

# NOTEBOOK

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## - Let's get started with Generative AI

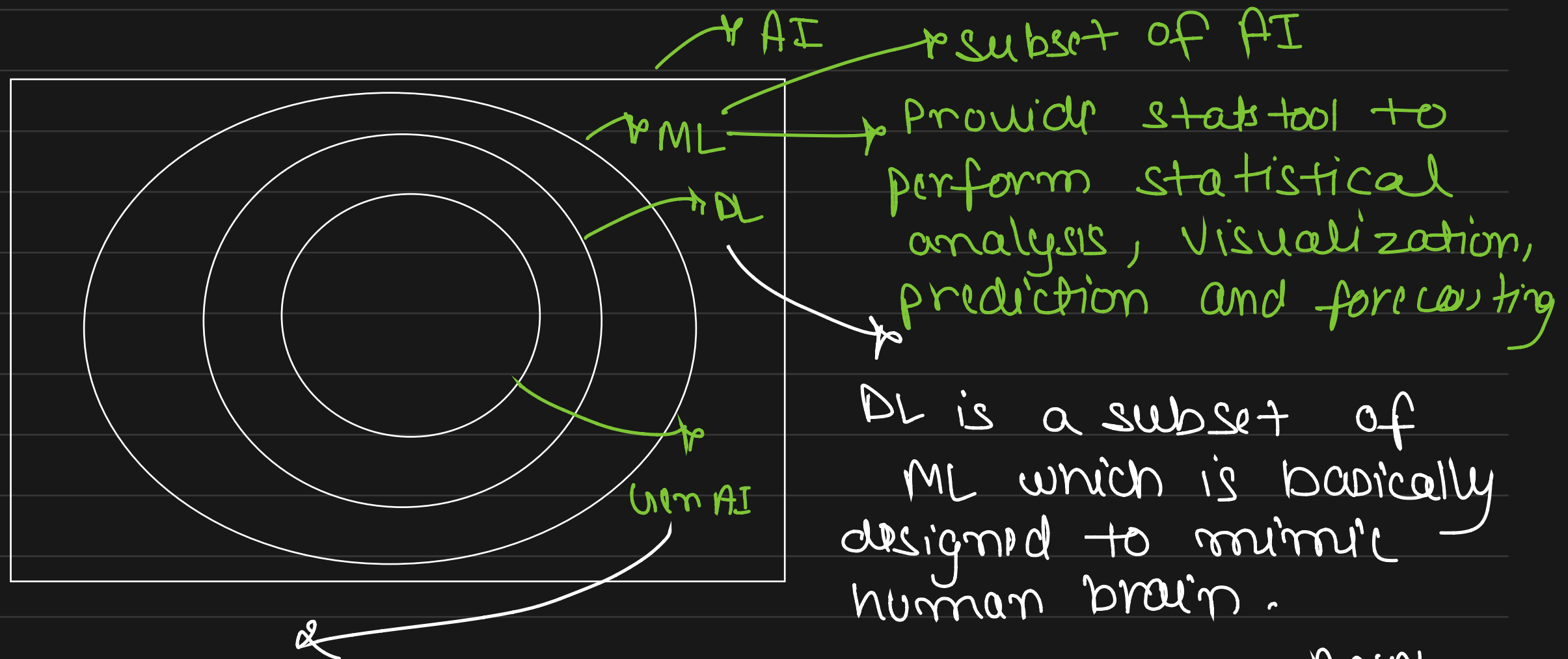
- what is AI: well in very simple words it can be described as applications that can perform its own task without human intervention.

- what does an AI engineers do?

well the main tasks of an AI engineer is to build tools and applications for integrating it in a certain software for its scalability and use.

For example: Recommendation system in Netflix . . .

# → AI v/s ML v/s DL v/s Generative AI



We derive Gen AI from  
{transformers and bots}

↓  
Models

Discriminative

Generative

Deep learning

- ANN
- CNN and object detection
- RNN and it's variants



Discriminative models → used to perform tasks like:  
classification and prediction

- Trained on labelled datasets.

