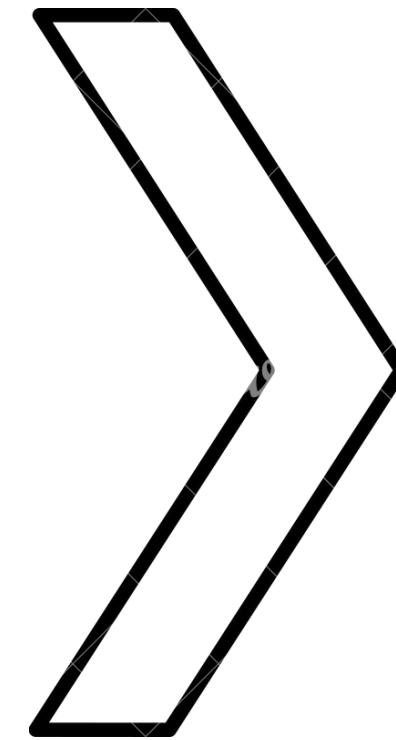


CapSnap

261492 FINAL PRESENTATION



SUPARIDA &
PONGSAKORN

Our Team



Suparida
630610765



Pongsakorn
630610749

Table of Content

Problem

Solution

Technology

Mobile App

CI

Web Dashboard

Demo

Motivation

Personal interest or curiosity in:

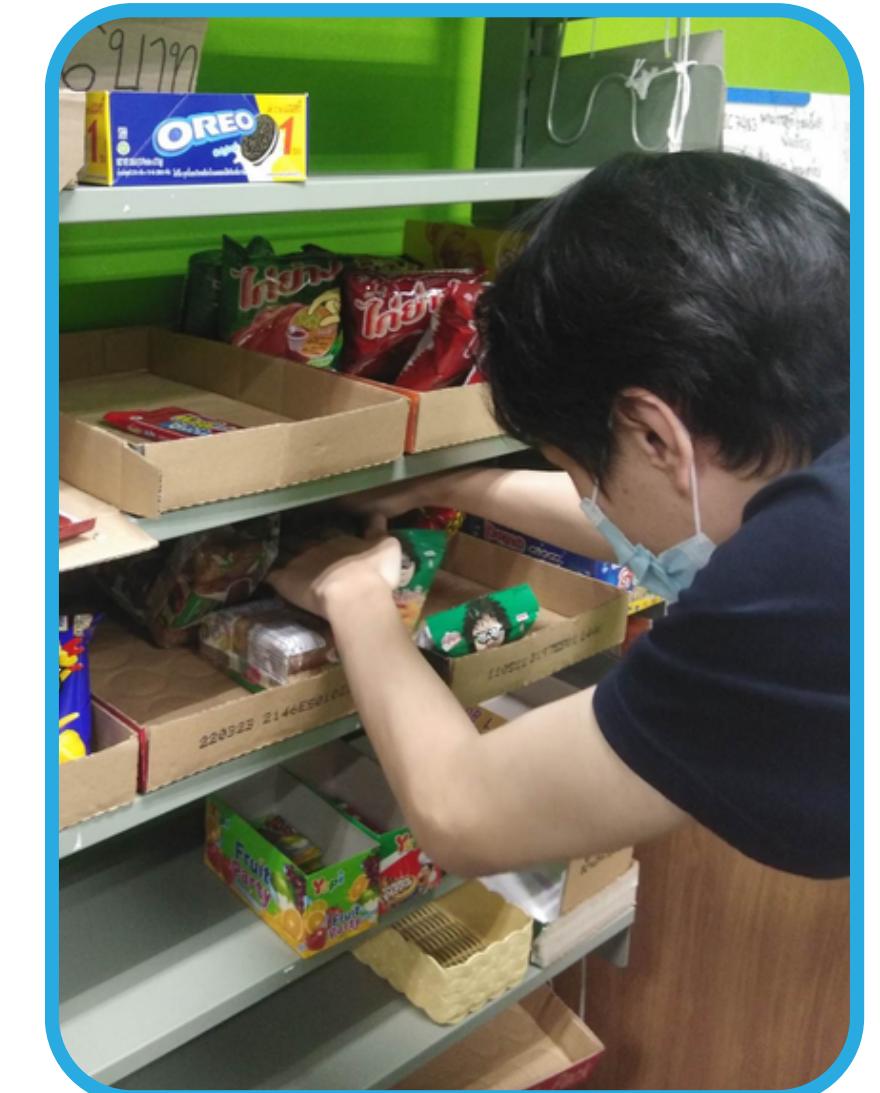
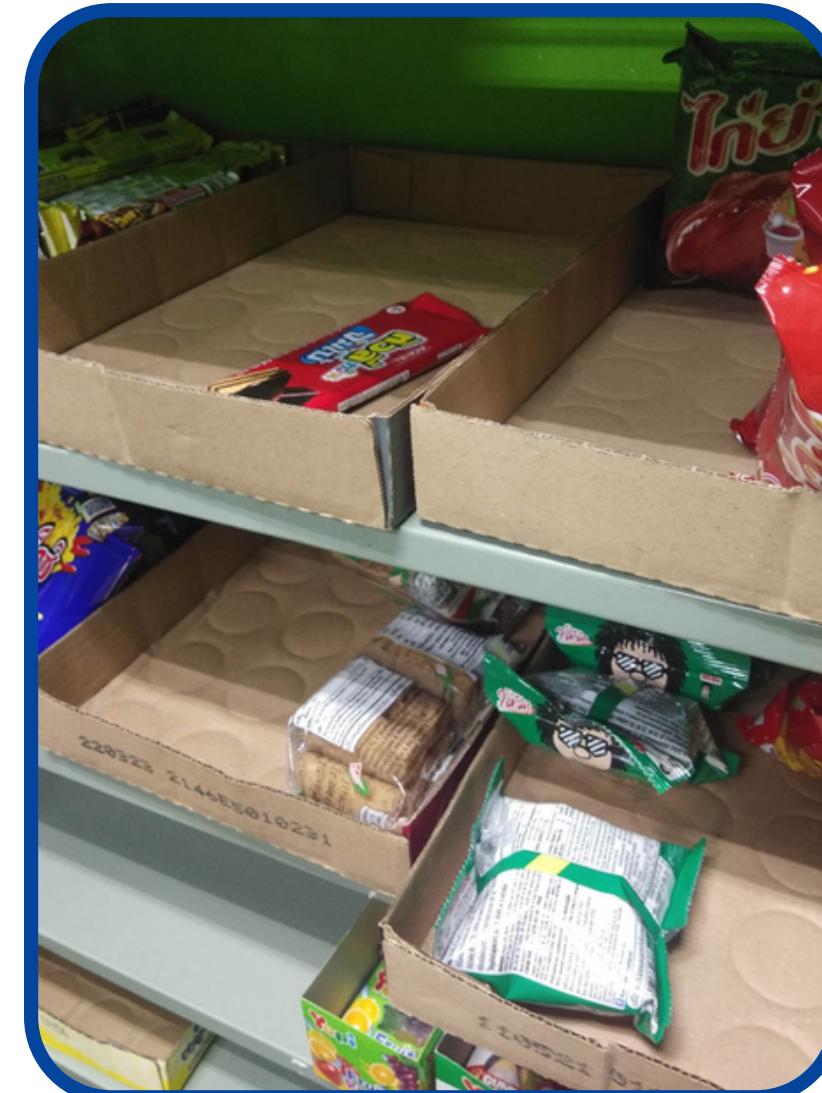
- Computational Intelligence
- Machine vision

Inspiration:

422 SHOP

Shopping system in 422 shop which is currently using manual self-shopping and checkout which leads to some problems as follow:

- Inbalancing of revenue and balance from sold products.
- Manual inventory management -
> Inefficient



Problems

For Customers

- Lining up for checking out:
 - wasting time
 - need more space



For owners

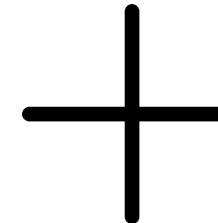
- Manual stock management:
 - wasting time and labor
 - inefficient inventory management
 - lack of stock tracker and monitor
 - risk for out-of-stock items

Our Solution

Mobile application (Andriod)

Offering customers

- Virtual cart
- Auto-checkout
- Product scanning for
 - Product's price
 - remaining in stock
 - information



Computational Intelligence

Product Web application (dashboard)

Offering owners

- Managing and real-time tracking Information of
 - Store system
 - Stock
 - Category
 - Product
 - checkout
 - Selling report

Benefits

- Improving shopping experience for customers and store that expecting offering self-service
- Reducing need for manual intervention by store staff



Project scope

Web Dashboard



Display / manage stock
and product

Shop



Receipt order report /
Product information

Mobile App

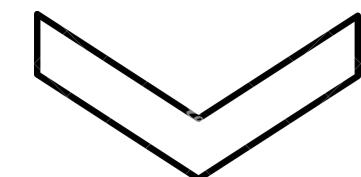
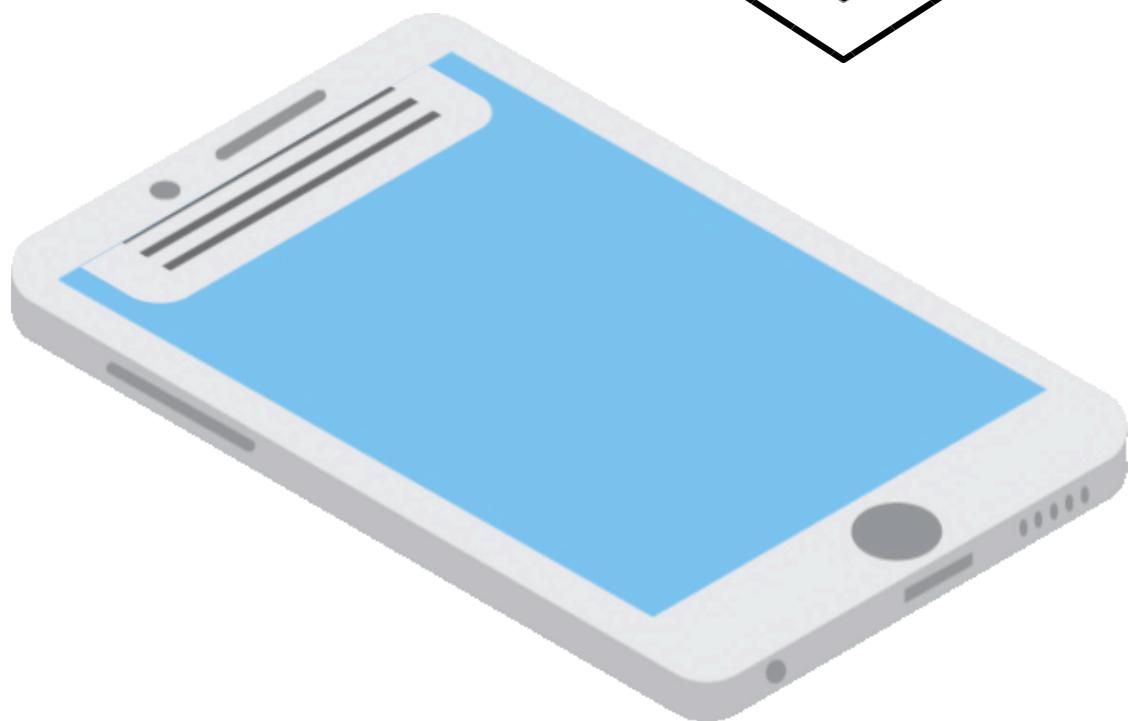
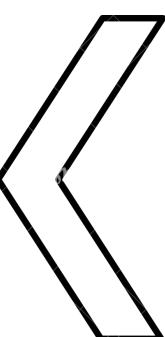
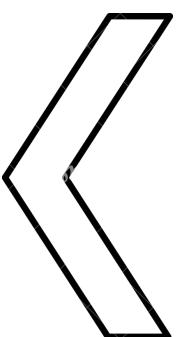
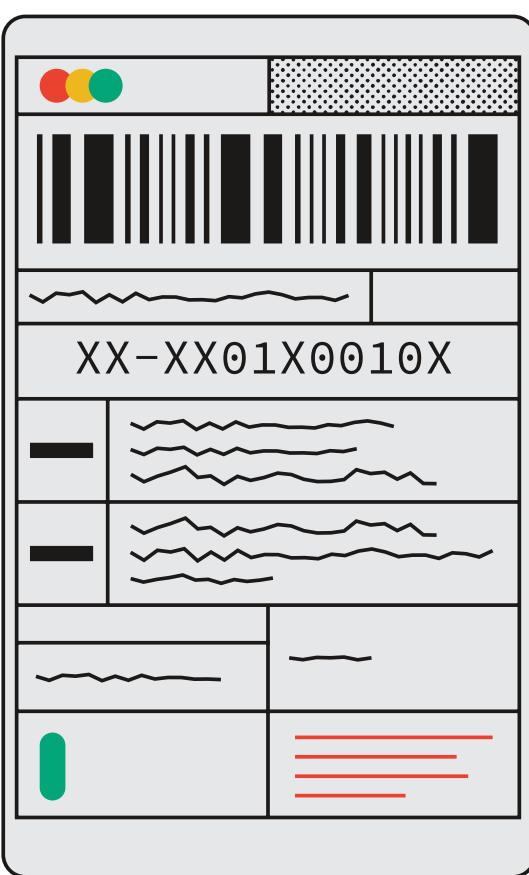
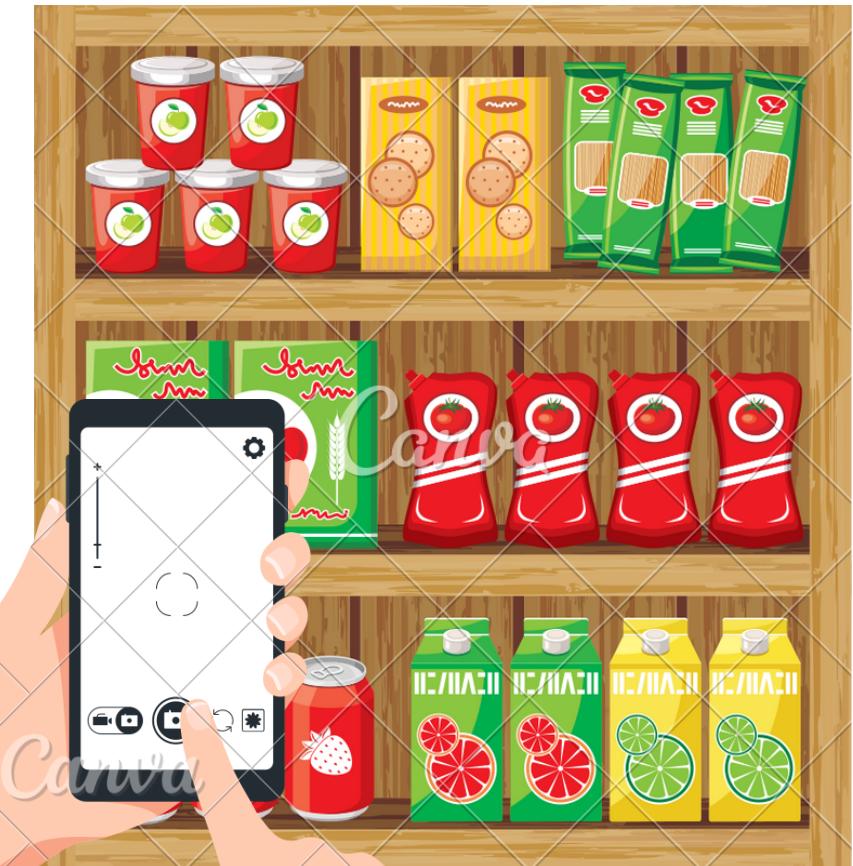
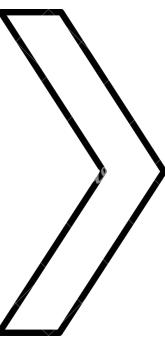
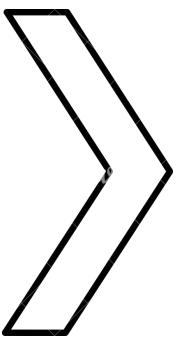
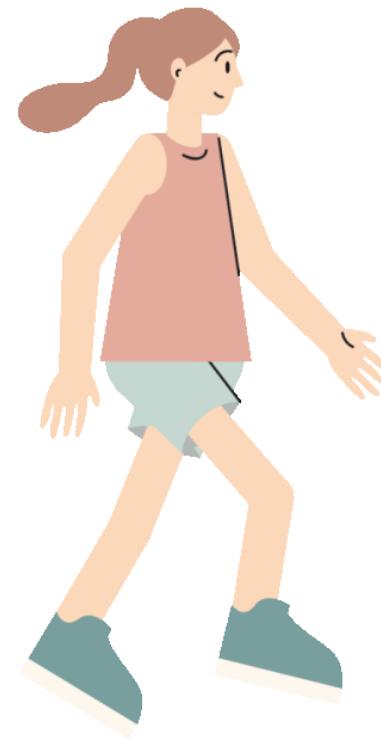


