

Homeless Pet Network

AI5 Final Project By Team Cookie-Monster

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Problem Statement



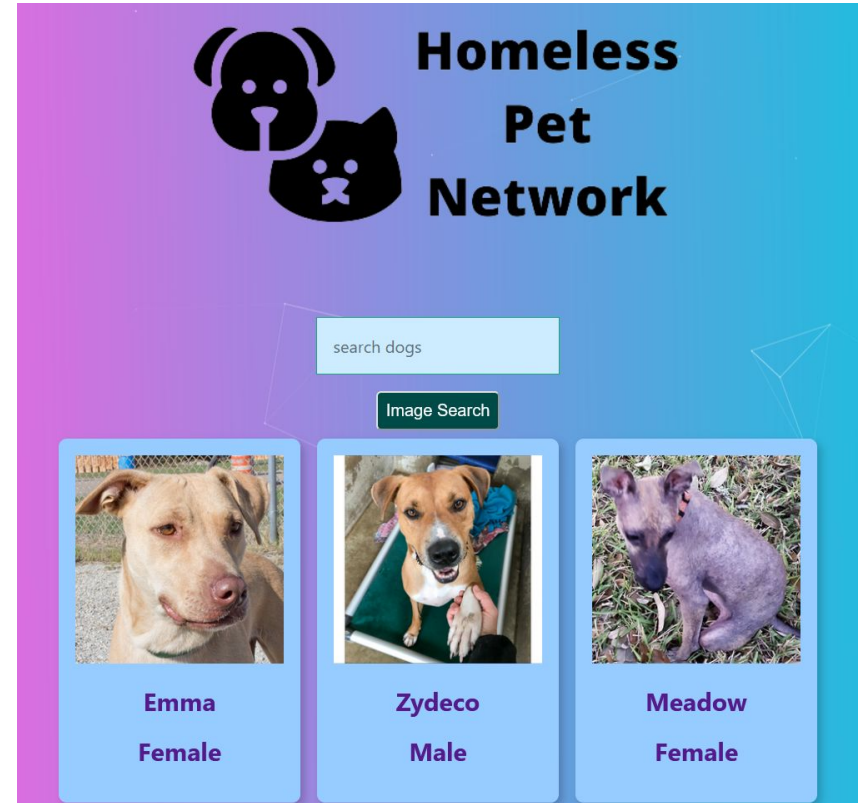
- The core problem we are trying to solve is to help future dog owners find a dog who is a good fit for their lifestyle and family environment.

Solution

A user friendly app that helps connect future dog owners with dogs available for adoption.

Features:

- Help the user search for dogs based on certain features such as size and color.
- Find similar dogs by uploading a picture of a dog the user is interested
- Connect the dog with the user by allowing the user to chat with a persona of the dog

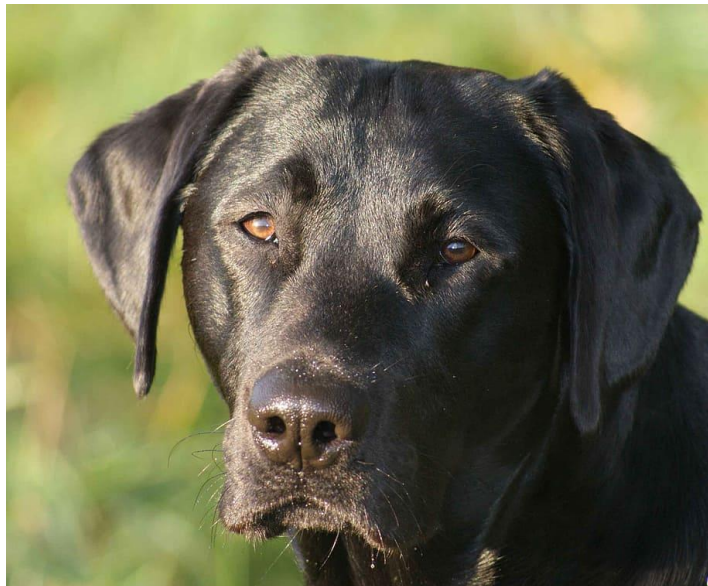


Live Demo



Dog Search With Features

- Every candidate has a bunch of tags associated with her.
- When a user types in text in search box it is compared to available tags.
- When a user types in text in search box it is compared to available tags.
- Tags for the following picture can be:
 - Retriever
 - Black