Generative models → generate new data trained on  
huge datasets.

- In gen AI we learn two models : ① LLM [Large Language models]  
② LIM [Large Image models]

→ understanding generative models in simple way!

→ suppose a person read all the books on the topic cat. Therefore he will be able to answer all the questions regarding cats.

- This is what a generative model does, it is trained on a large dataset / information that it is able to provide all the queries a user asks. --

→ LLM: Basically these models are trained on large languages and provides text output to user.

→ LLM: Provides text → Image responses.

→ Some LLM models

Open AI, llama, Gemma, Claude3 . . . .

- These are some of the pre-trained models or foundation models that are available.

- Pre-trained means these LLMs are already trained on huge and large datasets.

→ Now the main question arises that how these pre-trained LLM models are trained?

— Discussing how LLM models are trained

How ChatGPT is trained?

Internet data [website, Articles, books etc.]



Stage 1 - Generative  
pre-training

↓ Based on T model

Stage 2 - Supervised  
Fine Tuning

↓ Fine-tuned model

Stage 3 - Reinforcement  
Learning (RL)

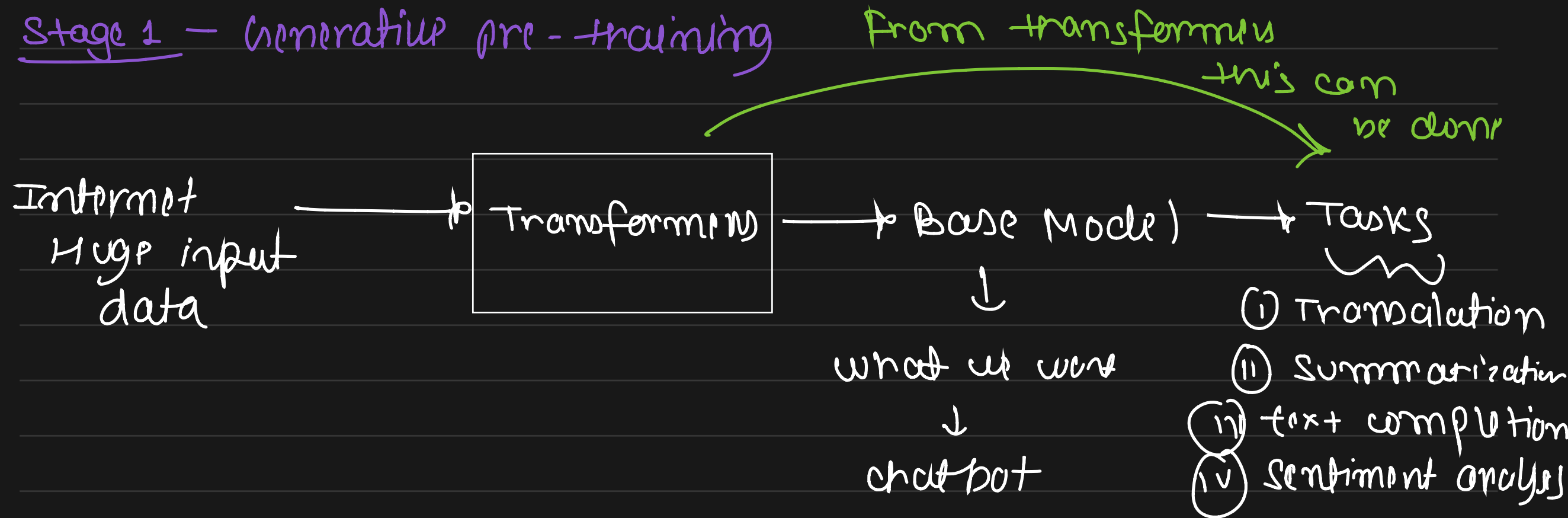


ChatGPT model

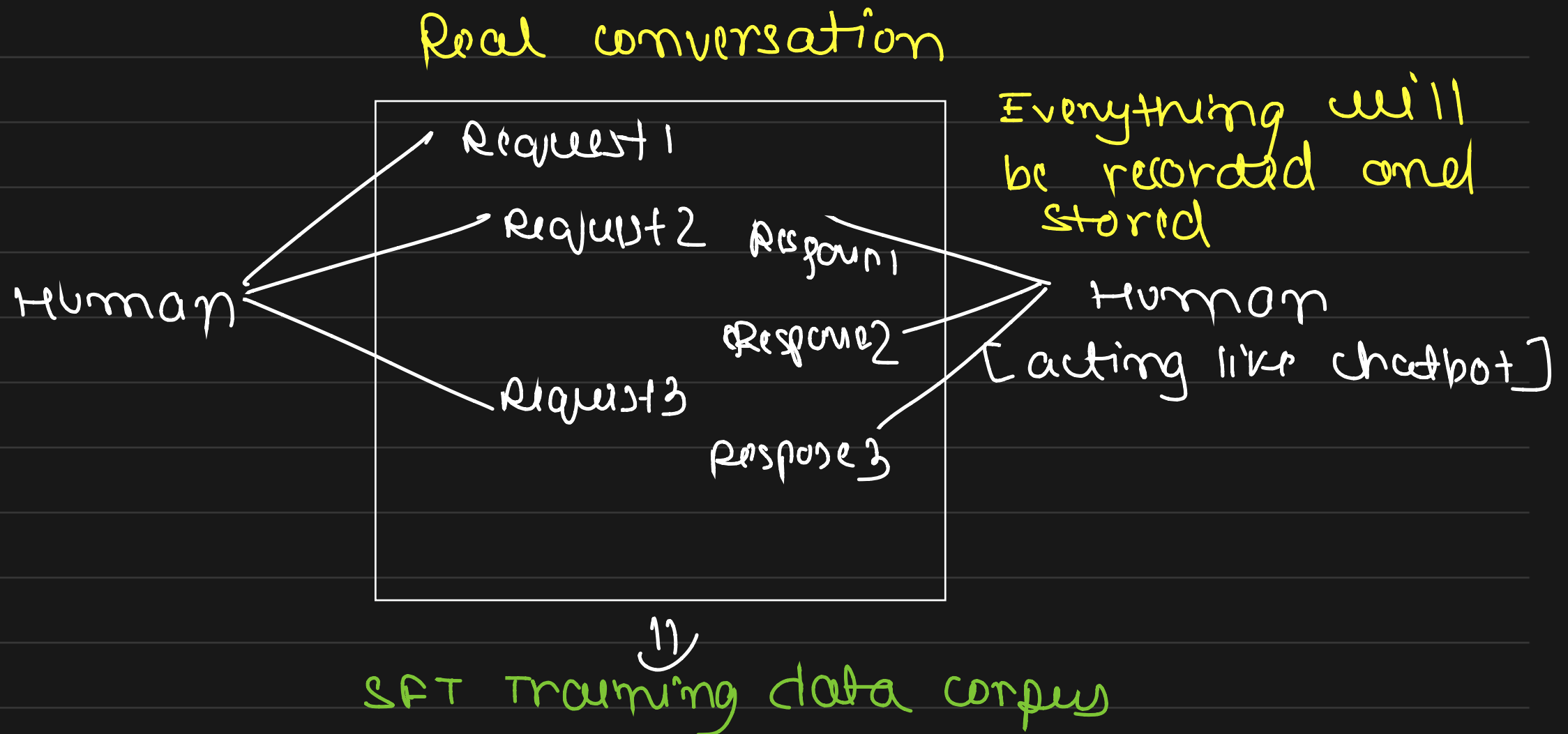
Overall  