Streaming video and
check out

Dataset

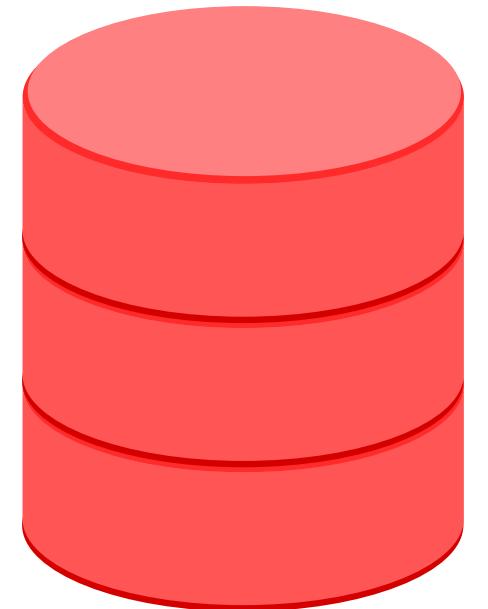


Product dataset from 422 shop





WEBSITE
DASHBOARD



CLOUD SERVER
DATABASE



PRODUCTS
CLASSIFICATION
SERVER

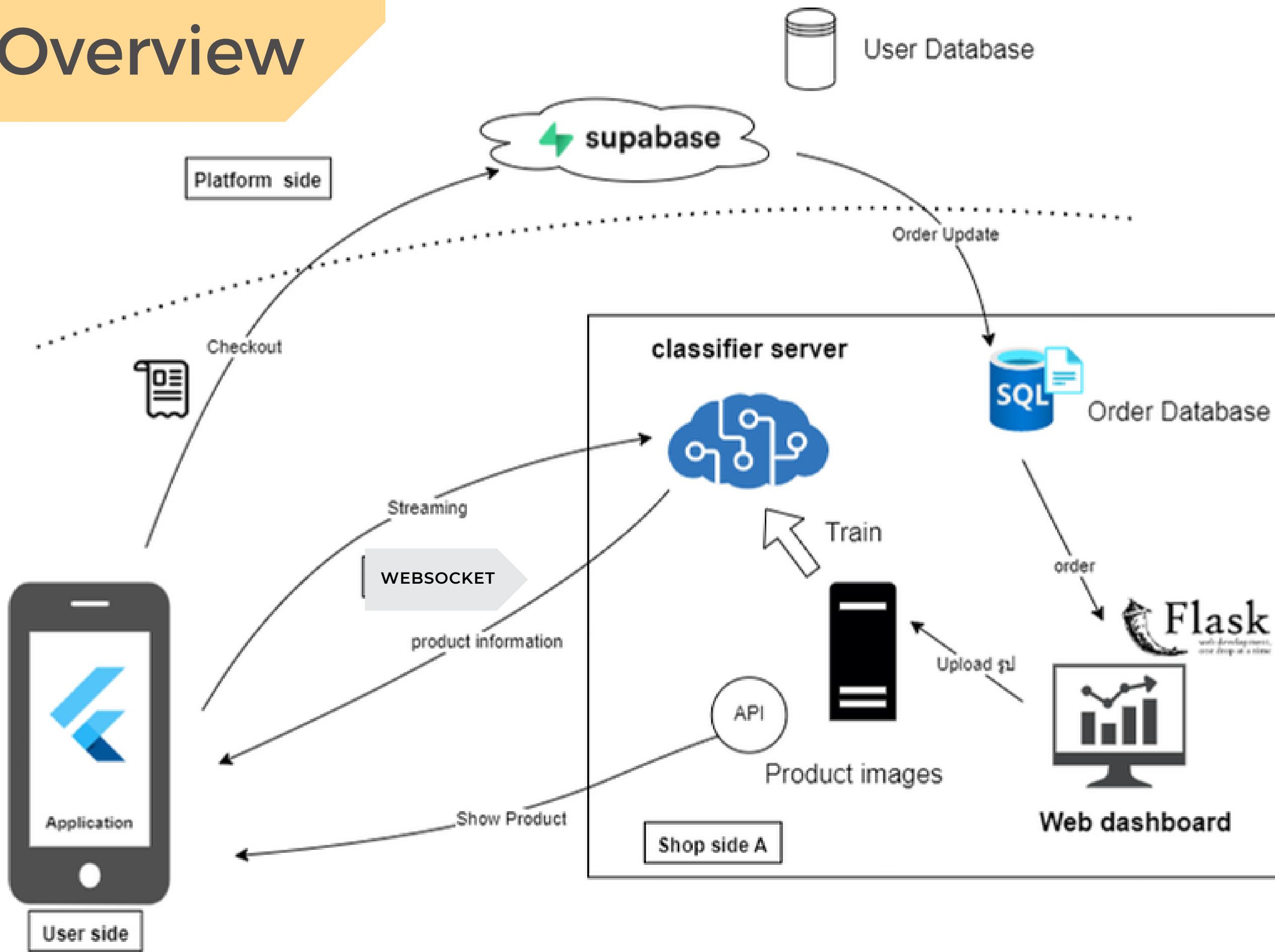


COMPUTATIONAL
INTELLIGENCE



MOBILE
APPLICATION

System Overview



Tools&Technology



python



TensorFlow



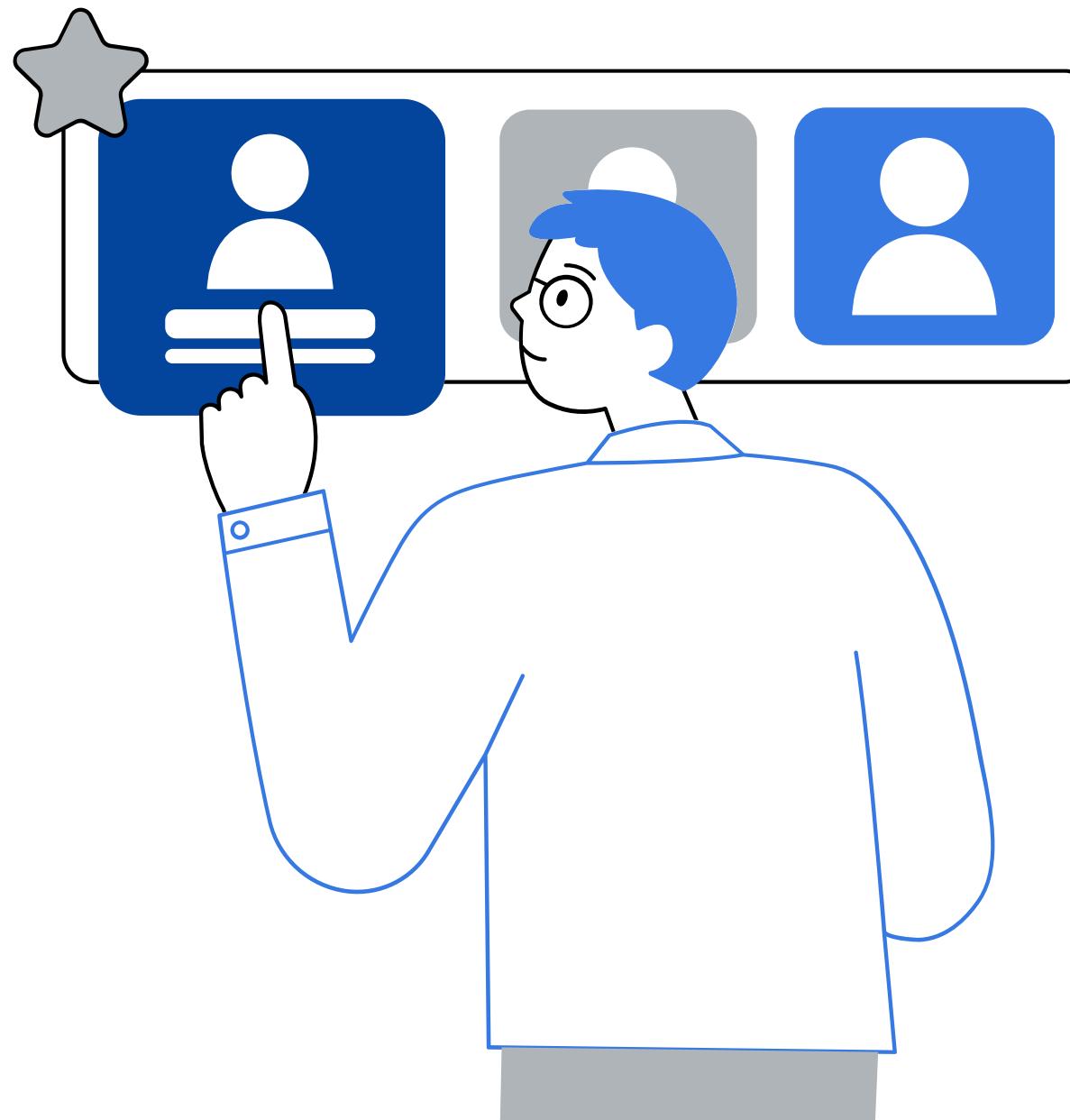
Flutter



Flask

NEXT.JS

Roles and Responsibilities



Database

User& order database
Check out api

Suparida

Web dashboard

Stock management

Mobile application

Streaming

Classification model

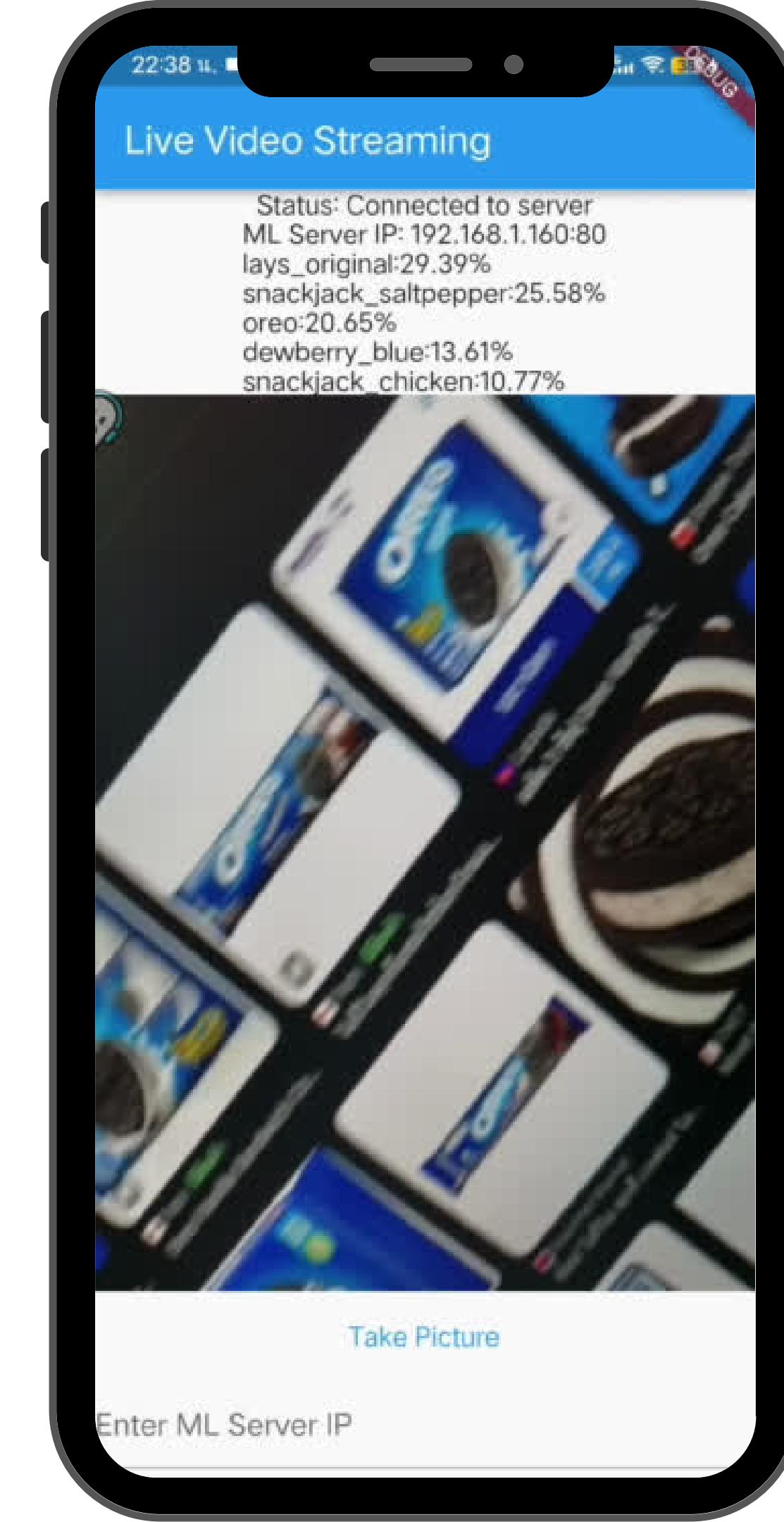
Training & Validating
Classification Model

