

Finetuning LLMs

Instructor

Kunal Jain

Founder and CEO, Analytics Vidhya



Why Finetuning LLMs?

Pretrained LLMs are trained
on massive internet datasets.

Why Finetuning LLMs?

How do I play inswing
cricket ball?



Pretrained
LLM



Probably play straight

Why Finetuning LLMs?

How do I play
inswing cricket
ball?



Finetuned
LLM

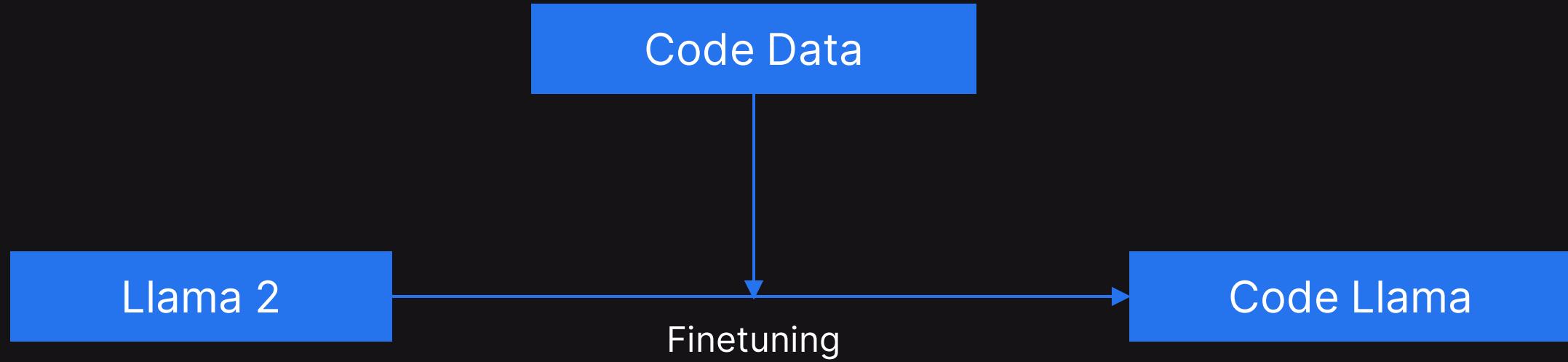


Play shots late, closely monitor the bowler's wrist, leave balls outside off stump, keep shots close to the body, avoid expensive drives, and strive for straight play

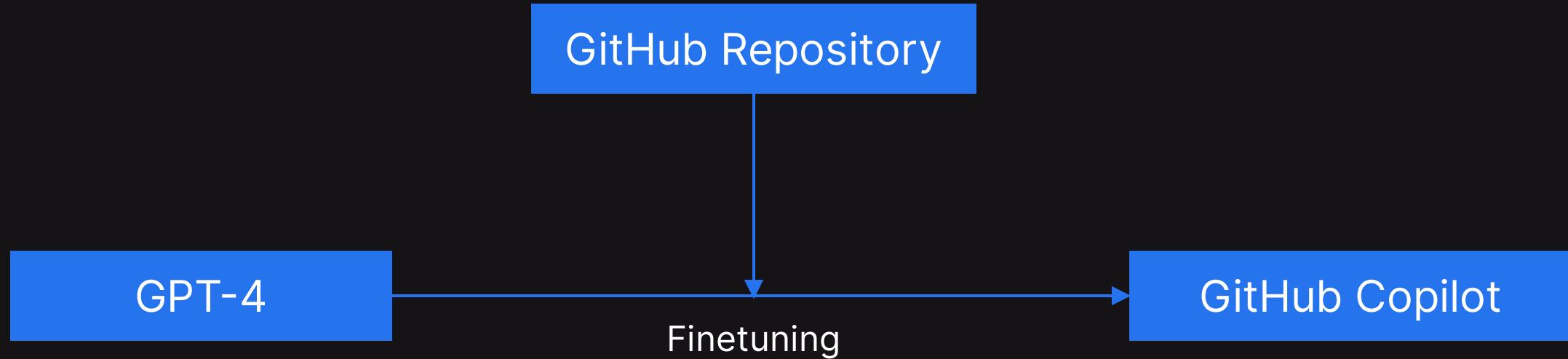
Reason

Parameters and Domain Adaptation

Why Finetuning LLMs?

