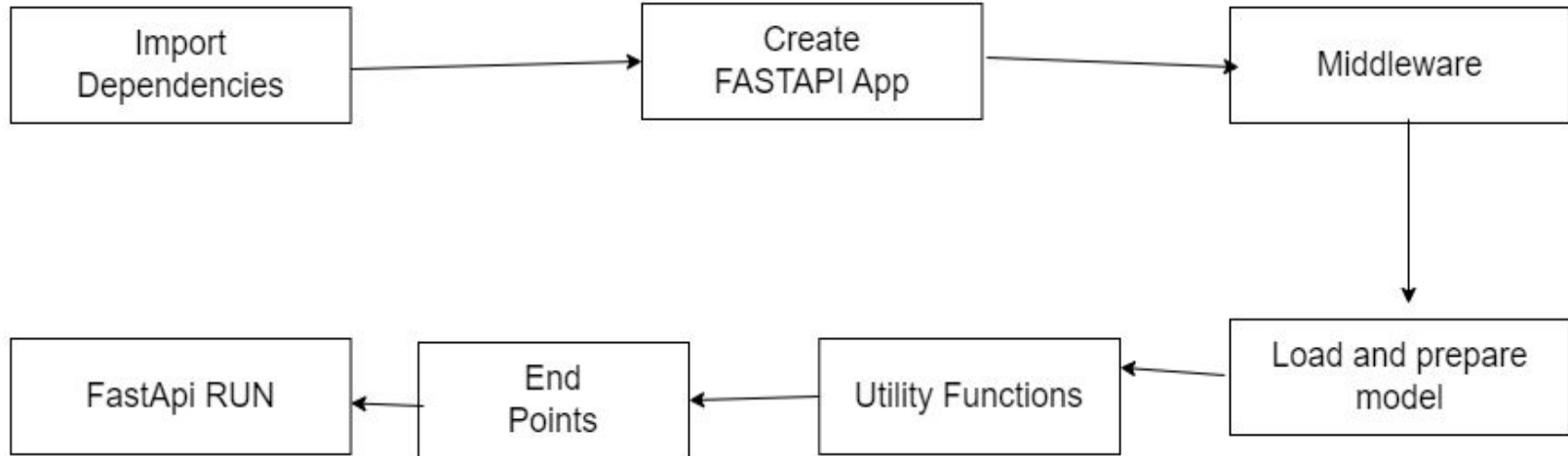


Figure : Accuracy After Using RELU

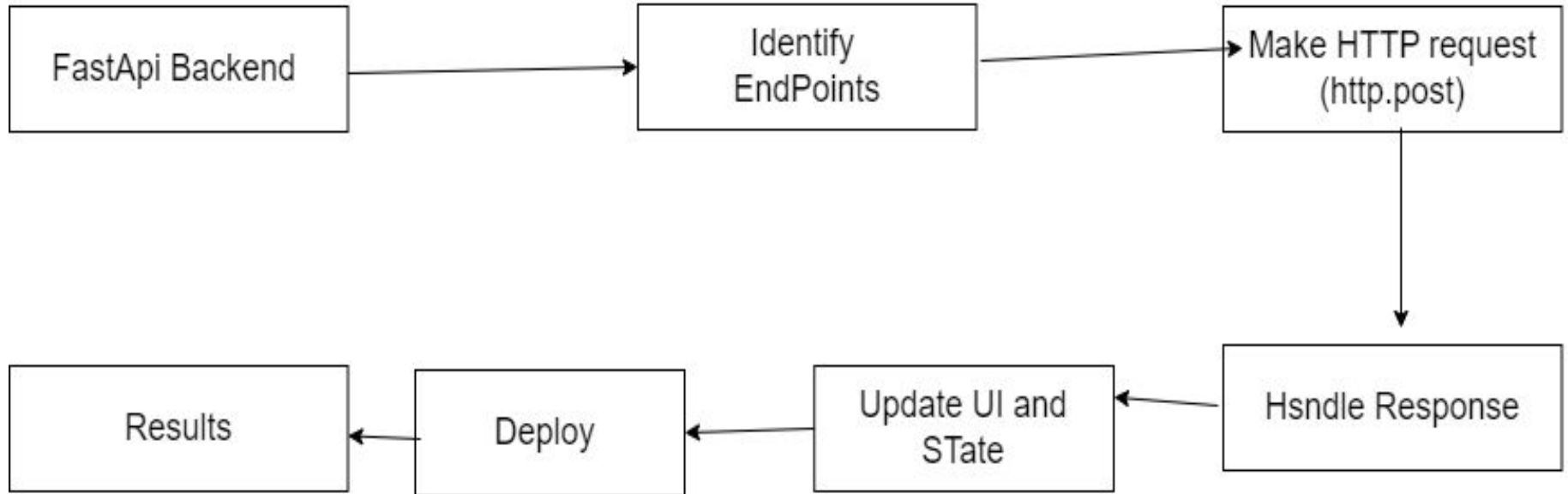
HOW FOODSNAP WORKS?