Pongsakorn

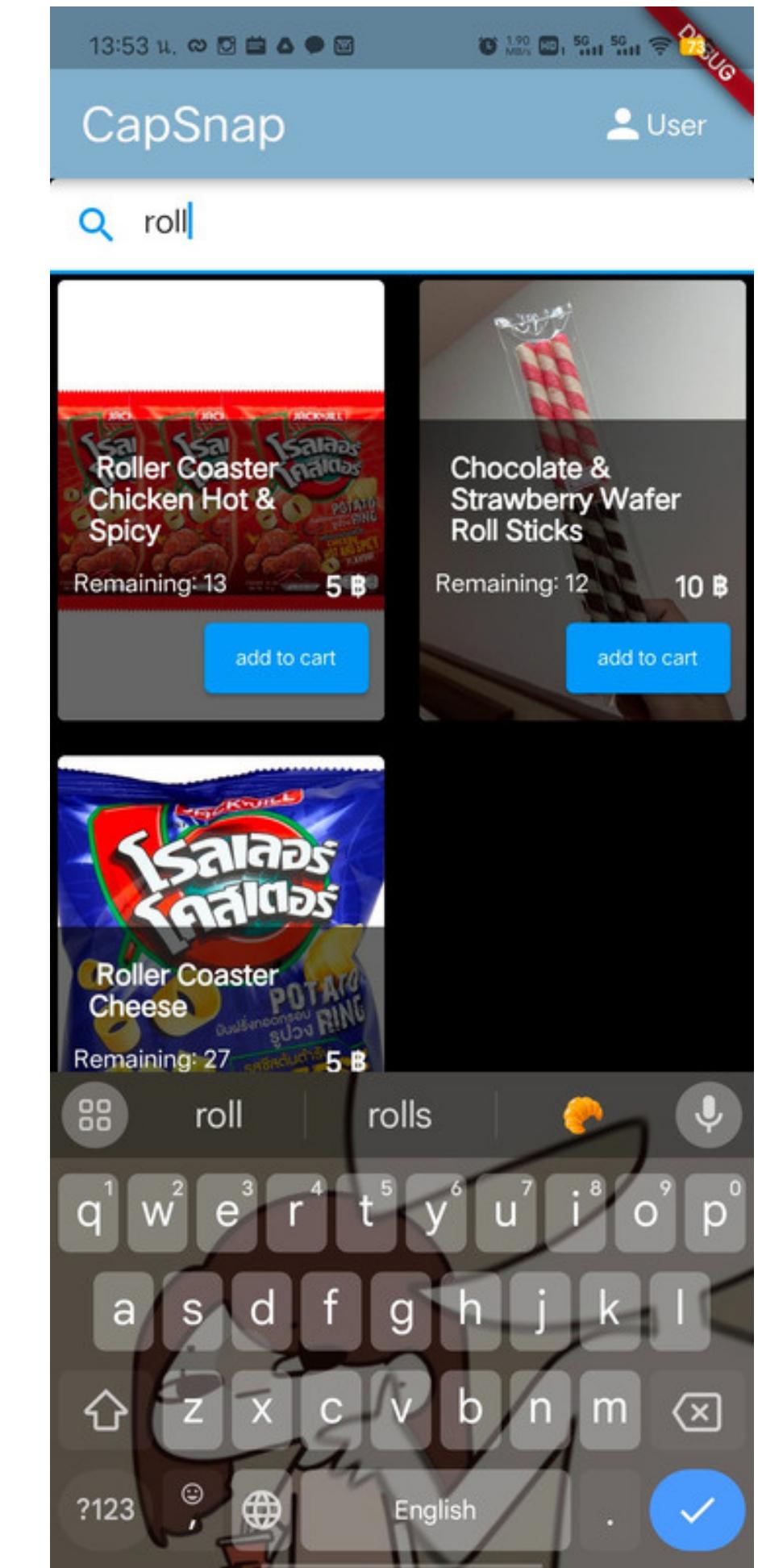
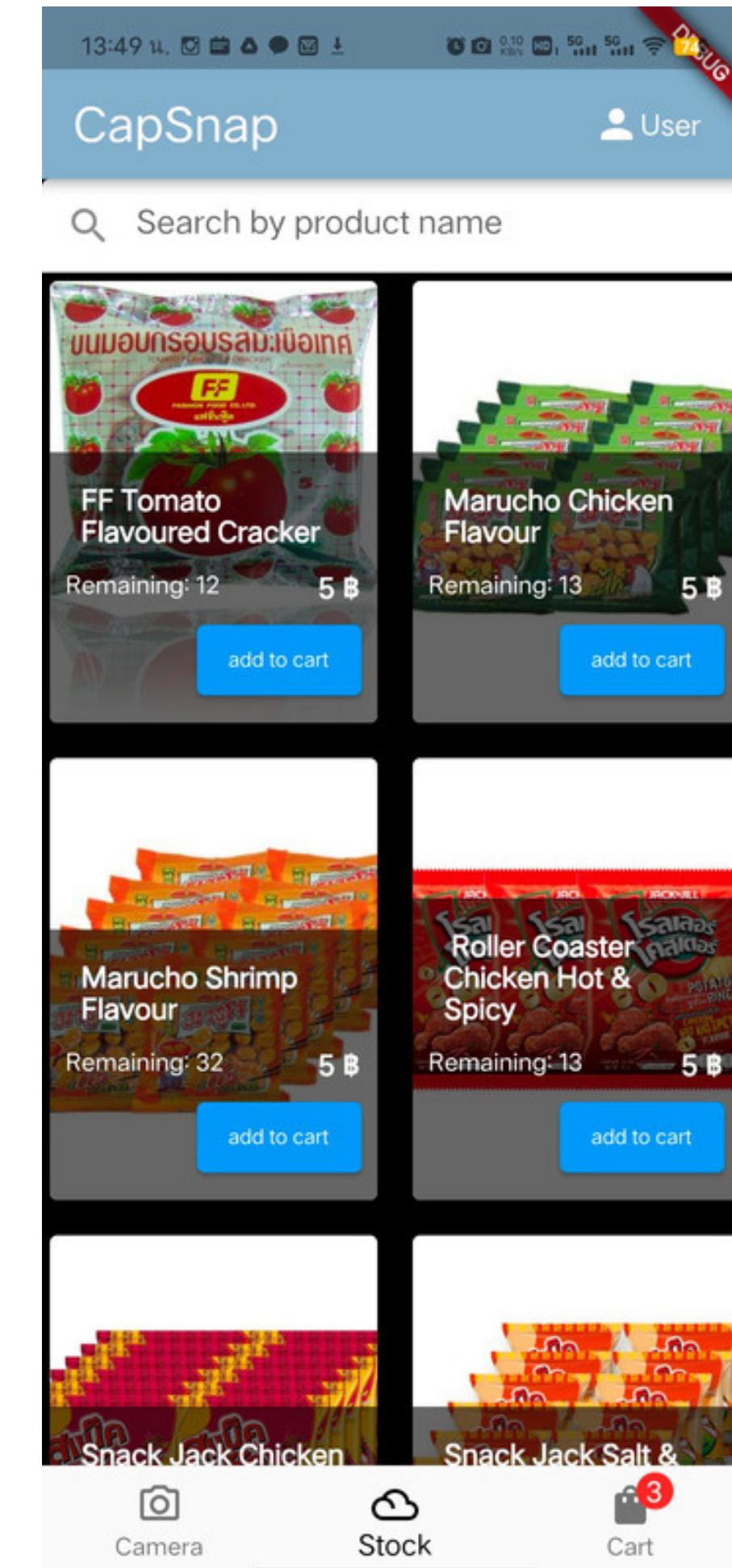
Mobile app

real-time for classification
[blind test]

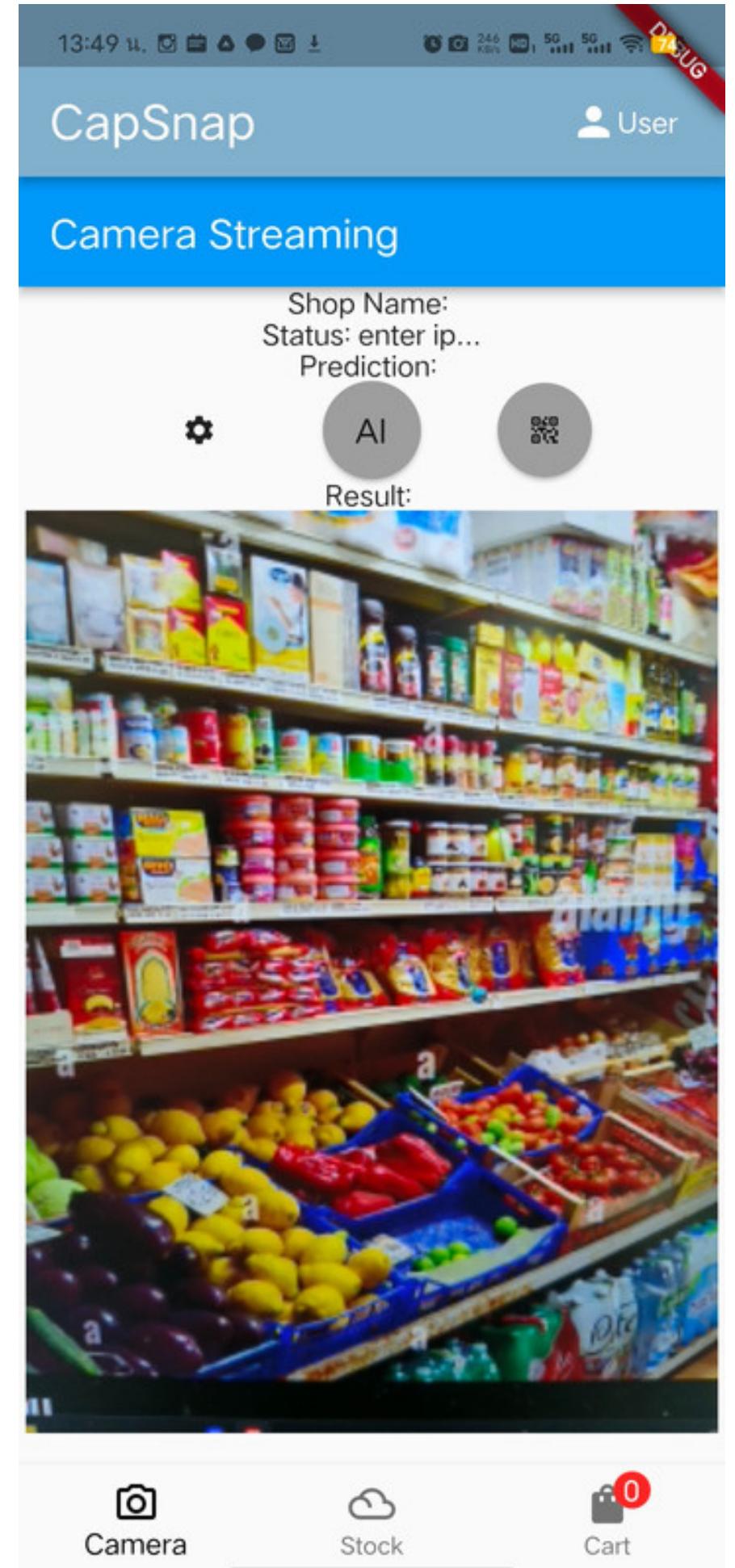
- Model on server



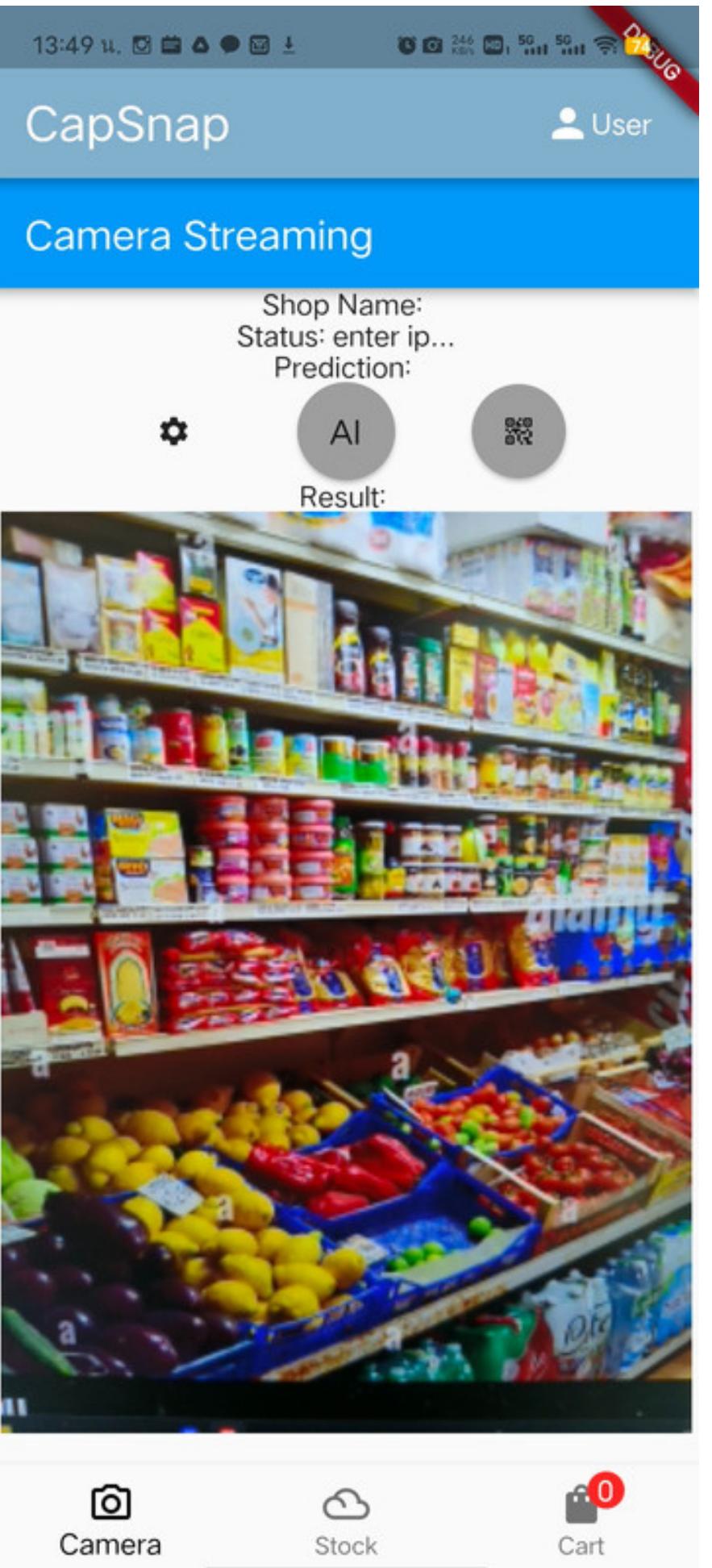
Shop stock



Add products - product classification



Add products - Barcode



Shopping Cart & check out

The screenshot shows the CapSnap mobile application interface. At the top, there is a blue header bar with the text "CapSnap" and a user icon labeled "User". On the right side of the header, there is a red banner with the word "DEBUG". Below the header is a blue navigation bar with the text "Cart" and a close button "X". The main content area displays three items in the cart:

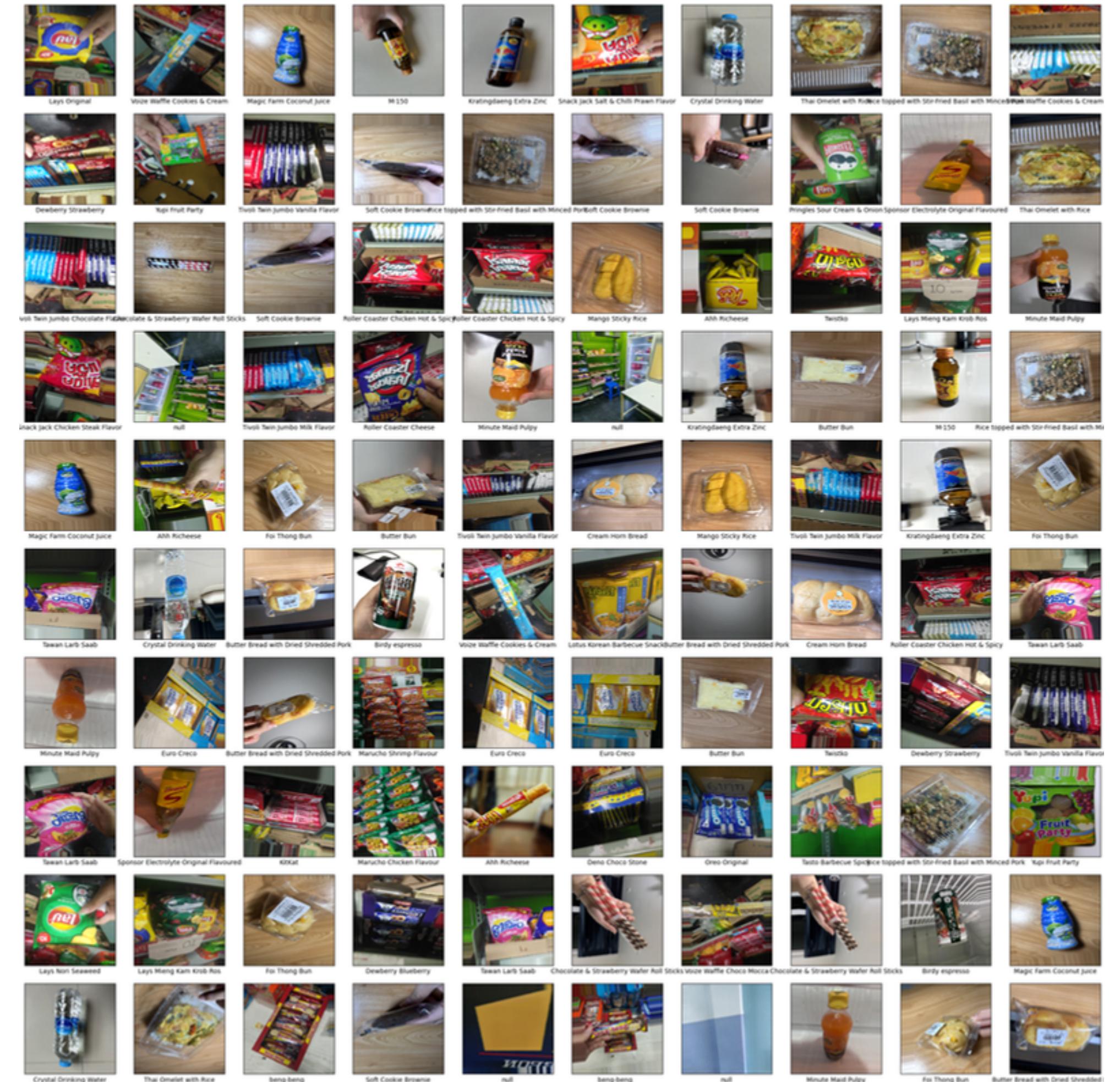
Image	Product	Quantity	Total
	Product: FF Tomato Flavoured Cracker,	Quantity: 1	26
	Product: Marucho Chicken Flavour,	Quantity: 1	40
	Product: Roller Coaster Chicken Hot & Spicy,	Quantity: 2	47

At the bottom of the screen, there is a blue circular button with a white shopping cart icon. The bottom navigation bar has three items: "Camera" (with a camera icon), "Stock" (with a cloud icon), and "Cart" (with a shopping bag icon and a red notification badge showing the number 3).

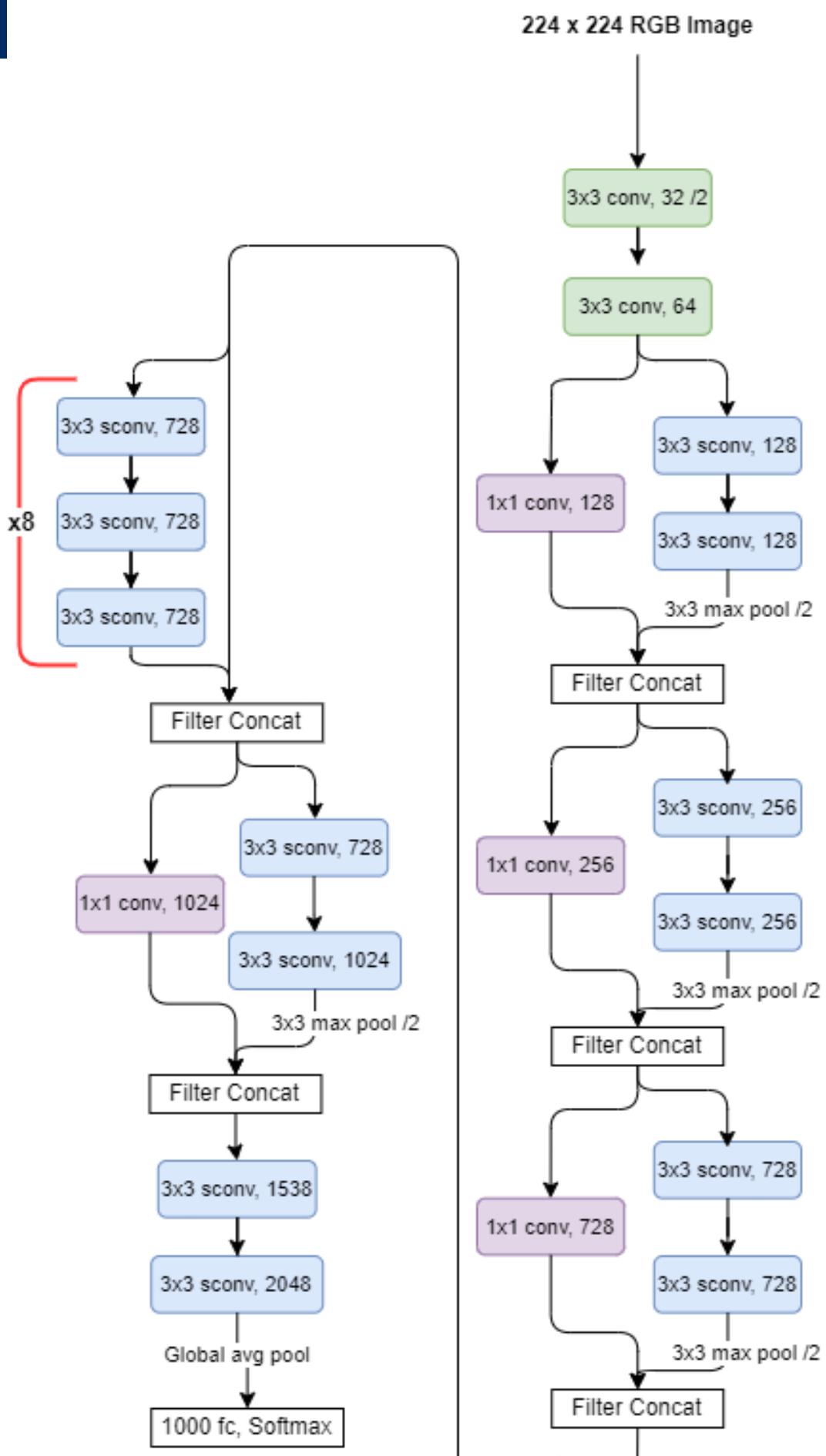
Mobile APP & CI

Classification server

52 Class

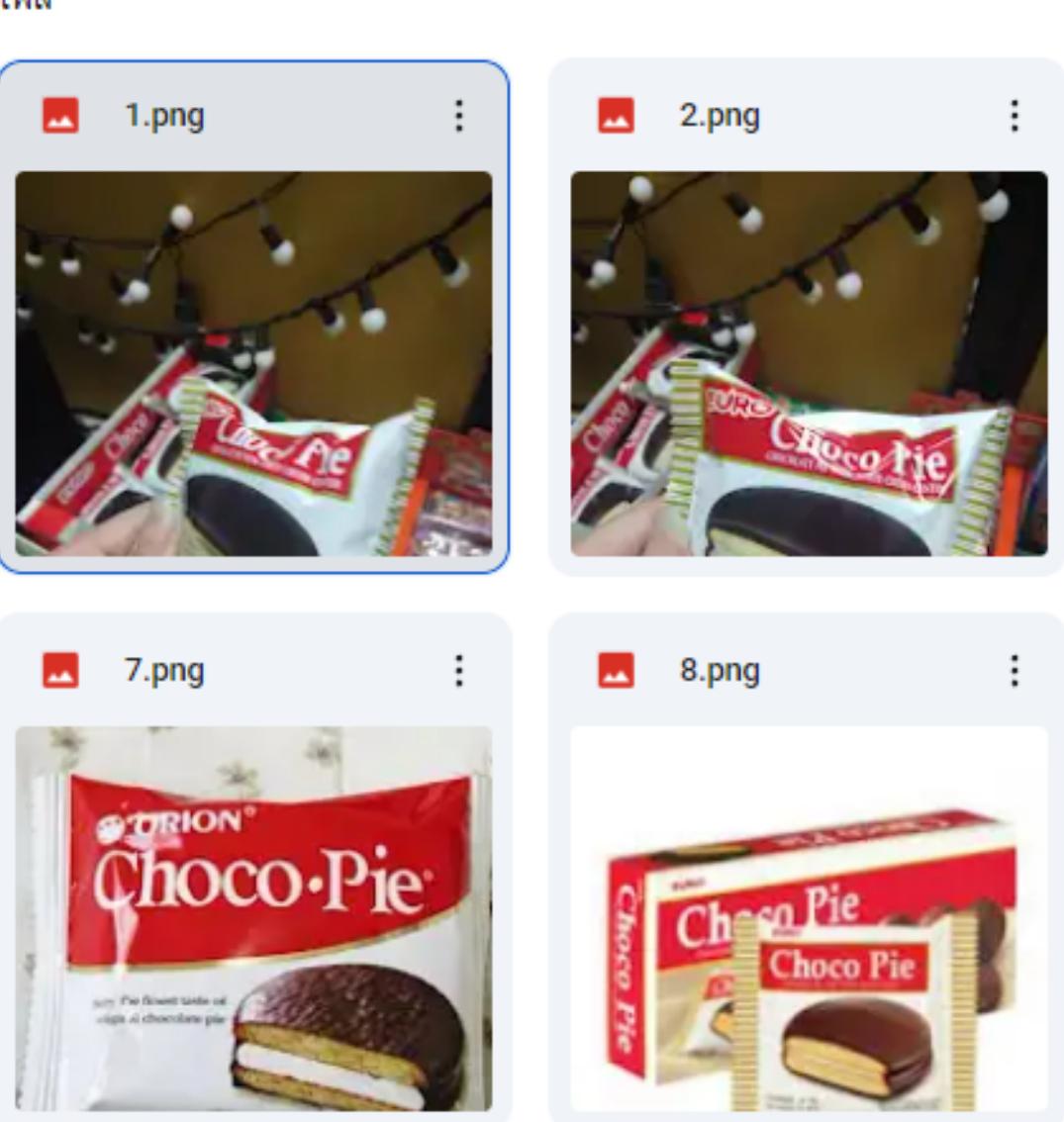


Classification model



Layer (type)	Output Shape	Param #
input_2 (InputLayer)	[(None, 224, 224, 3)]	0
xception (Functional)	(None, 7, 7, 2048)	20861480
flatten (Flatten)	(None, 100352)	0
dense (Dense)	(None, 128)	12845184
dense_1 (Dense)	(None, 64)	8256
dropout (Dropout)	(None, 64)	0
dense_2 (Dense)	(None, 32)	2080
dropout_1 (Dropout)	(None, 32)	0
dropout_2 (Dropout)	(None, 32)	0
dense_3 (Dense)	(None, 64)	2112
dropout_3 (Dropout)	(None, 64)	0
dense_4 (Dense)	(None, 52)	3380
<hr/>		
Total params: 33722492 (128.64 MB)		
Trainable params: 12861012 (49.06 MB)		
Non-trainable params: 20861480 (79.58 MB)		

- voice_mocha
- yupi_fruit
- voice_choco
- voice_waffle
- twistko
- tilli_red
- tasto_spicy
- snackjack_shell
- tilli_indigo
- snackjack_chicken
- tasto_honey
- tilli_blue

