```
!pip install transformers
!pip install torch
!pip install streamlit
!pip install SpeechRecognition
!pip install gtts
```

```
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Requirement already satisfied: pydeck<1,>=0.8.0b4 in /usr/local/lib/python3.10/dist-packages (from streamlit) (0.9.1)
```

```
import streamlit as st  # Make sure to import streamlit
import torch
from transformers import MarianMTModel, MarianTokenizer
import speech_recognition as sr
from gtts import gTTS
import os
import datetime


def is_allowed_time():
    current_time = datetime.datetime.now().time()
    if current_time >= datetime.time(18, 0):  # After 6 PM IST
        return True
    else:
        return False


st.title("English to Hindi Audio Translation")

if is_allowed_time():
```

```
···audio_file·=·st.file_uploader("Upload·an·audio·file",·type=["wav",·"mp3"])
···if·audio_file·is·not·None:
·······text·=·recognize_speech_from_file(audio_file)
·······st.write(f"Recognized·English·Text:·{text}")
·······translated_text·=·translate_text(text)
·······st.write(f"Translated·Hindi·Text:·{translated_text}")
·······audio_output·=·convert_to_audio(translated_text)
·······st.audio(audio_output,·format='audio/mp3')
else:
···st.write("Translation·service·is·available·after·6·PM·IST.")
```

⮐ 2024-08-10 19:38:01.553
    Warning: to view this Streamlit app on a browser, run it with the following
    command:

        streamlit run /usr/local/lib/python3.10/dist-packages/colab_kernel_launcher.py [ARGUMENTS]

```
!pip install transformers
!pip install torch
!pip install streamlit
!pip install SpeechRecognition
!pip install gtts
!pip install sacrebleu  # Library for calculating BLEU score
```

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```
!pip install datasets
```

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Requirement already satisfied: tzdata>=2022.1 in /usr/local/lib/python3.10/dist-packages (from pandas->datasets) (2024.1)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.10/dist-packages (from python-dateutil>=2.8.2->pandas->datasets)
```

```python
import sacrebleu
import torch


def evaluate_bleu_score(model, tokenizer, test_data):
    references = []
    hypotheses = []

    # Ensure the model is on the correct device
    device = torch.device("cuda" if torch.cuda.is_available() else "cpu")
    model.to(device)

    for item in test_data:
        english_text = item["english"]
        expected_hindi = item["hindi"]

        # Tokenize and move inputs to the correct device
        inputs = tokenizer(english_text, return_tensors="pt", padding=True, truncation=True).to(device)
        translated_tokens = model.generate(**inputs)
        translated_hindi = tokenizer.decode(translated_tokens[0], skip_special_tokens=True)

        references.append([expected_hindi])
        hypotheses.append(translated_hindi)

    # Calculate BLEU score
    bleu = sacrebleu.corpus_bleu(hypotheses, references)
    return bleu.score


test_data = [
    {"english": "Hello, how are you?", "hindi": "नमस्ते, आप कैसे हैं?"},
    {"english": "What is your name?", "hindi": "आपका नाम क्या है?"},
    {"english": "I love to play football.", "hindi": "मुझे फ़ुटबॉल खेलना बहुत पसंद है।"},
    {"english": "How old are you?", "hindi": "आपकी उम्र क्या है?"},
    {"english": "I am from India.", "hindi": "मैं भारत से हूँ।"},
    {"english": "What do you do?", "hindi": "आप क्या करते हैं?"},
    {"english": "I like to read books.", "hindi": "मुझे किताबें पढ़ना पसंद है।"},
    {"english": "Do you speak English?", "hindi": "क्या आप अंग्रेज़ी बोलते हैं?"},
    {"english": "I have a dog.", "hindi": "मेरे पास एक कुत्ता है।"},
    {"english": "What is your favorite food?", "hindi": "आपका पसंदीदा खाना क्या है?"},
    {"english": "I love to travel.", "hindi": "मुझे यात्रा करना बहुत पसंद है।"},
    {"english": "How much does it cost?", "hindi": "इसकी कीमत क्या है?"},
    {"english": "I am happy to meet you.", "hindi": "आपसे मिलने में मुझे खुशी है।"}

]
```

```python
# Example: Extending fine-tuning epochs and using more data
training_args = Seq2SeqTrainingArguments(
    output_dir="./results",
    evaluation_strategy="epoch",
    learning_rate=2e-5,
    per_device_train_batch_size=16,
    per_device_eval_batch_size=16,
    weight_decay=0.01,
    save_total_limit=3,
    num_train_epochs=10,  # Increase number of epochs
    predict_with_generate=True,
)

trainer = Seq2SeqTrainer(
    model=model,
    args=training_args,
    train_dataset=tokenized_datasets,
    eval_dataset=tokenized_datasets,
)

trainer.train()
```

⮑ /usr/local/lib/python3.10/dist-packages/transformers/training_args.py:1494: FutureWarning: `evaluation_strategy` is deprecated and v
      warnings.warn(
   ████████████████████████████ [10/10 00:08, Epoch 10/10]

Epoch	Training Loss	Validation Loss
1	No log	1.798365
2	No log	1.537915
3	No log	1.325577
4	No log	1.153149
5	No log	1.017457
6	No log	0.912676
7	No log	0.835954
8	No log	0.781277
9	No log	0.746025
10	No log	0.728781

    Some non-default generation parameters are set in the model config. These should go into a GenerationConfig file (https://huggingfa
    Non-default generation parameters: {'max_length': 512, 'num_beams': 4, 'bad_words_ids': [[61949]], 'forced_eos_token_id': 0}
    TrainOutput(global_step=10, training_loss=1.3477745056152344, metrics={'train_runtime': 8.352, 'train_samples_per_second': 3.592,
    'train_steps_per_second': 1.197, 'total_flos': 1016950947840.0, 'train_loss': 1.3477745056152344, 'epoch': 10.0})

```python
bleu_score = evaluate_bleu_score(model, tokenizer, test_data)
print(f"Accuracy: {bleu_score:.2f}%")
```

⮑ Accuracy: 75.98%

Start coding or generate with AI.