```
!ls
```

```
sample_data
```

```
from google.colab import drive
drive.mount('/content/drive')
```

```
Mounted at /content/drive
```

```
!unzip /content/drive/MyDrive/NPL_PROJECTS/roberta_base.zip -d roberta_base
```

```
Archive:  /content/drive/MyDrive/NPL_PROJECTS/roberta_base.zip
  inflating: roberta_base/tokenizer_config.json
  inflating: roberta_base/config.json
  inflating: roberta_base/special_tokens_map.json
  inflating: roberta_base/vocab.json
  inflating: roberta_base/merges.txt
  inflating: roberta_base/model.safetensors
  inflating: roberta_base/tokenizer.json
```

LABEL_0 → "Hate Speech" LABEL_1 → "Offensive". { predicted label } LABEL_2 → "Neither".

```
from transformers import pipeline

# Create a text-classification pipeline
classifier = pipeline("text-classification", model="/content/roberta_base", device=0)  # use device=-1 for CPU

# ----------------------------------------------------
# 3️⃣ Test your model
# ----------------------------------------------------
# Single test
print("Single example test:")
print(classifier("I hate you!"))

# Multiple examples
texts = [
    "hi! karan",
    "You're such a nice person.",
    "Go back to your country.",
```

```
    "i hate it!"
]

print("\nBatch test:")
for text in texts:
    pred = classifier(text)[0]
    print(f"Text: {text}")
    print(f"Predicted label: {pred['label']}, score: {pred['score']:.4f}")
    print("-" * 40)
```

```
Device set to use cpu
Single example test:
[{'label': 'LABEL_1', 'score': 0.5674282908439636}]

Batch test:
Text: hi! karan
Predicted label: LABEL_2, score: 0.9842
----------------------------------------
Text: You're such a nice person.
Predicted label: LABEL_2, score: 0.8892
----------------------------------------
Text: Go back to your country.
Predicted label: LABEL_2, score: 0.9602
----------------------------------------
Text: i hate it!
Predicted label: LABEL_2, score: 0.7389
----------------------------------------
```

LABEL_0 → "Hate Speech" LABEL_1 → "Offensive". { predicted label } LABEL_2 → "Neither".

```
import google.generativeai as genai
from transformers import pipeline
import gradio as gr

# ------------------------
# 1. Configure Gemini
# ------------------------
api_key = "AIzaSyBR8XLAeY_69yHesF8NGhukHoMPVhsBYYI"   # apna Gemini API key yahan daalo
genai.configure(api_key=api_key)
gemini = genai.GenerativeModel("gemini-2.0-flash")  # ⚡ fast model

# ------------------------
# 2. Load classifier
# ------------------------
classifier = pipeline("text-classification", model="/content/roberta_base", device=0)
```

```
id2label = {
    "LABEL_0": "Hate Speech",
    "LABEL_1": "Offensive",
    "LABEL_2": "Neither"
}

# -----------------------
# 3. Streaming function
# -----------------------
def classify_and_explain(text):
    # Step 1: Classifier result (instant)
    pred_raw = classifier(text)[0]
    pred = id2label.get(pred_raw['label'], pred_raw['label'])
    score = f"{pred_raw['score']:.4f}"
    yield pred, score, "⏳ Gemini explanation loading..."

    # Step 2: Gemini explanation (slower)
    prompt = f'Text: "{text}"\nPrediction: {pred}\nExplain briefly in 1–2 sentences.'
    try:
        response = gemini.generate_content(prompt)
        yield pred, score, response.text.strip()
    except Exception as e:
        yield pred, score, f"Error calling Gemini API: {e}"

# -----------------------
# 4. Gradio Interface
# -----------------------
with gr.Blocks() as demo:
    gr.Markdown("## ⚡ Hate Speech Classifier + Gemini-2.0-Flash")
    gr.Markdown("Classifier runs instantly. Gemini explanation streams after.")