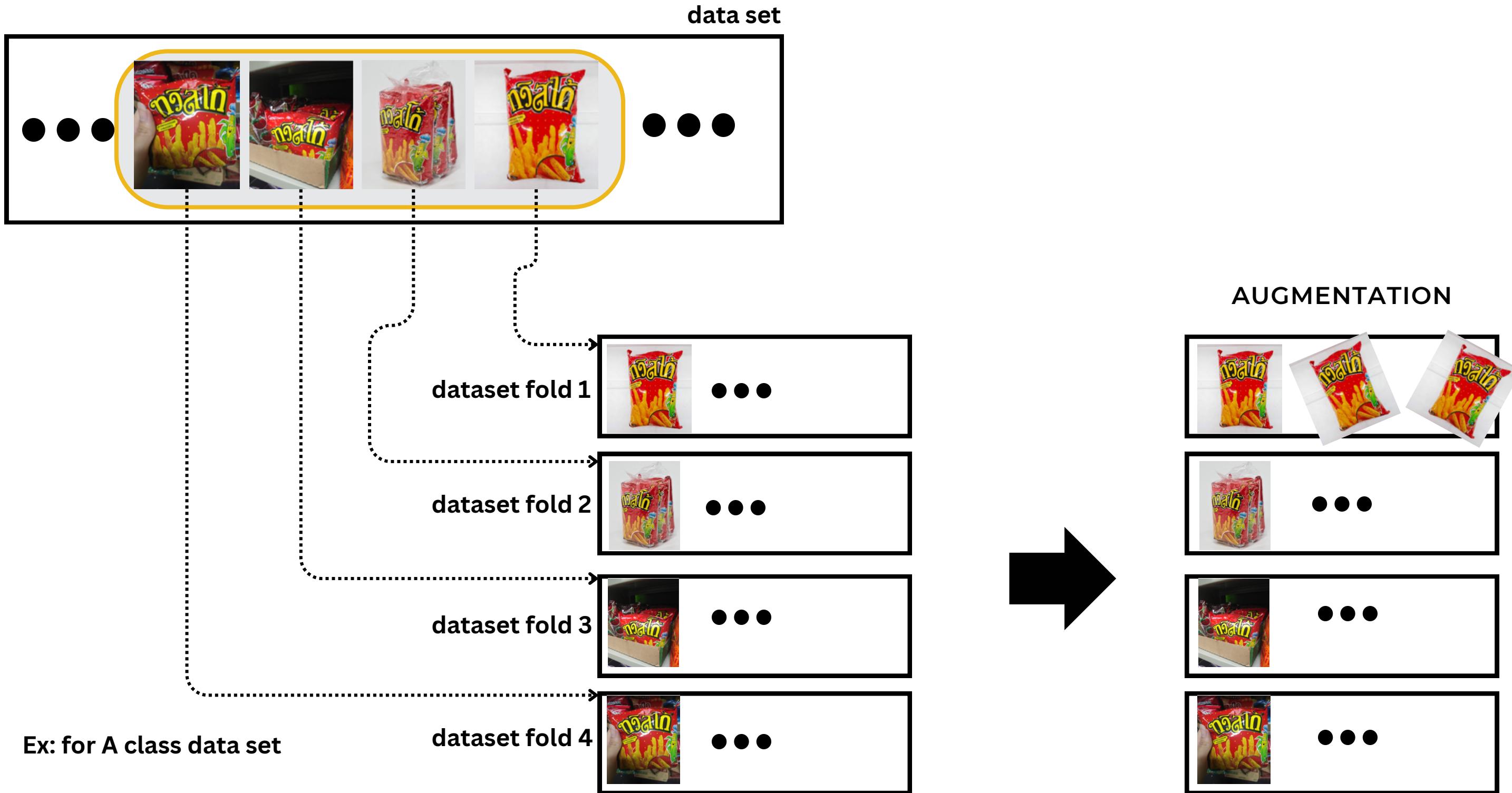


K-fold

4-fold validation ($k=4$)



