

Thai Language Viral Marketing Content Generation using **NLP** and **Generative AI**

Pattadon 6338153221
Paranut 6338139521
Yanisa 6338046821
Weinian 6338226421



Agenda

Project Background

Problem Background
Opportunities and Objective

Proposed Solution

Solution Overview
User Journey

Project Methodology

Methodology Overview
Viral Trends
Best Practice
Image Headline Generation
Required Information
Post Caption Generation
Post Image Generation

Project Result

Outcome & Next Steps

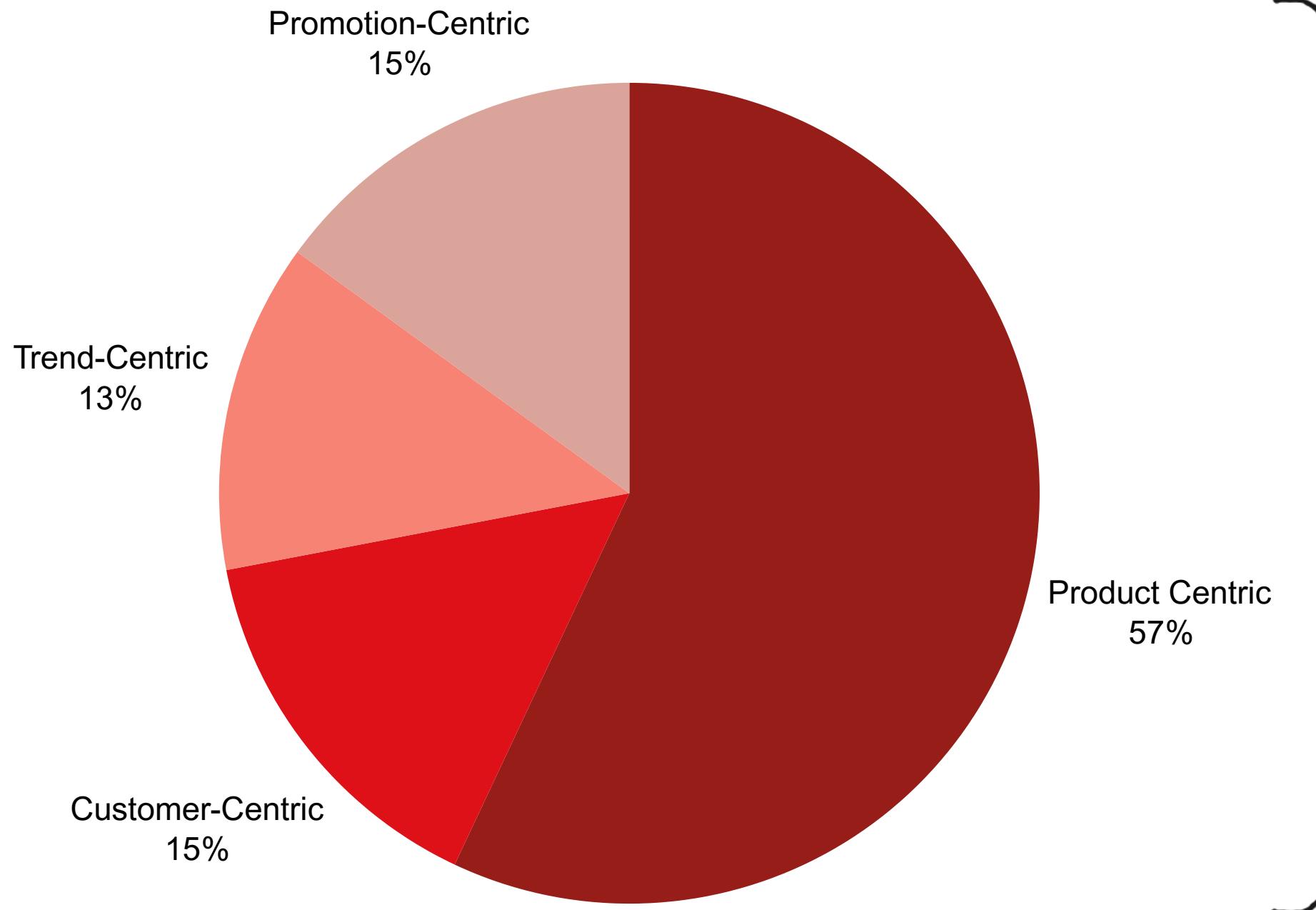
Project Background

Problem Background

Opportunities and Research Gap



Situation Analysis



57%

of marketing content posted in Thailand are product centric

And this type of marketing is known as...



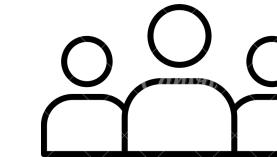
This method primarily highlights the product itself as the central element of the marketing strategy.

Case Study Background

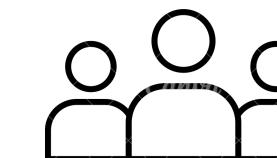


265K Likes • 422K followers

A Thai Local Restaurant Chain about beef related dishes



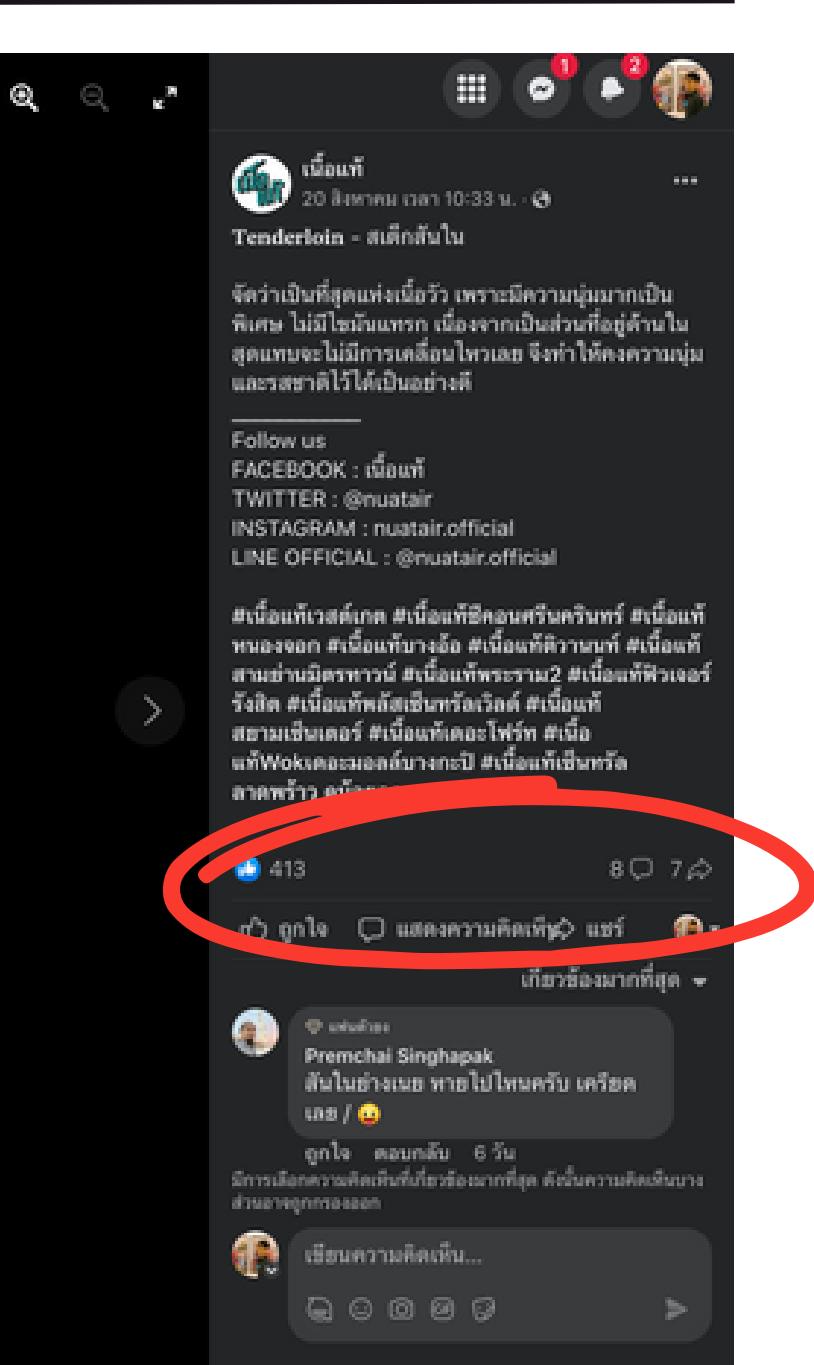
Over **422K Followers** on Facebook



Popular among the **GenZ** population

Case Study - Traditional Marketing

Traditional Marketing



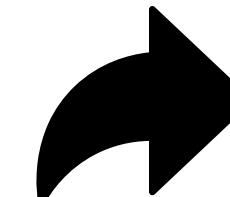
Overall Engagement



413 Likes



8 Comments

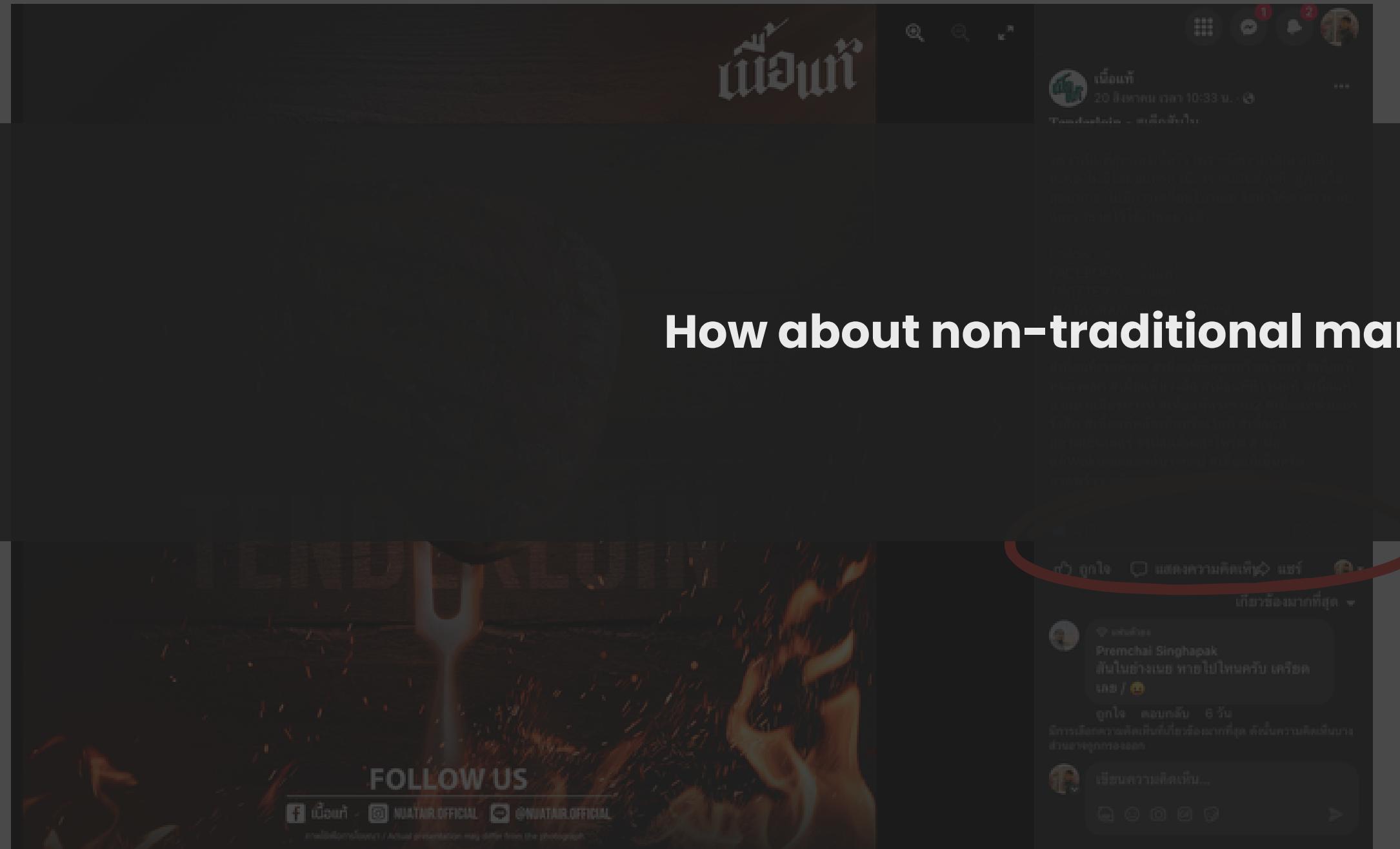


7 Shares

0.1% of followers engaged with this content

Case Study - Traditional Marketing

Traditional Marketing



How about non-traditional marketing?

Overall Engagement

413 Likes

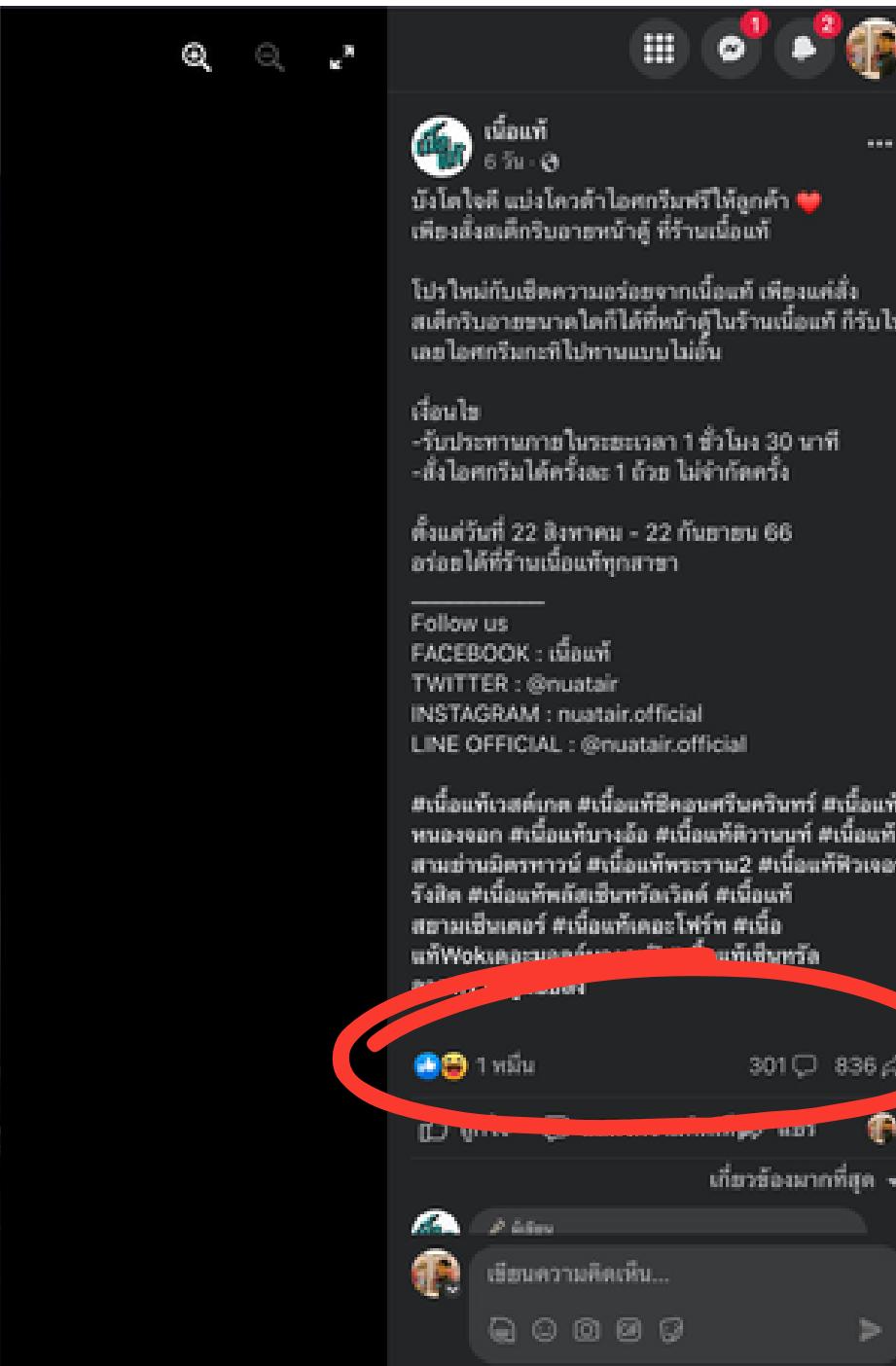
8 Comments

7 Shares

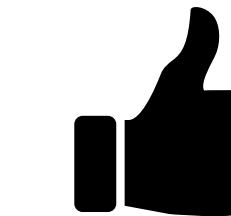
0.1% of followers engaged with this content

Case Study - Non Traditional Marketing

Non - Traditional Marketing



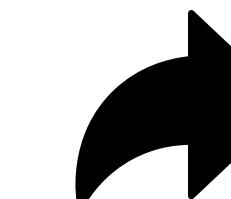
Overall Engagement



10,000 Likes



301 Comments



836 Shares

25X

time more engagement compare to traditional marketing content

Performance Analysis

Engagement Level

Cost of Reach

Traditional Marketing

Low

Customer nowadays are not aware of traditional marketing or the promotion of product itself

High

The low attention and awareness of the content itself cause cost of reach per customer to be extremely high

