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TEXT SUMMARIZER - GEN AI PROJECT PHASE 2 SUBMISSION DOCUMENT

Phase 2: Project Execution and Demonstration

1. Project Title:

AI-Based Text Summarization Using Pre-trained Transformers

2. Objective Recap:

The objective of this project is to build a Text Summarization system using Generative AI models.
The system takes a paragraph or blog text as input and generates a concise and coherent summary using state-of-the-art pre-trained NLP models.

3. Technologies Used:

- Python
- HuggingFace Transformers
- ipywidgets (for interactive interface)
- Google Colab / Jupyter Notebook
- Pre-trained facebook/bart-large-cnn model

4. Full Code Implementation:

Step 1: Install Required Libraries

pip install transformers ipywidgets

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Step 2: Import Required Libraries

```
from transformers import pipeline

import ipywidgets as widgets
```

Step 3: Load the Pretrained Summarization Model

```
summarizer = pipeline("summarization", model="facebook/bart-large-cnn")
```

Step 4: Build Google Colab Interface Using Widgets

```
# Create text input widget

text_input = widgets.Textarea(

    placeholder='Enter your blog text here...',

    description='Blog Text:',

    layout=widgets.Layout(width='500px', height='150px')

)


# Create button widget

button = widgets.Button(description="Generate Summary")


# Create output box widget

output_box = widgets.HTML(

    layout=widgets.Layout(

        border='1px solid black',

        padding='10px',

        width='500px',
```

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```
        height='200px',
        overflow_y='scroll'
    )
)
# Function to process and summarize input text
def preprocess_text(text):
    text = " ".join(text.split())
    return text

def summarize_blog(blog_text):
    blog_text = preprocess_text(blog_text)
    summary = summarizer(blog_text, max_length=250, min_length=100, do_sample=False)
    return summary[0]['summary_text']

# Function to handle button click
def on_button_click(b):
    blog_text = text_input.value
    summary = summarize_blog(blog_text)
    output_content = f"<b>Summary:</b><br>{summary}"
    output_box.value = output_content
# Attach event handler to button
button.on_click(on_button_click)
# Display all widgets
widgets.VBox([text_input, button, output_box])
```

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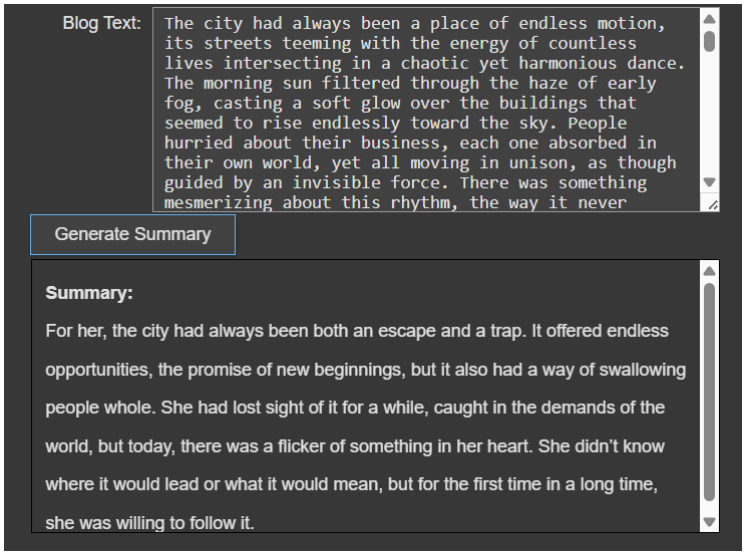
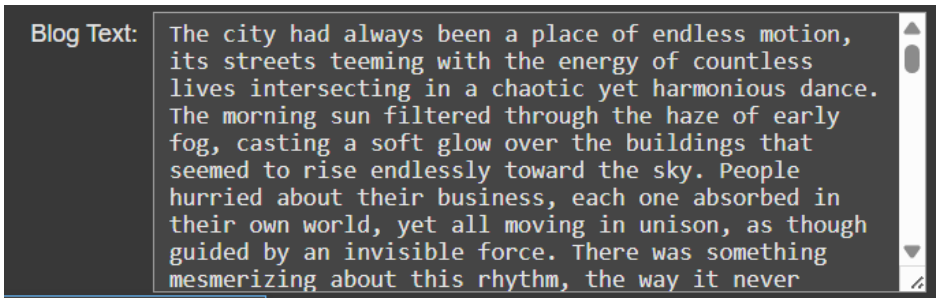
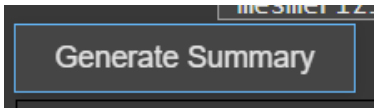
5. Output Screenshots:



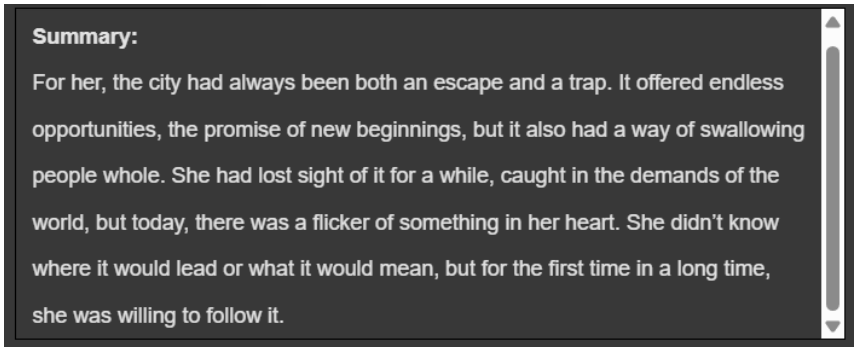
- Blog text area



- Generate button



- Displayed generated sentence



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6. Conclusion:

This project successfully implements a Text Summarization system using facebook/bart-large-cnn model.
It demonstrates how Generative AI models can be used to intelligently reduce long text into concise summaries.
The application showcases potential use cases in content writing, blog summarization, news summarization, and educational note preparation.

7. References:

- HuggingFace Transformers Documentation
- BART Model for Summarization (Facebook AI Research)
- NLP Text Summarization Techniques