Dog Search With Images

Query Image



Input

Similar Dogs

8102630



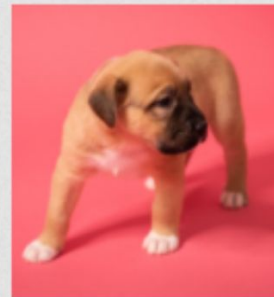
12657849



8083781



21352985



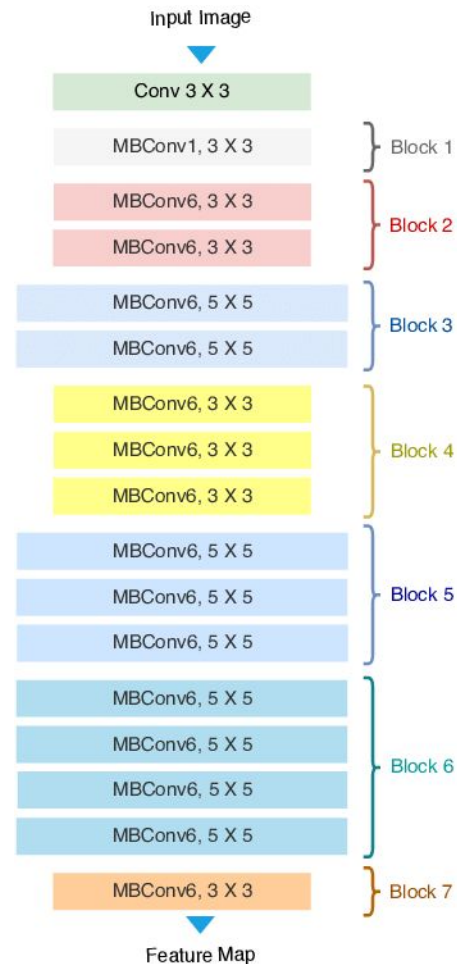
12698558



Output

Dog Search With Images

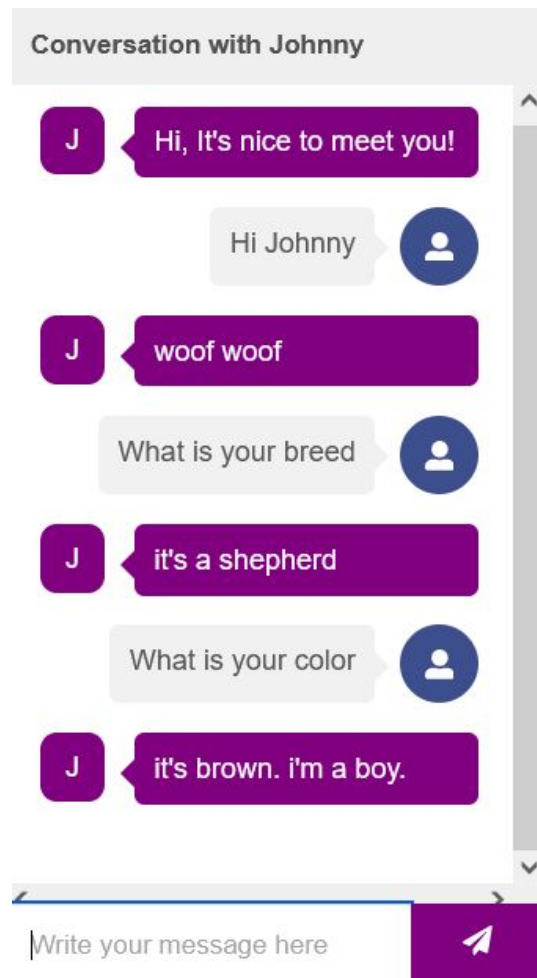
- To get the embeddings we use EfficientNet.
- This model was finetuned on Stanford Dogs dataset.
- Workflow:
 - a. Generate embedding for query image.
 - b. Run a similarity search over existing embeddings using FAISS.
 - c. Return results in descending order of similarity.