Non-Traditional Marketing

High

The marketing content are specifically designed to gain awareness of the target audience

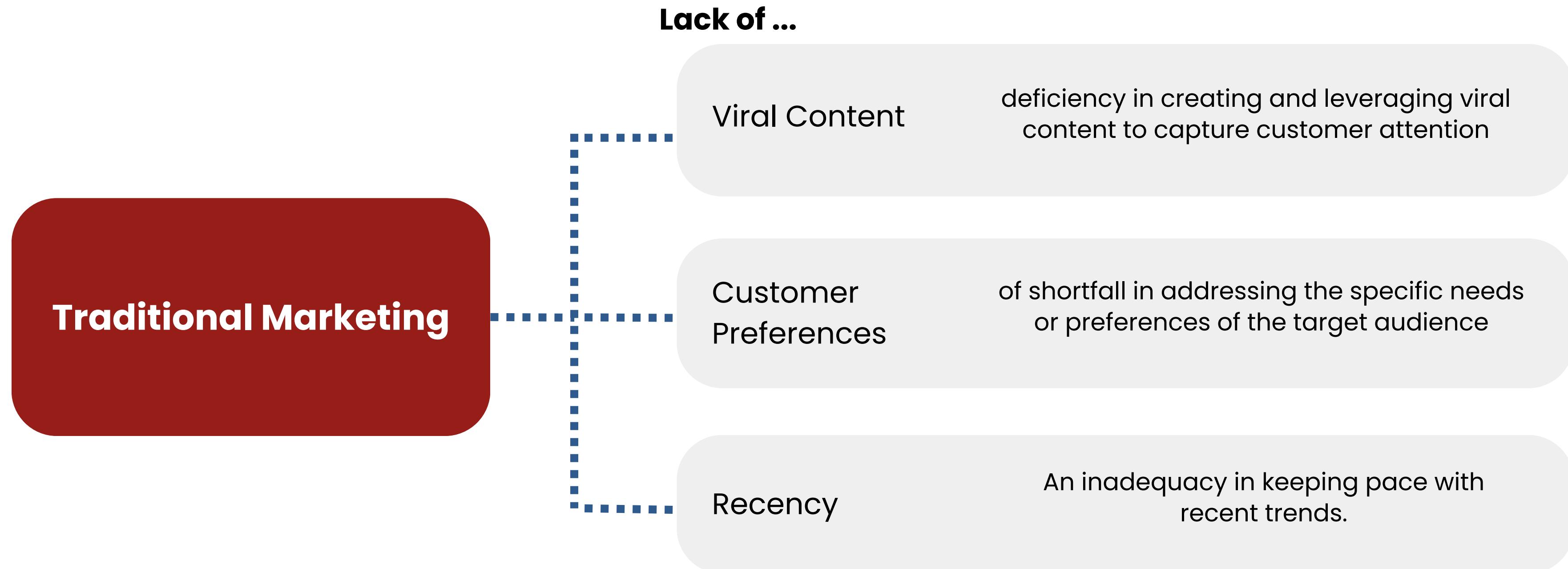
Low

The marketing content are tailored to audience interests therefore easier to reach to the customers

Why is this happening?



Problem Analysis



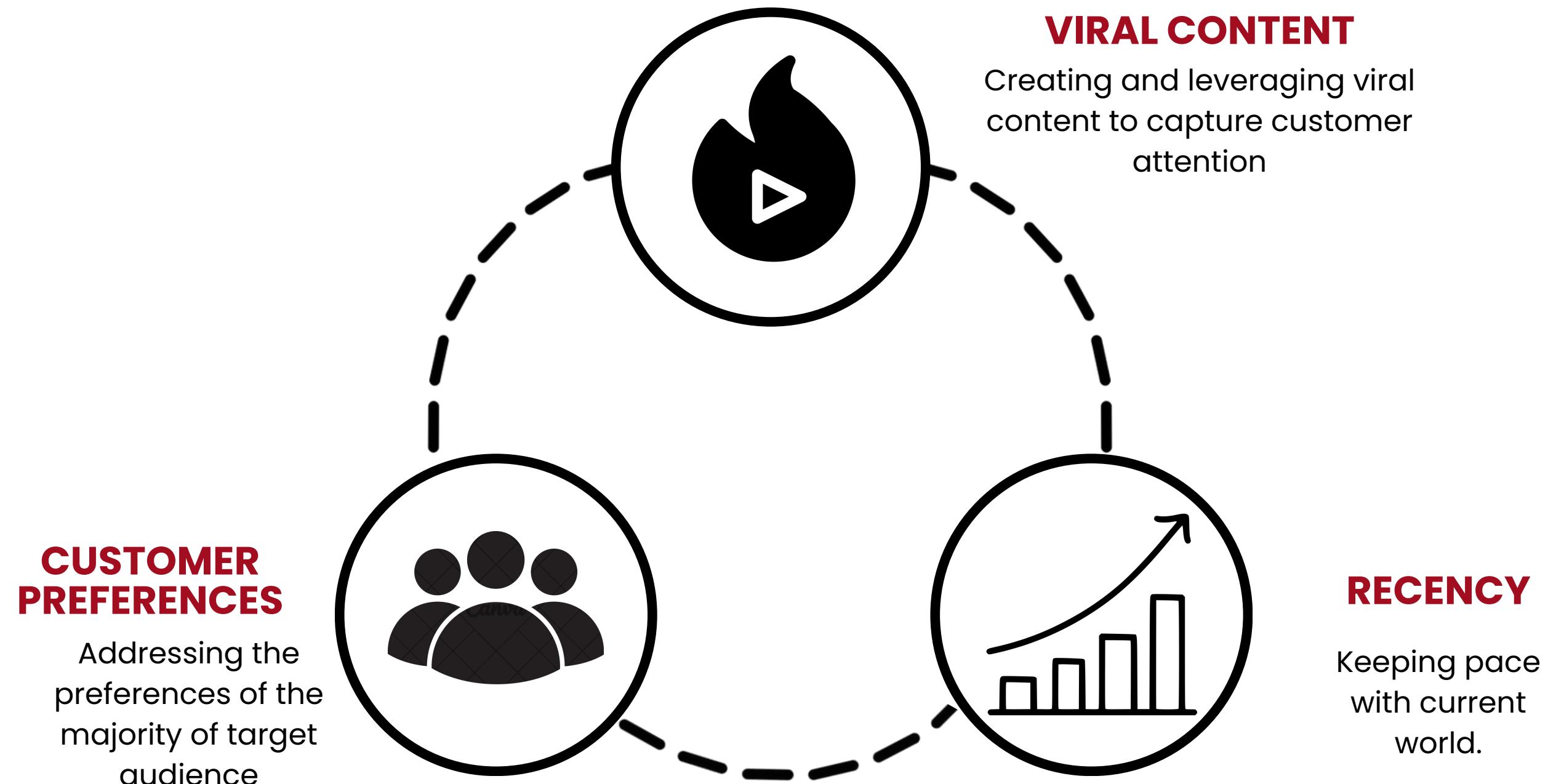
Therefore, what is needed to solve this?

Project Background

Problem Background

Opportunities and Research Gap

Opportunities



Research Gap

However, in the current market...

63%

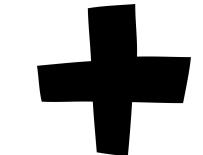
Of the food store still don't have knowledge beyond the current traditional marketing strategy

They are **unable to craft** the correct viral marketing strategy that tailored to their customers

Unable to **keep up** with the trends and trend all time to add it to their marketing plan

No marketing solution have tackled this yet.....

Viral Trend in Thailand Marketing Intergration



Thai Language Marketing generation

Therefore, a solution are needed to solve and help Thai Food Industry

Research Gap

However, in the current market...

63%

Of the food store still don't have knowledge beyond the current traditional marketing strategy

No marketing solution have tackled this yet.....

We want to be the FIRST ONE to tackle this problem in Thailand food industry to help Thai food store transform their marketing strategy to VIRAL marketing

They are unable to craft the correct viral marketing strategy that target their customers

Unable to keep up with the viral topics and trend all time to add it to their marketing plan

Thai Language Marketing generation

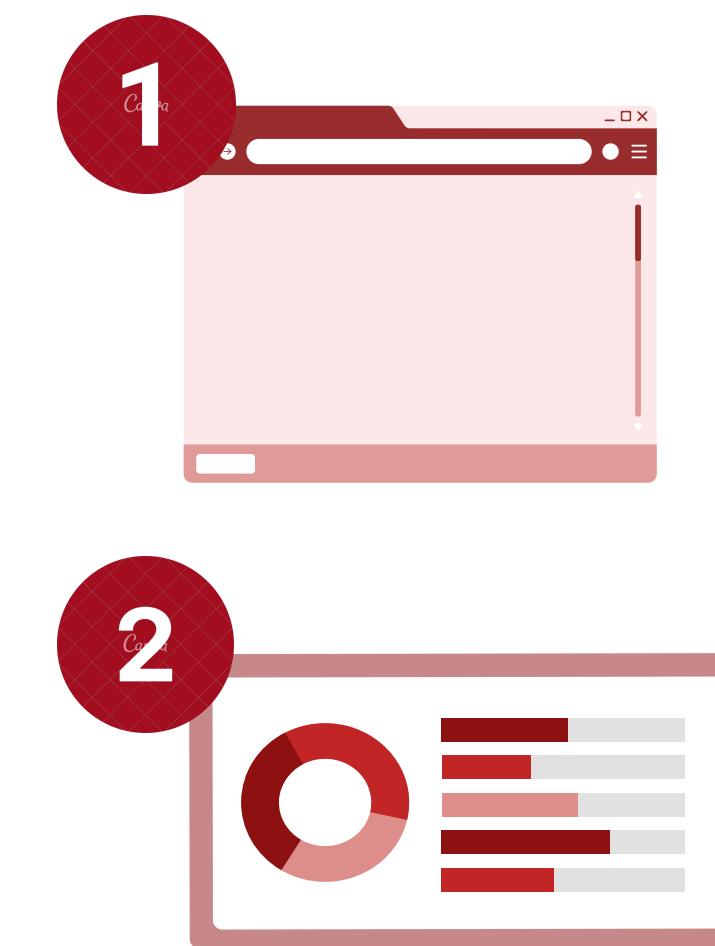
Therefore, a solution are needed to solve and help Thai Food Industry

Proposed Solution

Solution Overview
User Journey

Our Solution

A platform for **automating and streamlining** the creation of Thai marketing content in food and beverage industry, highlighting the **product itself** while incorporating elements from **viral trends and best practices**. This includes 2 main features:



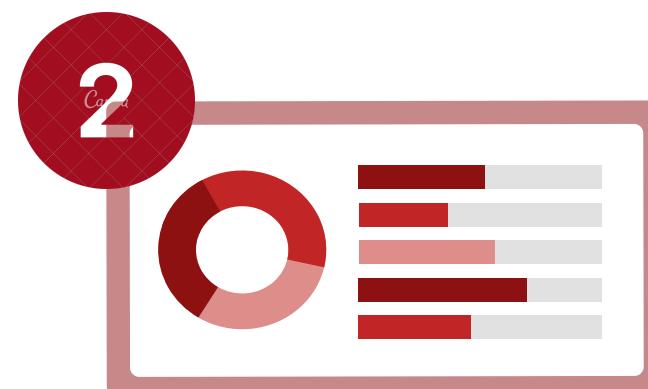
Marketing Content Generation Platform

Performance Monitoring Dashboard

Semester 1 Scope - Proof of the project concept



**Marketing Content
Generation Platform**



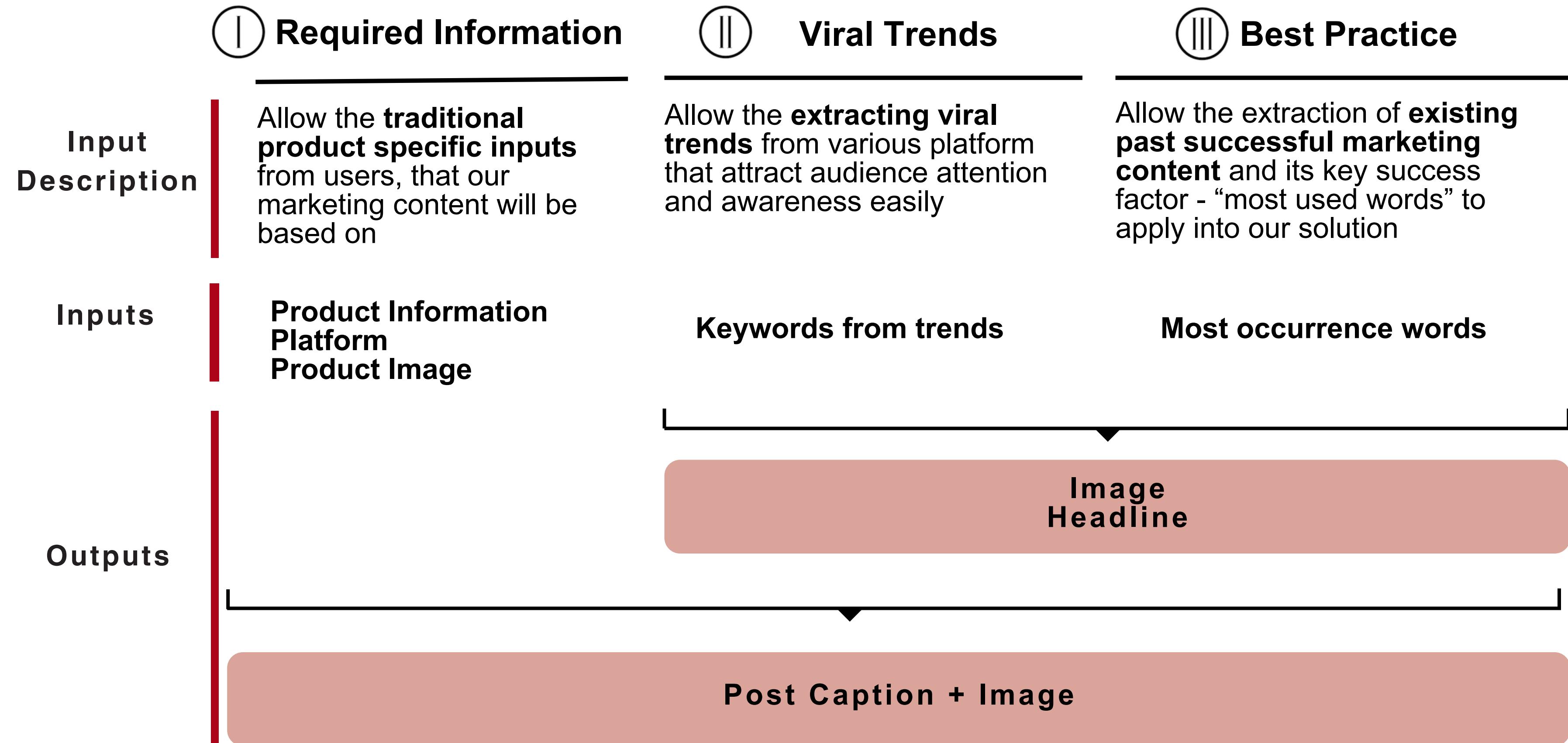
**Performance
Monitoring Dashboard**

Semester 1 Scope - Proof of concept of the platform

**Output : Post Caption,
Post Image, Image
Headline**



Inputs and Outputs



Project Objective

1

Viral Trend Integration

- Able to extract **current trending topic** in Thailand
- Able to summarize and extract **the keywords** from the trending topic
- Able to integrate the **key context** of the trending topic into the marketing content.

2

Best Practice Integration

- Able to extract and filter **top performing marketing image** from top promotion website
- Able to detect and extract **key success factors** from the marketing image.
- Able to integrate the **key successful factors** of best practice into the marketing content.

3

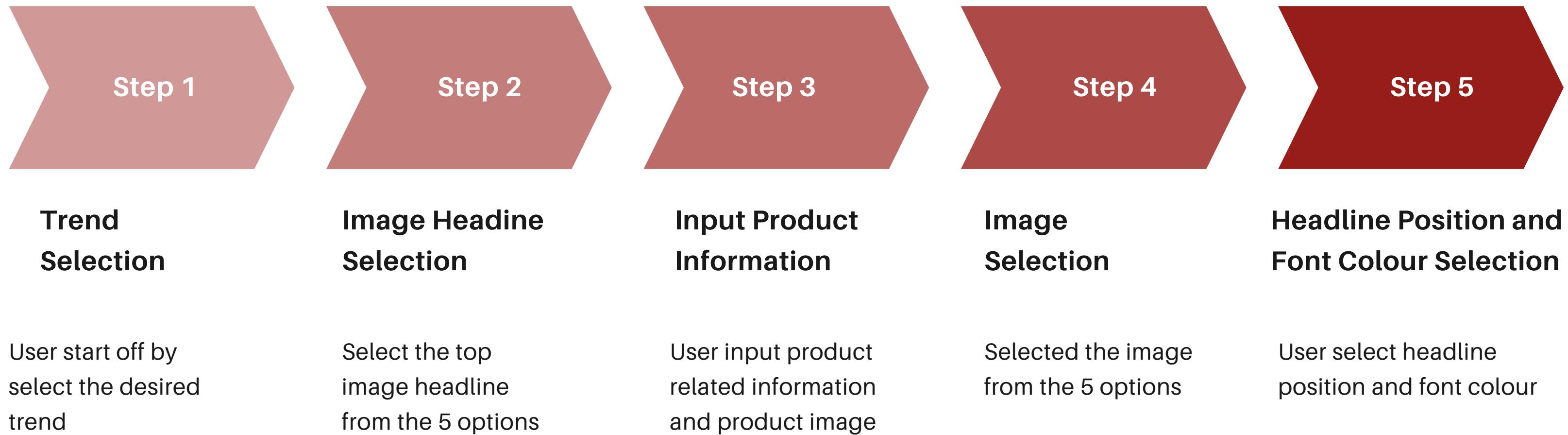
Overall Integration and Customizable Output

- Able to combine **all the elements** into the marketing content.
- Able to create **user-friendly interface** for user to input product related information.
- Able to allow user on **freedom of choosing** the preference through the process of marketing generation.