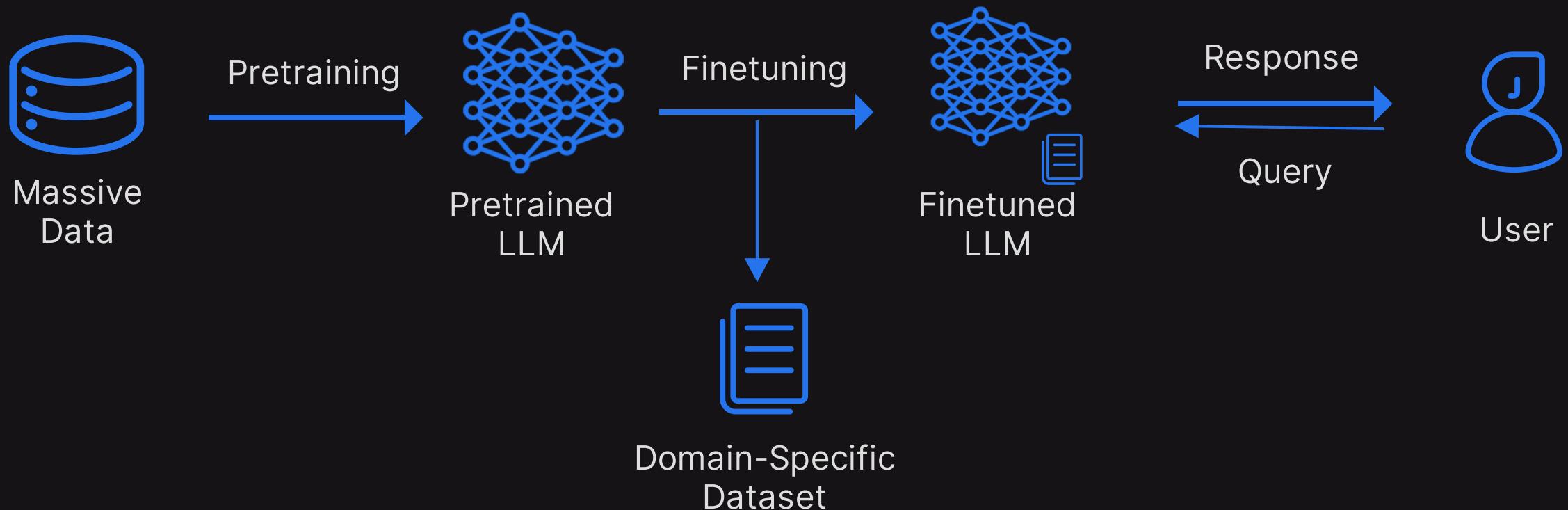


Why Finetuning LLMs?