    text_input = gr.Textbox(label="Enter text", placeholder="Type a sentence...", lines=3)
    label_output = gr.Textbox(label="Predicted Label")
    score_output = gr.Textbox(label="Confidence Score")
    explanation_output = gr.Textbox(label="Gemini Explanation", lines=6)

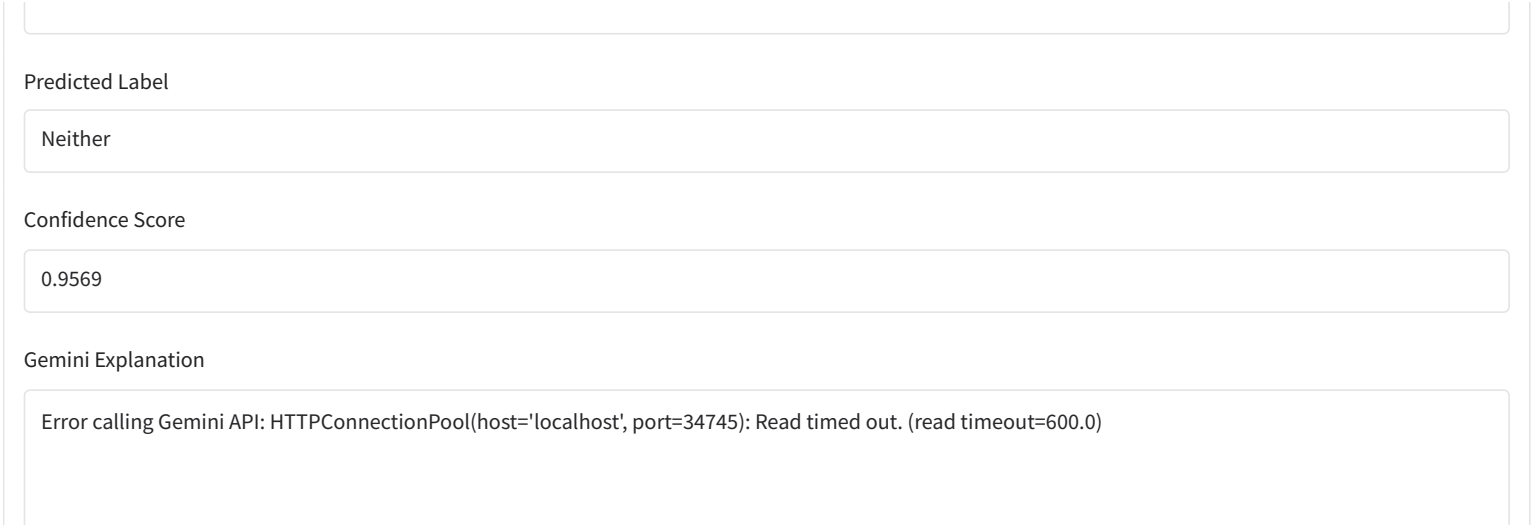
    submit_btn = gr.Button("Classify & Explain")
    submit_btn.click(fn=classify_and_explain,
                     inputs=text_input,
                     outputs=[label_output, score_output, explanation_output],
                     show_progress="hidden")  # hides loading spinner

demo.launch()
```

```
Device set to use cpu
It looks like you are running Gradio on a hosted Jupyter notebook, which requires `share=True`. Automatically setting `share=True` (you can turn this

Colab notebook detected. To show errors in colab notebook, set debug=True in launch()
* Running on public URL: https://8f85c33edff4f9afd2.gradio.live

This share link expires in 1 week. For free permanent hosting and GPU upgrades, run `gradio deploy` from the terminal in the working directory to dep
```




```
import google.generativeai as genai
from transformers import pipeline
import gradio as gr

# -----------------------
# 1. Configure Gemini
# -----------------------
api_key = "AIzaSyBR8XLAeY_69yHesF8NGhukHoMPVhsBYYI"   # apna Gemini API key
genai.configure(api_key=api_key)
gemini = genai.GenerativeModel("gemini-2.0-flash")  # ⚡ fast model
```

```
# ------------------------
# 2. Load classifier
# ------------------------
classifier = pipeline("text-classification", model="/content/roberta_base", device=0)

id2label = {
    "LABEL_0": "Hate Speech",
    "LABEL_1": "Offensive",
    "LABEL_2": "Neither"
}

# ------------------------
# 3. Function with timeout + error handling
# ------------------------
def classify_and_explain(text):
    # Step 1: Classifier result (instant)
    pred_raw = classifier(text)[0]
    pred = id2label.get(pred_raw['label'], pred_raw['label'])
    score = f"{pred_raw['score']:.4f}"
    yield pred, score, "⏳ Gemini explanation loading..."

    # Step 2: Gemini explanation (slower, max 15 sec)
    prompt = f'Text: "{text}"\nPrediction: {pred}\nExplain briefly in 1–2 sentences.'
    try:
        response = gemini.generate_content(
            prompt,
            request_options={"timeout": 15}   # ⏰ max wait 15 sec
        )
        explanation = response.text.strip()
    except Exception as e:
        explanation = f"Gemini error: {e}"

    yield pred, score, explanation

# ------------------------
# 4. Gradio Interface
# ------------------------
with gr.Blocks() as demo:
    gr.Markdown("## ⚡ Hate Speech Classifier + Gemini-2.0-Flash")
    gr.Markdown("Classifier runs instantly. Gemini explanation streams after.")