Proposed Solution

Solution Overview
User Journey

User Journey



1. Trending Topic Selection + Summarization

```
# Attach the event listener to the dropdown
dropdown.observe(on_value_change, names='value')

# Display the dropdown and the output widget
display(dropdown, output)
```

Choose the trends that you want to integrate with your product:

→

Trend Summarization: PPTV Online เมยแพร์ซาร์เรื่องการปราบกาศูติรายก้าว "ไทย ในโลกล้วนพิสิกส์" ของเดช เพื่อปกป้องคนที่อาจถูกกระทำอีก และเรียกว่าเป็นเรื่องให้หมายๆ ของคุณคราวจะเป็นผลตึกกรรมของผู้กระทำ หลังจากนั้น THE STAND เกี่ยวข้องกับเรื่องนี้ และมีการแสดงความเห็นต่างๆ จากบุคคลสาธารณะอื่นๆ ที่เกี่ยวข้องกับเรื่องนี้

2. User Choose Generated Headline

the output widget

สัมผัสรสชาติที่พิลึกซึ้งไม่สามารถเอานะได้!
ได้ในร้านเราล้วนพิลึกซึ้ง!
want ✓ เมนูนี้วิทยาศาสตร์ต้องปฏิเสธ!
ลดทันที กินกับนักลือสารวิทยาศาสตร์
ฟรี! ลูกค้าใหม่ กินเมนูนี้ทันที ปฏิเสธเสียใจ

3.1 User Input Product Information

User Input

Please Fill In Product Information

brand_name: "Burger Queen"

product_name: "เบอร์เกอร์เนื้อ"

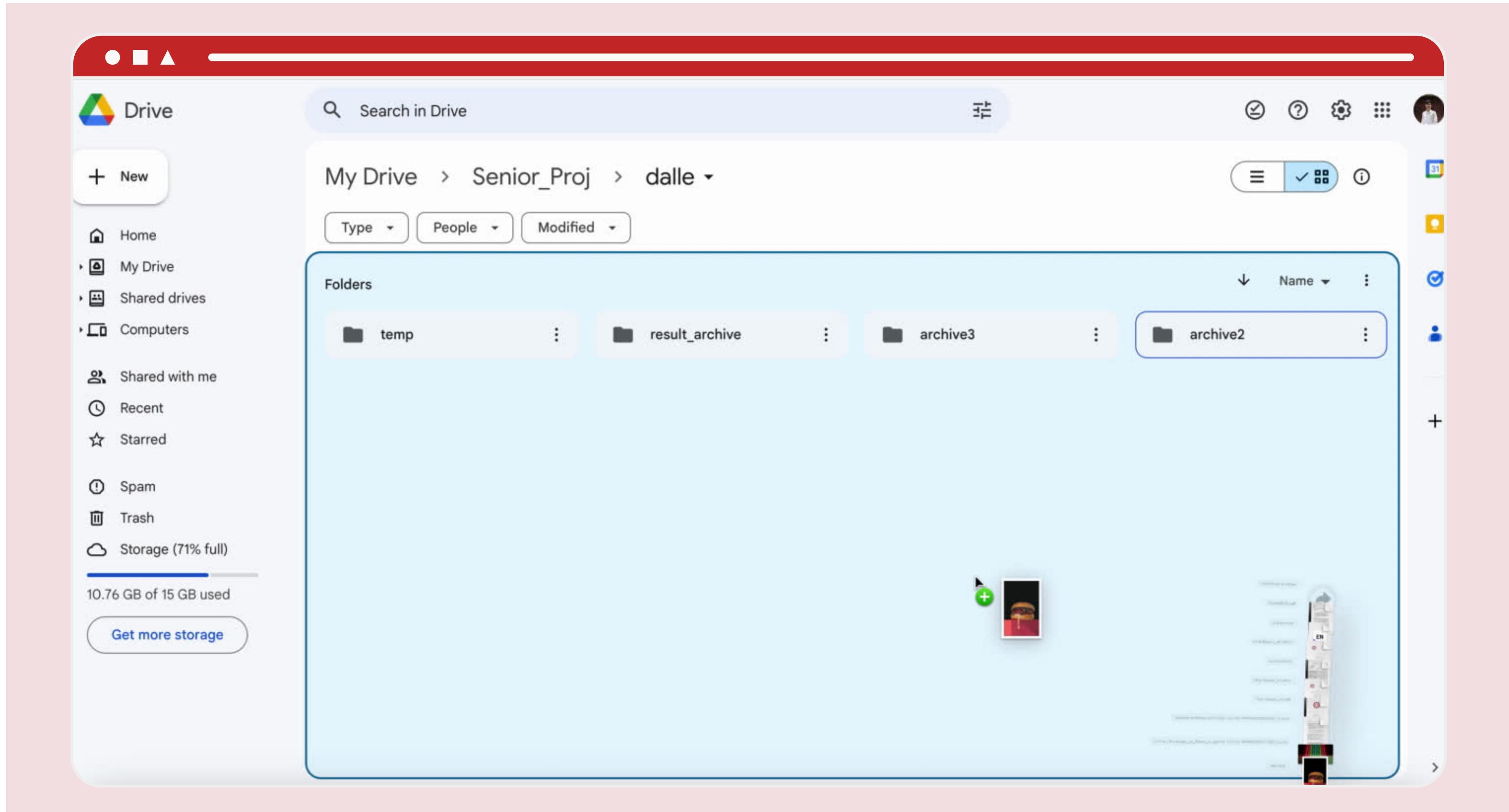
product_description: "เนื้อวัวเลืองโดยธรรมชาติพร้อมส่งตรงมาจากอสเตรเลีย, คลายในปาก, รสชา."

product_quote: "ถูก อิ่ม อร่อย"

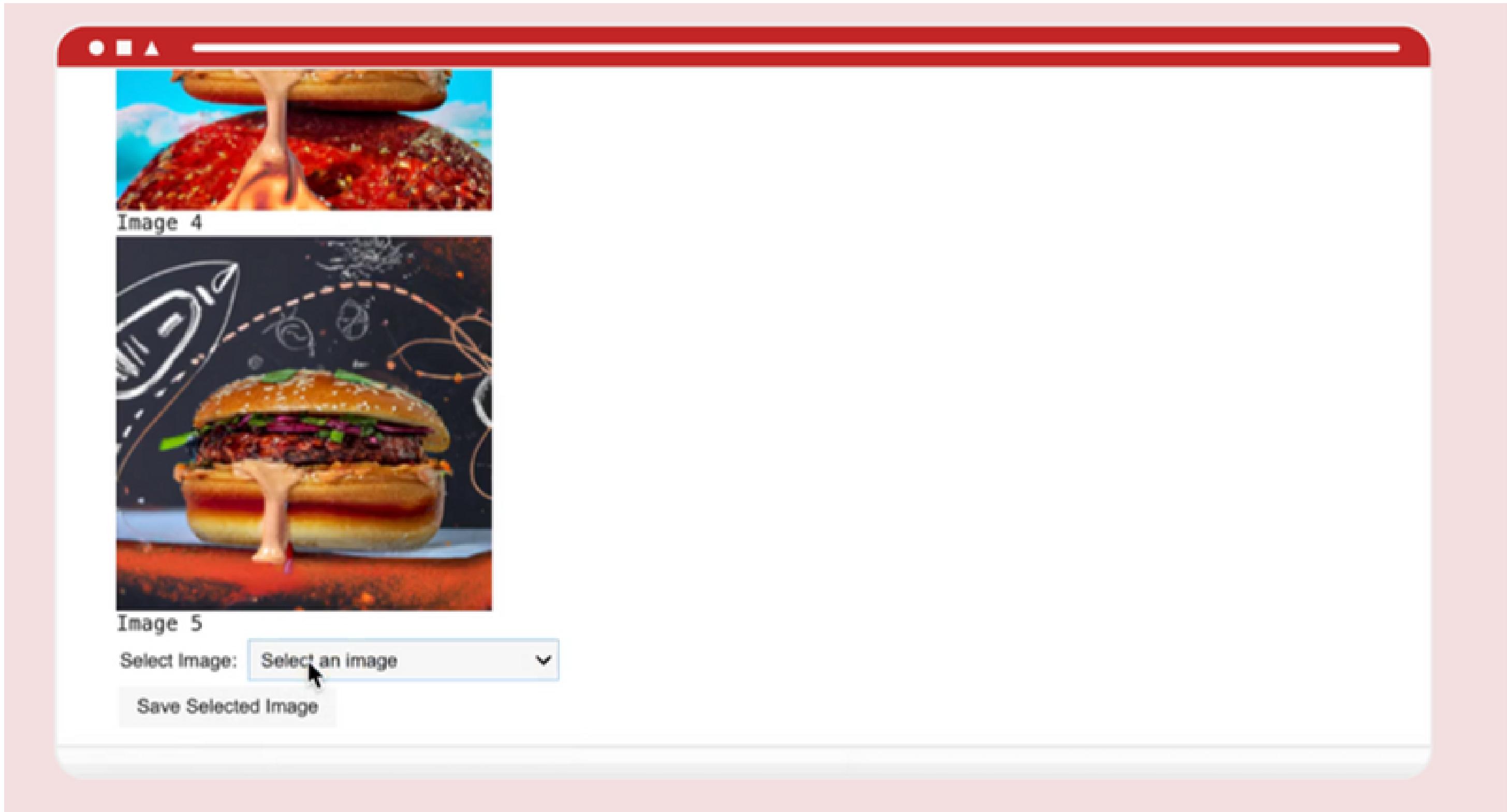
platform: "Facebook"