HOW FASTAPI WORK WITH MACHINE LEARNING MODEL



HOW FAST API INTEGRATED WITH FLUTTER



LITERATURE REVIEW

Table 3 :Comparison Table

SYSTEM FEATURES	FOOD SNAP	Cook pad	Yum mly	Paprika Recipe Manager	Super Cook	Fridge Pal	Allrecipes	Calorie Mama
Recipe Sharing	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nutrient Information	Yes	No	No	No	No	No	No	Yes
Search Recipe	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Virtual cookbook.	No	Yes	Yes	Yes	Yes	Yes	Yes	No
Analyze food for diabetic patients	Yes	No	No	No	No	No	No	No

TOOLS USED

TOOLS	USE
Flutter	For Frontend
Figma (Figma, Inc, 2016)	For Design UI/UX
Fast API (Sebastián Ramírez, 2018)	For Backend
Google Collab (Google, 2020)	For Machine Learning Model
Firebase (Google & James Tamplin, Andrew Lee, 2011)	For Authentication
Draw.io (JGraph Ltd & Alder, 2011)	For UML Diagram
GitHub (Tom Preston-Werner, Chris Wanstrath, Scott Chacon, P. J. Hyett & Microsoft Corporation, 2008)	For Version Control
VS Code	For IDE
Google Docs (Google, 2006)	For Documentation
Google Slide (Google, 2006)	For Presentation