    text_input = gr.Textbox(label="Enter text", placeholder="Type a sentence...", lines=3)
    label_output = gr.Textbox(label="Predicted Label")
    score_output = gr.Textbox(label="Confidence Score")
    explanation_output = gr.Textbox(label="Gemini Explanation", lines=6)

    submit_btn = gr.Button("Classify & Explain")
```

```
        submit_btn.click(
            fn=classify_and_explain,
            inputs=text_input,
            outputs=[label_output, score_output, explanation_output],
            show_progress="hidden"
        )

demo.launch()
```

```
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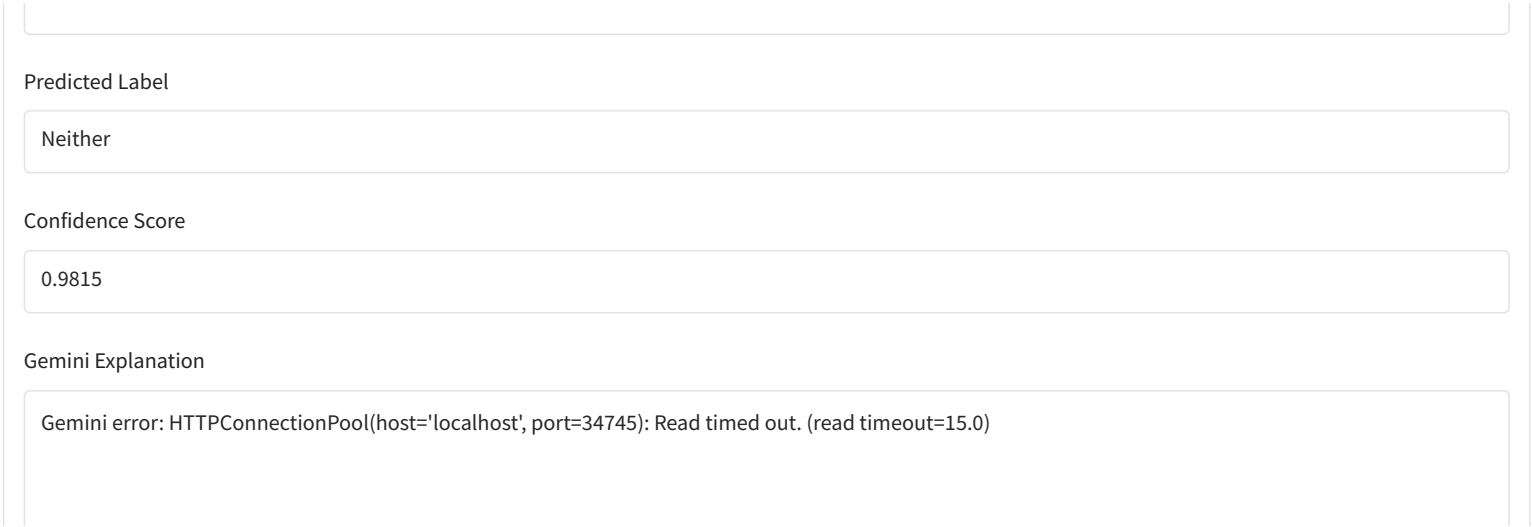
```



```
import google.generativeai as genai
from transformers import pipeline

# -----------------------
# 1. Configure Gemini
# -----------------------
api_key = "AIzaSyBR8XLAeY_69yHesF8NGhukHoMPVhsBYYI"   # apna API key
genai.configure(api_key=api_key)
gemini = genai.GenerativeModel("gemini-2.0-flash")  # fast model

# -----------------------
# 2. Load classifier
# -----------------------
classifier = pipeline("text-classification", model="/content/roberta_base", device=0)

id2label = {
    "LABEL_0": "Hate Speech",
    "LABEL_1": "Offensive",
    "LABEL_2": "Neither"
}

# -----------------------
# 3. Integration Function
# -----------------------
def classify_and_explain(text):
    # Step 1: Classifier prediction
    pred_raw = classifier(text)[0]
    pred = id2label.get(pred_raw['label'], pred_raw['label'])
    score = f"{pred_raw['score']:.4f}"

    # Step 2: LLM Explanation (with fallback)
    prompt = f"""
    You are an expert NLP assistant.
    Text: "{text}"
    Classifier predicted: {pred} (confidence {score}).

    ✅ Task: Briefly explain why this prediction makes sense
    OR point out if the classifier might be wrong.
    Keep it concise (2–3 sentences).