Show code

3.2 User Input Product Image

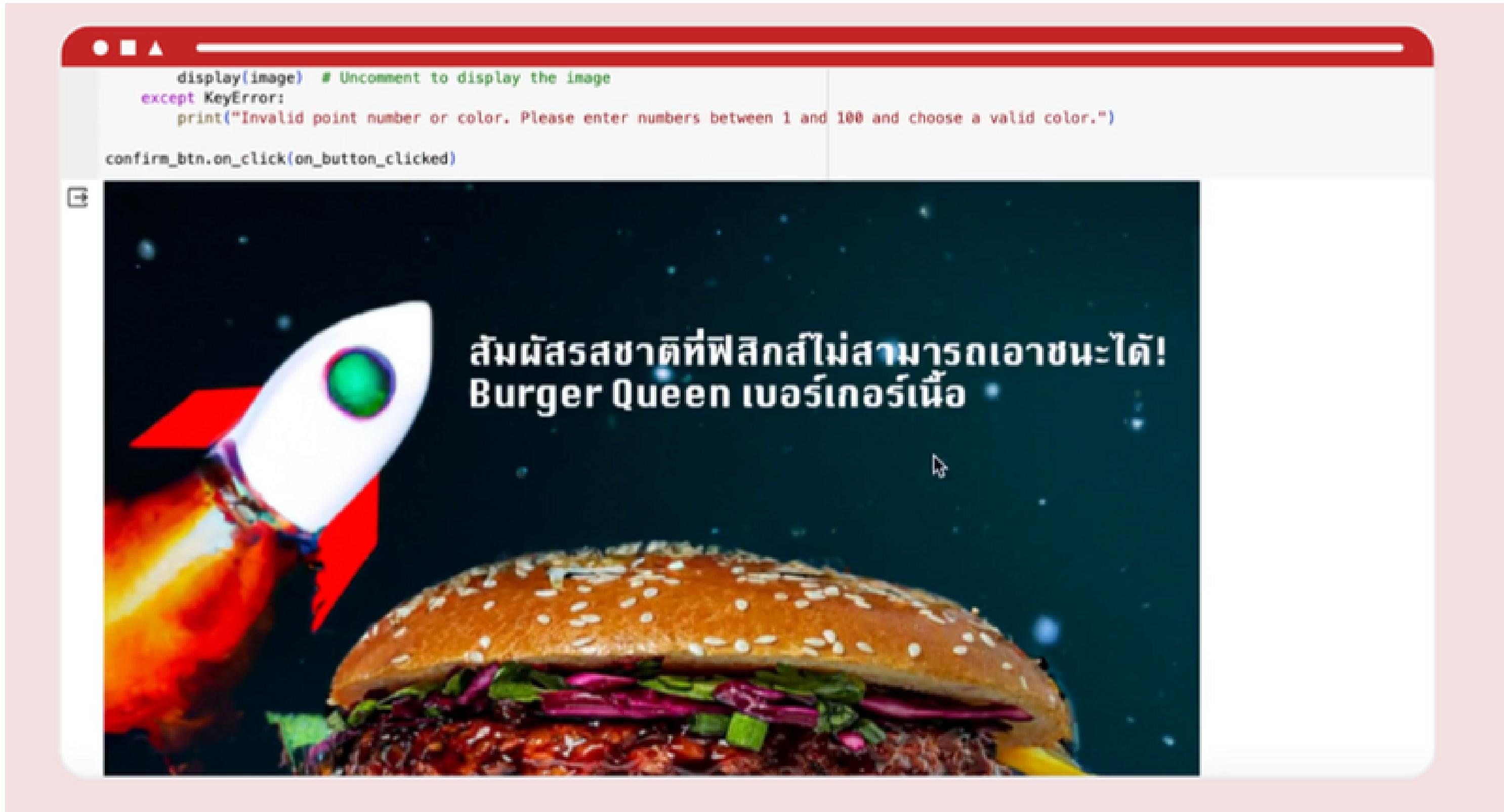


4. User Choose The Image



Proposed Solution - User Journey

5. Headline Insertion



Project Methodology

Methodology Overview

Viral Trends

Best Practice

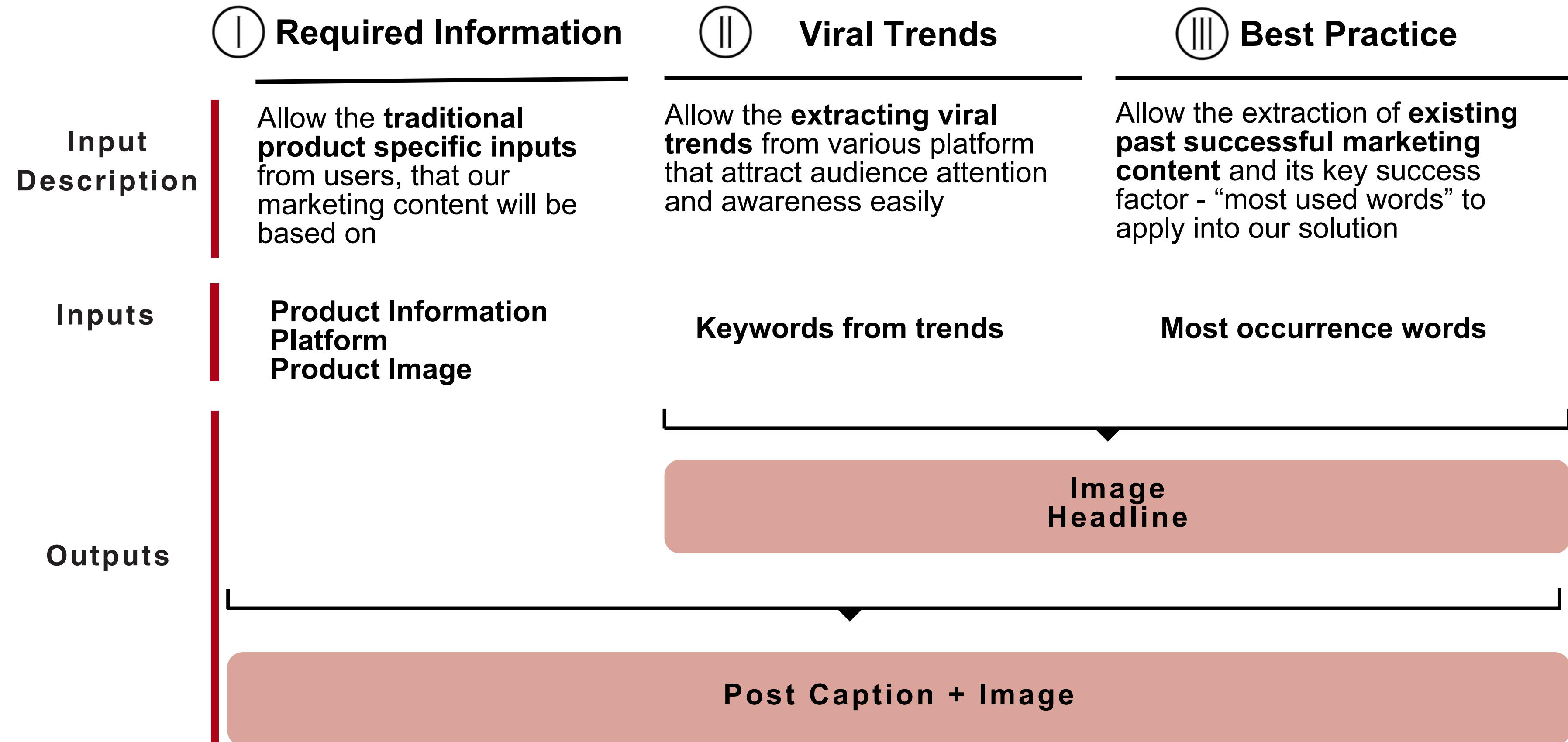
Image Headline Generation

Required Information

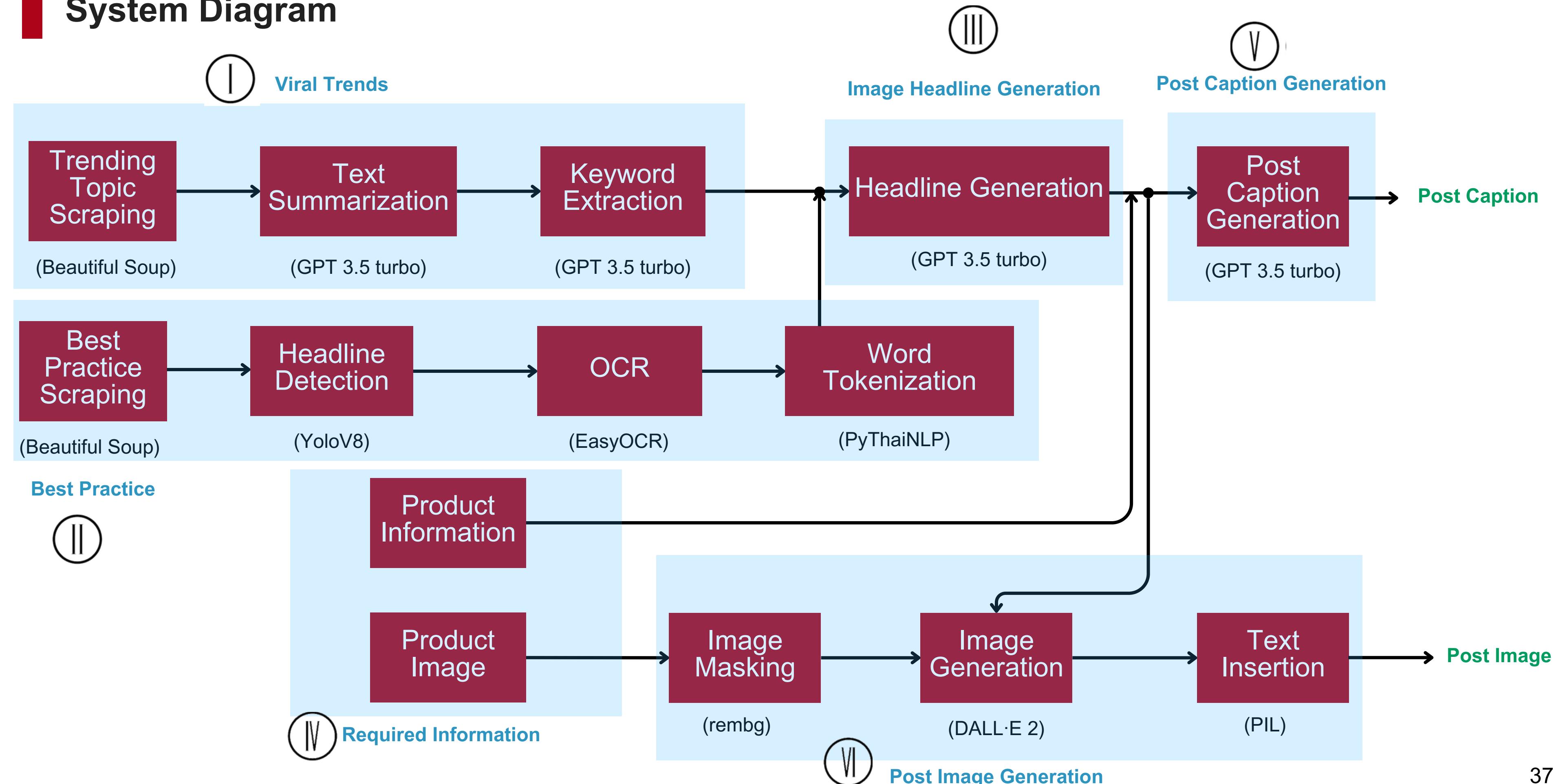
Post Caption Generation

Post Image Generation

Inputs and Outputs



System Diagram



Project Methodology

Methodology Overview

Viral Trends

Best Practice

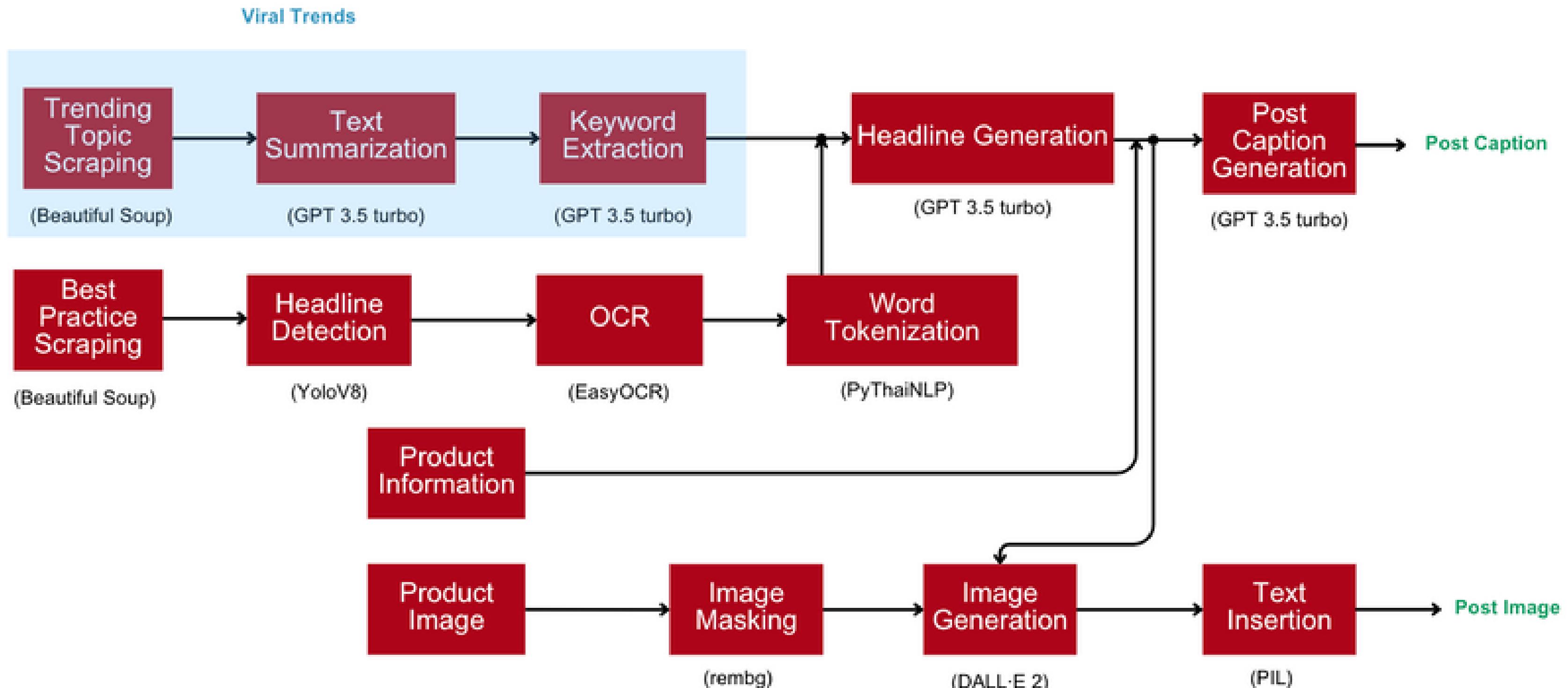
Image Headline Generation

Required Information

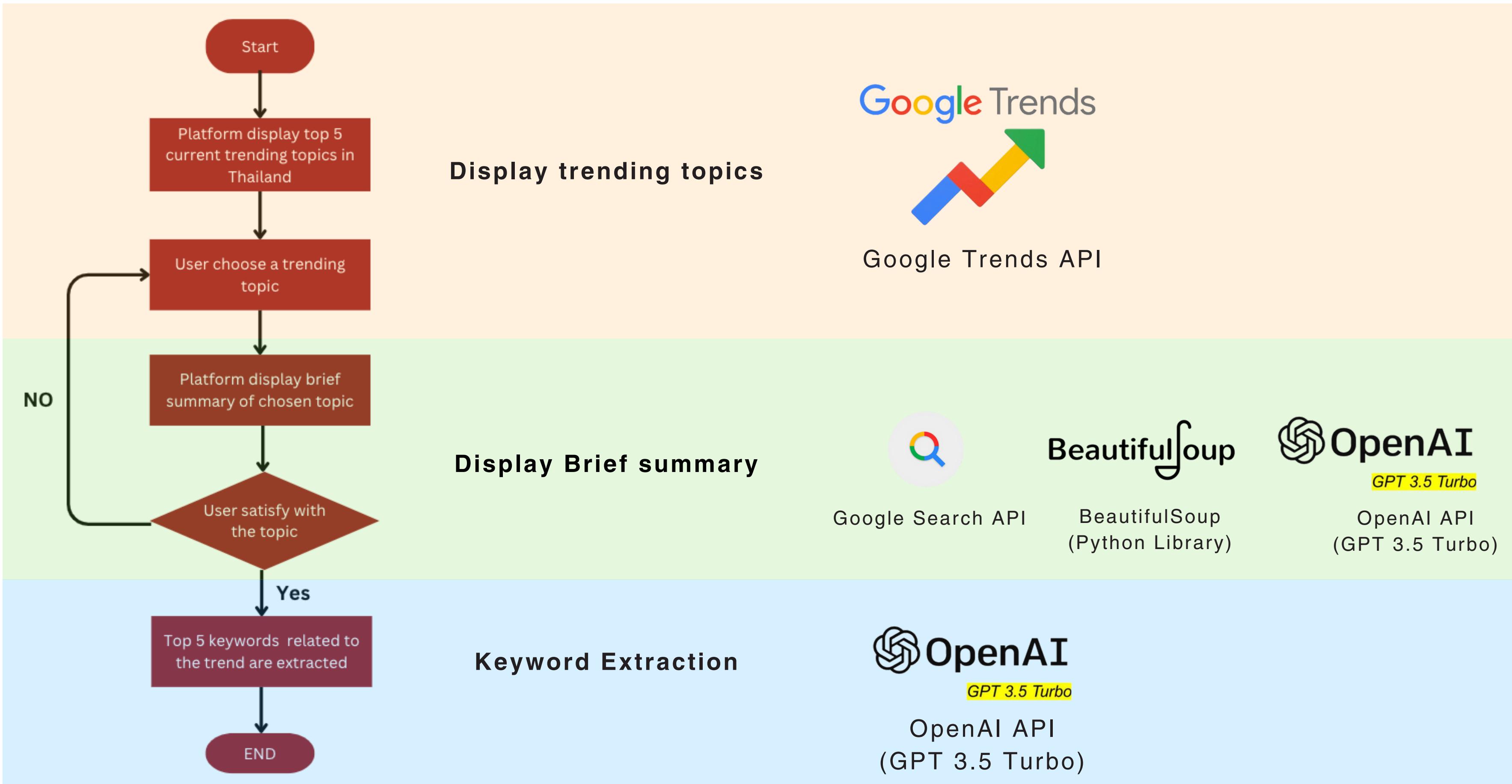
Post Caption Generation

Post Image Generation

System Diagram



Flow and Tools



Google Trends



Google Trends API



BeautifulSoup

BeautifulSoup
(Python Library)

OpenAI

GPT 3.5 Turbo

OpenAI API
(GPT 3.5 Turbo)

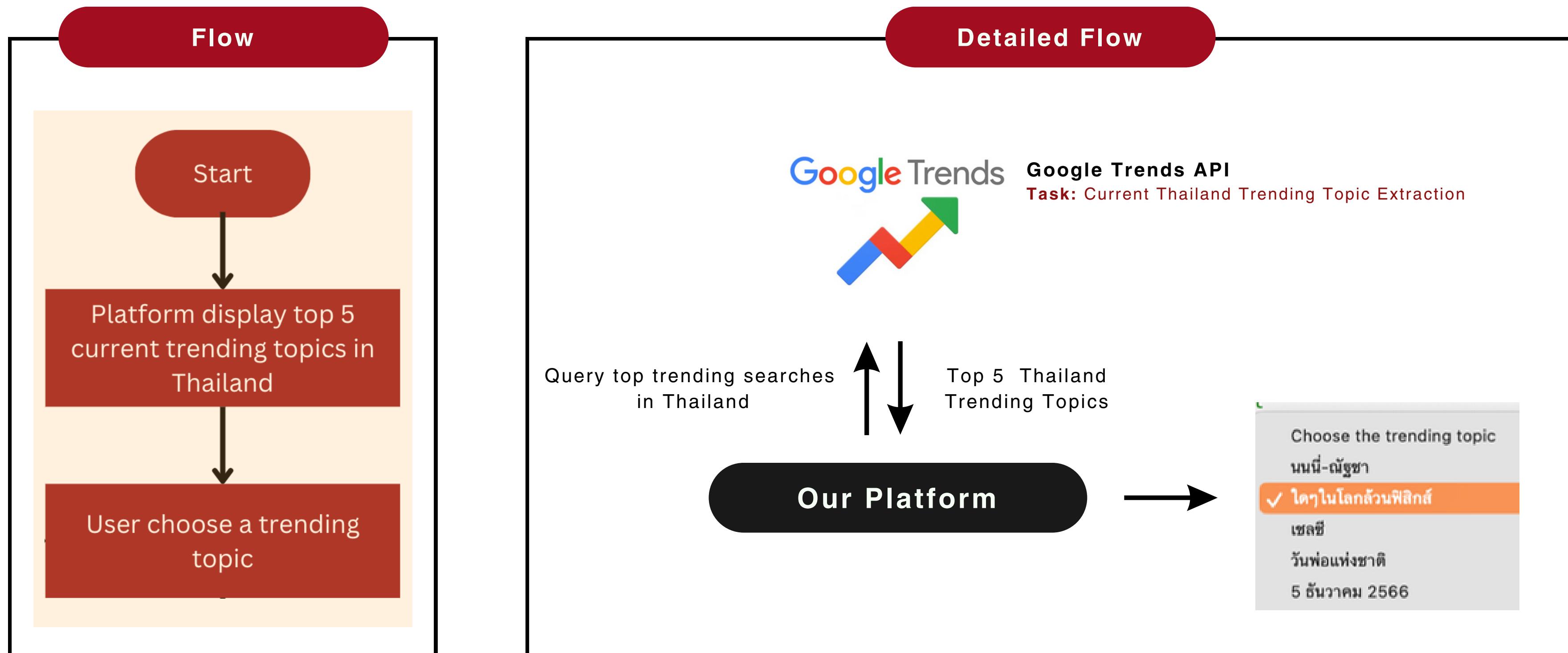
OpenAI

GPT 3.5 Turbo

OpenAI API
(GPT 3.5 Turbo)

