Generative Ai
SHR1_AIS2_M1e

GRADUATION PROJECT

CREATIVE WRITING
CHATBOT

Presented by:

Group 2

INTRODUCTION
GPT-2 OVERVIEW

GPT-2 is a generative language model by OpenAI designed to predict the next word in a sequence, producing coherent and fluent text.

INTRODUCTION
WHY FINE-TUNE

GPT-2's pre-training is general, so fine-tuning adjusts it to a specific domain, like creative writing, allowing it to generate text that better fits specialized contexts (e.g., poetry, short stories, or dialogue).
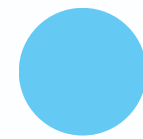
DATASET AND PREPROCESSING

● **Data Source**　　● **Data Cleaning**　　● **Tokenization**

The text is converted into tokens that the GPT-2 model can process. Hugging Face's tokenizers are commonly used for this.
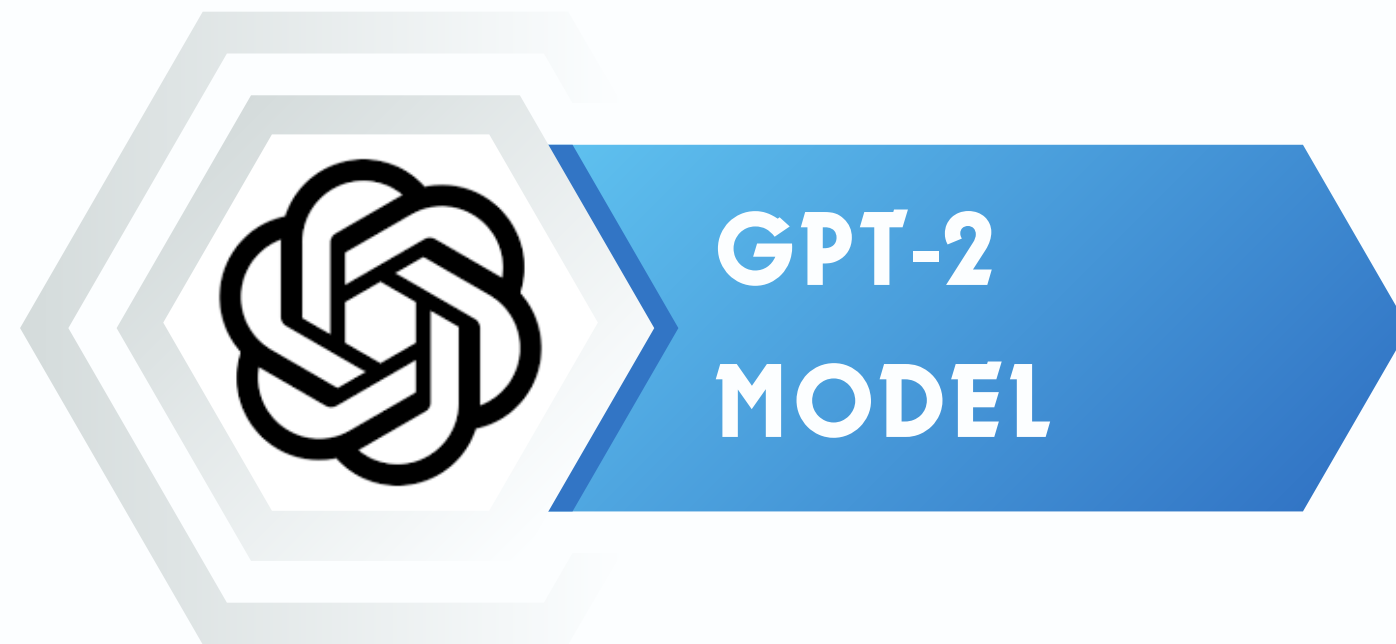
Typically, a large text corpus is required, such as a collection of short stories, poems, or creative writing.

Essential steps include removing unwanted characters, symbols, or inconsistencies (like HTML tags or non-language text).
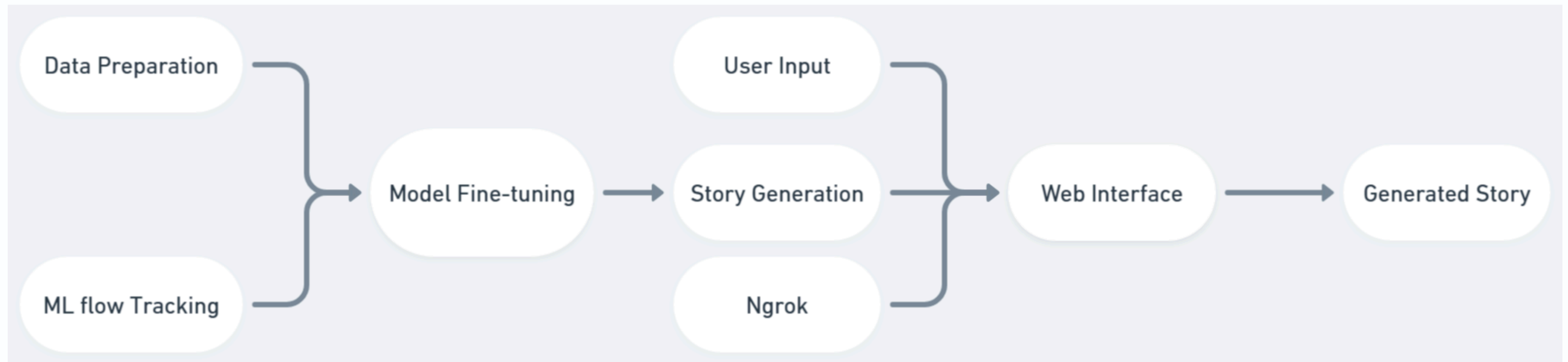
MODEL ARCHITECTURE

