GENAI Hands-On 1

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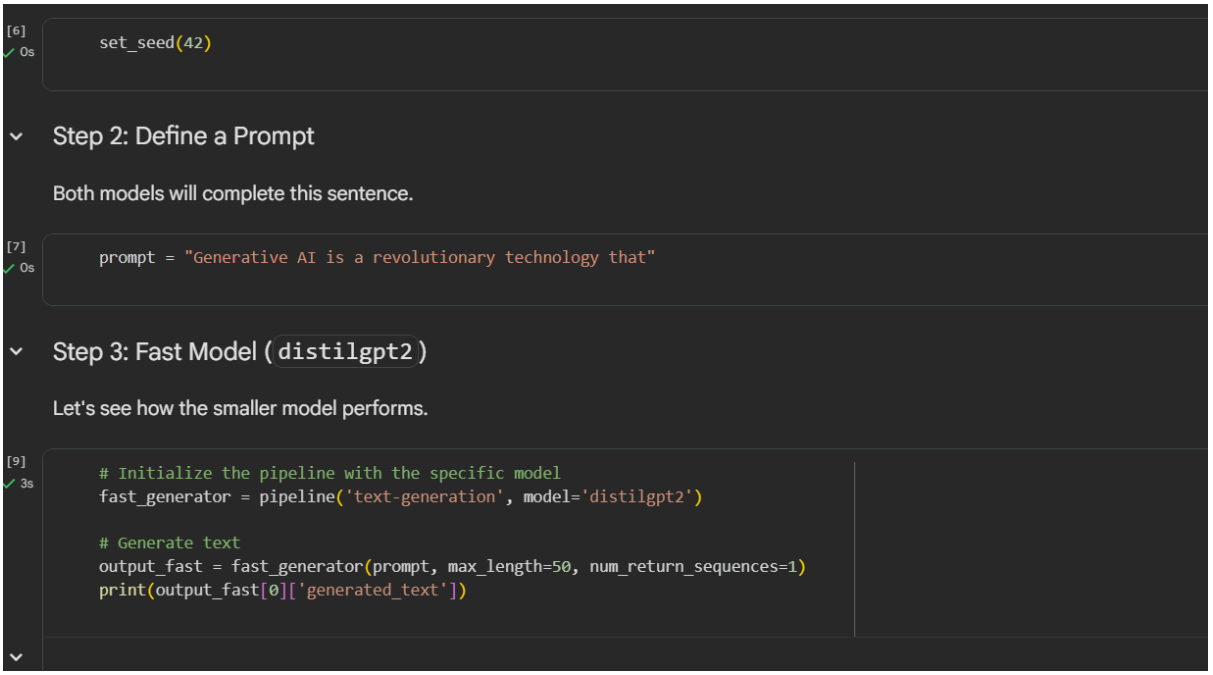
When seed=42



```
[6]
✓ 0s
    set_seed(42)
```

Step 2: Define a Prompt

Both models will complete this sentence.

```
[7]
✓ 0s
    prompt = "Generative AI is a revolutionary technology that"
```

Step 3: Fast Model (`distilgpt2`)

Let's see how the smaller model performs.

```
[9]
✓ 3s
    # Initialize the pipeline with the specific model
    fast_generator = pipeline('text-generation', model='distilgpt2')

    # Generate text
    output_fast = fast_generator(prompt, max_length=50, num_return_sequences=1)
    print(output_fast[0]['generated_text'])
```

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```
stems to be applied to the world. It’s a revolutionary technology that enables a wide range of AI systems to be applied to the world.
```

Now let's try the standard model.