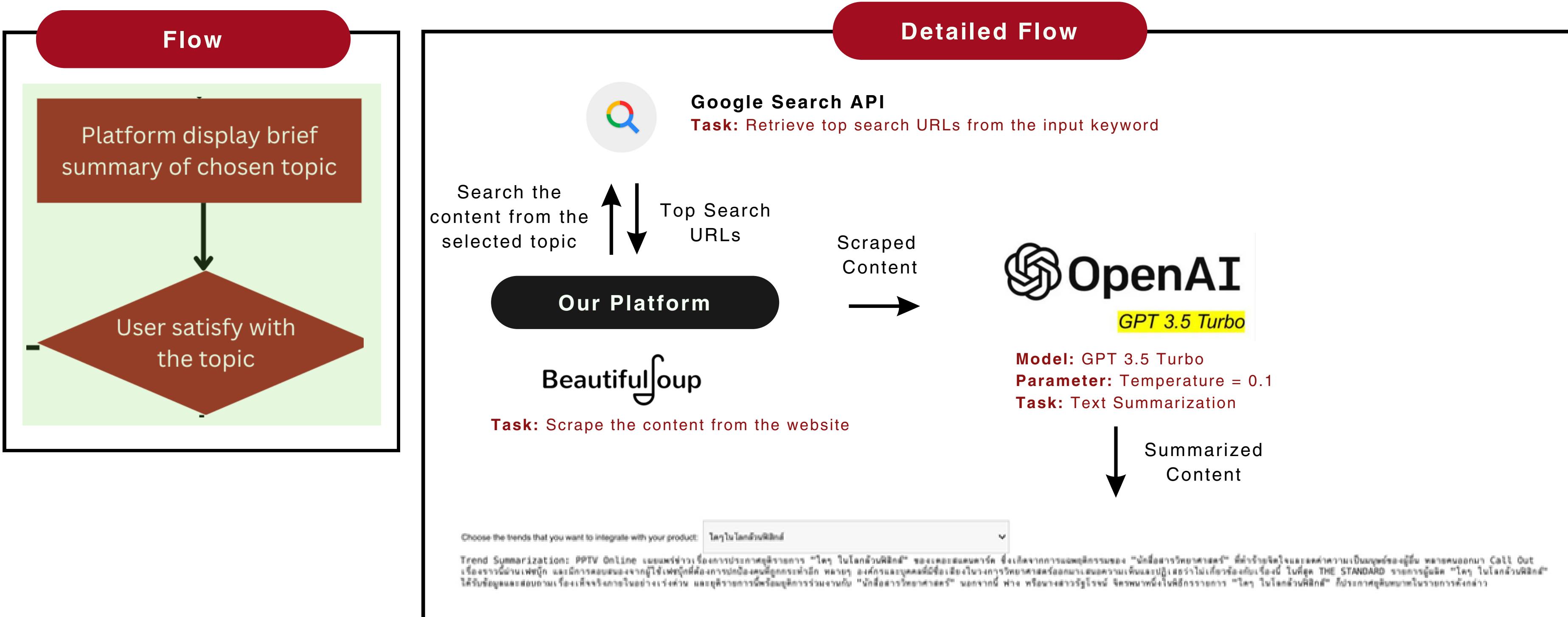
Display Trending Topics

Trending topic are scraped and displayed to user



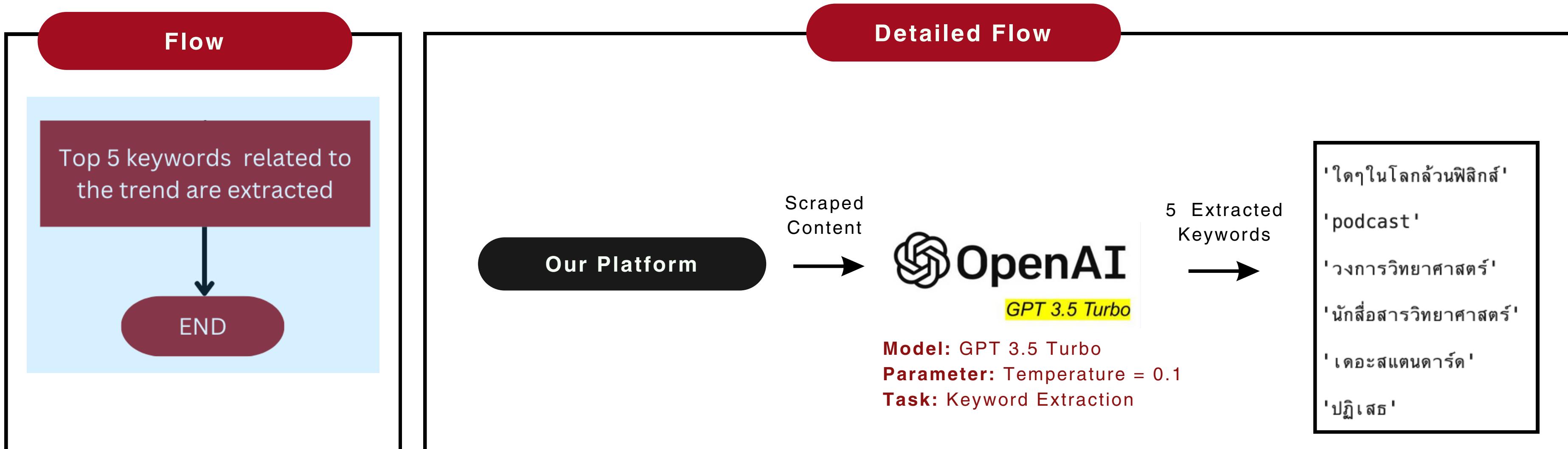
Display Brief Summary

The brief summary of selected trend will be displayed to user



Keyword Extraction

5 keywords from the chosen trend will be extracted

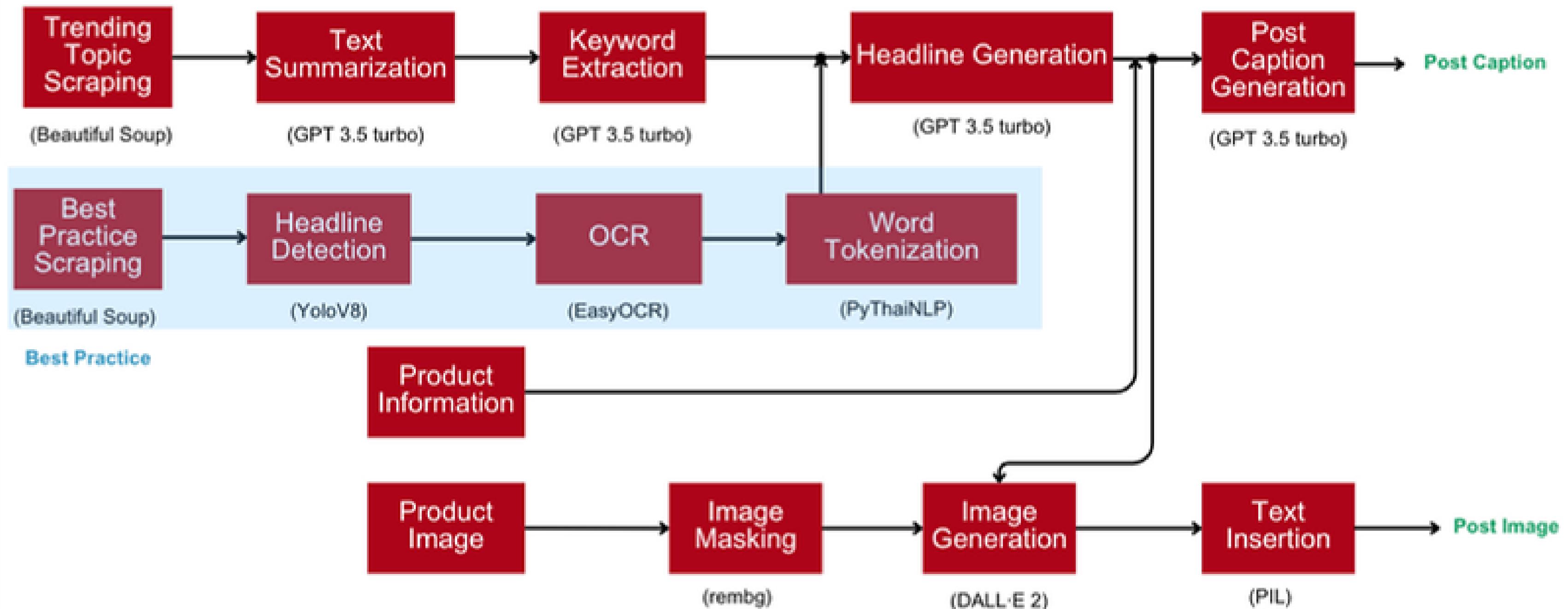


Project Methodology

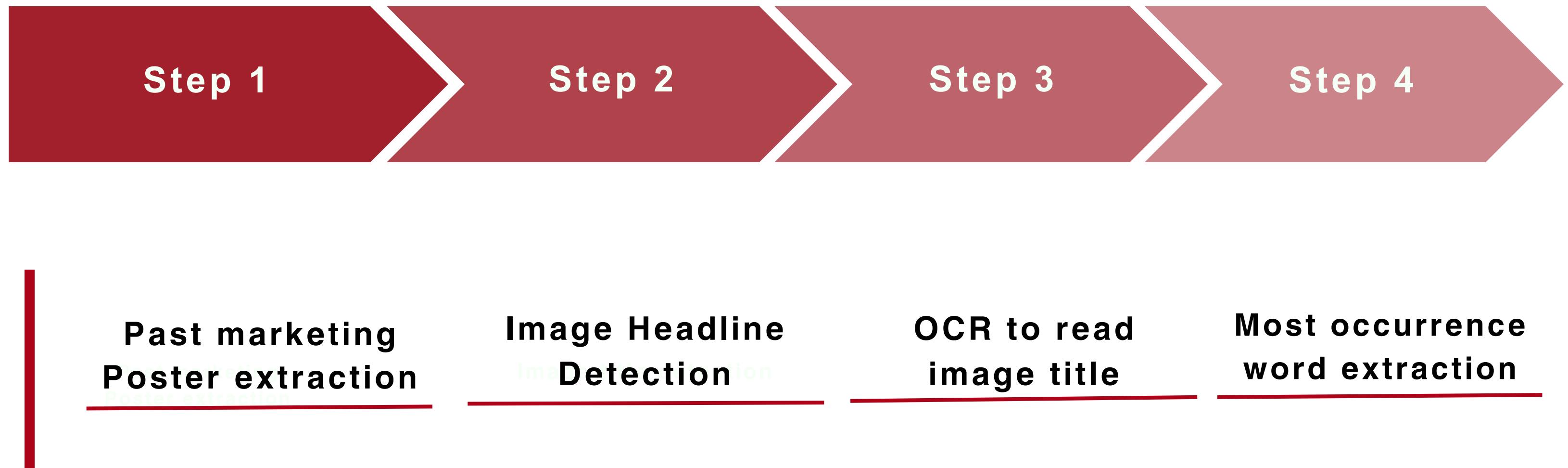
Methodology Overview
Viral Trends
Best Practice
Image Headline Generation
Required Information
Post Caption Generation
Post Image Generation

Project Methodology - Best Practice

System Diagram



The Component 3 is derived based on 4 steps



Best Practice Image Extraction

Tools

Beautifulsoup

Used to scrape the content from the website

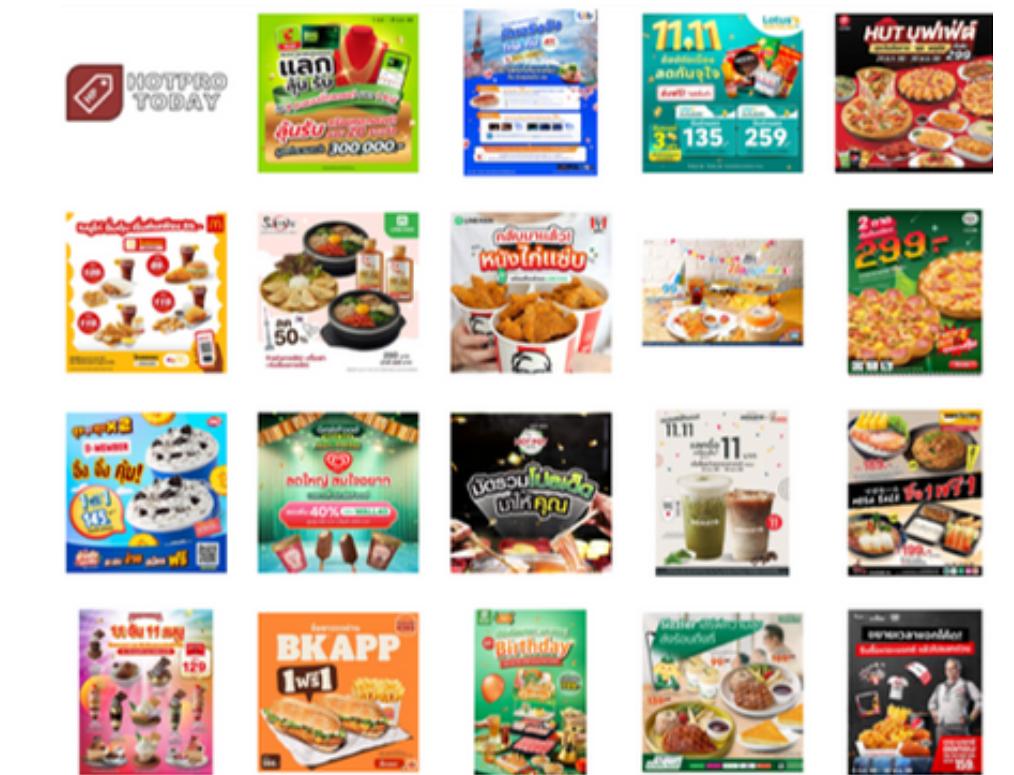


Top performing marketing are extracted from various website

Detailed Flow

Beautifulsoup

Apply web scraping technique to extract images



The extracted image will be used further used

Image Headline Detection

YOLOv8 is used as the image headline detection model.

Detailed Flow



Input

→
Task:
Object Detection



Object Detection

→
Task:
Headline Extraction



Output

Model Evaluation - Image Headline Detection



IoU = 0.8625

Intersection over Union (IoU) evaluates the accuracy of object localization by measuring the overlap between predicted and actual bounding boxes.

$$\text{IoU} = \frac{\text{Area of Overlap}}{\text{Area of Union}}$$



Model Evaluation - Image Headline Detection

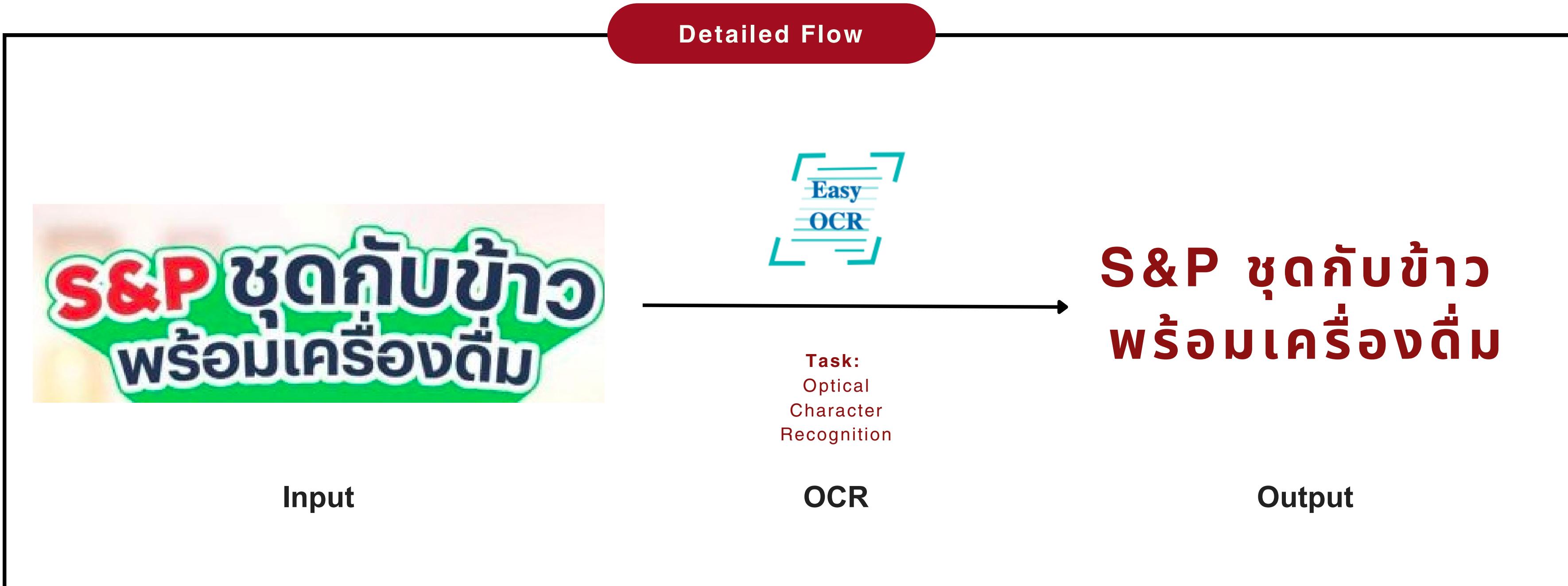


Average IoU

Training Set	Testing Set
0.452	0.263

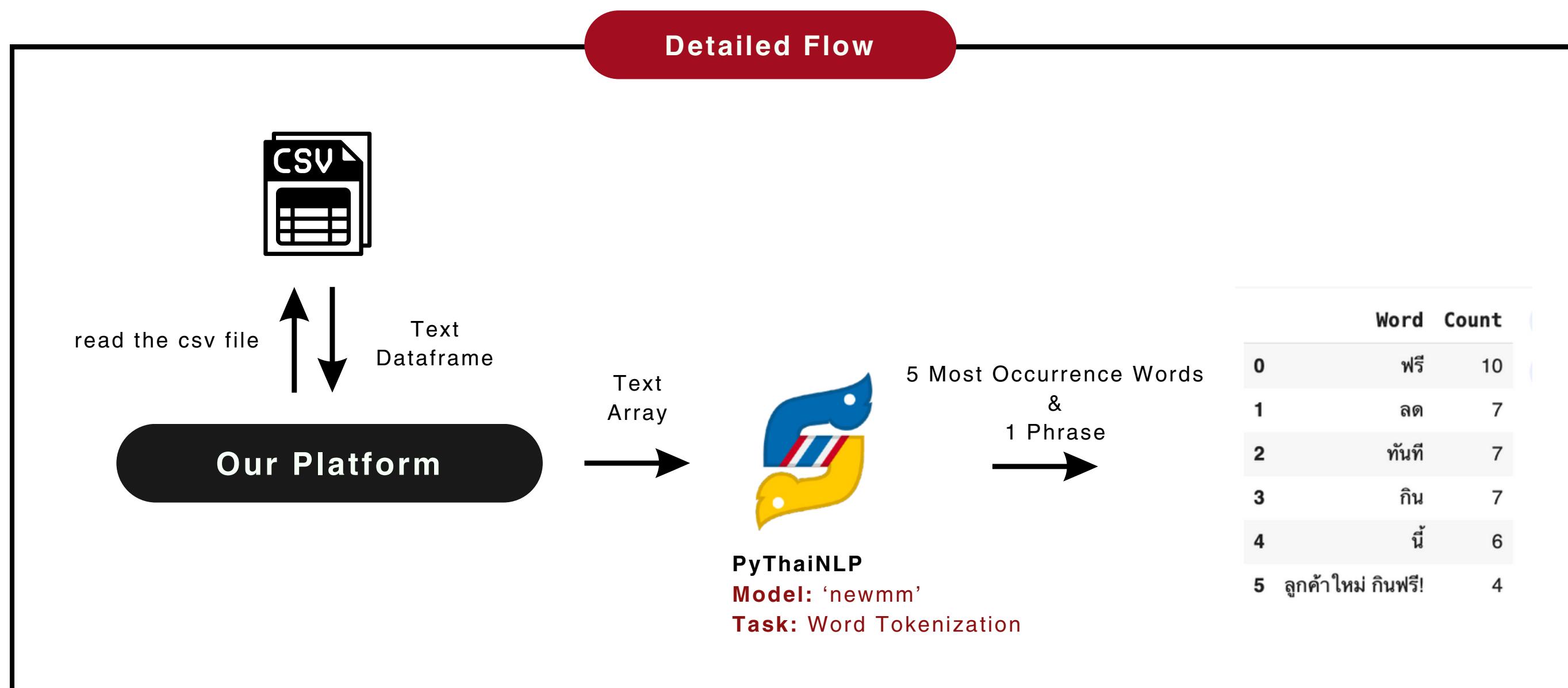
Optical Character Recognition (OCR)

EasyOCR API is used for Optical Character Recognition.