GPT-2 MODEL

A transformer-based architecture that generates text by considering context in the form of previous words. It works through multiple attention layers, allowing it to understand complex relationships in the text.
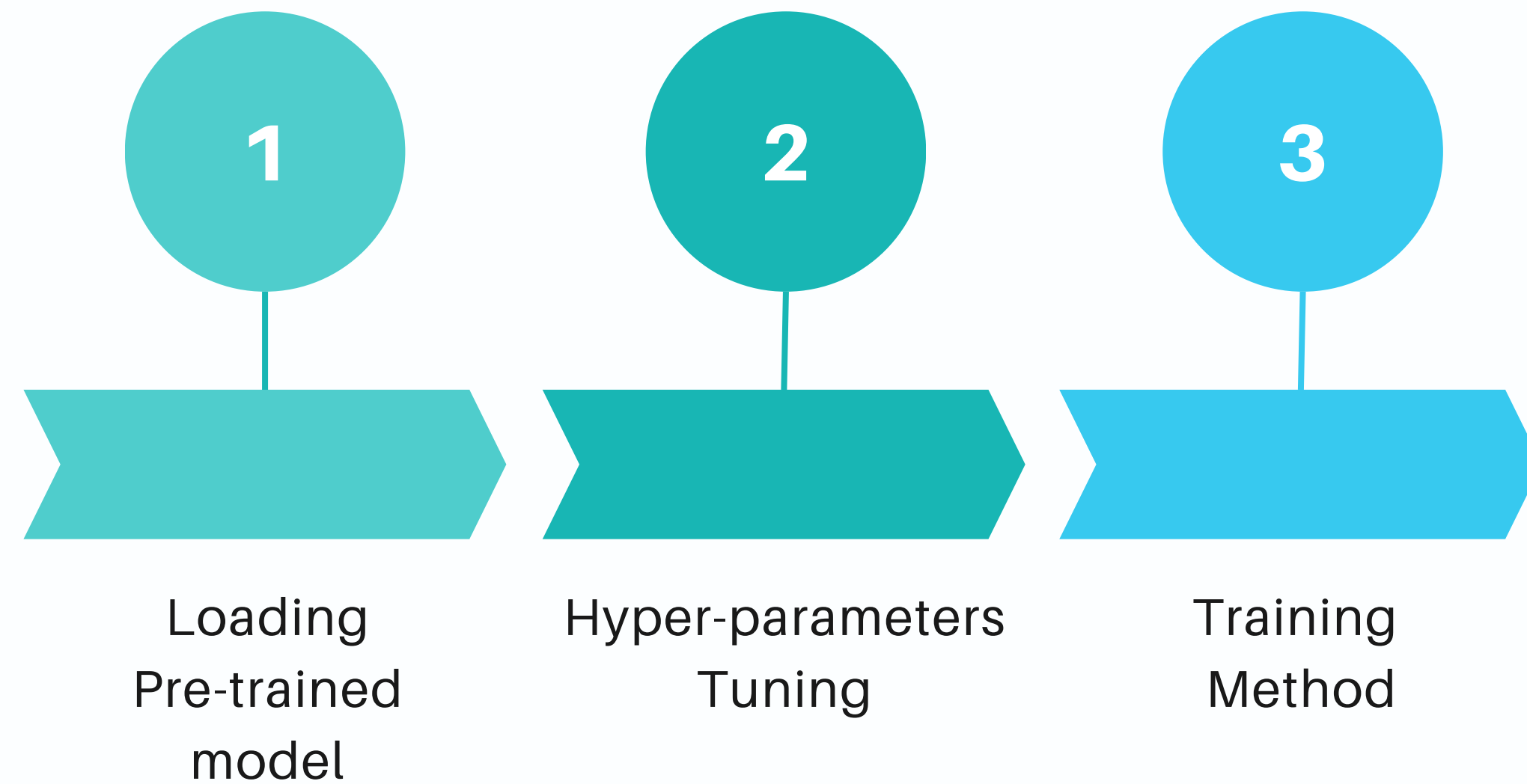
HUGGING FACE