Chatbot

To build the chatbot we tried 3 different models:

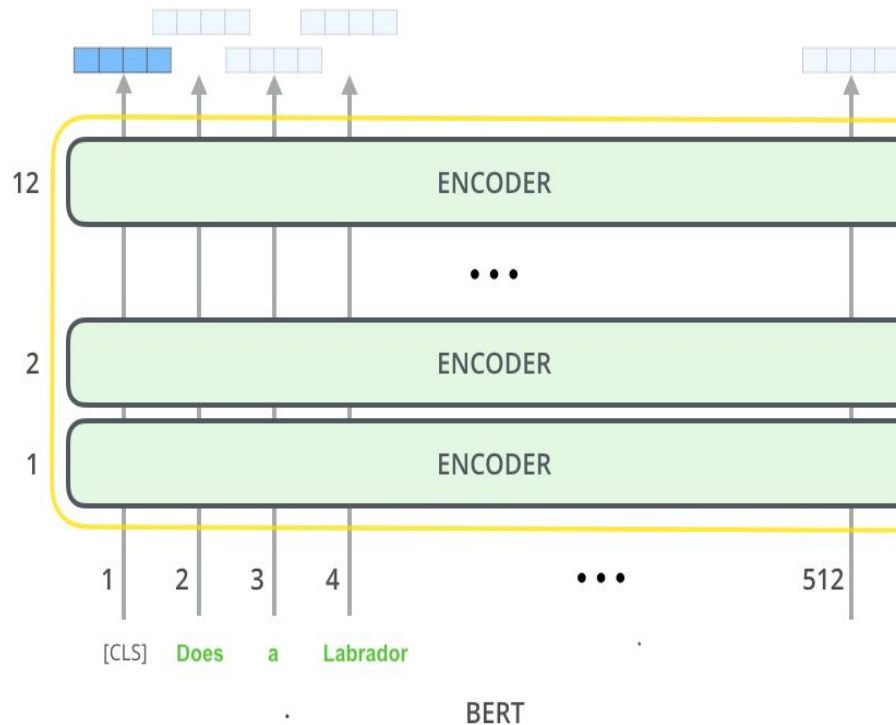
1. BERT
2. GPT2
3. GPT2 DoubleHead



Chatbot

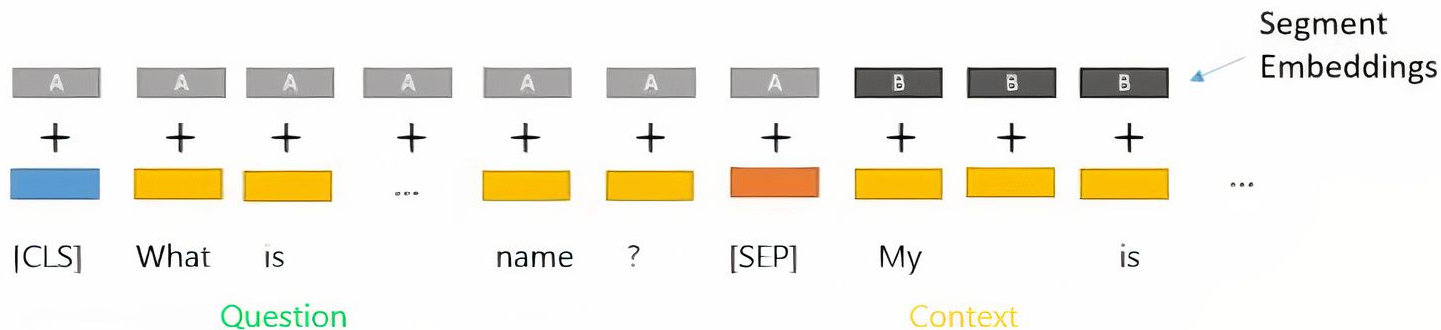
1. BERT

- Masked Language Model
- Made up of only the Encoder with stacked transformer blocks
- Bidirectional language model



Chatbot

1. BERT



Question :