Word Tokenization

Extract most occurrence word from the text database (CSV)



Project Methodology

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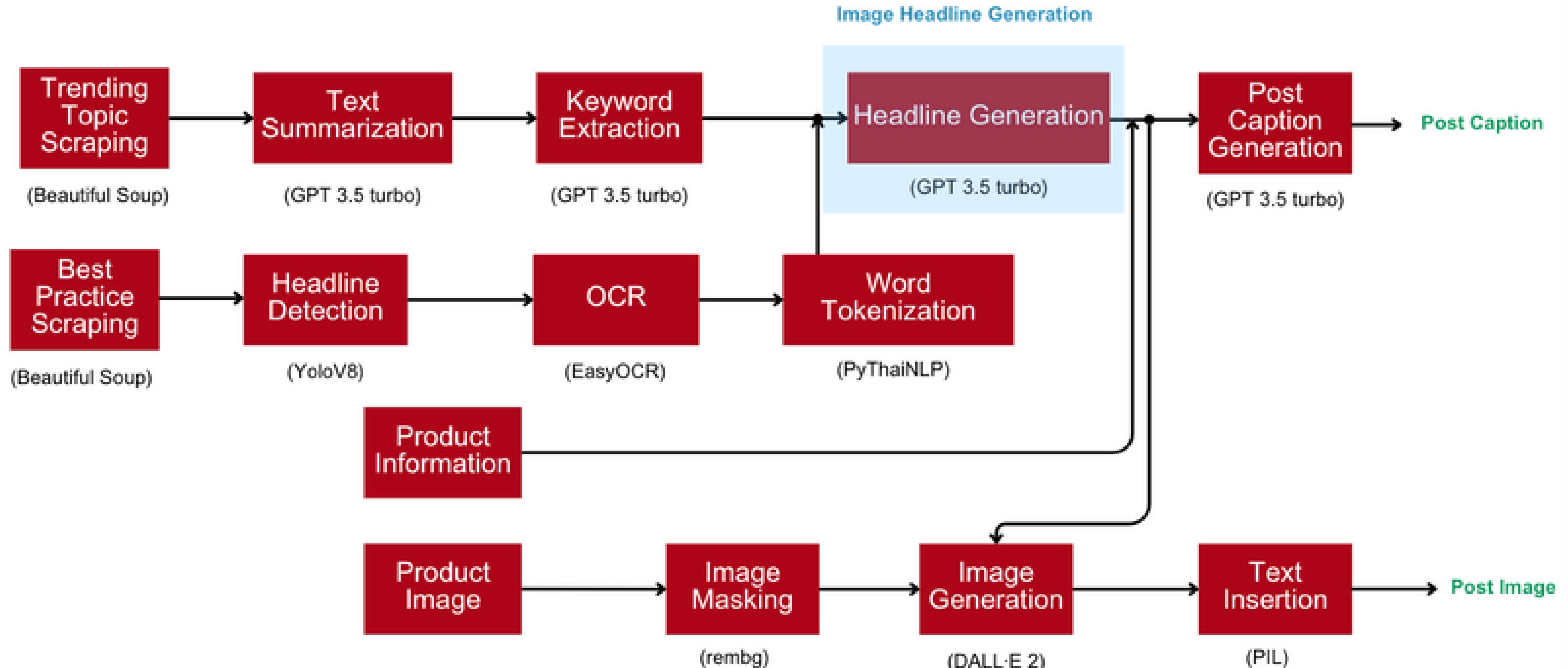
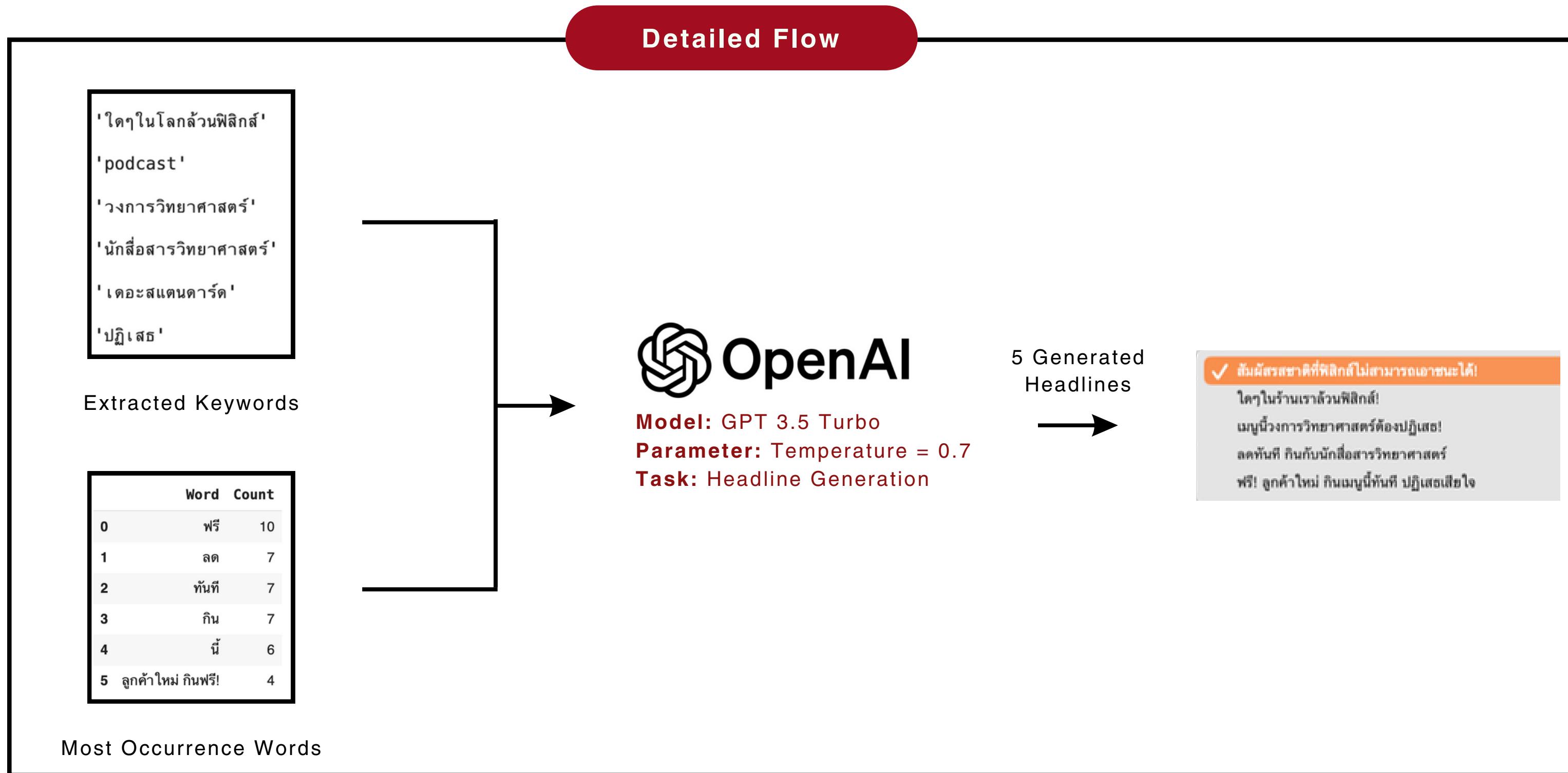


Image Headline Generation

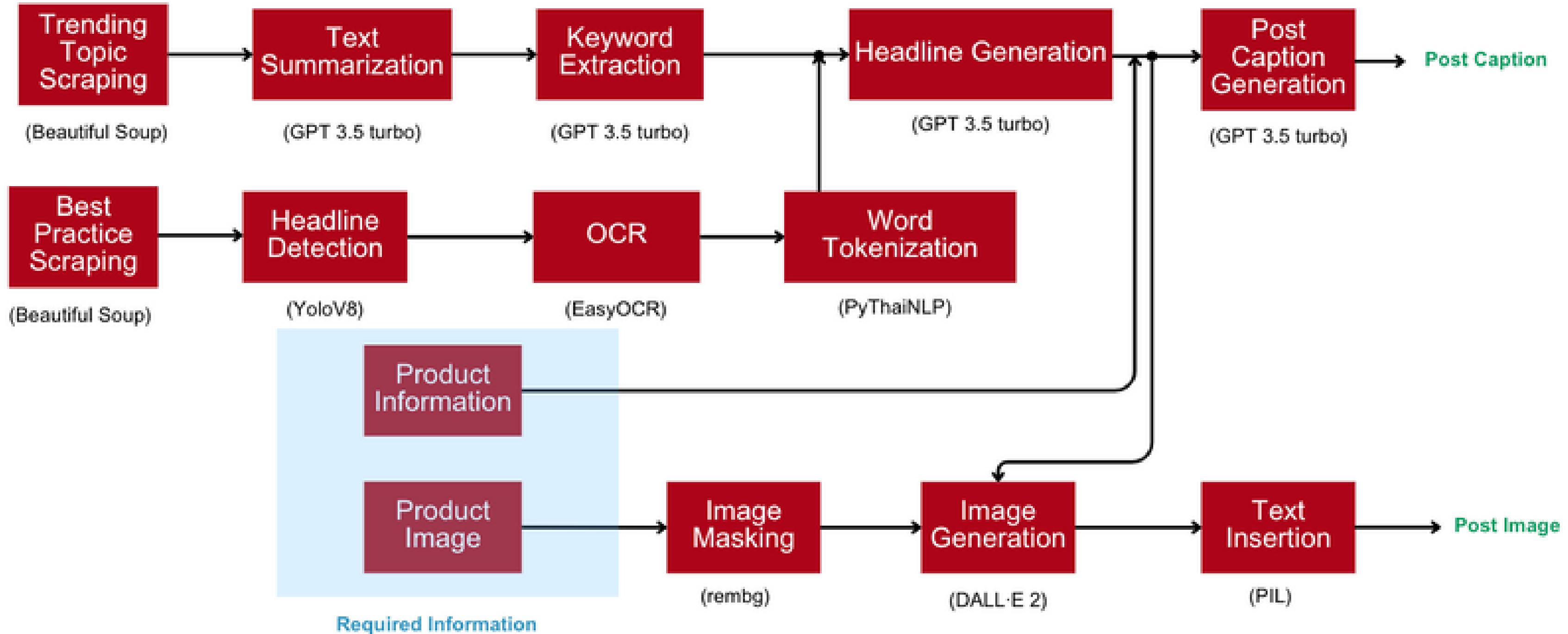
The extracted keywords and most occurrence words are used to generate image headlines



Project Methodology

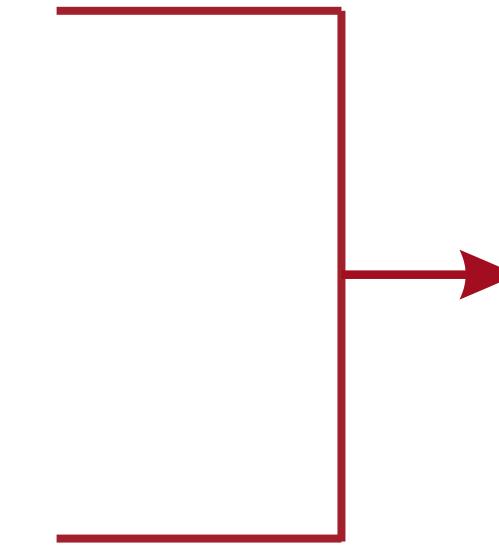
Methodology Overview
Viral Trends
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Required Information
Post Caption Generation
Post Image Generation

System Diagram



User Inputs

Product Information



> Please Fill In Product Information

brand_name: "Burger Queen"

product_name: "เบอร์เกอร์เนื้อ"

product_description: "เนื้อวัวเลี้ยงโดยธรรมชาติพรีเมียมส่งตรงมาจากออสเตรเลีย, ละลายในปาก, รสชาติกลมกล่อม, ซอสสูดเข้มข้น"

product_quote: "ถูก อิม อร่อย"

platform: "Facebook"

Platform

Product Image



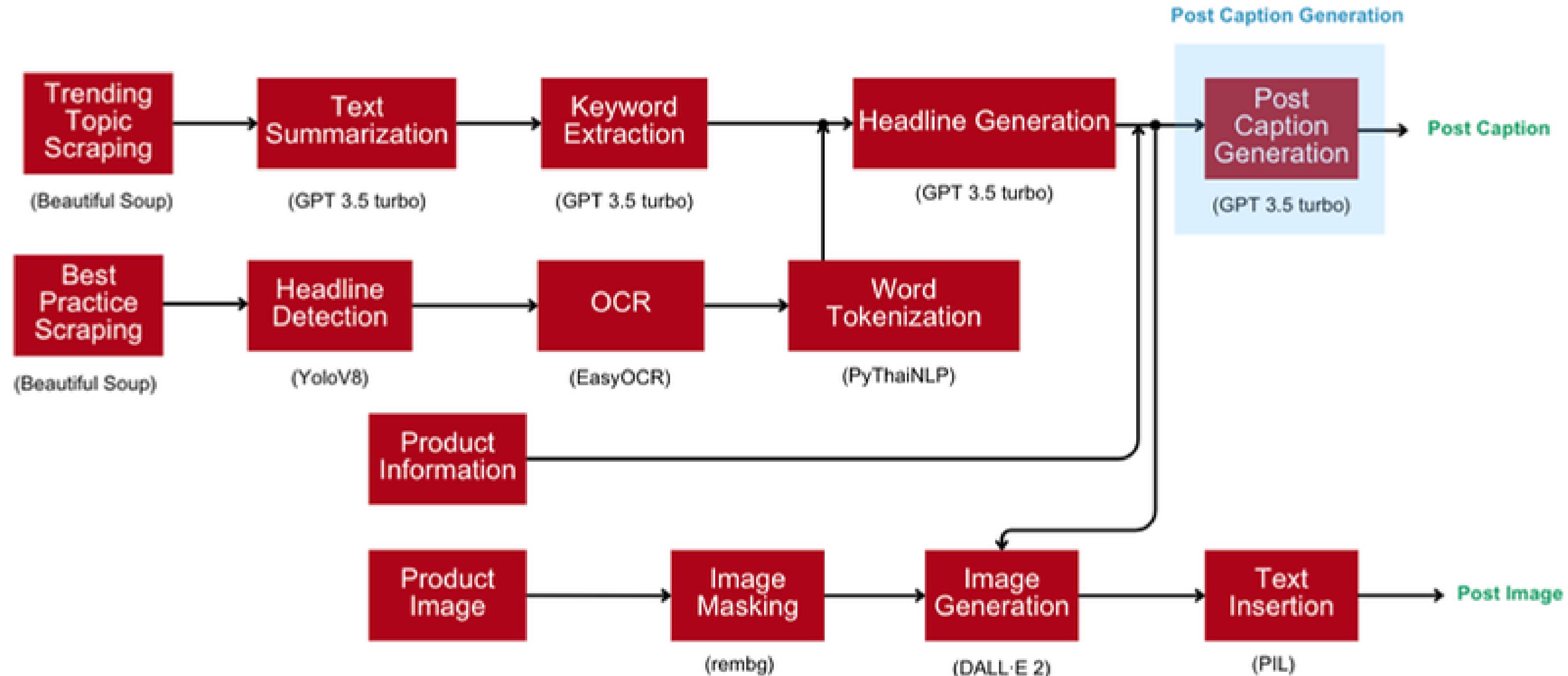
Project Methodology

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Best Practice
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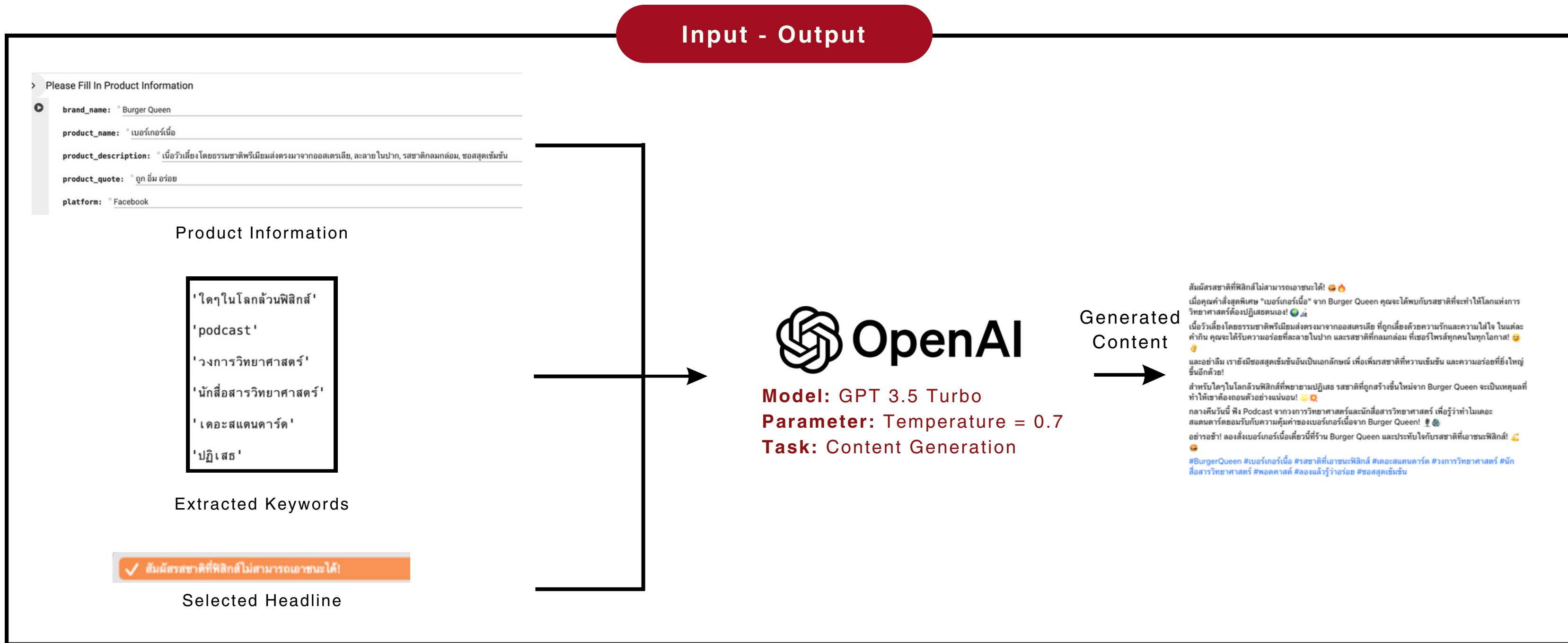
Post Image Generation

