```
!pip install transformers torch streamlit
```

```
Requirement already satisfied: transformers in /usr/local/lib/python3.10/dist-packages (4.42.4)
Requirement already satisfied: torch in /usr/local/lib/python3.10/dist-packages (2.3.1+cu121)
Collecting streamlit
  Downloading streamlit-1.37.1-py2.py3-none-any.whl.metadata (8.5 kB)
Requirement already satisfied: filelock in /usr/local/lib/python3.10/dist-packages (from transformers) (3.15.4)
Requirement already satisfied: huggingface-hub<1.0,>=0.23.2 in /usr/local/lib/python3.10/dist-packages (from transformers) (0.23.
Requirement already satisfied: numpy<2.0,>=1.17 in /usr/local/lib/python3.10/dist-packages (from transformers) (1.26.4)
Requirement already satisfied: packaging>=20.0 in /usr/local/lib/python3.10/dist-packages (from transformers) (24.1)
Requirement already satisfied: pyyaml>=5.1 in /usr/local/lib/python3.10/dist-packages (from transformers) (6.0.2)
Requirement already satisfied: regex!=2019.12.17 in /usr/local/lib/python3.10/dist-packages (from transformers) (2024.5.15)
Requirement already satisfied: requests in /usr/local/lib/python3.10/dist-packages (from transformers) (2.32.3)
Requirement already satisfied: safetensors>=0.4.1 in /usr/local/lib/python3.10/dist-packages (from transformers) (0.4.4)
Requirement already satisfied: tokenizers<0.20,>=0.19 in /usr/local/lib/python3.10/dist-packages (from transformers) (0.19.1)
Requirement already satisfied: tqdm>=4.27 in /usr/local/lib/python3.10/dist-packages (from transformers) (4.66.5)
Requirement already satisfied: typing-extensions>=4.8.0 in /usr/local/lib/python3.10/dist-packages (from torch) (4.12.2)
Requirement already satisfied: sympy in /usr/local/lib/python3.10/dist-packages (from torch) (1.13.1)
Requirement already satisfied: networkx in /usr/local/lib/python3.10/dist-packages (from torch) (3.3)
Requirement already satisfied: jinja2 in /usr/local/lib/python3.10/dist-packages (from torch) (3.1.4)
Requirement already satisfied: fsspec in /usr/local/lib/python3.10/dist-packages (from torch) (2024.6.1)
Collecting nvidia-cuda-nvrtc-cu12==12.1.105 (from torch)
  Using cached nvidia_cuda_nvrtc_cu12-12.1.105-py3-none-manylinux1_x86_64.whl.metadata (1.5 kB)
Collecting nvidia-cuda-runtime-cu12==12.1.105 (from torch)
  Using cached nvidia_cuda_runtime_cu12-12.1.105-py3-none-manylinux1_x86_64.whl.metadata (1.5 kB)
Collecting nvidia-cuda-cupti-cu12==12.1.105 (from torch)
  Using cached nvidia_cuda_cupti_cu12-12.1.105-py3-none-manylinux1_x86_64.whl.metadata (1.6 kB)
Collecting nvidia-cudnn-cu12==8.9.2.26 (from torch)
  Using cached nvidia_cudnn_cu12-8.9.2.26-py3-none-manylinux1_x86_64.whl.metadata (1.6 kB)
Collecting nvidia-cublas-cu12==12.1.3.1 (from torch)
  Using cached nvidia_cublas_cu12-12.1.3.1-py3-none-manylinux1_x86_64.whl.metadata (1.5 kB)
Collecting nvidia-cufft-cu12==11.0.2.54 (from torch)
  Using cached nvidia_cufft_cu12-11.0.2.54-py3-none-manylinux1_x86_64.whl.metadata (1.5 kB)