Structure

# - Diving deep into each stages

## Stage 1 - Generative pre-training



## Stage 2 - Supervised Fine Tuning (SFT)



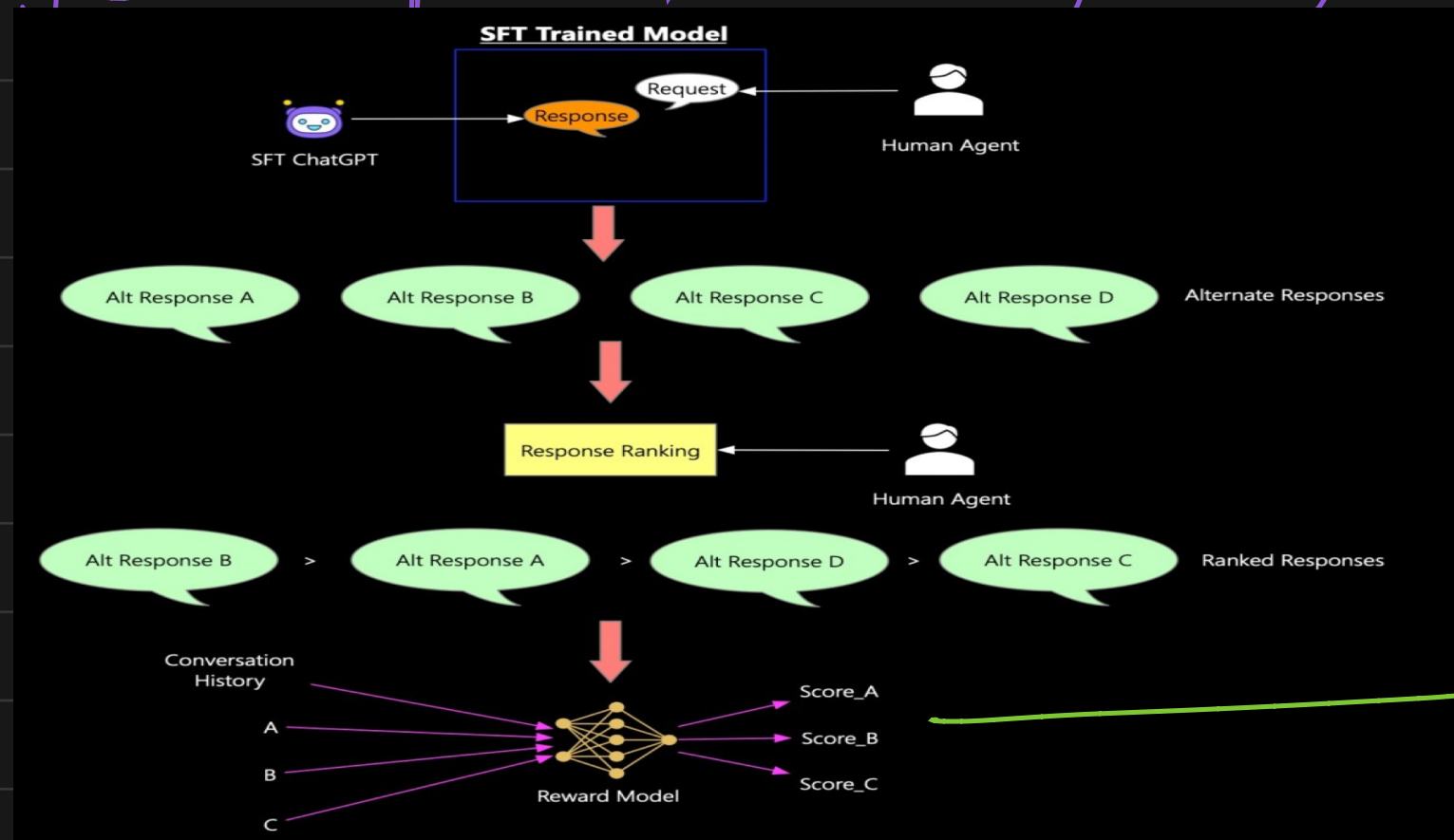
Request  $\rightarrow$  conversation history      Request      Response  
Response  $\rightarrow$  Best response      Request      Response  $\rightarrow$  Training model  $\rightarrow$  model  
Request      Response  
Request      Response

Problems: ① If we ask anything beyond it's dataset for which this model is trained it will be unable to answer.

optimizer  
SHO



# Stage 3 - Reinforcement learning through human feedback



\* Reward model is basically a binary classification