System Diagram



Post Caption Generation

With all components prepared, post caption can be generated



Project Methodology

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Post Caption Generation
Post Image Generation

System Diagram

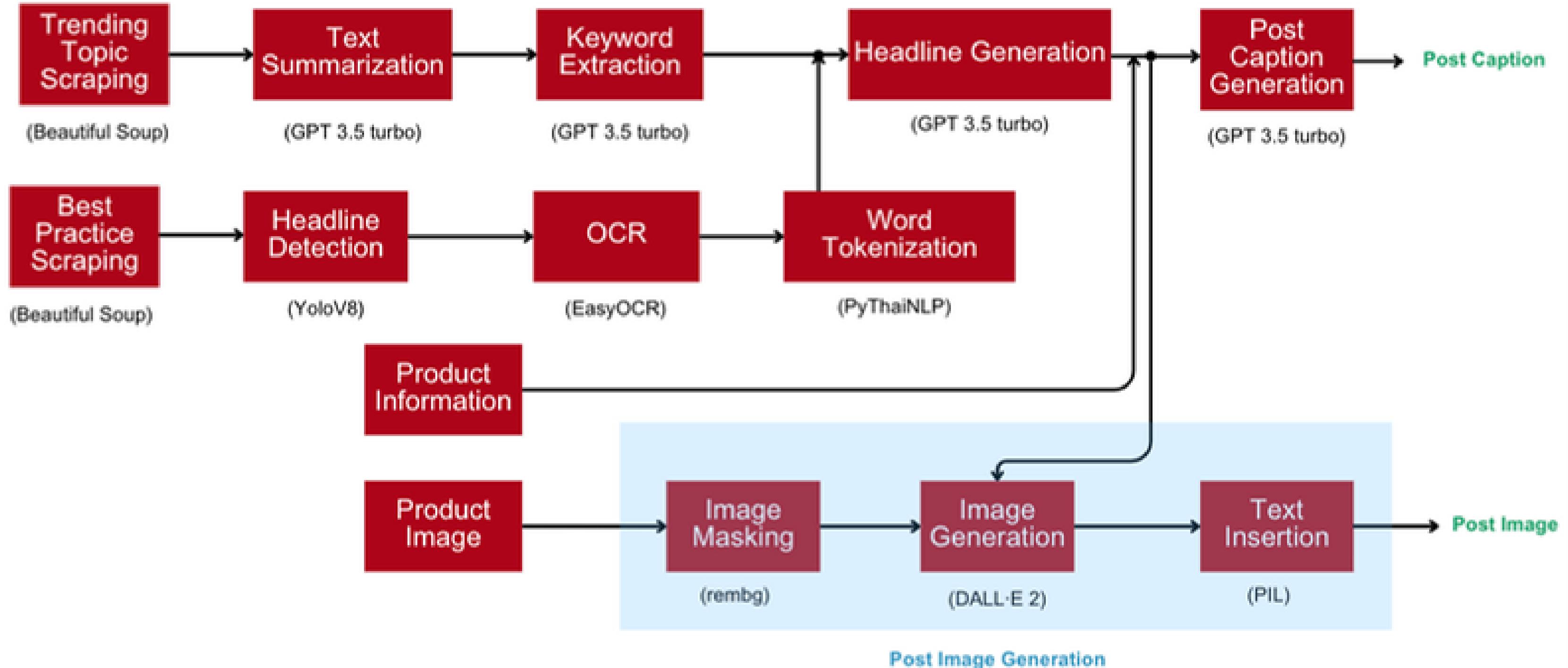


Image Generation Technique

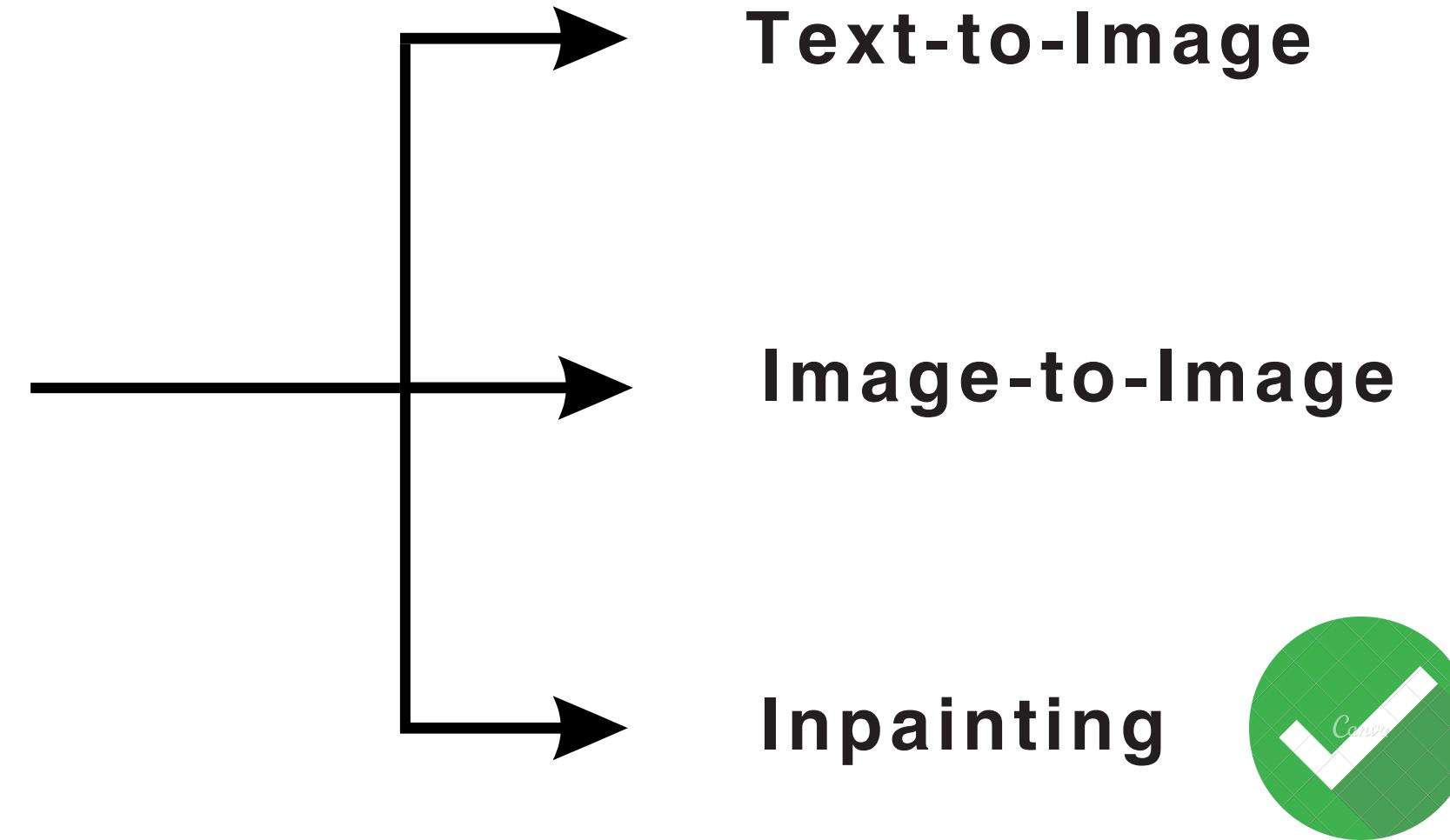
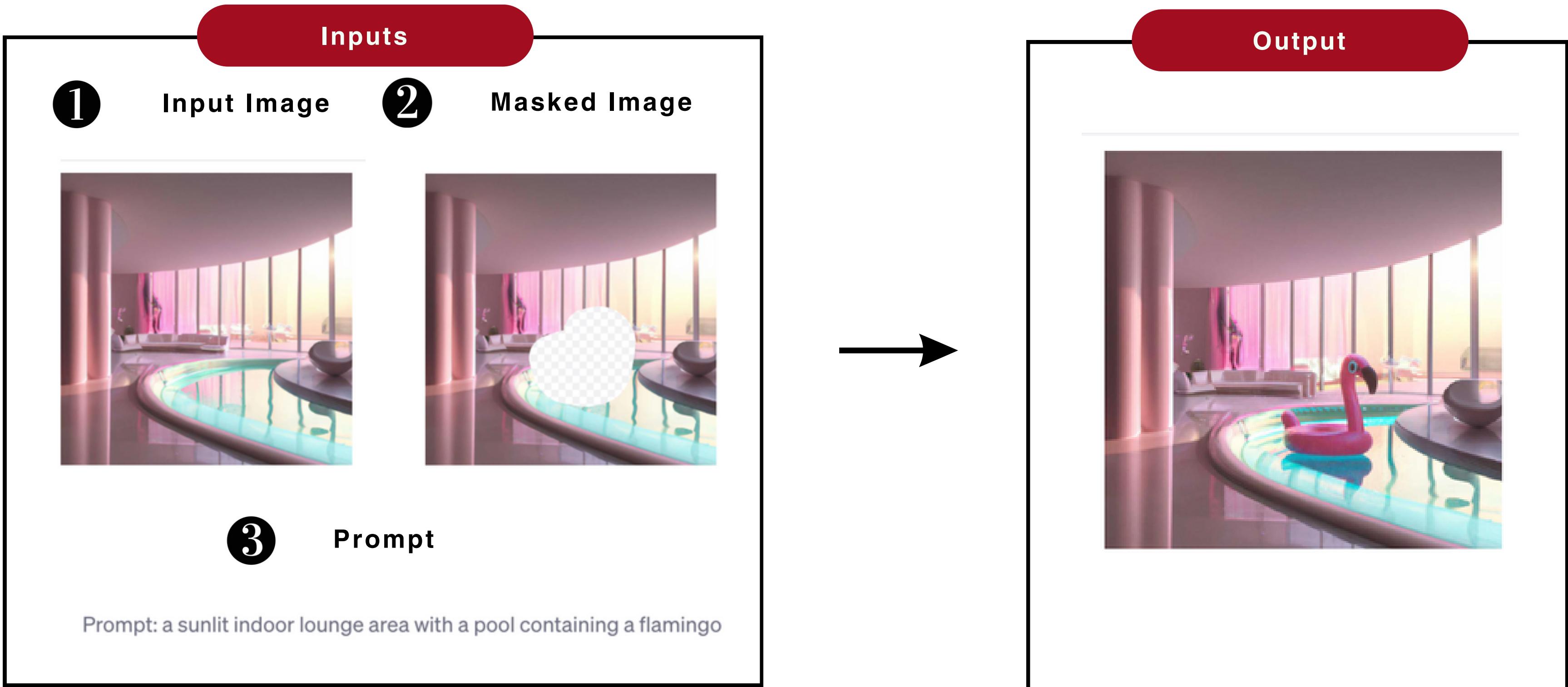


Image-to-Image (Inpainting Technique) concept



Flow and Tools

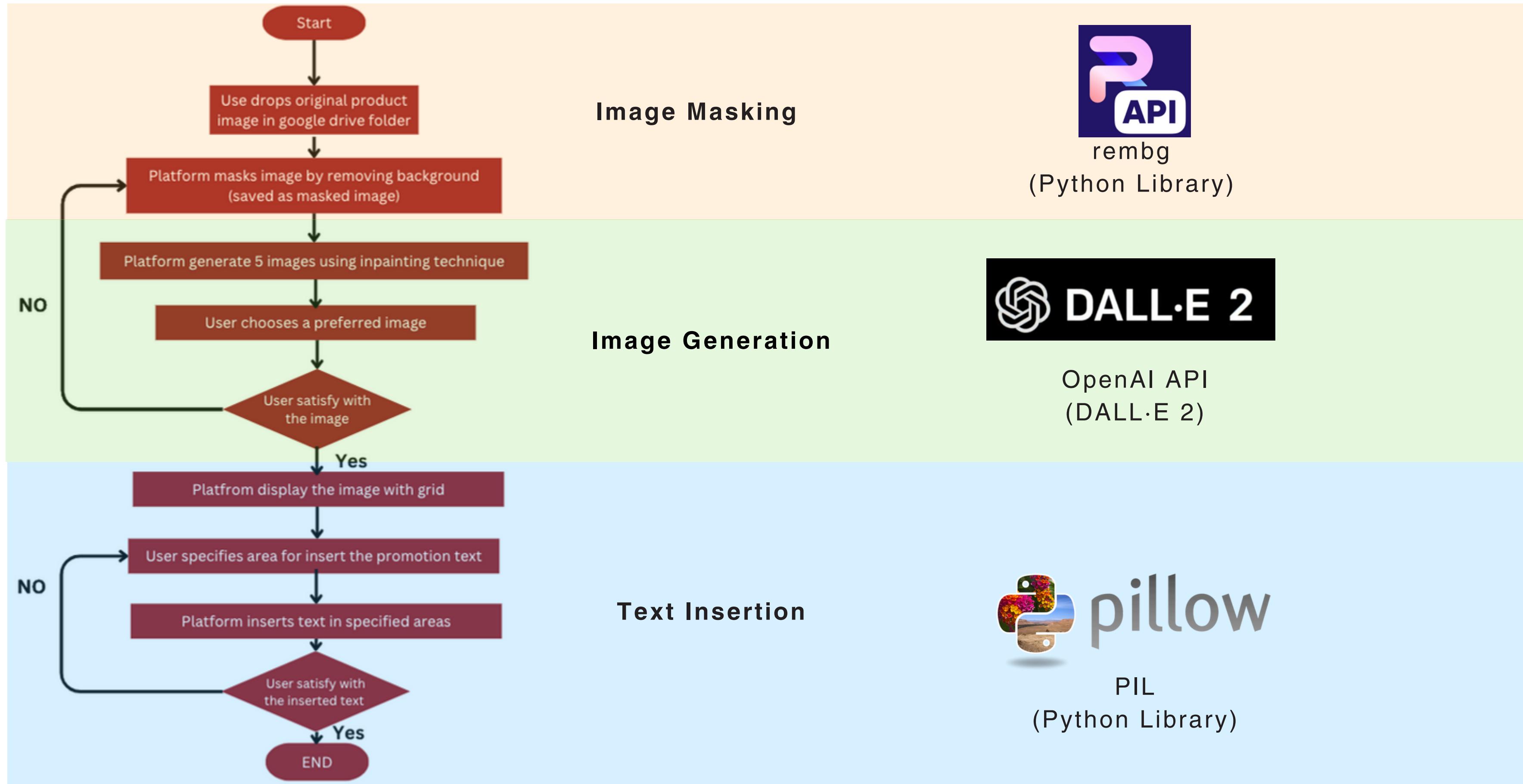


Image Masking

Image needed to be first remove background -> “masking”