Table 4: Tools Used

USE CASE

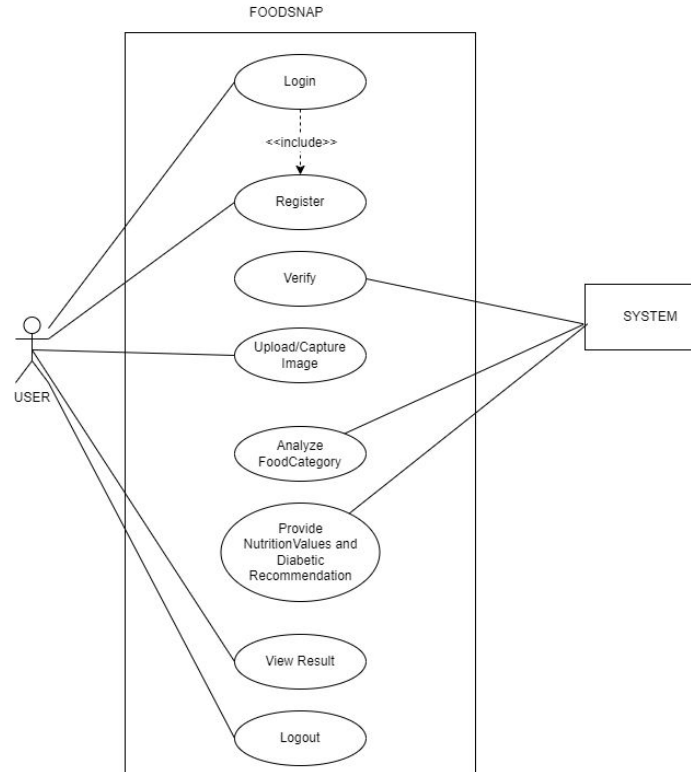


Figure :Use Case Diagram

SYSTEM SEQUENCE DIAGRAM

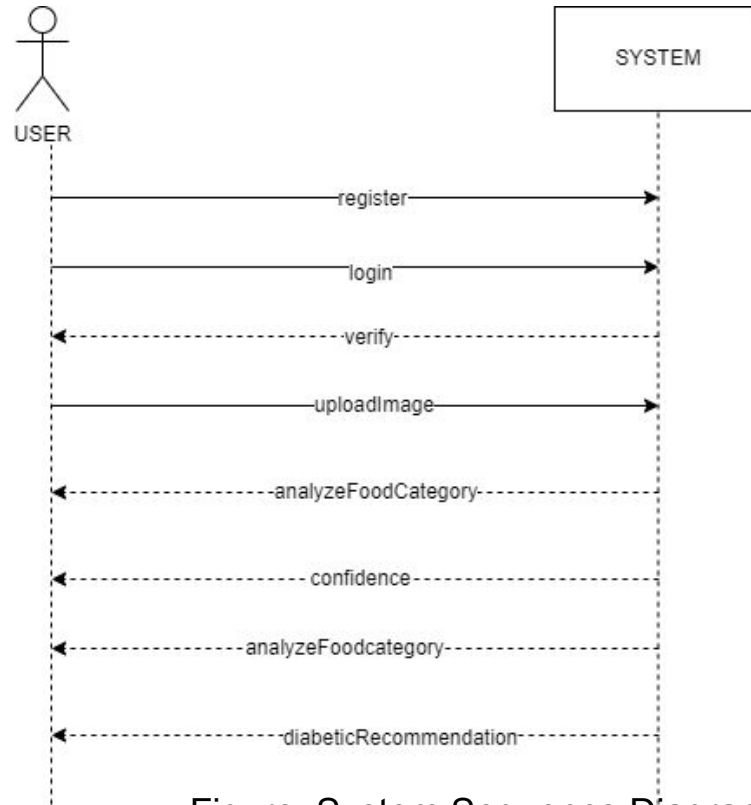


Figure System Sequence Diagram

DESIGN CLASS DIAGRAM

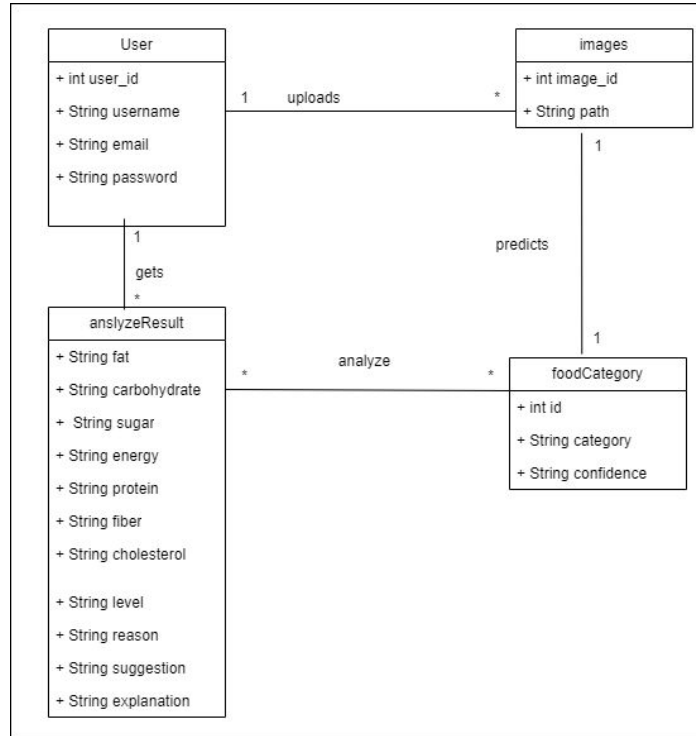


Figure :Design Class Diagram

INTERACTION DIAGRAM

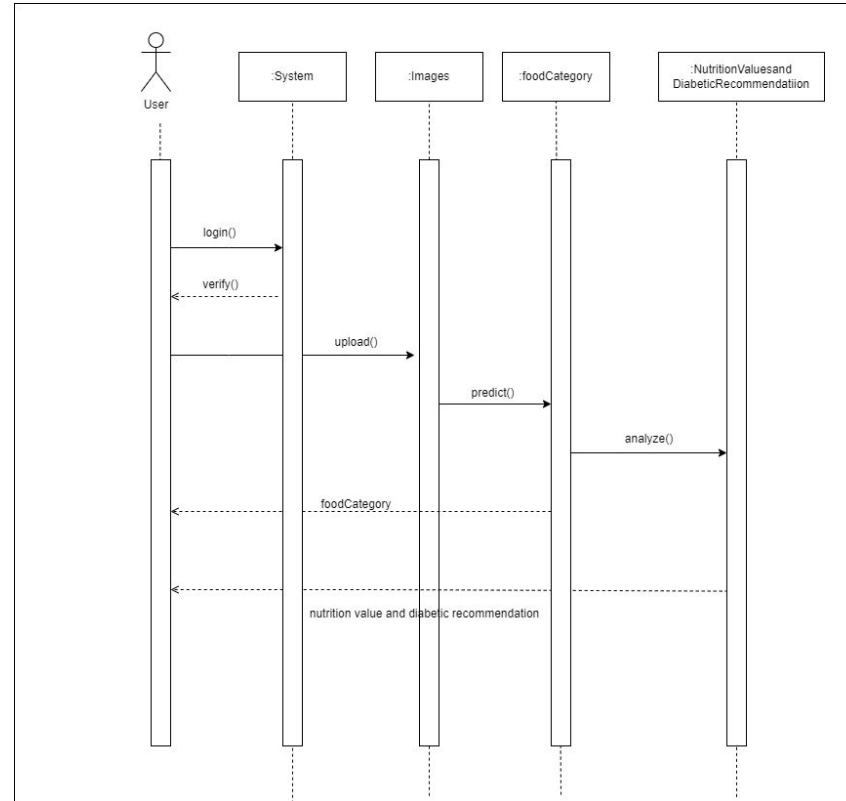


Figure :Interaction Diagram

CHALLENGES

- Limited Dataset for Diabetic Foods
- Reliable Nutritional Information

SOLUTION

- Classify and recommendation