Collecting nvidia-curand-cu12==10.3.2.106 (from torch)
  Using cached nvidia_curand_cu12-10.3.2.106-py3-none-manylinux1_x86_64.whl.metadata (1.5 kB)
Collecting nvidia-cusolver-cu12==11.4.5.107 (from torch)
  Using cached nvidia_cusolver_cu12-11.4.5.107-py3-none-manylinux1_x86_64.whl.metadata (1.6 kB)
Collecting nvidia-cusparse-cu12==12.1.0.106 (from torch)
  Using cached nvidia_cusparse_cu12-12.1.0.106-py3-none-manylinux1_x86_64.whl.metadata (1.6 kB)
Collecting nvidia-nccl-cu12==2.20.5 (from torch)
  Using cached nvidia_nccl_cu12-2.20.5-py3-none-manylinux2014_x86_64.whl.metadata (1.8 kB)
Collecting nvidia-nvtx-cu12==12.1.105 (from torch)
  Using cached nvidia_nvtx_cu12-12.1.105-py3-none-manylinux1_x86_64.whl.metadata (1.7 kB)
Requirement already satisfied: triton==2.3.1 in /usr/local/lib/python3.10/dist-packages (from torch) (2.3.1)
Collecting nvidia-nvjitlink-cu12 (from nvidia-cusolver-cu12==11.4.5.107->torch)
  Using cached nvidia_nvjitlink_cu12-12.6.20-py3-none-manylinux2014_x86_64.whl.metadata (1.5 kB)
Requirement already satisfied: altair<6,>=4.0 in /usr/local/lib/python3.10/dist-packages (from streamlit) (4.2.2)
Requirement already satisfied: blinker<2,>=1.0.0 in /usr/lib/python3/dist-packages (from streamlit) (1.4)
Requirement already satisfied: cachetools<6,>=4.0 in /usr/local/lib/python3.10/dist-packages (from streamlit) (5.4.0)
Requirement already satisfied: click<9,>=7.0 in /usr/local/lib/python3.10/dist-packages (from streamlit) (8.1.7)
Requirement already satisfied: pandas<3,>=1.3.0 in /usr/local/lib/python3.10/dist-packages (from streamlit) (2.1.4)
Requirement already satisfied: pillow<11,>=7.1.0 in /usr/local/lib/python3.10/dist-packages (from streamlit) (9.4.0)
Requirement already satisfied: protobuf<6,>=3.20 in /usr/local/lib/python3.10/dist-packages (from streamlit) (3.20.3)
Requirement already satisfied: pyarrow>=7.0 in /usr/local/lib/python3.10/dist-packages (from streamlit) (14.0.2)
Requirement already satisfied: rich<14,>=10.14.0 in /usr/local/lib/python3.10/dist-packages (from streamlit) (13.7.1)
Collecting tenacity<9,>=8.1.0 (from streamlit)
  Downloading tenacity-8.5.0-py3-none-any.whl.metadata (1.2 kB)
Requirement already satisfied: toml<2,>=0.10.1 in /usr/local/lib/python3.10/dist-packages (from streamlit) (0.10.2)
Collecting gitpython!=3.1.19,<4,>=3.0.7 (from streamlit)
```

```
import streamlit as st
from transformers import MarianMTModel, MarianTokenizer
import torch



model_name_fr = 'Helsinki-NLP/opus-mt-en-fr'
tokenizer_fr = MarianTokenizer.from_pretrained(model_name_fr)
model_fr = MarianMTModel.from_pretrained(model_name_fr)
```

```
/usr/local/lib/python3.10/dist-packages/huggingface_hub/utils/_token.py:89: UserWarning:
The secret `HF_TOKEN` does not exist in your Colab secrets.
To authenticate with the Hugging Face Hub, create a token in your settings tab (https://huggingface.co/settings/tokens), set it as s
You will be able to reuse this secret in all of your notebooks.
