Transfer Learning and Fine-Tuning Large Language Models

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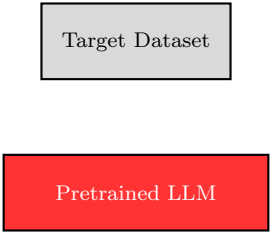

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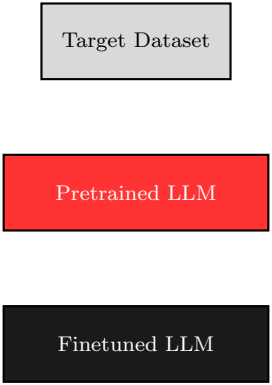

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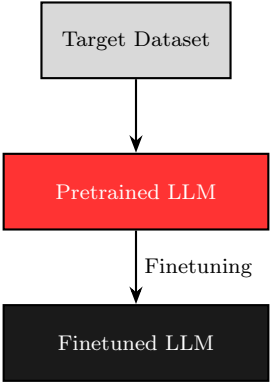

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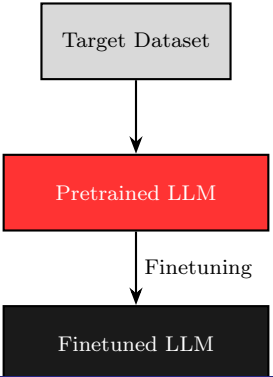

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- This approach significantly improves performance on domain-specific problems.

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  - Use a Trainer to fine-tune the model.
- This makes DistilGPT-2 effective for resource-limited applications.

Fine-Tuning DistilGPT2: Steps 1–4

- **Step 1: Import Required Libraries**

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from datasets import Dataset
from transformers import GPT2Tokenizer, AutoModelForCausalLM, Trainer,
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`tokenizer = GPT2Tokenizer.from_pretrained('distilgpt2')`
Add padding token: `tokenizer.pad_token = tokenizer.eos_token`

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`model = AutoModelForCausalLM.from_pretrained('distilgpt2')`
Resize token embeddings: `model.resize_token_embeddings(len(tokenizer))`

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Set output directory, batch size, number of epochs, save steps, and logging steps using `TrainingArguments`.

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Call `trainer.train()` to start fine-tuning.

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- **Step 10: Save Fine-Tuned Model**

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- **Step 10: Save Fine-Tuned Model**

Save the trained model and tokenizer using `model.save_pretrained(...)` and `tokenizer.save_pretrained(...)`

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