- Optimize for rapid, real-time suggestions.

PROJECT SCOPE AND APPLICATION

- swiftly identifies food items from images, providing nutritional details and diabetic recommendations.
- empowers users with real-time insights, facilitating quick decisions about meals and healthier lifestyles.

LIMITATION AND FUTURE ENHANCEMENT

- Limited food category
- Limited diabetic food recommendation and nutritional content datasets
- No predicted history

APPENDICES

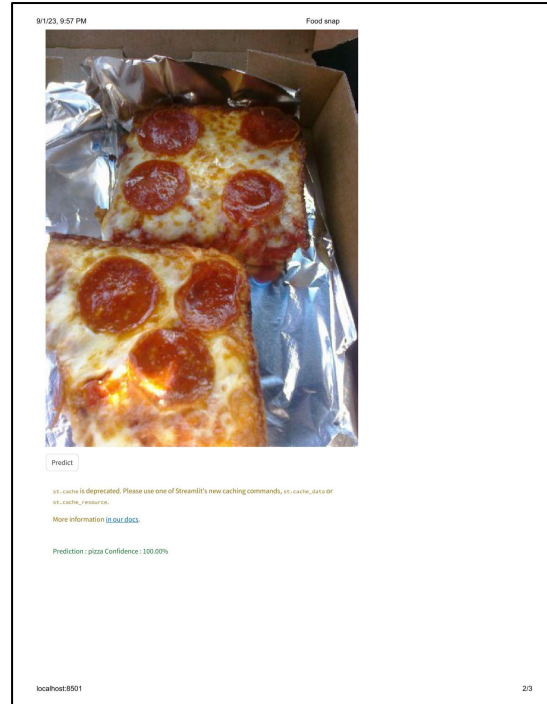
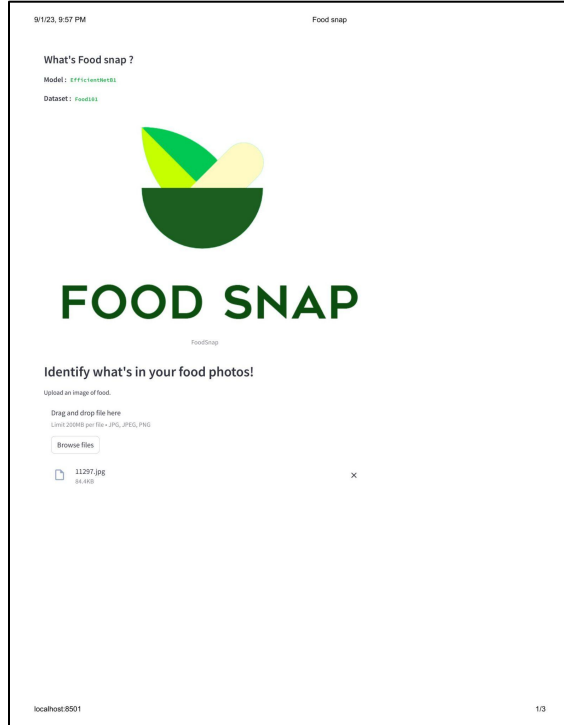