Data set



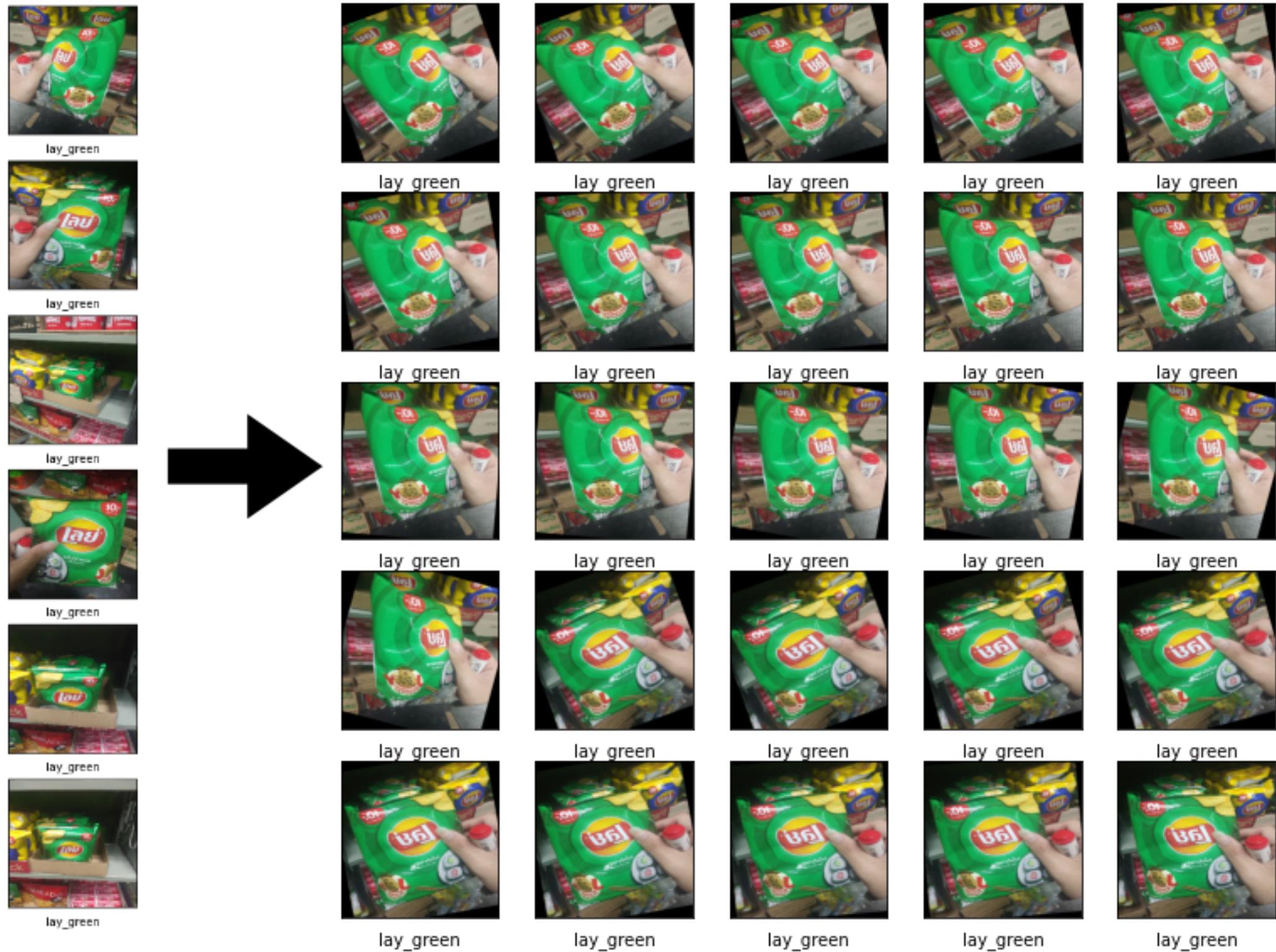
Data Set



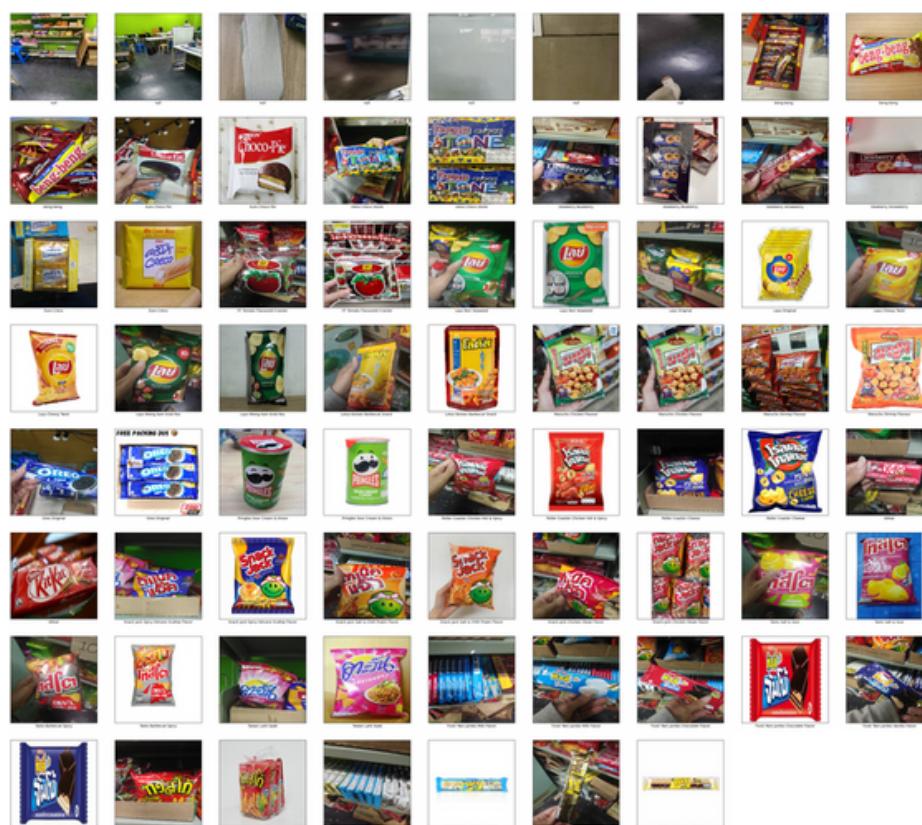
AUGMENTATION



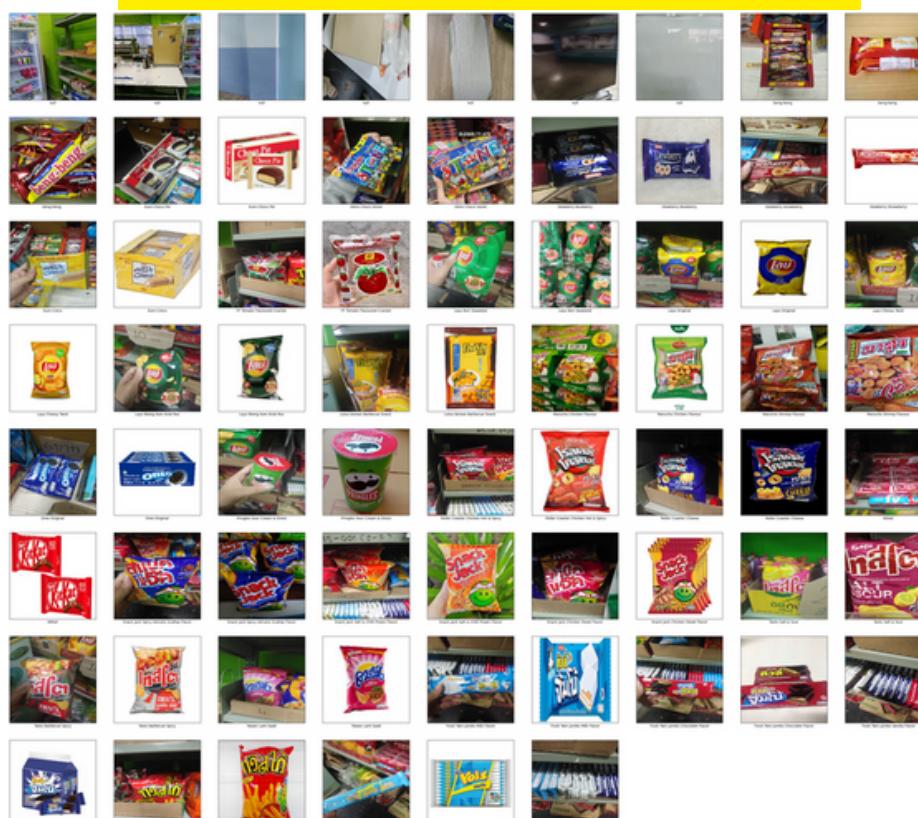
Augmentation



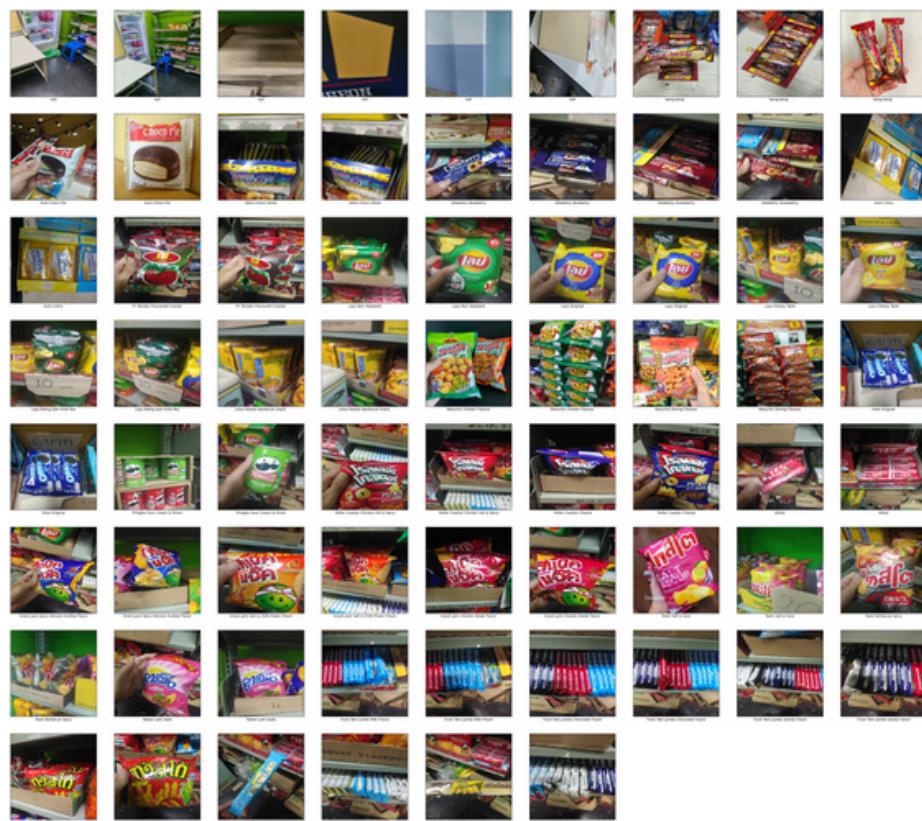
Dataset fold 1



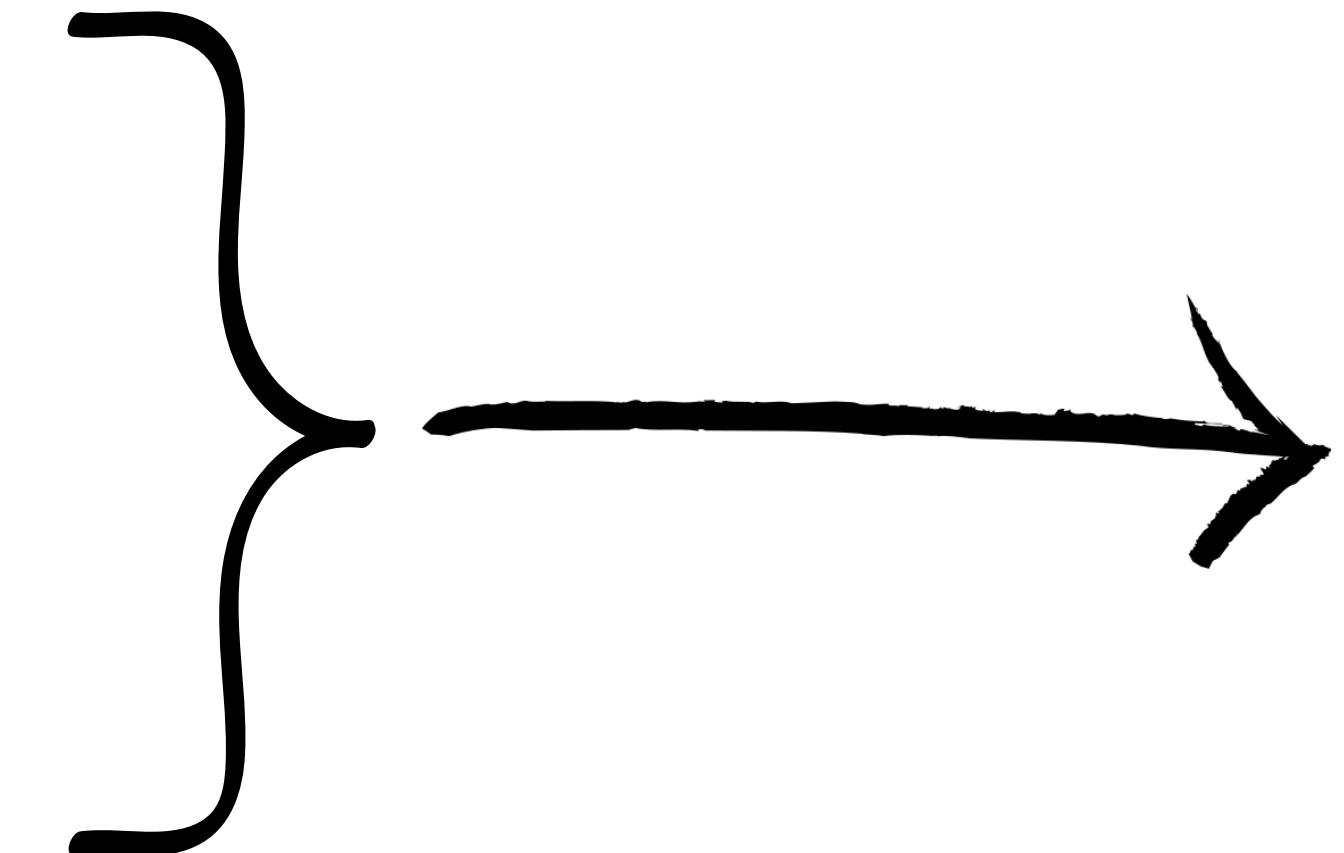
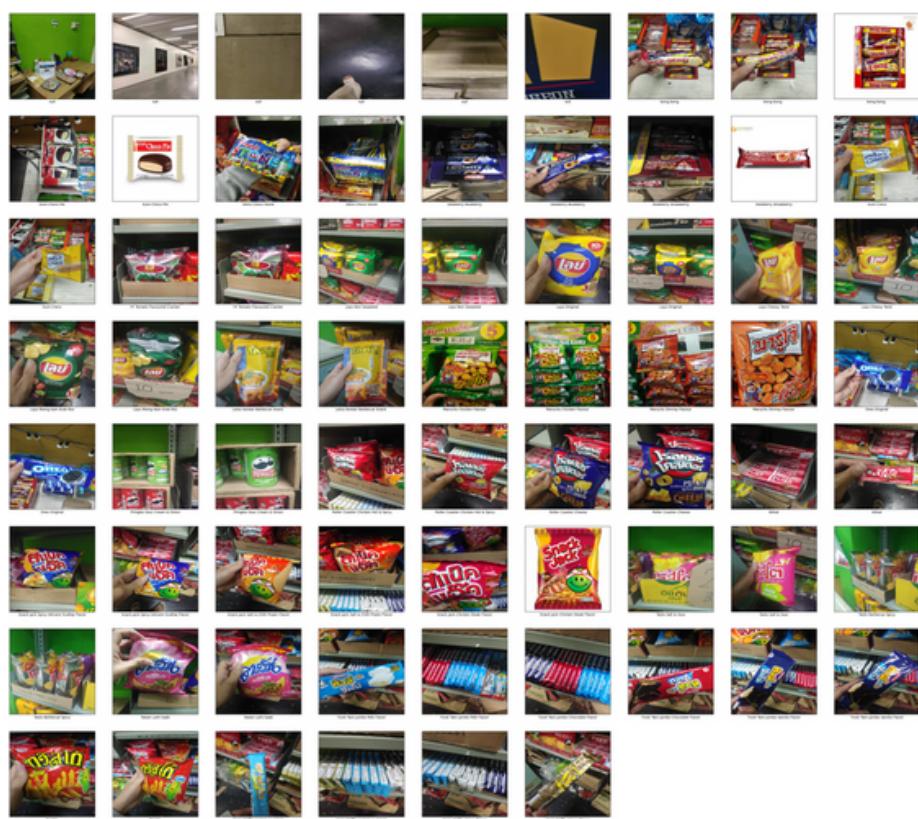
Dataset fold 2



Dataset fold 3



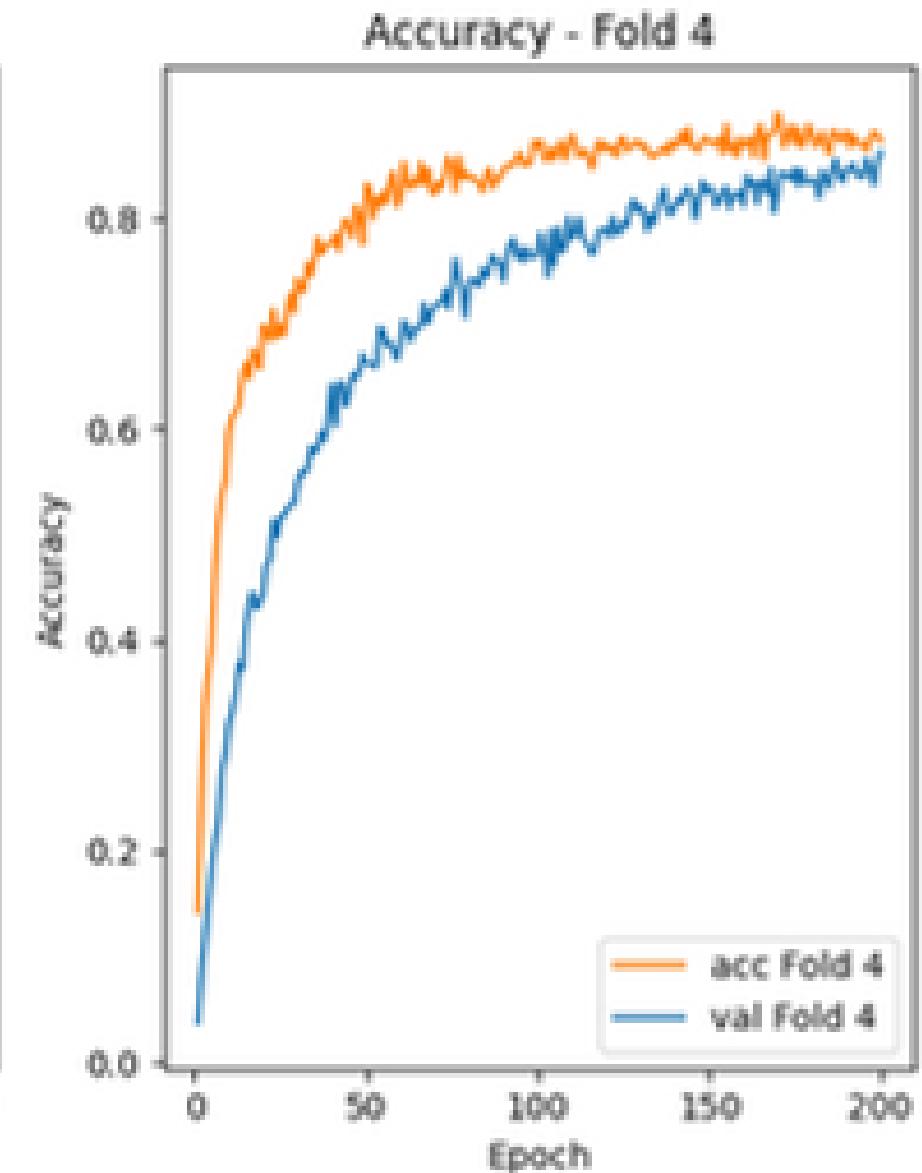
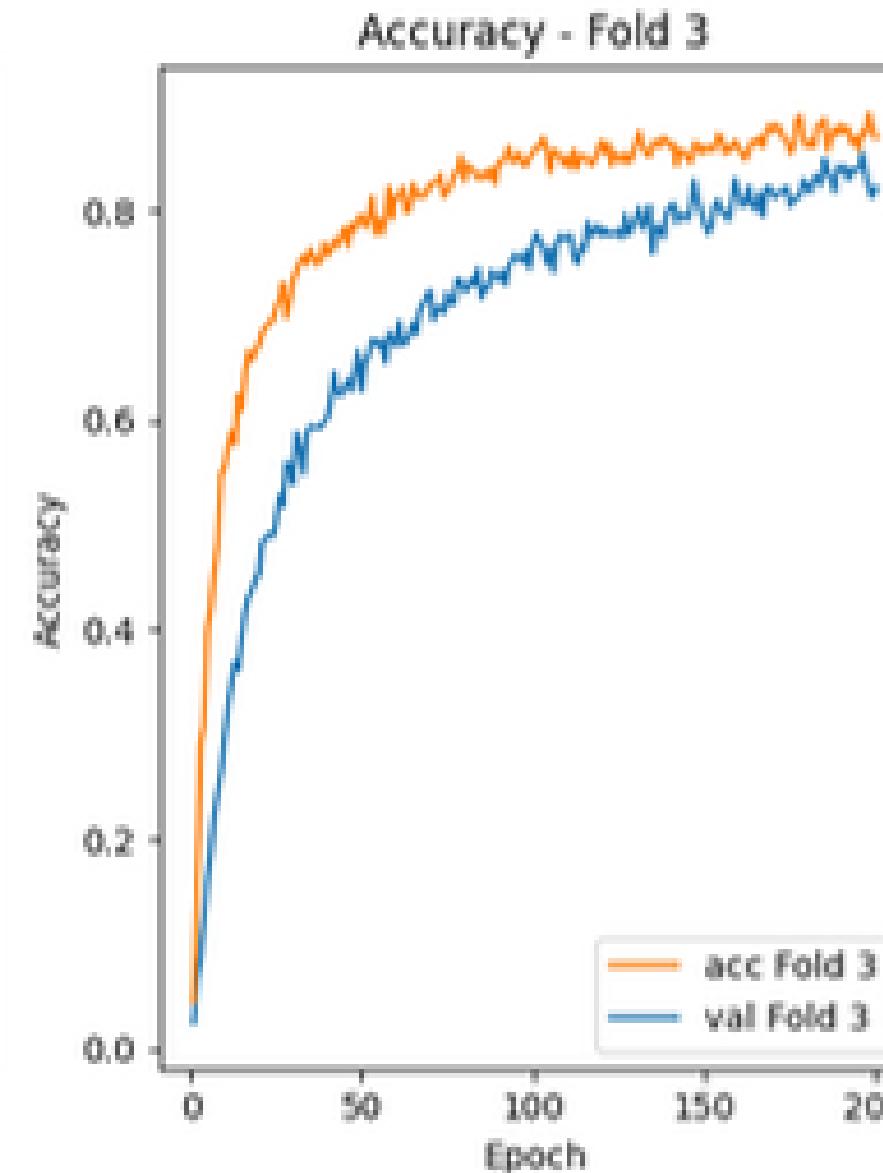
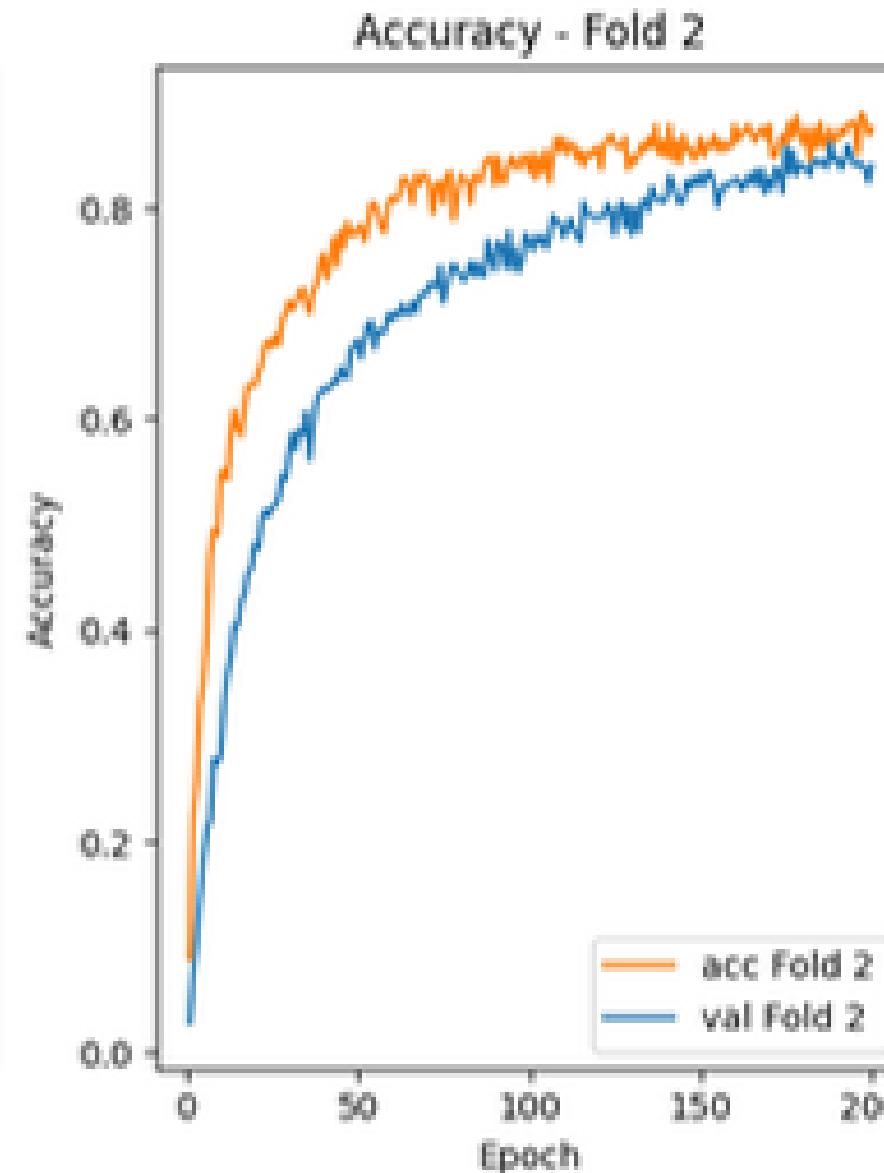
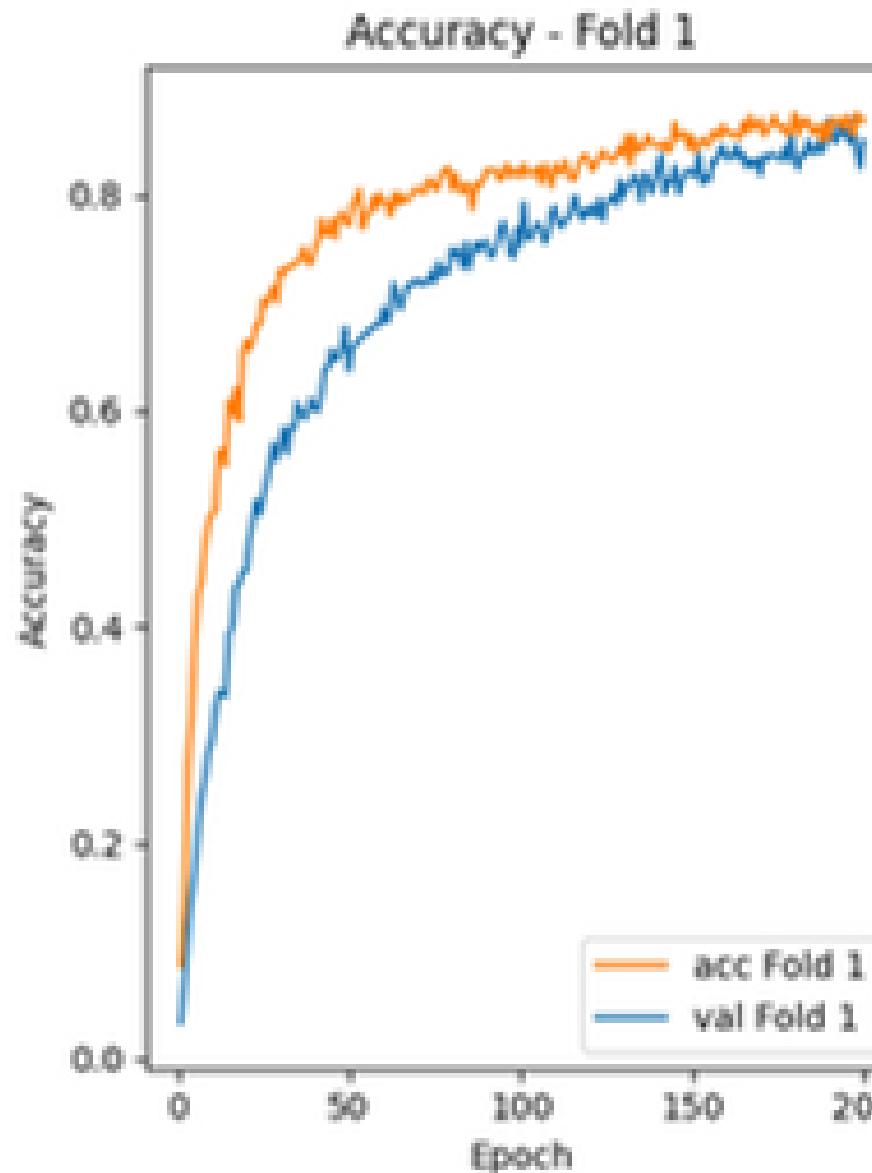
Dataset fold 4