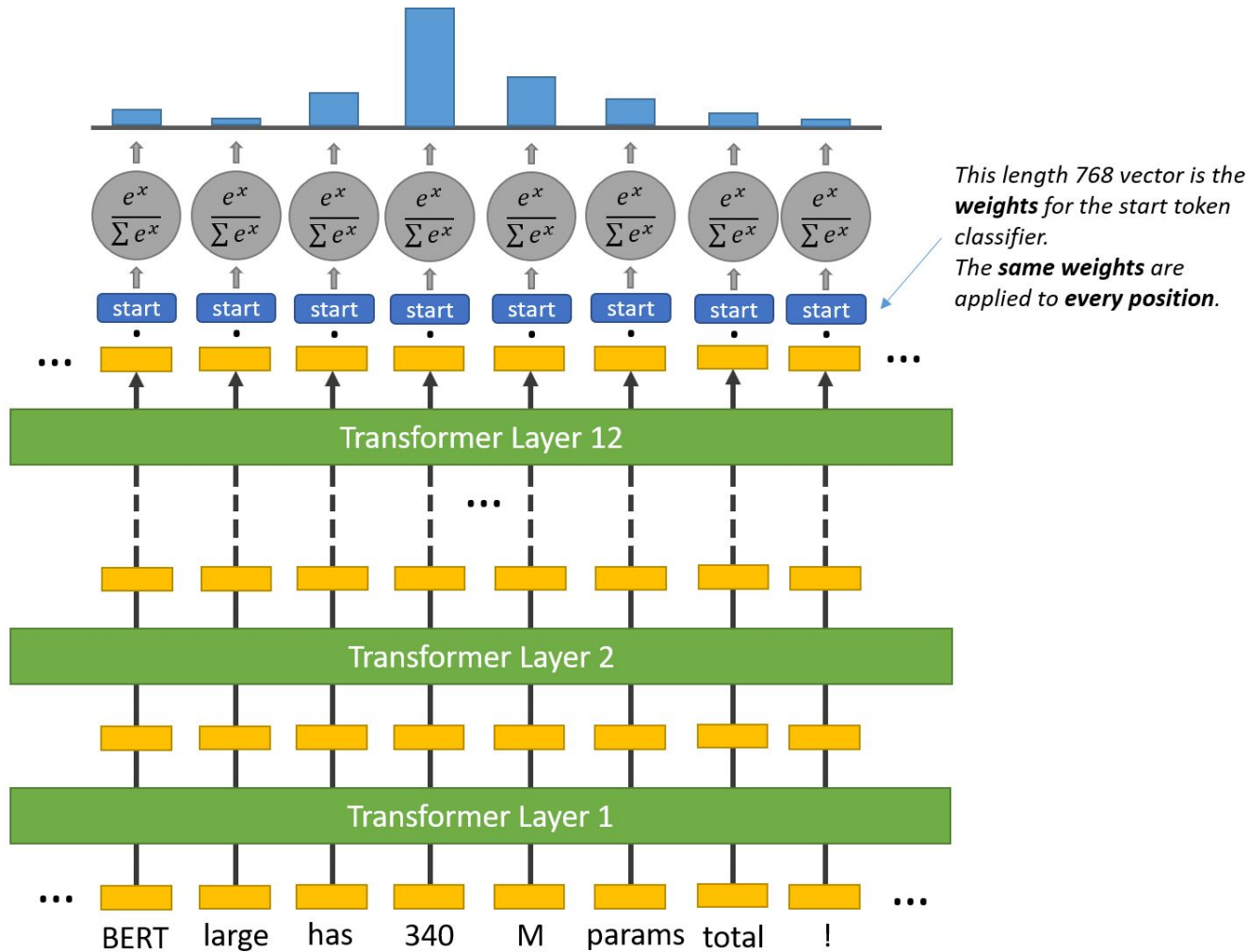
What is your name

Context:

My name is Emma. I am 6 years old. My color is Blond. My weight is 53.3. My gender or sex is Female. My breed is Retriever. I have the prettiest little puppy face. I am sweet. I have stunning grey eyes that will win you over instantly, and have the cutest floppy ears. I am still learning what my crate is for, and working hard to master house training. I love crinkly stuffed toys. I am very low key and relaxed. I love to be held, and will cuddle in your lap to take a snooze.