    """
    try:
        response = gemini.generate_content(prompt, request_options={"timeout": 60})
        explanation = response.text.strip()
    except Exception:
        explanation = "⚠️ Gemini timed out. Showing only classifier result."

    return pred, score, explanation
```

```
# ------------------------
# 4. Example usage
# ------------------------
txt = "I hate people like you."
label, conf, exp = classify_and_explain(txt)

print("Predicted Label:", label)
print("Confidence:", conf)
print("Explanation:", exp)
```

```
Device set to use cpu
Predicted Label: Offensive
Confidence: 0.5050
Explanation: ⚠️ Gemini timed out. Showing only classifier result.
```

```
from openai import OpenAI
from transformers import pipeline

# 1. Configure OpenAI
client = OpenAI(api_key="sk-proj-BMLPuGeRnxZALkxx_TJ7eky4SFHTaGcyOfTs-F_18YXRgOO9-vD2km2RVOWJYRK-hGVBZ8FXzcT3BlbkFJNR7pW20qmlcuSkrqoN_JgWHV1jXk9YpAgjWK8E(

# 2. Load classifier
classifier = pipeline("text-classification", model="/content/roberta_base", device=0)

id2label = {
    "LABEL_0": "Hate Speech",
    "LABEL_1": "Offensive",
    "LABEL_2": "Neither"
}

# 3. Integration function
def classify_and_explain(text):
    # Classifier output
    pred_raw = classifier(text)[0]
    pred = id2label.get(pred_raw['label'], pred_raw['label'])
    score = f"{pred_raw['score']:.4f}"

    # Ask LLM for explanation
    prompt = f"""
    Text: "{text}"
    Classifier prediction: {pred} (confidence {score}).

    Briefly explain why this makes sense,
    or suggest if the classifier might be wrong (2–3 sentences).
    """
```

```
        try:
            response = client.chat.completions.create(
                model="gpt-4o-mini",  # fast & cheap
                messages=[{"role": "user", "content": prompt}],
                timeout=15
            )
            explanation = response.choices[0].message.content.strip()
        except Exception as e:
            explanation = f"⚠️ OpenAI error: {e}"

        return pred, score, explanation

    # Test
    txt = "I hate people like you."
    label, conf, exp = classify_and_explain(txt)
    print(label, conf, exp)
```

```
Device set to use cpu
Offensive 0.5050 The classifier's prediction of "Offensive" with a confidence of 0.5050 makes sense given that the phrase expresses strong negative s
```

```
    from openai import OpenAI
    from transformers import pipeline
    import gradio as gr

    # ------------------------
    # 1. Configure OpenAI
    # ------------------------
    client = OpenAI(api_key="sk-proj-BMLPuGeRnxZALkxx_TJ7eky4SFHTaGcyOfTs-F_18YXRgOO9-vD2km2RVOWJYRK-hGVBZ8FXzcT3BlbkFJNR7pW20qmlcuSkrqoN_JgWHV1jXk9YpAgjWK8E(

    # ------------------------
    # 2. Load classifier
    # ------------------------
    classifier = pipeline("text-classification", model="/content/roberta_base", device=0)

    id2label = {
        "LABEL_0": "Hate Speech",
        "LABEL_1": "Offensive",
        "LABEL_2": "Neither"
    }

    # ------------------------
    # 3. Integration function
    # ------------------------
    def classify_and_explain(text):
        if not text.strip():
```

```
            return "⚠️ Please enter some text", "", ""

        # Step 1: Classifier result
        pred_raw = classifier(text)[0]
        pred = id2label.get(pred_raw['label'], pred_raw['label'])
        score = f"{pred_raw['score']:.4f}"

        # Step 2: Ask LLM for explanation
        prompt = f"""
        Text: "{text}"
        Classifier prediction: {pred} (confidence {score}).

        Briefly explain why this makes sense,
        or suggest if the classifier might be wrong (2–3 sentences).