Figure : Food Snap Web App

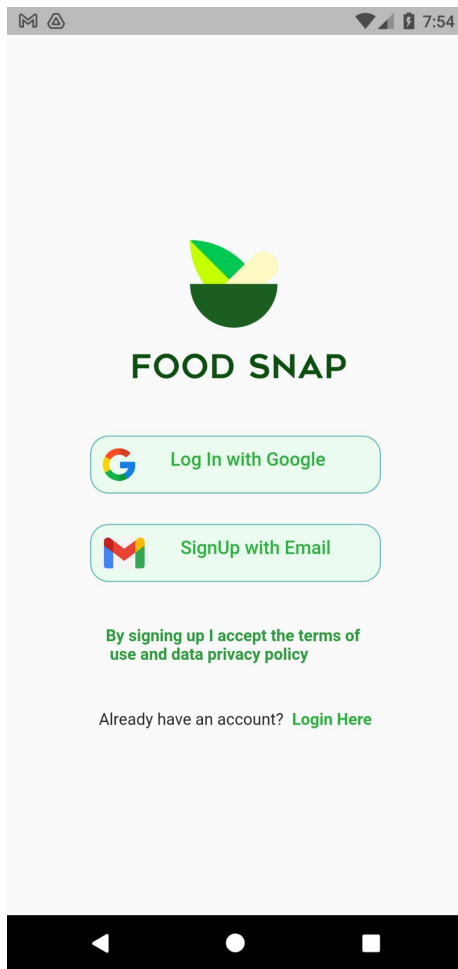


Figure :Landing Page

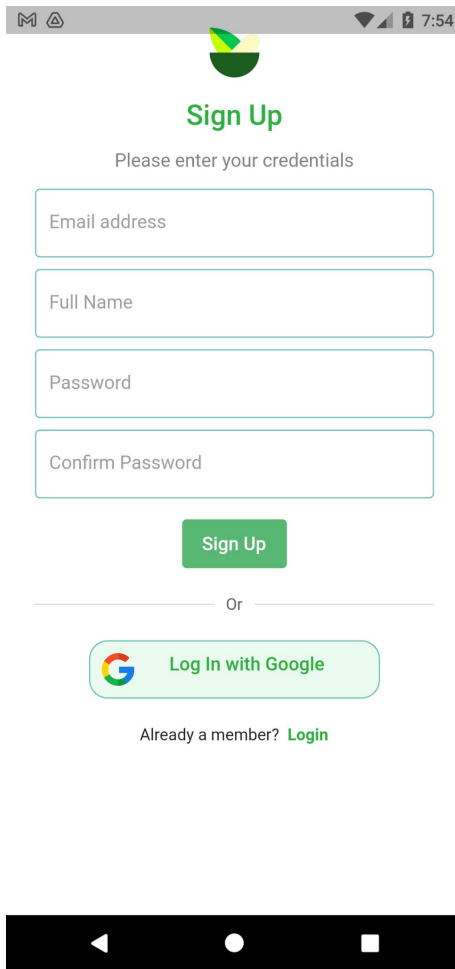


Figure :SignUp Page

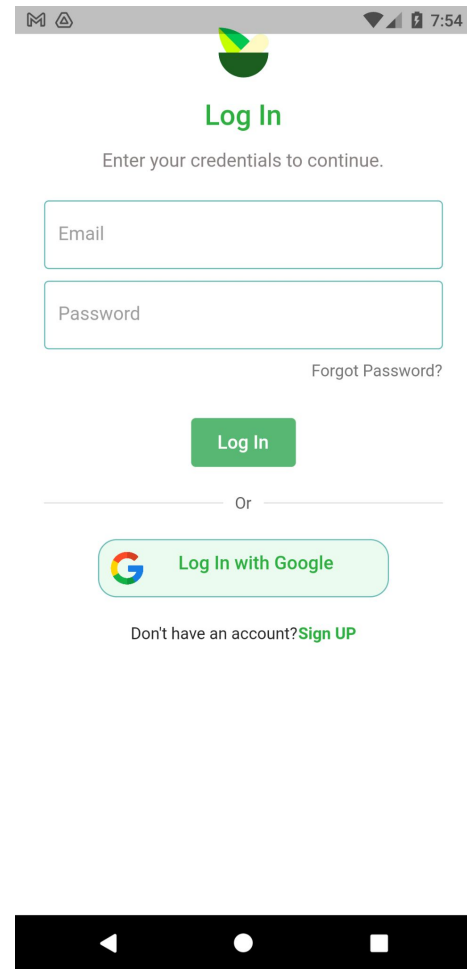