Chatbot

1. BERT

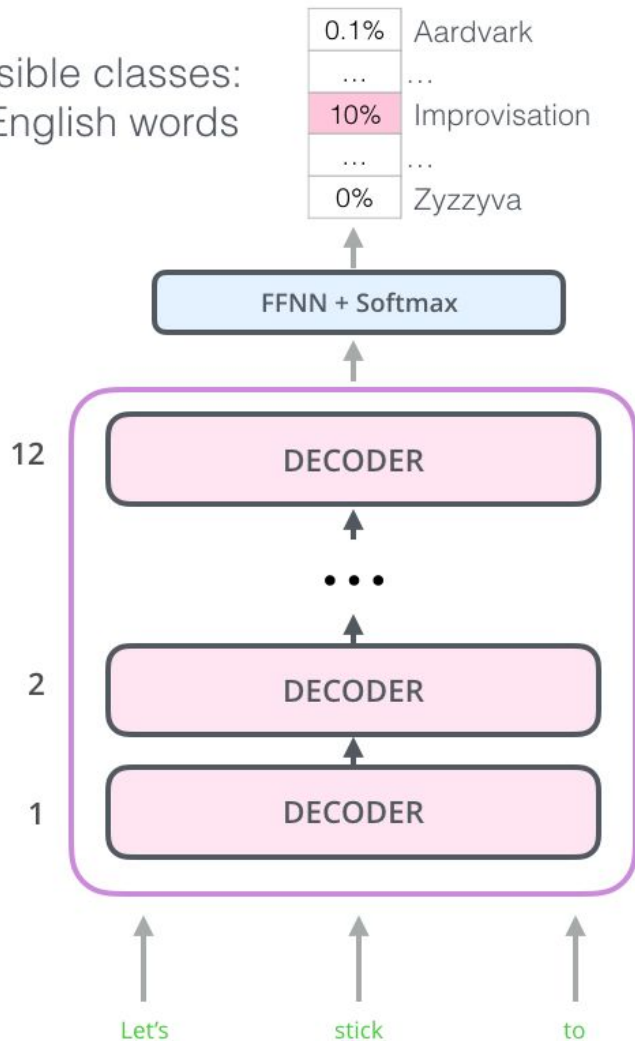


Chatbot

2. GPT2

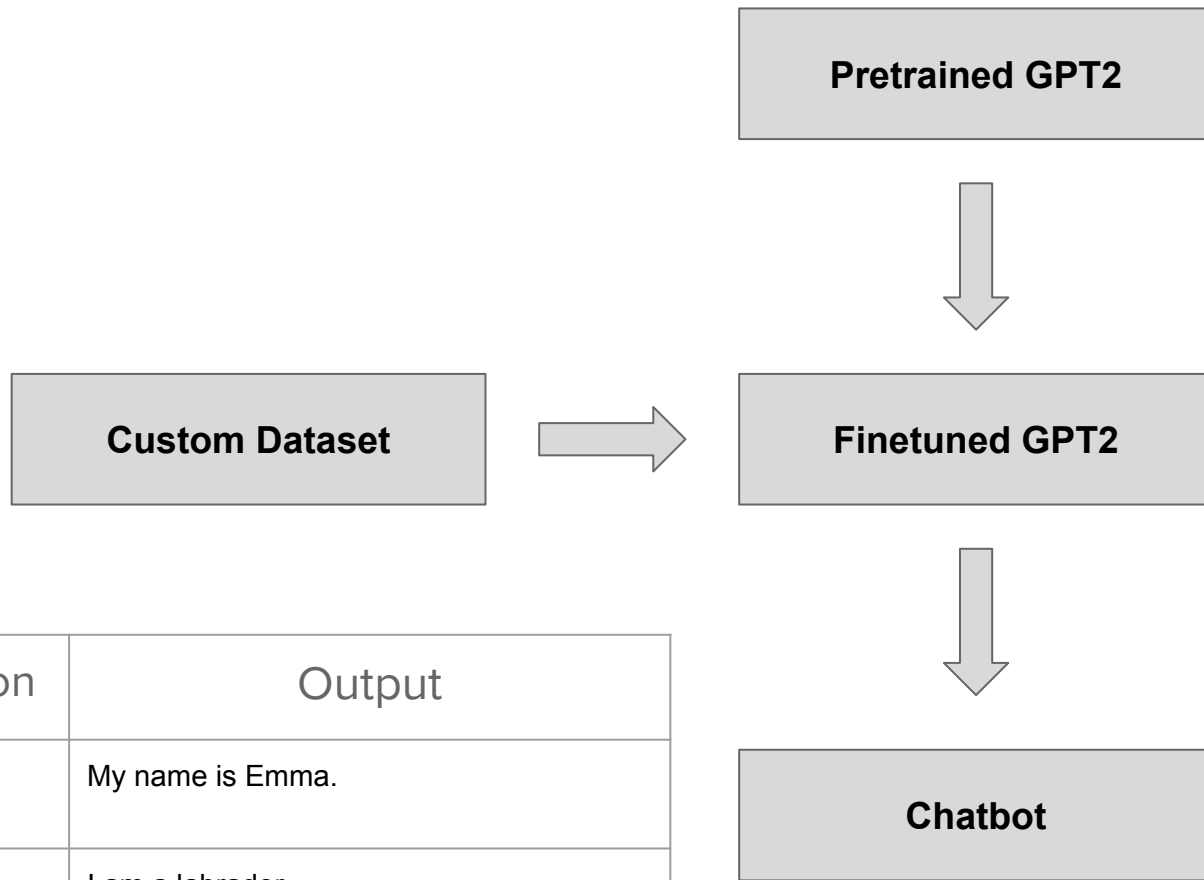
- Auto-regressive model (A word is predicted using words from its left context only)
- Made up of only the Decoder with stacked transformer blocks
- Unidirectional language model
- Good for generating text