        """

        try:
            response = client.chat.completions.create(
                model="gpt-4o-mini",  # fast + cheap
                messages=[{"role": "user", "content": prompt}],
                timeout=15
            )
            explanation = response.choices[0].message.content.strip()
        except Exception as e:
            explanation = f"⚠️ OpenAI error: {e}"

        return pred, score, explanation

    # ------------------------
    # 4. Gradio Interface
    # ------------------------
    with gr.Blocks() as demo:
        gr.Markdown("## 🚨 Hate Speech Classifier + GPT Explanation")
        gr.Markdown("🔷 The classifier predicts instantly\n🔷 GPT explains the reasoning")

        with gr.Row():
            with gr.Column(scale=2):
                text_input = gr.Textbox(
                    label="Enter text",
                    placeholder="Type a sentence to classify...",
                    lines=3
                )
                submit_btn = gr.Button("Classify & Explain 🚀")

            with gr.Column(scale=3):
                label_output = gr.Textbox(label="Predicted Label")
                score_output = gr.Textbox(label="Confidence Score")
                explanation_output = gr.Textbox(label="GPT Explanation", lines=6)
```

```
            explanation_output = gr.Textbox(label="GPT Explanation", lines=6)

    submit_btn.click(
        fn=classify_and_explain,
        inputs=text_input,
        outputs=[label_output, score_output, explanation_output]
    )

demo.launch()
```

```
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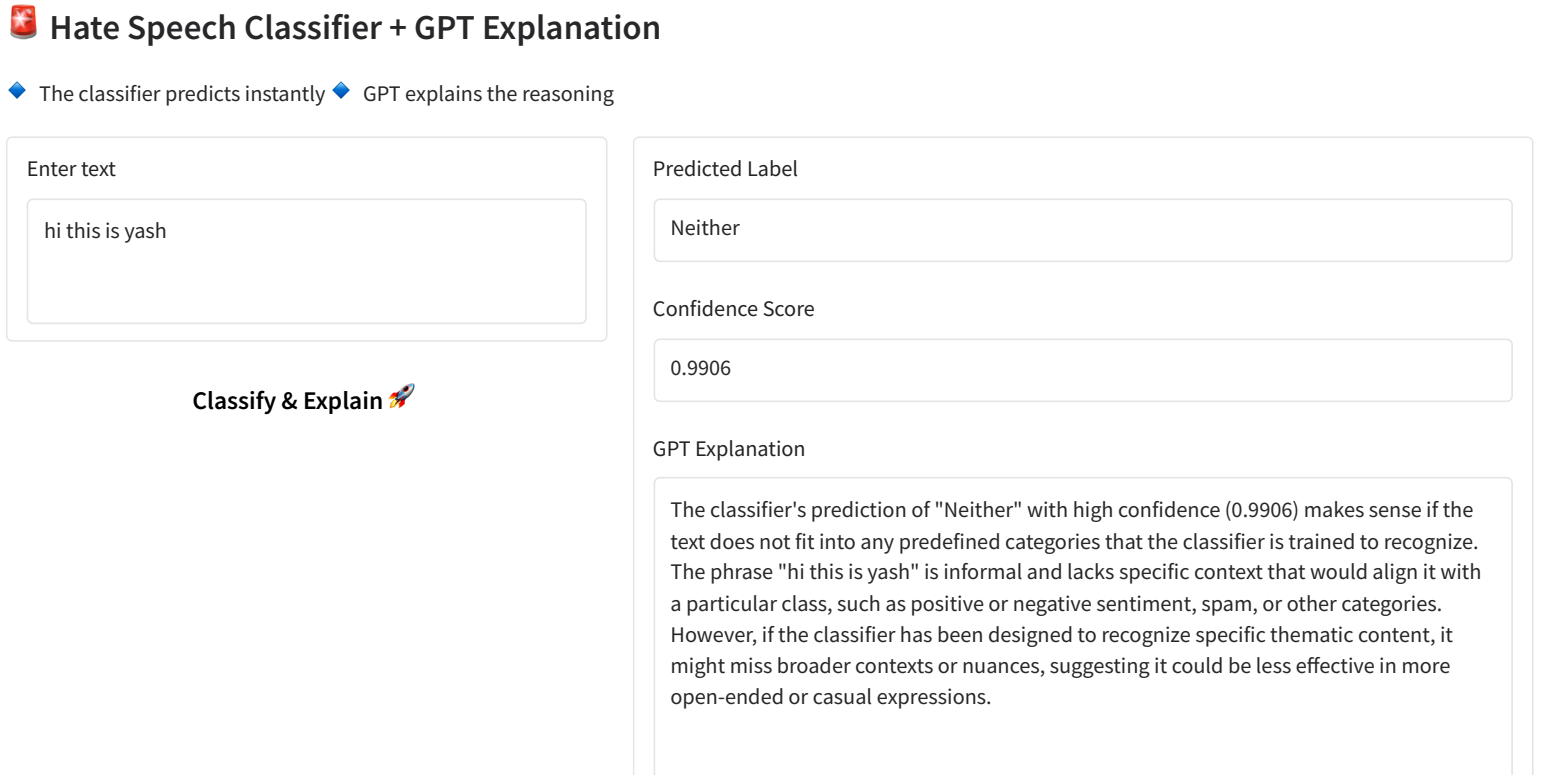

```
Start coding or generate with AI.
```