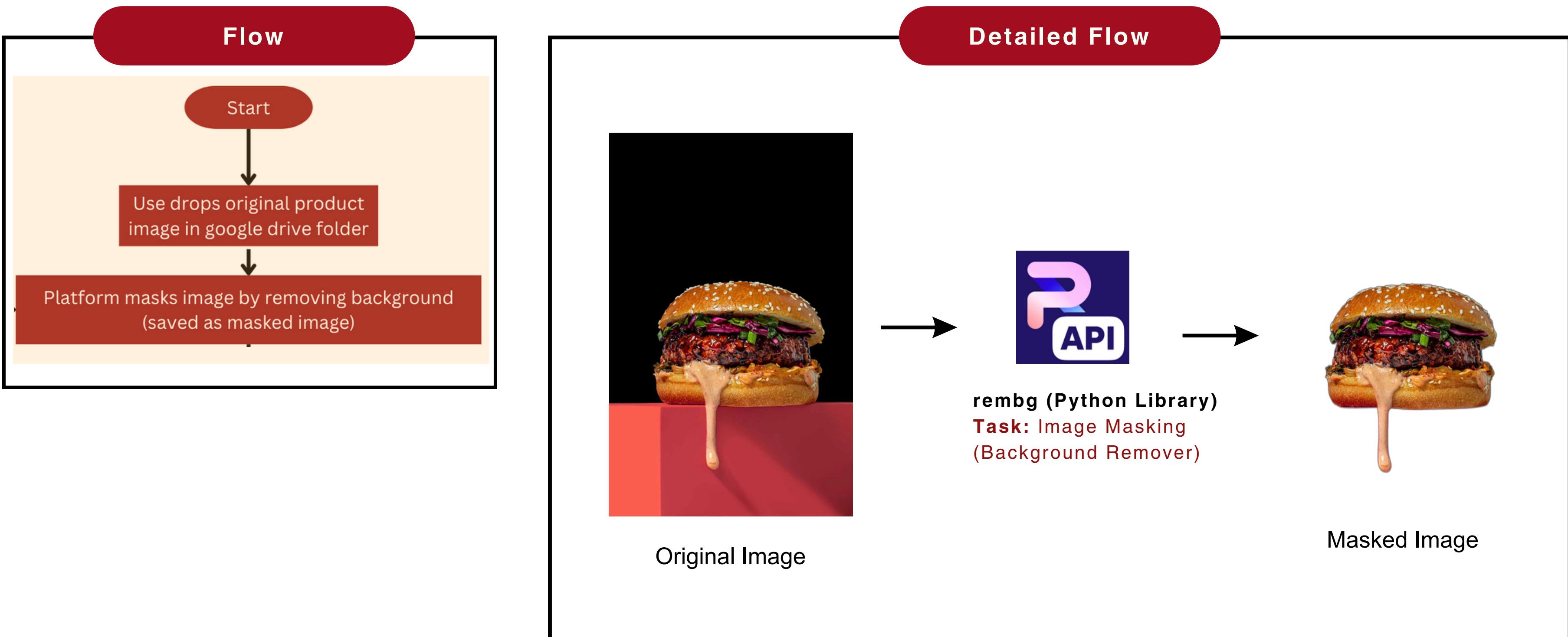
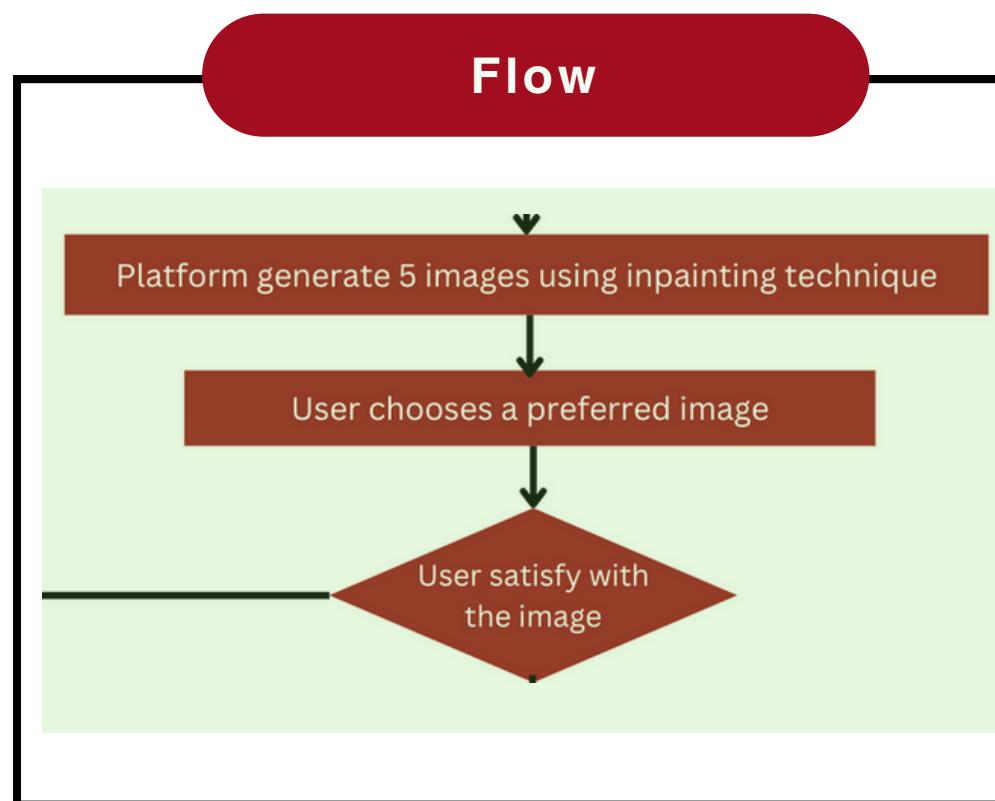


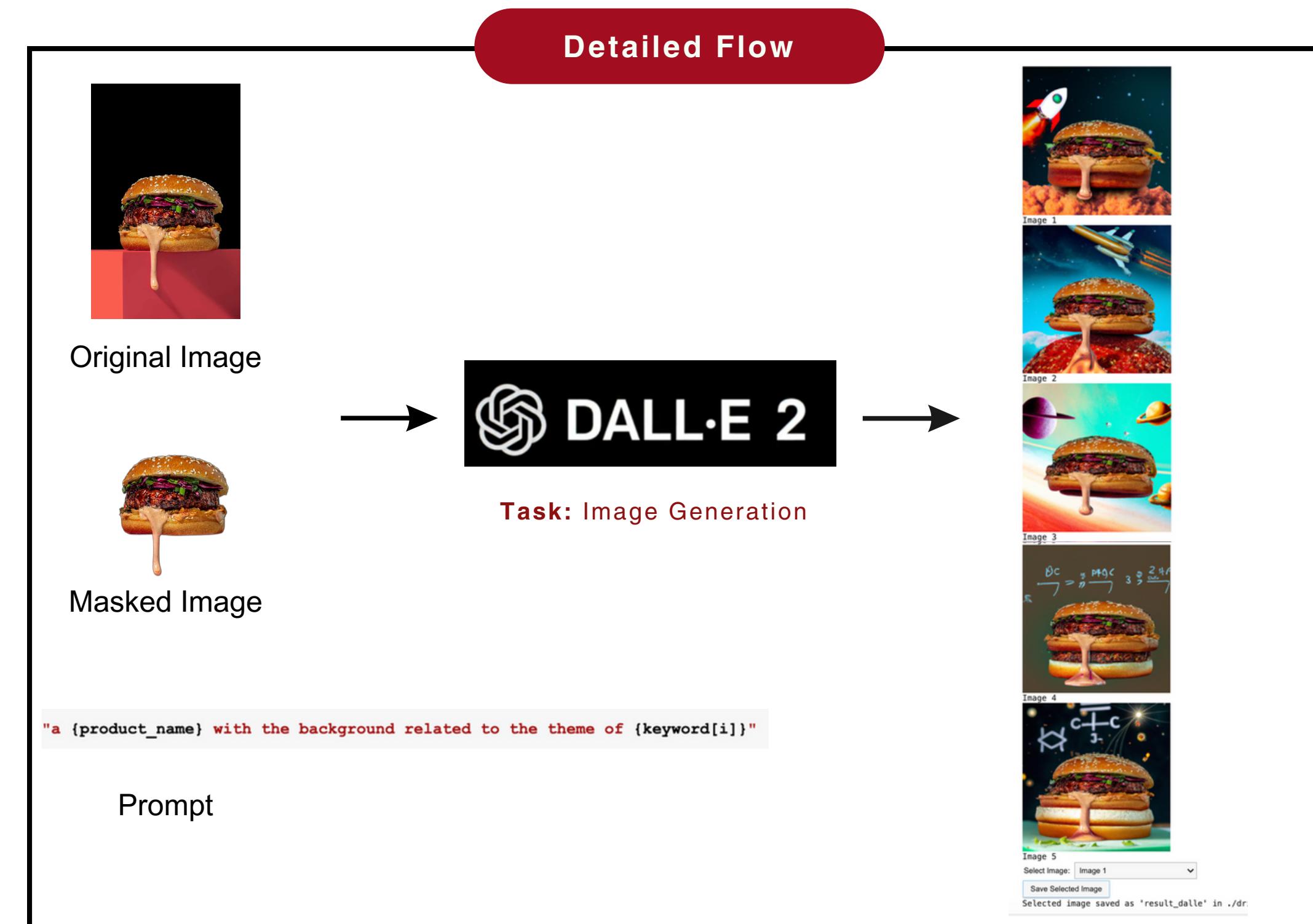
Image Generation

The original image, masked image, prompt is used to generate the new image



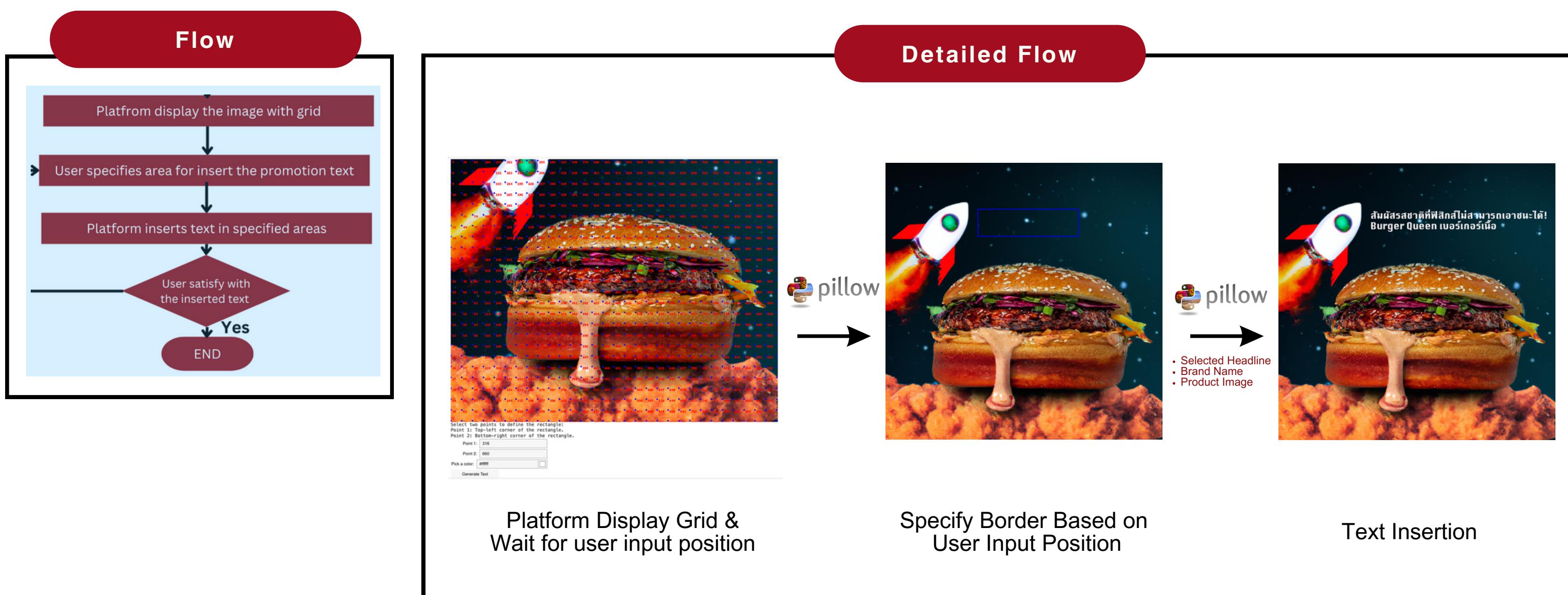
Noted that:
The current keyword is

- 'ได้ในโลกล้วนพิลึก'
- 'podcast'
- 'วงการวิทยาศาสตร์'
- 'นักสื่อสารวิทยาศาสตร์'
- 'เดอะสแตนดาร์ด'
- 'ปฏิเสธ'



Text Insertion

User have to select the position of the text, then platform will automatically insert the headline, brand name and product name



Final Output

Semester 1 Output

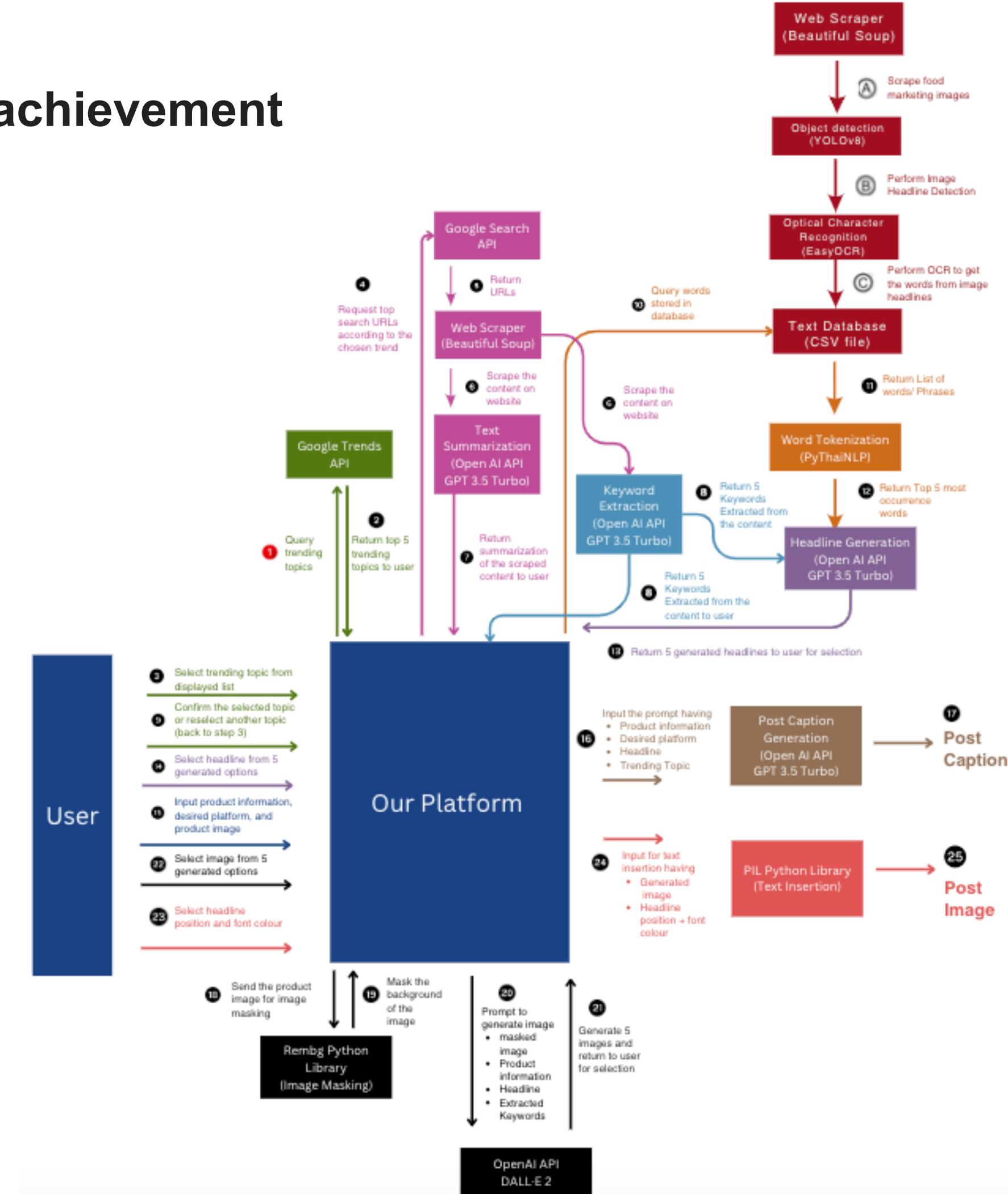


Project Result

Outcome & Next Steps

Project Result

Project outcome and achievement



Project outcome and achievement

1

Viral Trend Integration

- Apply **Google Trends API and BeautifulSoup** technique to extract the real time trending topic
- Summarize trend data and extract the key context using **Open AI GPT 3.5 Turbo** technique

2

Best Practice Integration

- Apply **Beautiful Soup** extract and filter top performing marketing image
- **EasyOCR and Yolov8** to detect and read the key image headline
- **PyThaiNLP's Tokenization** to extract the most occurrence words

3

Overall Integration and Customizable Output

- Apply prompt engineering along with **PIL & Rembg Python library** and **OpenAI API DALL-E 2** to generate the final marketing image
- Allow user on **freedom of choosing** the preference through the process of marketing generation
- Apply prompt engineering on the keywords with **Open AI GPT 3.5 Turbo** to integrate the keywords into the marketing content

Project Result

Next Step

1

Evaluate the Generative AI result and improve the process of prompt engineering to be able to use the Generative AI more accurate and effective.

2

Evaluate the model performances and try other AI models for selection to improve the accuracy of the AI models: Object Detection, OCR.

3

Develop and enhance the platform and user interface to improve user experience.

4

Implement a dashboard that helps the users to evaluate the marketing content performance be able to conduct A/B Testing

THANK YOU