Possible classes:
All English words



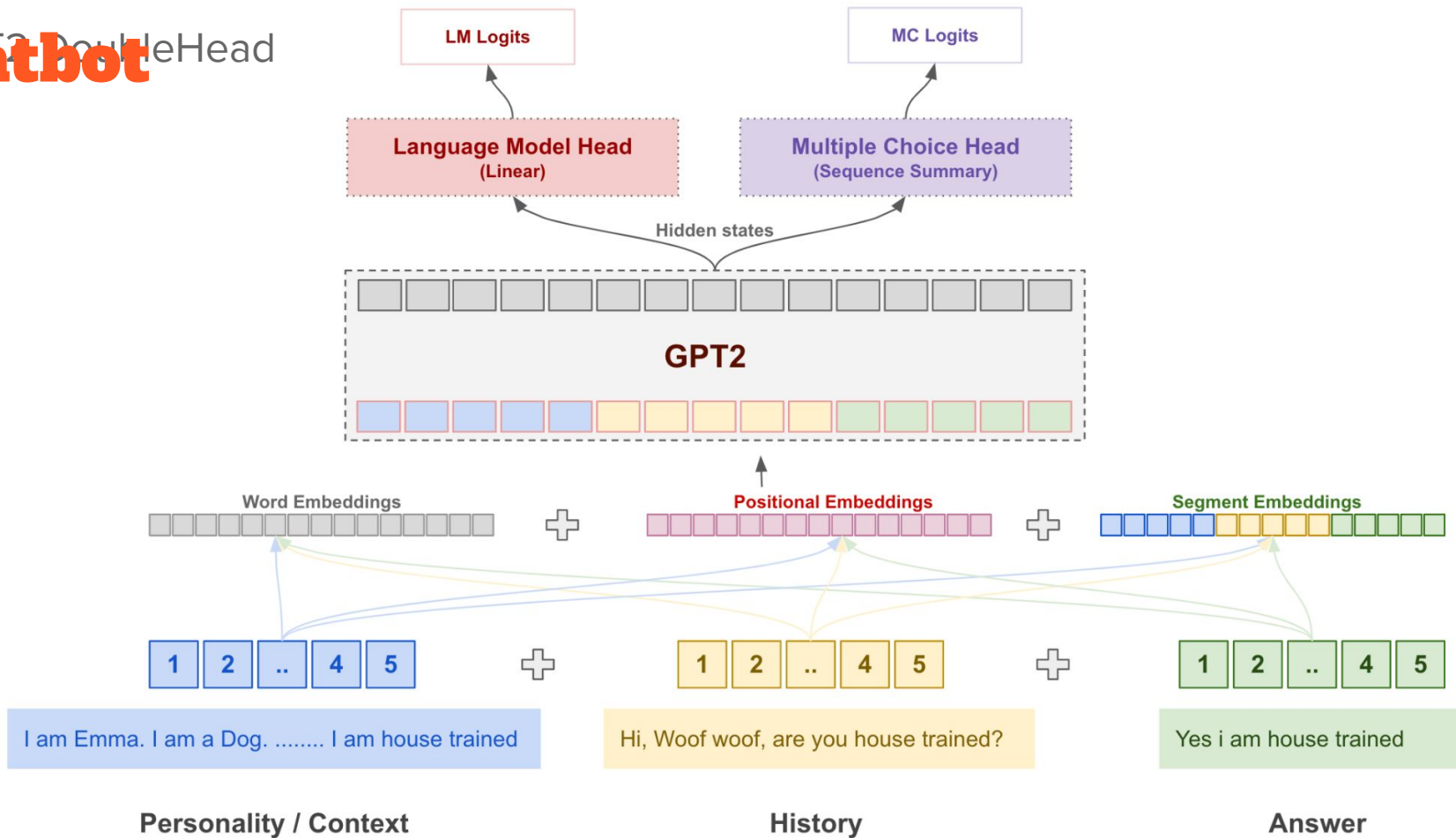
Chatbot

2. GPT2



Input = Persona + Question	Output
My name is Emma. I am a labrador. My gender is male. ... What is her name ?	My name is Emma.
My name is Emma. I am a labrador. My gender is male. ... What is her breed ?	I am a labrador.