Figure :Login Page

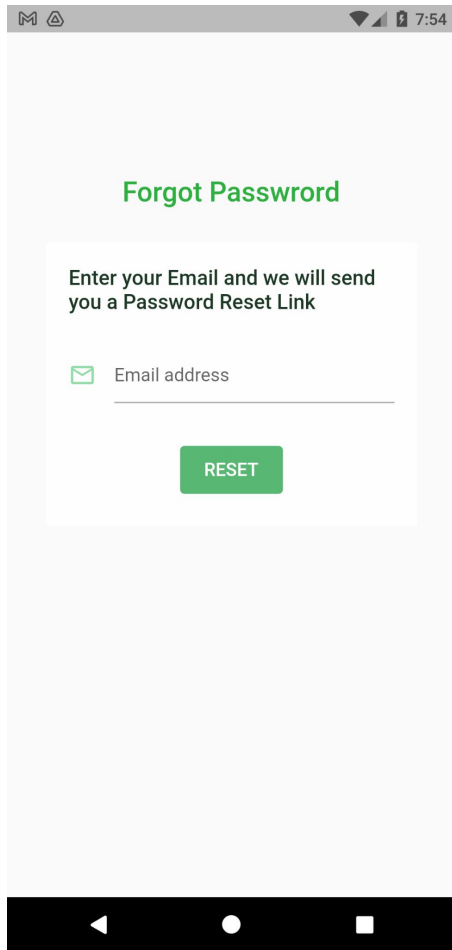


Figure :Forgot Password Page

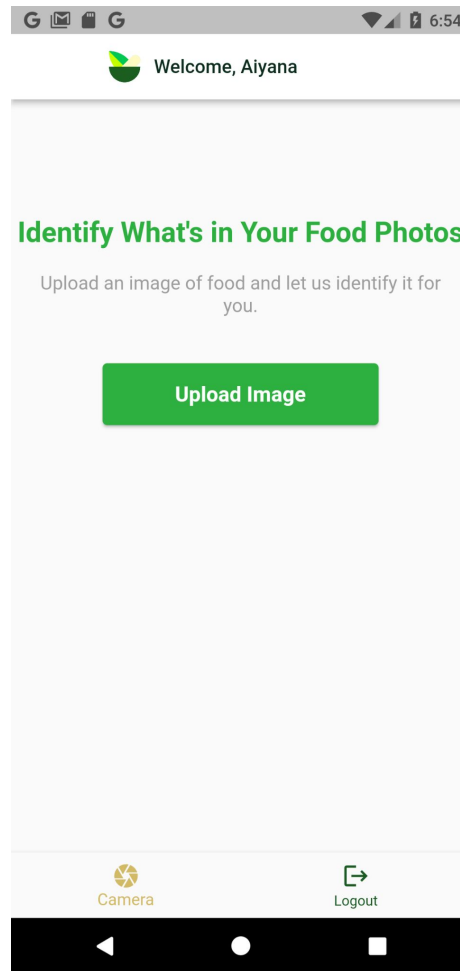


Figure :Home Page

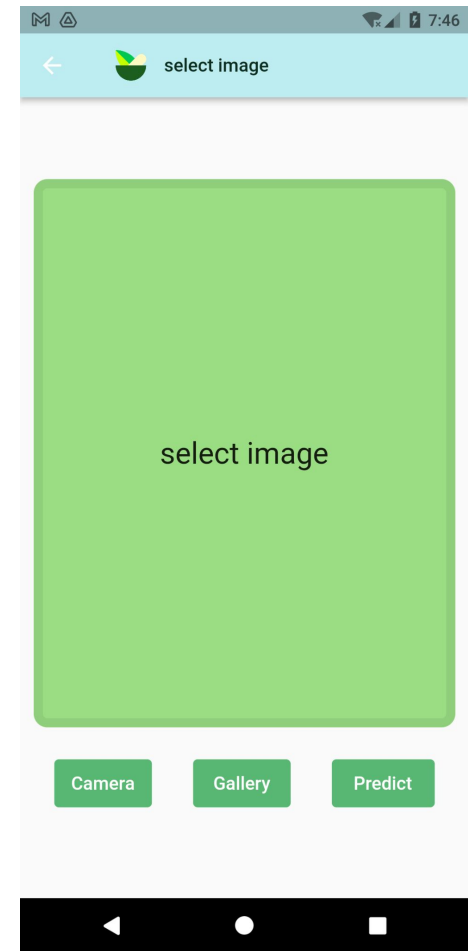