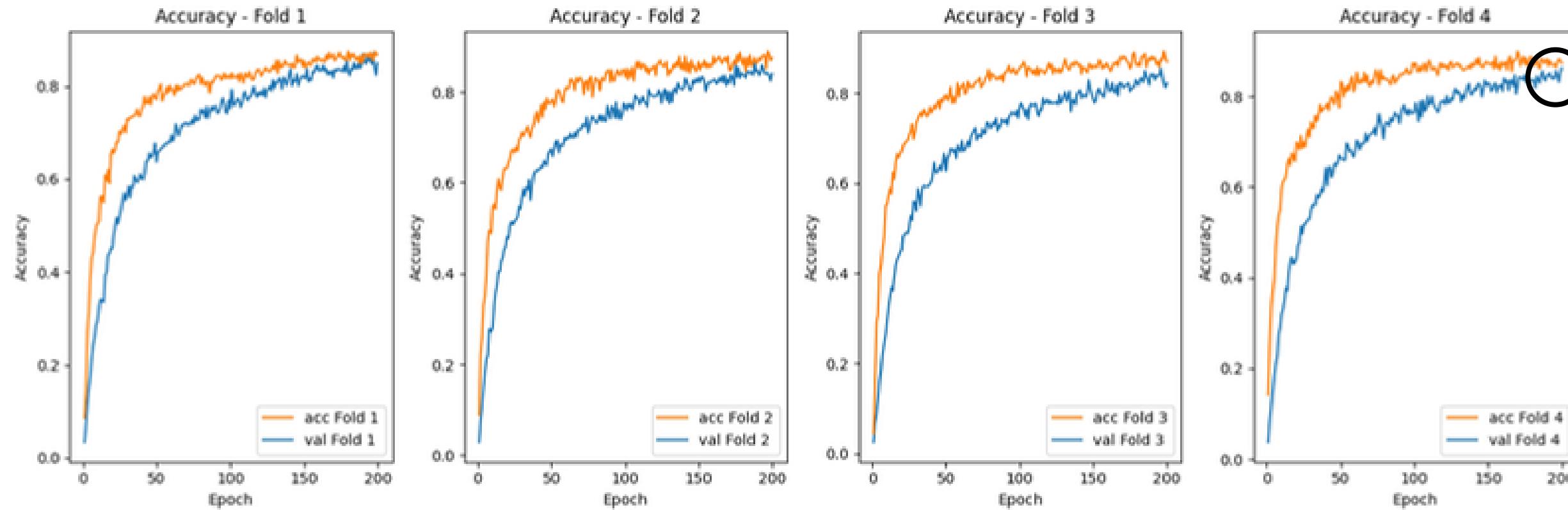
Dataset fold 2



Accuracy Training & Validation



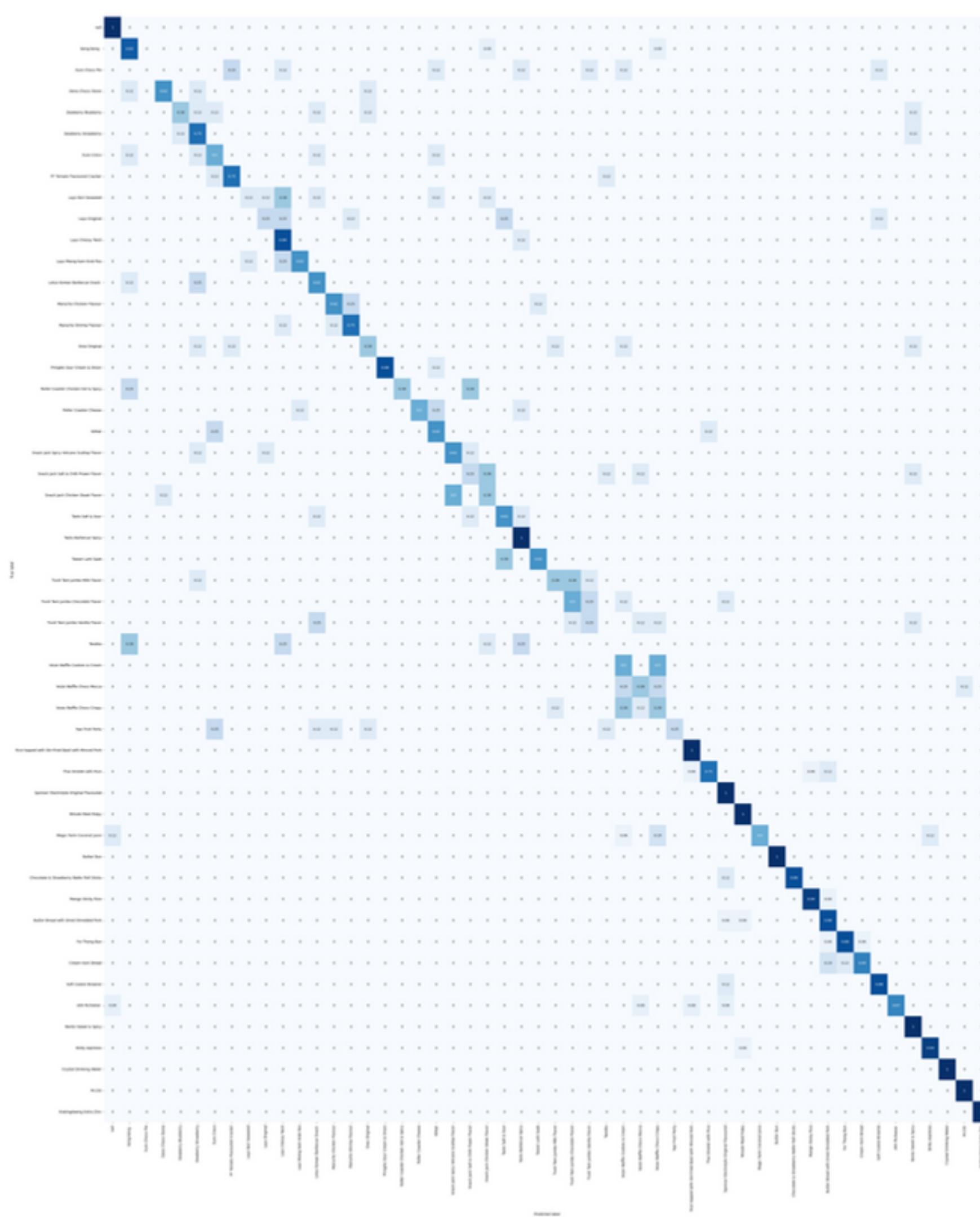
Best Validation Score - 4 model



Evaluate (Blind Test)

CROSS_ENTROPY , ACCURACY
FOLD 4 [1.175, 0.72]

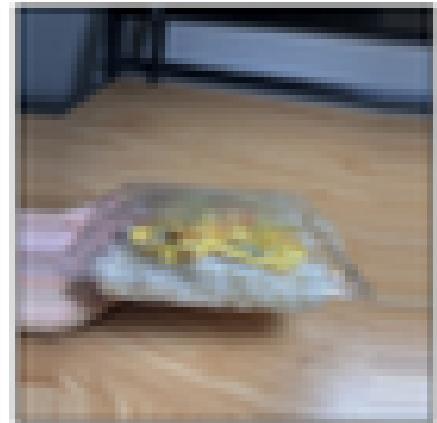
Confusion matrix



52 CLASS



Strawberry Blueberry



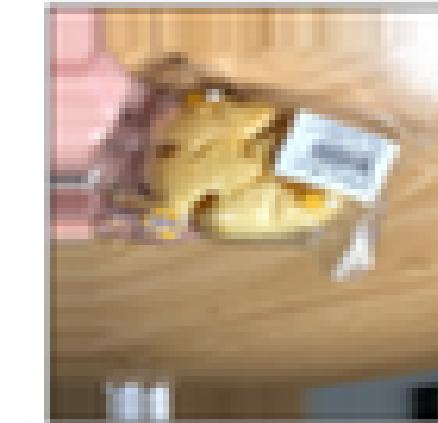
Thai Omelet with Rice



Minute Hand Puff



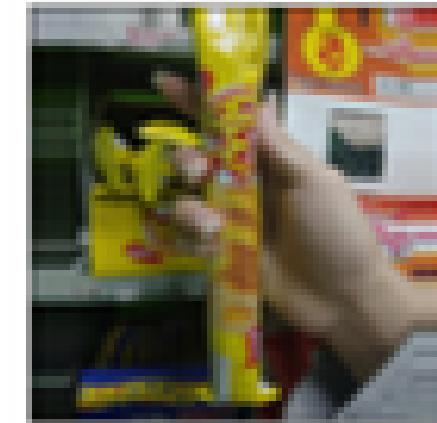
null



Pai Thong Bun



Butter Bun



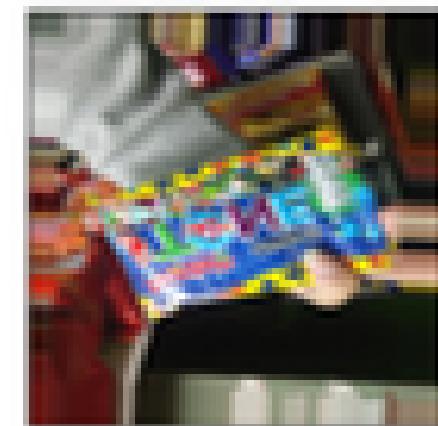
Ahi Biscuits



Minute Hand Puff



Magic Farm-Cococonut juice



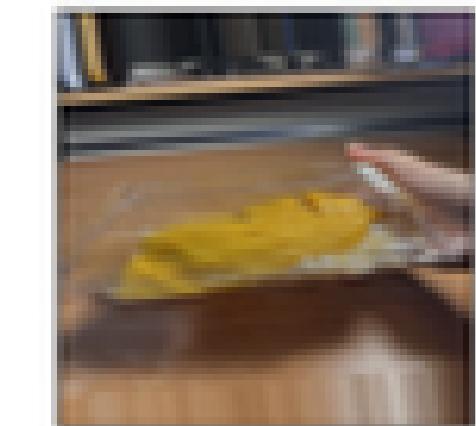
Dona Choco Sticks



Chocolate & Strawberry Water Roll Sticks



Biscuits



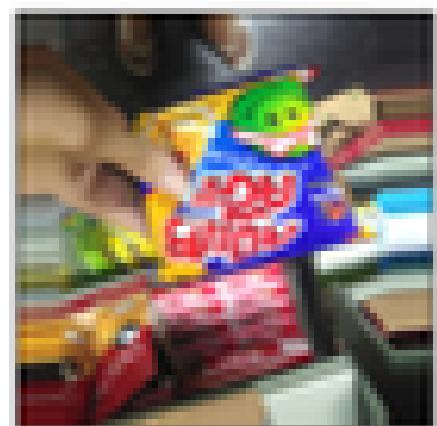
Mango Sticky Rice



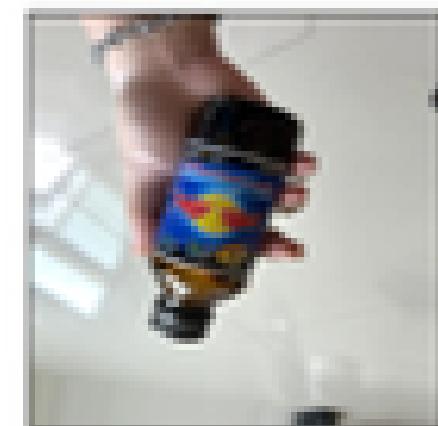
Cawan Larts Saus



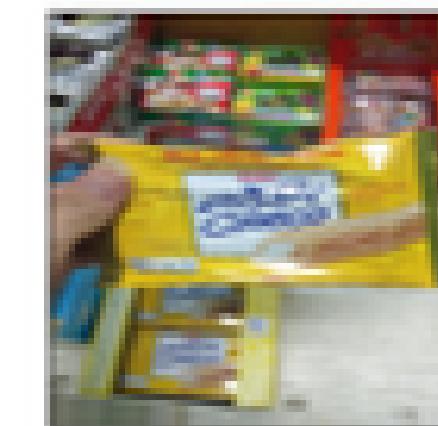
Red with Fried Basil with Minced Pork Spicy Volcano Scallion Flavor