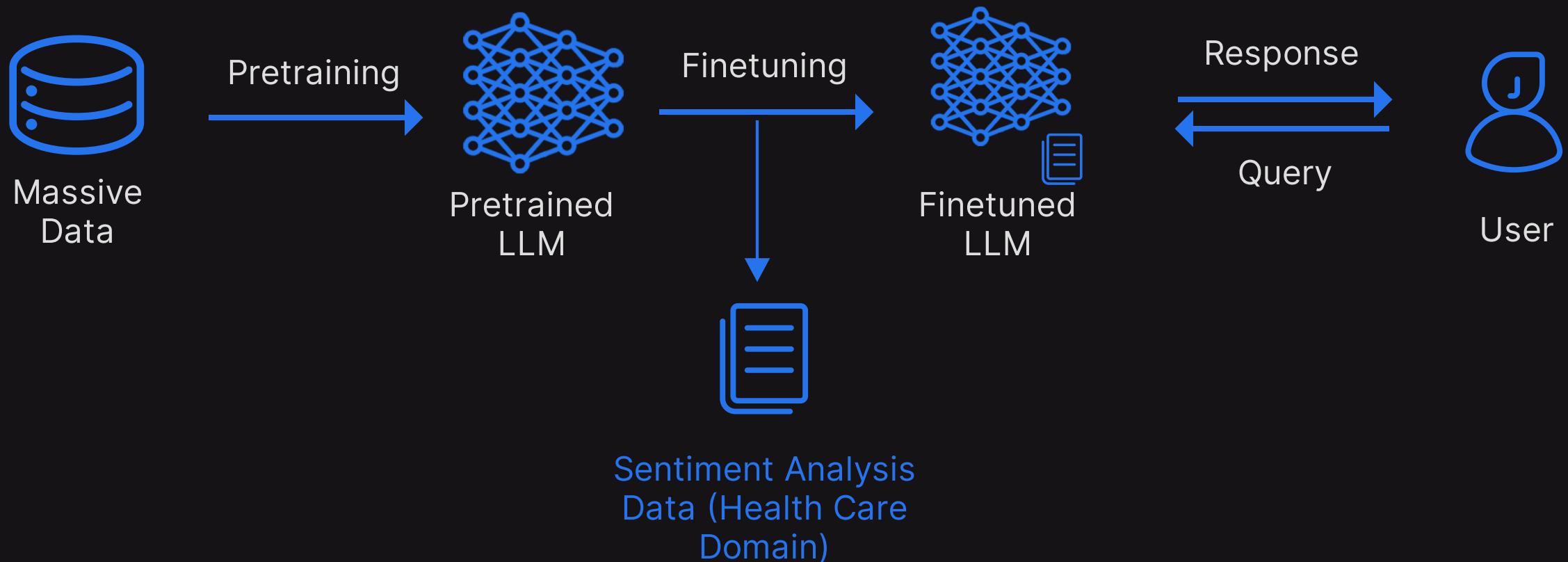


What is Finetuning LLMs?

What is Finetuning LLMs?



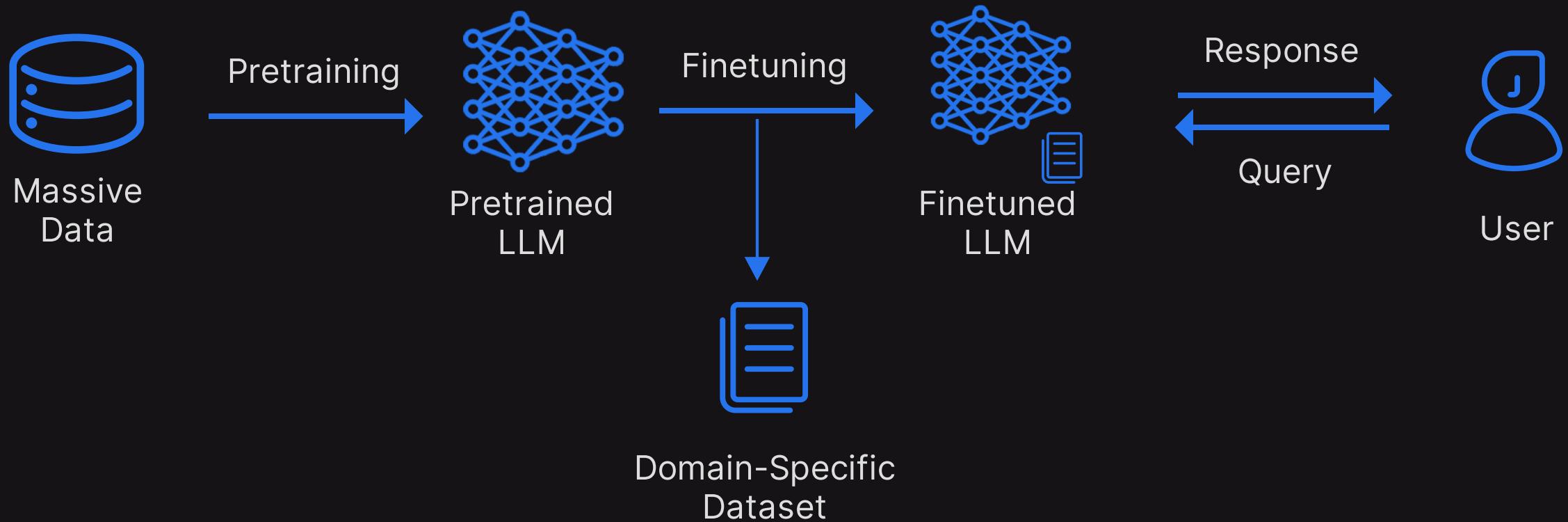
What is Finetuning LLMs?



