1. **Install the transformers library and generate text using GPT-2.**

Solution:

```
!pip install transformers

from transformers import pipeline

generator = pipeline("text-generation", model="gpt2")

prompt = "Once upon a time in the world of Artificial Intelligence,"

results = generator(prompt, max_length=100, num_return_sequences=1)

print(results[0]['generated_text'])
```

2. **Text Generation using GPT-2**

Solution:

```
# Install and import
!pip install transformers torch
from transformers import GPT2LMHeadModel, GPT2Tokenizer

tokenizer = GPT2Tokenizer.from_pretrained("gpt2")
model = GPT2LMHeadModel.from_pretrained("gpt2")

input_text = "Artificial Intelligence is transforming the world"
inputs = tokenizer.encode(input_text, return_tensors='pt')
outputs = model.generate(inputs, max_length=80, num_return_sequences=1,
temperature=0.9, repetition_penalty=1.2, no_repeat_ngram_size=3)
print(tokenizer.decode(outputs[0], skip_special_tokens=True))
```

3. **Sentiment Analysis using BERT**

Solution:

```
!pip install transformers torch

from transformers import pipeline

classifier = pipeline("sentiment-analysis")

result = classifier("I really love learning about transformers!")
```

```
print(result)
```

4. Text Summarization using BART

```
from transformers import pipeline

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

text = """ Machine learning is a subset of artificial intelligence that focuses on the
development of algorithms that can learn and make predictions from data.
It enables systems to automatically improve their performance without being
explicitly programmed. Machine learning techniques are widely used in various
applications such as email filtering, speech recognition, medical diagnosis,
and self-driving cars. By analyzing large amounts of data, these algorithms
can identify hidden patterns, make accurate predictions, and support
decision-making processes across industries. As data continues to grow,
machine learning plays an increasingly vital role in advancing automation
and intelligent systems."""
summary = summarizer(text, max_length=40, min_length=10, do_sample=False)
print(summary[0]['summary_text'])
```

5. Compare AI-generated output with human-written text.

- How Social Media Shapes Our Lives
- A World Without Smartphones — Dream or Disaster?
- What If Animals Could Talk?
- Balancing Fun and Studies in College Life