```
smart_generator = pipeline('text-generation', model='gpt2')

output_smart = smart_generator(prompt, max_length=50, num_return_sequences=1)
print(output_smart[0]['generated_text'])
```

```
config.json: 100% 665/665 [00:00<00:00, 69.1kB/s]
model.safetensors: 100% 548M/548M [00:04<00:00, 233MB/s]
generation_config.json: 100% 124/124 [00:00<00:00, 6.44kB/s]
tokenizer_config.json: 100% 26.0/26.0 [00:00<00:00, 2.87kB/s]
vocab.json: 100% 1.04M/1.04M [00:00<00:00, 31.9MB/s]
merges.txt: 100% 456k/456k [00:00<00:00, 772kB/s]
tokenizer.json: 100% 1.36M/1.36M [00:00<00:00, 3.09MB/s]
Device set to use cuda:0
Truncation was not explicitly activated but `max_length` is provided a specific value, please use `truncation=True` to explicitly truncate examples to max length. Defaulting
Setting `pad_token_id` to `eos_token_id`:50256 for open-end generation.
Both `max_new_tokens` (=256) and `max_length`(=50) seem to have been set. `max_new_tokens` will take precedence. Please refer to the documentation for more information. (http
Generative AI is a revolutionary technology that combines artificial intelligence with machine learning to create powerful, personalized AI.

It is based on the principle that individuals, groups, and entities are guided and guided by their own intuition and instincts, which lead them to make decisions with great a

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```

When seed=77

sequence of random numbers.

[28] ✓ 0s

```
set_seed(77)
```

Step 2: Define a Prompt

Both models will complete this sentence.

[29] ✓ 0s

```
prompt = "Generative AI is a revolutionary technology that"
```

Step 3: Fast Model (`distilgpt2`)

Let's see how the smaller model performs.

[30] ✓ 4s

```
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Generative AI is a revolutionary technology that has revolutionized what it is today. It can be described as a great invention, but it is also a long way off. It is a great t
```
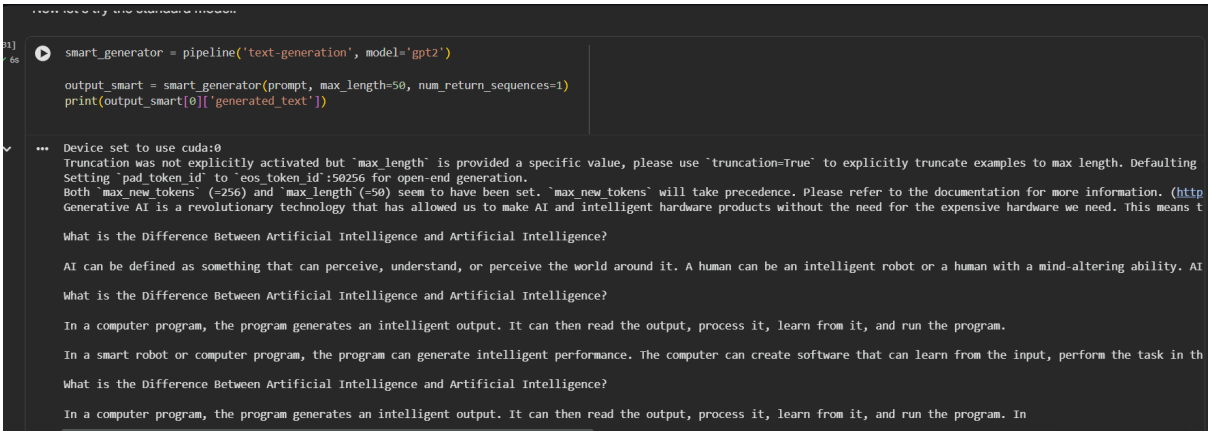



Difference between the distil and smart(GPT) model:

- Distil model is smallertrans
- Distil model is Faster
- Distil model is requires less memory
- Distil model have less parameter
- Whereas, smart model requires heavy computation and requires large amount of training with very large dataset