Methods to Finetune LLMs

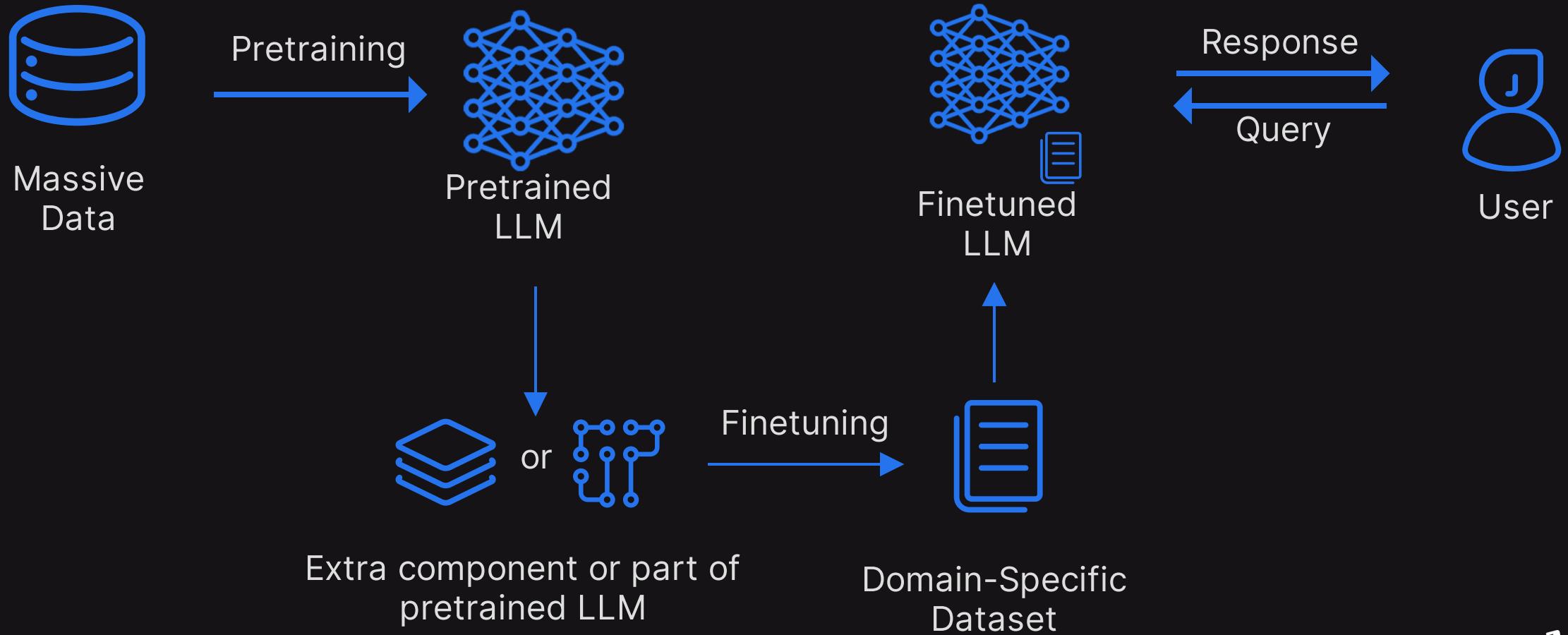
Full Finetuning

Parameters of the entire model are retrained on the domain specific datasets.



Parameter Efficient Finetuning

Fraction of parameters are retrained on the domain specific dataset.



Popular PEFT Techniques

- LoRA
- AdaLoRA
- QLoRA
- IA3
- LoHa
- LoKr

Pros

- ✓ Unlimited task specific data
- ✓ More consistent
- ✓ High performance

Cons

- ✗ High quality training data
- ✗ High Upfront Cost
- ✗ Domain specific pretrained LLM

Domain Specific Pretrained LLM

Domain Specific pretrained LLM

General purpose pretrained LLM

Domain Specific Pretrained LLM

Domain Specific pretrained LLM

General purpose Pretrained LLM

Much deeper knowledge of a domain

Domain Specific Pretrained LLM

Domain Specific pretrained LLM

Much deeper knowledge of a domain

General purpose Pretrained LLM

General Knowledge

Which is
the right
pretrained
LLM for
you?

Select the pretrained LLM
which is closer to your
domain you are working on.

Train LLMs from Scratch

Thank You
