Generative Ai

Unit 1 Assignment – Model Benchmark Challenge

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Section: A

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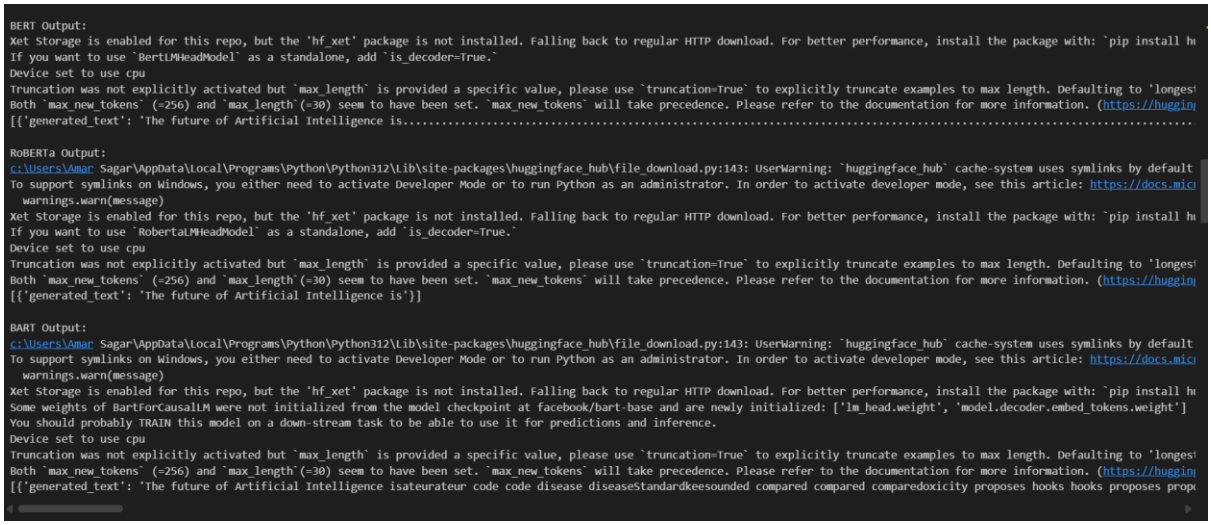
Output Screenshots:

Experiment-1 : Text Generation

Code:

```
prompt = "The future of Artificial Intelligence is"
for name, model in models.items():
  print(f"\n{name} Output:")
  try:
    generator = pipeline("text-generation", model=model)
    print(generator(prompt, max_length=30))
  except Exception as e:
    print("Failed:", e)
```

Output Screenshot:

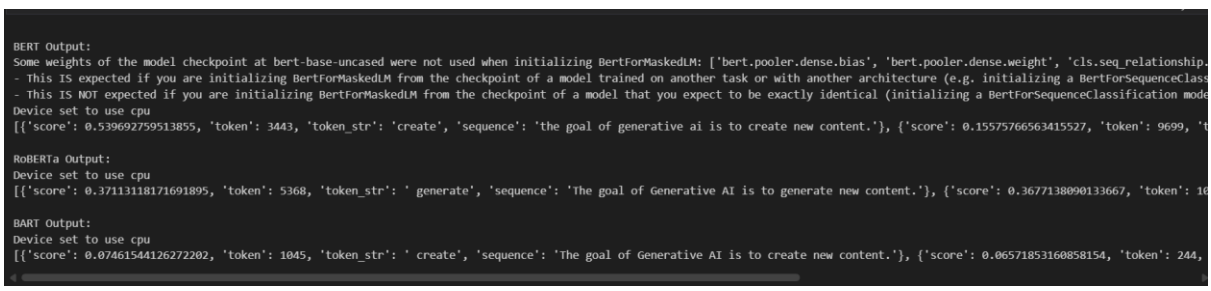


Experiment-2 ：Masked Language Modeling (Fill Mask)

Code:

```
for name, model in models.items():
    print(f"\n{name} Output:")
    try:
        masker = pipeline("fill-mask", model=model)
        result = masker(sentences[name])
        print(result[:2])   # show top 2 predictions
    except Exception as e:
        print("Failed:", e)
```

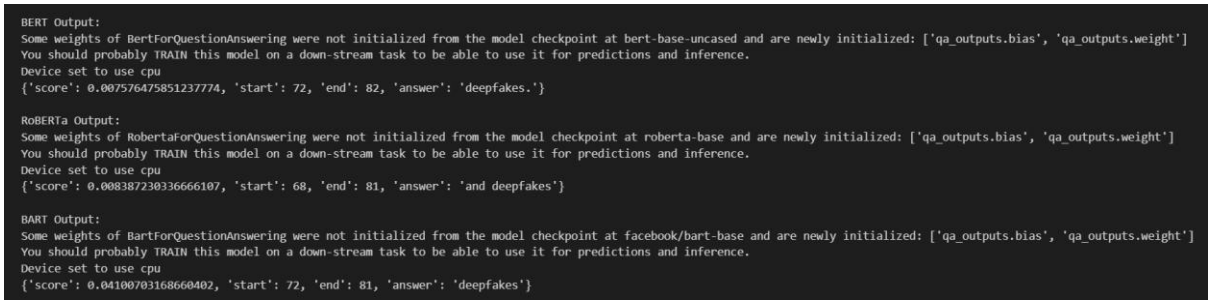
Output Screenshot:



Experiment-3 :Question Answering

```
question = "What are the risks?"
context = "Generative AI poses significant risks such as hallucinations, bias, and deepfakes."
for name, model in models.items():
    print(f"\n{name} Output:")
    try:
        qa = pipeline("question-answering", model=model)
        print(qa(question=question, context=context))
    except Exception as e:
        print("Failed:", e)
```

Output Screenshot:



Observation table:

Task	Model	Success/Failure	Observation	Architectural Reason
Generation	BERT	Failure	Could not generate text	Encoder-only
Generation	RoBERTa	Failure	Similar to BERT	Encoder-only
Generation	BART	Success	Generated coherent text	Encoder-Decoder
Fill-Mask	BERT	Success	Correct predictions	MLM training
Fill-Mask	RoBERTa	Success	Accurate predictions	Optimized MLM
Fill-Mask	BART	Partial	Less accurate	Not MLM-based
QA	BERT	Partial	Inconsistent answers	Not QA fine-tuned
QA	RoBERTa	Partial	Similar behavior	Base model
QA	BART	Partial	Random answers	Not QA fine-tuned