Figure :ImagePicker Page



Figure :After food selection

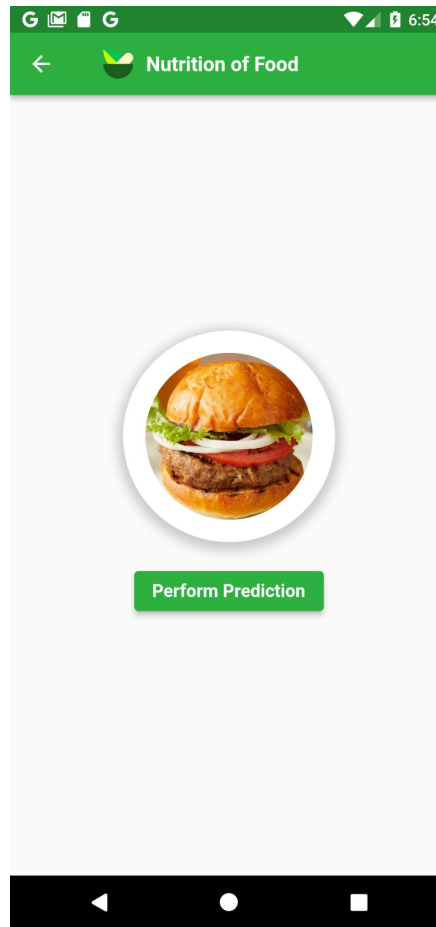


Figure :Prediction

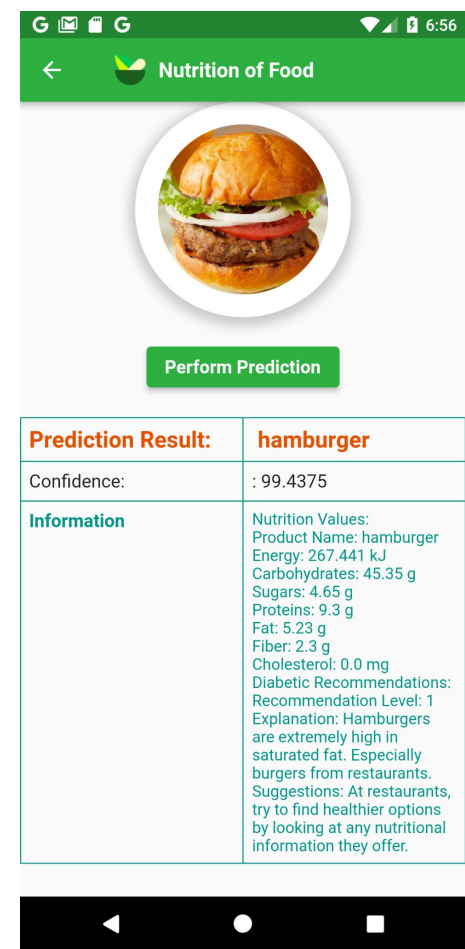


Figure :Analysis Result

Thank You