About the Data

The input file unit 1.txt contains a paragraph about Generative AI and its applications. It serves as the input which we then pass onto the language models to predict or generate sentences

Prompt -> This is the input text to a model. This text is tokenised and converted into vector embeddings for further processing

Pipeline -> This is the entire workflow abstracted into one function that handles everything from text pre processing to output generation.
We initialise the pipeline with whatever model we want it to use.

Seed Value

Seed is the initialisation of the random generator. It is often used in deep learning tasks, where random initialisation of weights is required. To make sure that though the weights are entirely random, we generate the same weights every time we run, we set a seed value that will make sure the starting points for the seed are always the same.

Seed value is most commonly set to 42 like in the example

```
Generative AI is a revolutionary technology that can take on the task of
finding, learning, and learning in a given environment.

Generative AI is a revolutionary technology that enables a wide range of
intelligent systems to work independently from one another. It introduces
a new way of thinking about AI and provides a new paradigm for the
development of intelligent AI.

In this article, we will discuss the main features of the new AI platform,
and how it can be used to help us create a world that will improve our
lives for the better.

1. How Can I Use It?

The concept of AI is not new. It has been used by many people to measure
their mental health and health-related behaviors, and as a tool for
medical research, it has been used by many of us to track and report on
our mental health.

It is based on the premise that AI is a way for humans to move towards a
more efficient way of thinking, and therefore, a better way of living.
```

```
In this article, we will explain what AI can do.

What does it do

In this article, we will explain how all of our cognitive and emotional
systems interact with the AI platform. The main features of AI are:

A new way of thinking about AI

A new paradigm for the development of intelligent AI

A new way of thinking about mental health and health-related behaviors
```

Now when we change seed to say 12 we get the below output:

```
Generative AI is a revolutionary technology that enables users to solve
multiple problems: How can we solve problems that are easily solved by the
user?

Generative AI is a revolutionary technology that opens up new
possibilities for artificial intelligence and other forms of social
interaction. In this session, we'll explore the potential of the new AI to
improve human well-being, and how we can help to create a better future.
```

Need for Distilled Model

Most of the common users with commodity hardware such as laptops don't have the same compute as the servers where LLM's are run. So we use a watered down model called the distilled model, which compromises accuracy for ease of compute.

As seen in the notebook

The distilled model, just generated a more generic and simple sentence. The words were simpler and not deep into the input text provided

Whereas the GPT2 model generated an entire paragraph, which was more technically detailed and relevant to the input text providing more detailed understanding.

POS and NER

Part of Speech is a technique used to distinguish the characteristics of English words. We tag each token in the sentence with its type such as Nouns, pronouns, verb, etc

Name entity recognition is another method which is used, to recognise which parts of the sentences are names of people, organisations, dates etc. In our example PES university was tagged as an organisation and the other words were tagged as Miscellaneous.

Tag	Category	Examples
NN	Noun, Singular	desk, logic, project
NNP	Proper Noun, Singular	Python, Anupam, Google
VB	Verb, Base Form	eat, run, code
VBG	Verb, Gerund/Present Participle	eating, running, coding
VBZ	Verb, 3rd Person Singular Present	eats, runs, codes
JJ	Adjective	simple, fast, efficient

These are some of the tags used in Parts of Speech recognition

Performance of Distilled vs Full Model In Various tasks

Summarisation

Surprisingly in the notebook distilled bart ended up summarising more than the quality one. The common parts in both summarisations were exactly the same.

Question Answering

The distilled model gave a crisp and direct answer whereas the generic model produced a more well suited and structured answer.

Predicting Next Word

The models generate probabilities for each word, to decide which word to be generated. The most probable word is chosen and generated.