Please note that authentication is recommended but still optional to access public models or datasets.
  warnings.warn(
tokenizer_config.json: 100%  42.0/42.0 [00:00<00:00, 654B/s]
source.spm: 100%  778k/778k [00:00<00:00, 6.56MB/s]
target.spm: 100%  802k/802k [00:00<00:00, 10.6MB/s]
vocab.json: 100%  1.34M/1.34M [00:00<00:00, 8.84MB/s]
config.json: 100%  1.42k/1.42k [00:00<00:00, 49.7kB/s]
/usr/local/lib/python3.10/dist-packages/transformers/models/marian/tokenization_marian.py:175: UserWarning: Recommended: pip install
  warnings.warn("Recommended: pip install sacremoses.")
pytorch_model.bin: 100%  301M/301M [00:01<00:00, 162MB/s]
generation_config.json: 100%  293/293 [00:00<00:00, 7.28kB/s]
```

```
model_name_hi = 'Helsinki-NLP/opus-mt-en-hi'
tokenizer_hi = MarianTokenizer.from_pretrained(model_name_hi)
model_hi = MarianMTModel.from_pretrained(model_name_hi)
```

```
tokenizer_config.json: 100%  44.0/44.0 [00:00<00:00, 732B/s]
source.spm: 100%  812k/812k [00:00<00:00, 3.02MB/s]
target.spm: 100%  1.07M/1.07M [00:00<00:00, 7.58MB/s]
vocab.json: 100%  2.10M/2.10M [00:00<00:00, 6.51MB/s]
config.json: 100%  1.39k/1.39k [00:00<00:00, 12.5kB/s]
pytorch_model.bin: 100%  306M/306M [00:02<00:00, 155MB/s]
generation_config.json: 100%  293/293 [00:00<00:00, 12.6kB/s]
```

```
def translate_en_to_fr(text):
    inputs = tokenizer_fr(text, return_tensors='pt')
    with torch.no_grad():
        translated = model_fr.generate(**inputs)
    return tokenizer_fr.decode(translated[0], skip_special_tokens=True)

def translate_en_to_hi(text):
    inputs = tokenizer_hi(text, return_tensors='pt')
    with torch.no_grad():
        translated = model_hi.generate(**inputs)
    return tokenizer_hi.decode(translated[0], skip_special_tokens=True)


def main():
    st.title("Simultaneous Translation: English to French and Hindi")
    st.write("Enter a 10-letter English word to see translations:")

    text = st.text_input("English Word", "")
    if text and len(text) == 10:
        st.write("English to French:", translate_en_to_fr(text))
        st.write("English to Hindi:", translate_en_to_hi(text))
    elif text:
        st.write("Please enter exactly 10 letters.")



if __name__ == "__main__":
    main()
```

```
2024-08-10 20:52:32.420
  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]
 2024-08-10 20:52:32.424 Session state does not function when running a script without `streamlit run`
```

```
dataset = [
    {"en": "translate", "fr": "traduire", "hi": "अनुवाद"},
    {"en": "education", "fr": "éducation", "hi": "शिक्षा"},
    # Add more examples
]
```

```
from sklearn.metrics import accuracy_score

def evaluate_translation_model(model, tokenizer, test_data, target_lang):
    predictions = []
    ground_truth = []

    for data in test_data:
        input_text = data["en"]
        true_translation = data[target_lang]

        inputs = tokenizer(input_text, return_tensors='pt')
        with torch.no_grad():
            translated = model.generate(**inputs)
        predicted_translation = tokenizer.decode(translated[0], skip_special_tokens=True)

        predictions.append(predicted_translation.strip())
        ground_truth.append(true_translation.strip())

    return accuracy_score(ground_truth, predictions)


def evaluate_models():
    # Evaluate English to French
    accuracy_fr = evaluate_translation_model(model_fr, tokenizer_fr, dataset, "fr")
    print(f"Accuracy for English to French translation: {accuracy_fr*100:.2f}%")

    # Evaluate English to Hindi
    accuracy_hi = evaluate_translation_model(model_hi, tokenizer_hi, dataset, "hi")
    print(f"Accuracy for English to Hindi translation: {accuracy_hi*100:.2f}%")

evaluate_models()
```

```
Accuracy for English to French translation: 100.00%
Accuracy for English to Hindi translation: 100.00%
```

Start coding or generate with AI.