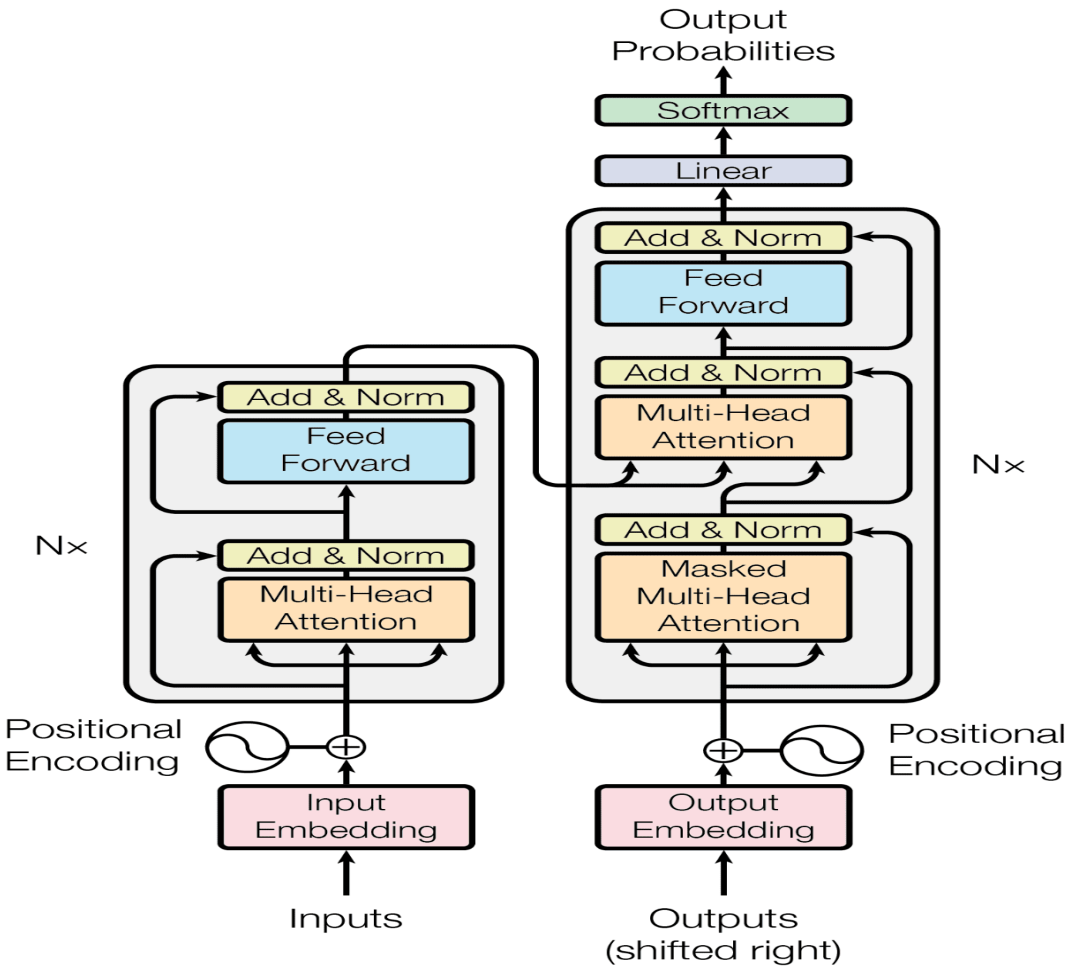
A distilled model is a compressed version of a standard model that learns from the teacher model's outputs to achieve faster inference with minimal loss in performance.

NER:

Named Entity Recognition is the process of identifying and classifying proper names in text into categories such as person, organization, location, and date

Transformer is a type of deep learning neural network, it works excellent by processing the sequential text GPT2 is one of the model when it is only decoder model, but now a days we have LLM much bigger version of GPT where it have many hidden layers and billions or trillions of parameter.It now have a encoder or decoder

- We access various LLM or GPT model
  using transformers library is the bridge between the models on Hugging Face and code.



BERT is designed for deep language understanding, while GPT-2 is designed for fluent text generation

- Full form: Bidirectional and Auto-Regressive Transformers
- Architecture: Encoder–Decoder
- Training: Denoising autoencoder (corrupted text → original text)
- Best for: Text generation, summarization, translation

- BART:

A transformer model combining bidirectional encoding and autoregressive decoding, trained as a denoising autoencoder.

- BART vs BERT:

BART supports text generation using an encoder–decoder architecture, while BERT is encoder-only and designed for language understanding.

Hugging Face :

Hugging Face is a popular machine learning platform focused on natural language processing. It provides pre-trained models, datasets, and tools (like Transformers) that make it easy to build, train, and deploy ML models for tasks such as text generation, translation, and sentiment analysis.