Pre-trained GPT-2 models are loaded via Hugging Face's transformers library, which simplifies access to models, tokenizers, and utilities needed for fine-tuning.
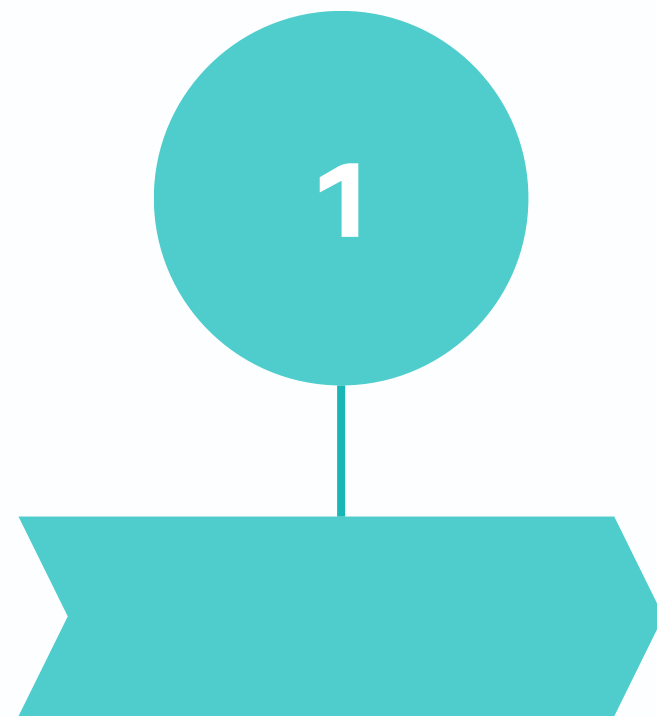
MODEL ARCHITECTURE

FINE-TUNING PROCESS

1 — Loading Pre-trained model

2 — Hyper-parameters Tuning

3 — Training Method

FINE-TUNING PROCESS

1

Loading Pre-trained model

Start with a pre-trained GPT-2 and further train it on the new dataset by adjusting layers to better understand the specific creative writing style.
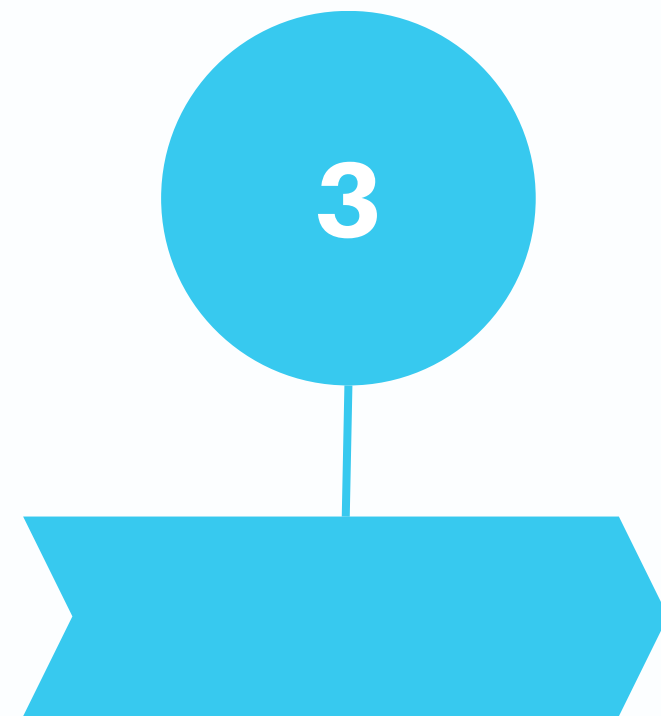
FINE-TUNING PROCESS

2

Hyper-parameters Tuning

Adjust key parameters like learning rate, batch size, and epochs to control the training. For instance, larger batch sizes can help stabilize training, while more epochs might increase specialization.

FINE-TUNING PROCESS

3

Training
Method

The model is optimized using techniques like Adam optimizer and scheduled learning rates to gradually improve.

EVALUATION AND OUTPUT

EVALUATION METRICS

Language models like GPT-2 are typically evaluated using metrics like perplexity, which measures how well the model predicts the next word.

CREATIVE OUTPUT

Generate samples of creative content, such as poems, dialogues, or short stories. Highlight successful examples where the model produces engaging or imaginative content.

HUMAN ASSESSMENT

For creative tasks, qualitative human evaluation is crucial (e.g., checking creativity, coherence, and originality of generated text).

CONCLUSION

Practical Applications: Fine-tuned GPT-2 models can be used in content creation, scriptwriting, poetry generation, game narratives, and even in co-creative environments like writing assistants.