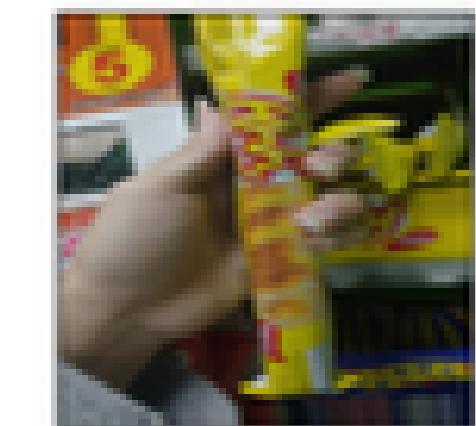
Kratingdaeng Extra Zinc



Roller Coaster Cheese



Bam Gres



Ahi Biscuits



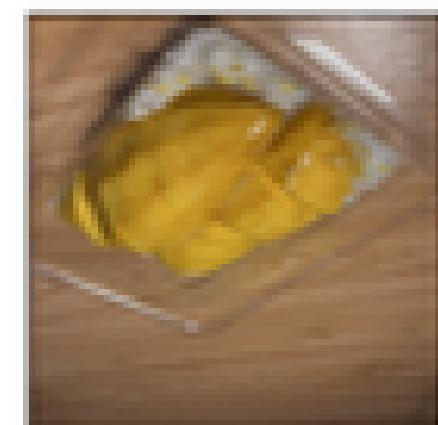
Cawan Larts Saus



Dona Choco Sticks



Butter Bread with Dried Shredded Pork



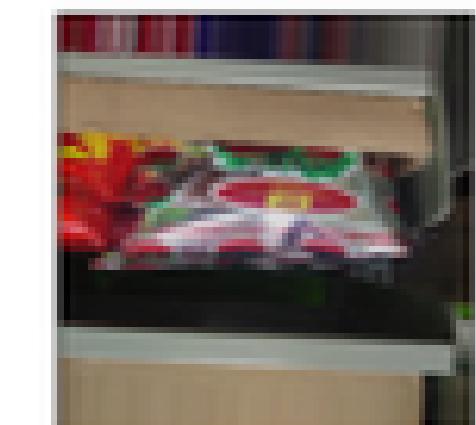
Mango Sticky Rice



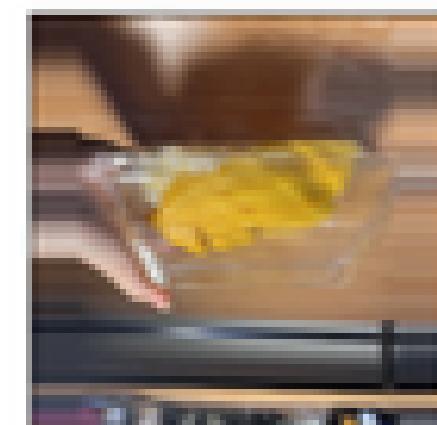
Magic Farm-Cococonut juice



Cawan Larts Saus



PI Remote Flavoured Crackers

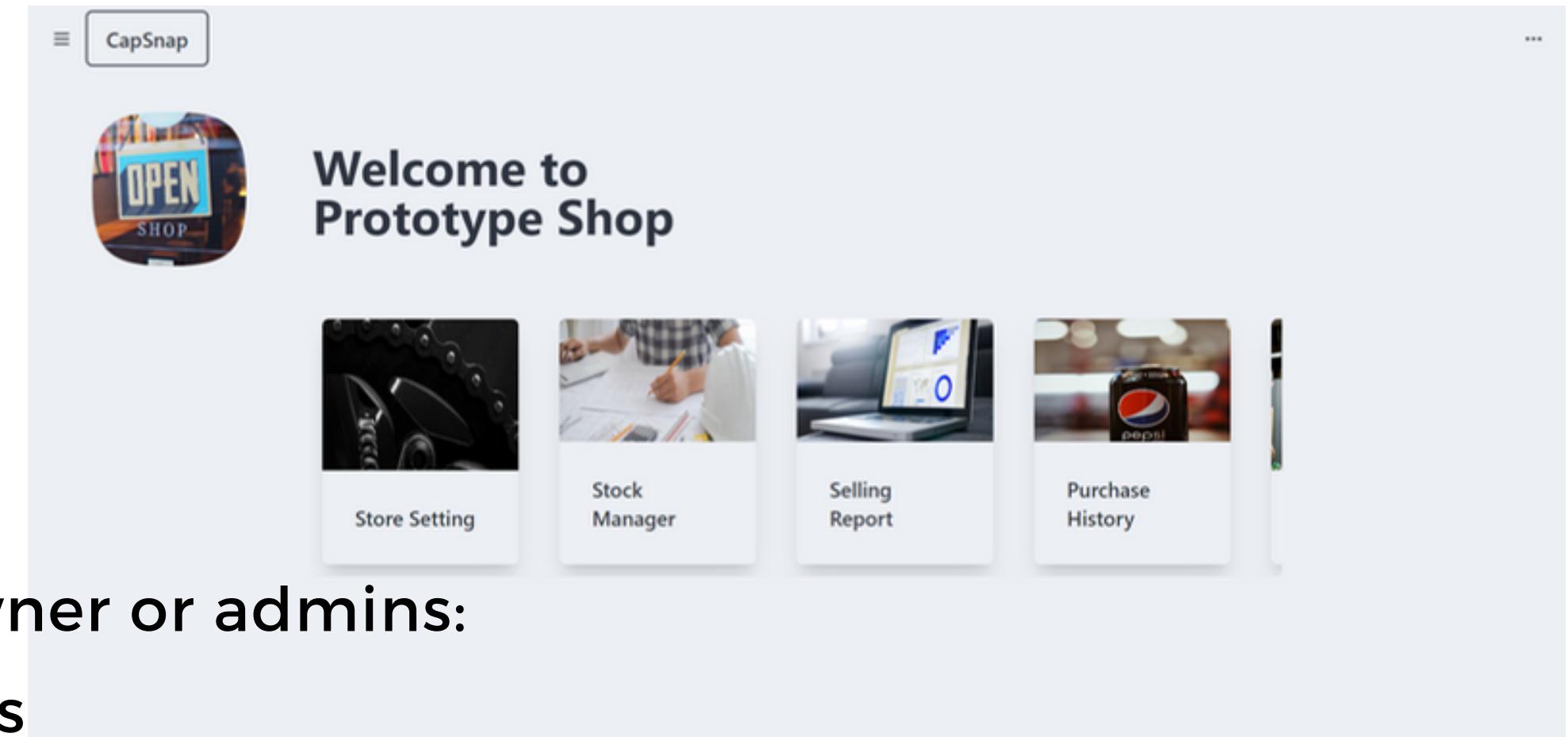


Mango Sticky Rice - Cendol

Web Dashboard

Provided these features to store owner or admins:

- see product and category details
- update stock for each products
- see customer lists
- see customers checkout history
- see real-time sales reports



supabase DATABASE + POSTGRES

Table Editor

FinalProject Free / Demo / Enable branching

Feedback Help

schema: public

Insert

role: postgres

Realtime off API Docs Data Definition

WARNING: You are allowing anonymous access to your table. [Enable Row Level Security](#)

Dismiss

	product_id	product_name	description	price	stock	insta	image_path	created_at
	17	Ovaltine	Wall's ovaltine ice cream 45 g.	10	1		https://backend.tops.co.th/media/catalog	2024-01-17 11:23:10.575
	4	Lays_ori_s	Lays original flavor 13 g.	10	6		https://img.lazada.com/g/p/65dca39fhd8	2024-01-16 10:24:08.93
	6	sanghi_choc_s	Sanghi small chocolate flavor 12.8 g.	2	3		https://www.unitedfoods.co.th/images/p	2024-01-16 10:24:08.93
	3	nescafe_green	Nescafe green (espresso roast) 180 ml.	15	1		https://image.bestreview.asia/wp-content	2024-01-16 10:24:08.93
	2	Nestle_purelife_s	Nestle drinking water 600 mL	10	1		https://static.siamtv.com/media/catalog/	2024-01-16 10:24:08.93
	5	rollercoaster_s	Roller Coaster mini cheese flavor 14 g.	6	1		https://down-th.img.usercontent.com/f	2024-01-16 10:24:08.93
	7	haribo_m	Haribo goldbears mixfruits 25 g.	6	1		https://media.alonline.7eleven.co.th/pdm	2024-01-16 10:24:08.93
	1	pepsi_s	Pepsi 345 mL	17	11		https://obs.line-sodn.net/vect/vect/image	2024-01-16 10:24:08.93
	8	mymint_peice	Mymint 1 peice	1	1		https://backend.tops.co.th/media/catalog	2024-01-16 10:24:08.93
	9	sugus_green	Sugus apple flavor 30 g.	1	1		https://www.grocerlock.com/wp-content	2024-01-16 10:24:08.93
	10	shumai	Shumai 10 pieces	30	1		https://upic.me/v/j/img_106.jpg	2024-01-16 10:24:08.93
	11	krapao_box	Chicken krapao with fried egg and rice	35	1		https://obs.line-sodn.net/vect/vect/image	2024-01-16 10:24:08.93
	12	kaoped_box	Chicken kaoped	35	1		https://pbs.twimg.com/media/ELB97pxbV	2024-01-16 10:24:08.93
	13	cookies	Grains cookies 10 pieces	49	1		https://down-th.img.usercontent.com/f	2024-01-16 10:24:08.93
	14	crispy_roti	Crispy roti 6 pieces	30	1		https://down-th.img.usercontent.com/f	2024-01-16 10:24:08.93
	15	butter_cake	Butter cake 1 peice	10	1		https://img.ws.mms.shopee.co.th/5842ac	2024-01-16 10:24:08.93



supabase DATABASE + POSTGRES

Database Functions

schema public

Search for a function

Create a new function

Name	Arguments	Return type	Security
get_checkout_info	-	TABLE(first_name character varying, last_name character varying, method character varying, total_amount double precision, checkout_at timestamp with time zone, product_name character varying[], price real[], unit integer[], total_product_amount double precision[])	Invoker
get_sales_daily_report	selected_date character varying	TABLE(product_name character varying, sold_units integer[], total_amounts double precision[], checkout_hours numeric[])	Invoker
get_sales_monthly_report	selected_date character varying	TABLE(product_name character varying, sold_units integer[], total_amounts double precision[], checkout_days numeric[])	Invoker
update_stock	p_id bigint, updated_amount integer, new_name character varying, new_desc text, new_price double precision, by character varying, new_img text	void	Invoker

```
1 DROP FUNCTION IF EXISTS get_sales_monthly_report(selected_date VARCHAR);
2
3 CREATE OR REPLACE FUNCTION get_sales_monthly_report(selected_date VARCHAR)
4 RETURNS TABLE (
5   product_name VARCHAR,
6   sold_units INT[],
7   total_amounts FLOAT[],
8   checkout_days NUMERIC[])
9 ) AS $$
10 BEGIN
11   RETURN QUERY
12   SELECT
13     p.product_name,
14     ARRAY_AGG(cd.unit) AS sold_units,
15     ARRAY_AGG(cd.total_amount) AS total_amounts,
16     ARRAY_AGG(EXTRACT(DAY FROM ch.checkout_at)) AS checkout_days
17   FROM
18     checkout_header ch
19     JOIN checkout_detail cd ON ch.checkout_id = cd.checkout_id
20     JOIN product p ON p.product_id = cd.product_id
21   WHERE to_char(ch.checkout_at, 'MM-YYYY') = selected_date
22   GROUP BY
23     p.product_name;
24 END;
25 $$ LANGUAGE plpgsql;
26
```

Results

Stock manager

CapSnap

...

Stock Manager

+ Add Category

	Bakery	Remains: 101
	Butter Bread with Dried Shredded Pork Net: 50 g. Type: Bakery Calories: 100 kcal. Price: 6	Remains: 23
	Butter Bun Net: 50 g. Type: Butter Bun Calories: 150 kcal. Price: 6	Remains: 1
	Chocolate & Strawberry Wafer Roll Sticks Net: 30 g. Type: Wafer Roll Sticks Calories: 100 kcal.	Remains: 10
	Cream Horn Bread Net: 80 g. Type: Bread with Cream Calories: 200 kcal. Price: 10	Remains: 32

Stock manager

☰ CapSnap ⋮

Stock Manager

+ Add Category

Image	Type	Remains:	
	Bakery	101	Edit Delete History
	Bakery	100	Edit Delete History
	Wafer Roll Sticks	10	Edit Delete History
	Cream Horn Bread	32	Edit Delete History

Edit Butter Bun information.

Name: Butter Bun

Image url: <https://cdn.discordapp.com/attachments/10960311111111111/10960311111111111/10960311111111111.jpg>

Description:
Net: 50 g.
Type: Butter Bun

Price: 6

Stock: There are 1 in stock.
[update unit](#)

[Save](#) [Close](#)

Customer List

CapSnap

Customers

17

Overall customers

16

New customers in last 7 days

	Name	Surname	Email	Birth date	Joined at
1	Stella	nao	stella@outlook.com	3/10/2024	3/10/2024, 9:41:00 PM
2	jay	wan	jayant@outlook.com	3/10/2024	3/10/2024, 9:55:44 PM
3	radcliff	loma	radcliff@outlook.com	3/10/2024	3/10/2024, 9:42:30 PM
4	ainsley	ley	ainsley@outlook.com	3/10/2024	3/10/2024, 9:56:40 PM
5	Rosabel	ram	rosabel@outlook.com	3/10/2024	3/10/2024, 9:43:46 PM
6	Ricky	mcwill	ricky@outlook.com	3/10/2024	3/10/2024, 9:45:33 PM
7	Dyson	erica	dyson@outlook.com	3/10/2024	3/10/2024, 9:46:50 PM
8	Min	sungho	min23asd@outlook.com	2/12/2024	2/12/2024, 2:56:55 PM
9	John	doe	john.doe@outlook.com	9/10/2023	9/10/2023, 8:57:45 PM

Checkout history

≡ CapSnap

Purchase History

Stella nao

Total: 36

Checkout at: 2/9/2024, 9:41:25 PM

Product	Price	Unit(s)	Total
Roller Coaster Chicken Hot & Spicy	5	1	5
Maruchan Chicken Flavour	5	5	25
Butter Bun	6	1	6
Total		7	36

Stella nao

Total: 42

Checkout at: 2/9/2024, 9:41:32 PM

Sales report

CapSnap

Selling Report

8 All product

20 Sold

168 Received

02/09/2024

Daily Weekly Monthly Yearly

Category Product

A bar chart showing sales volume by day. The x-axis represents days from 1 to 24, and the y-axis represents the count of items sold, ranging from 0 to 6. The bars show a peak on day 14 with a value of 2, and other values include 1, 1.

A donut chart showing the distribution of sales by product category. The categories and their percentages are: Snacks (56.5%), Ready to Eat (26.8%), Beverage (13.1%), and Bakery (3.6%).

- Bakery
- Beverage
- Ready to Eat
- Snacks



Web Demo