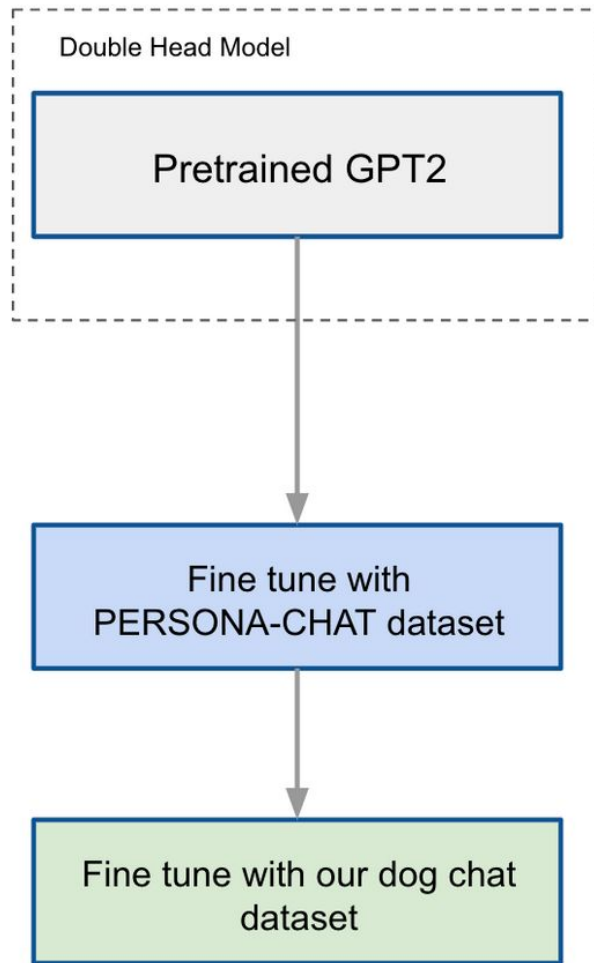
GPT2 DoubleHead Chatbot



Chatbot

3. GPT2 DoubleHead

- PERSONA-CHAT Dataset
- Dog Chat Dataset



Chatbot

3. GPT2 DoubleHead

- Dog Chat Dataset

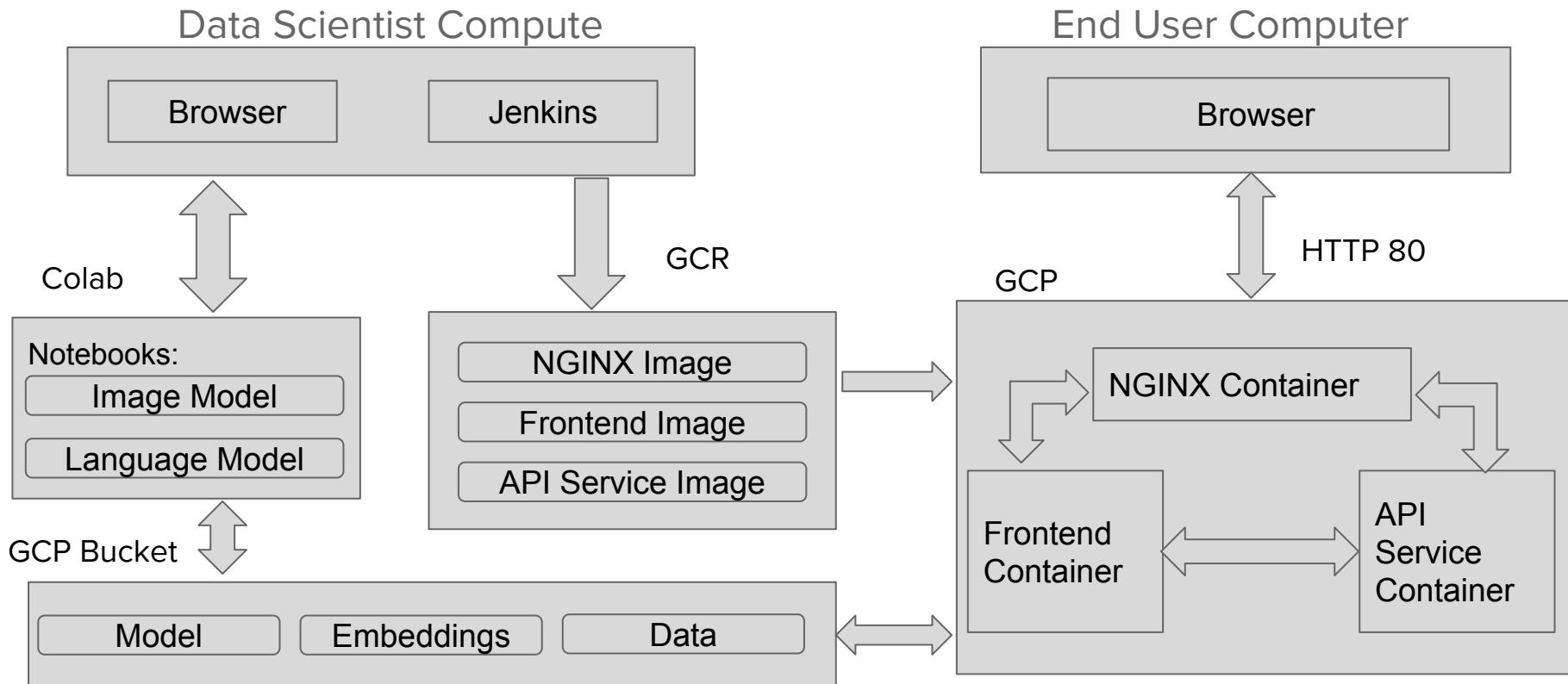
```
{  
  "personality": [  
    "I am Emma",  
    "I am a Dog",  
    "My gender is Female",  
    ...  
  ],  
  "utterances": [  
    {  
      "candidates": [  
        "i do , but mostly after work with the boys",  
        "not if you inherit it and then reinvest . that s what trump did . lots do .",  
        "...",  
        "it it not a great experience , let me tell you .",  
        "woof woof . i'm feeling great!"  
      ],  
      "history": [  
        "hi , how are you ?"  
      ]  
    },  
    ...  
  ],  
}
```

} Personality

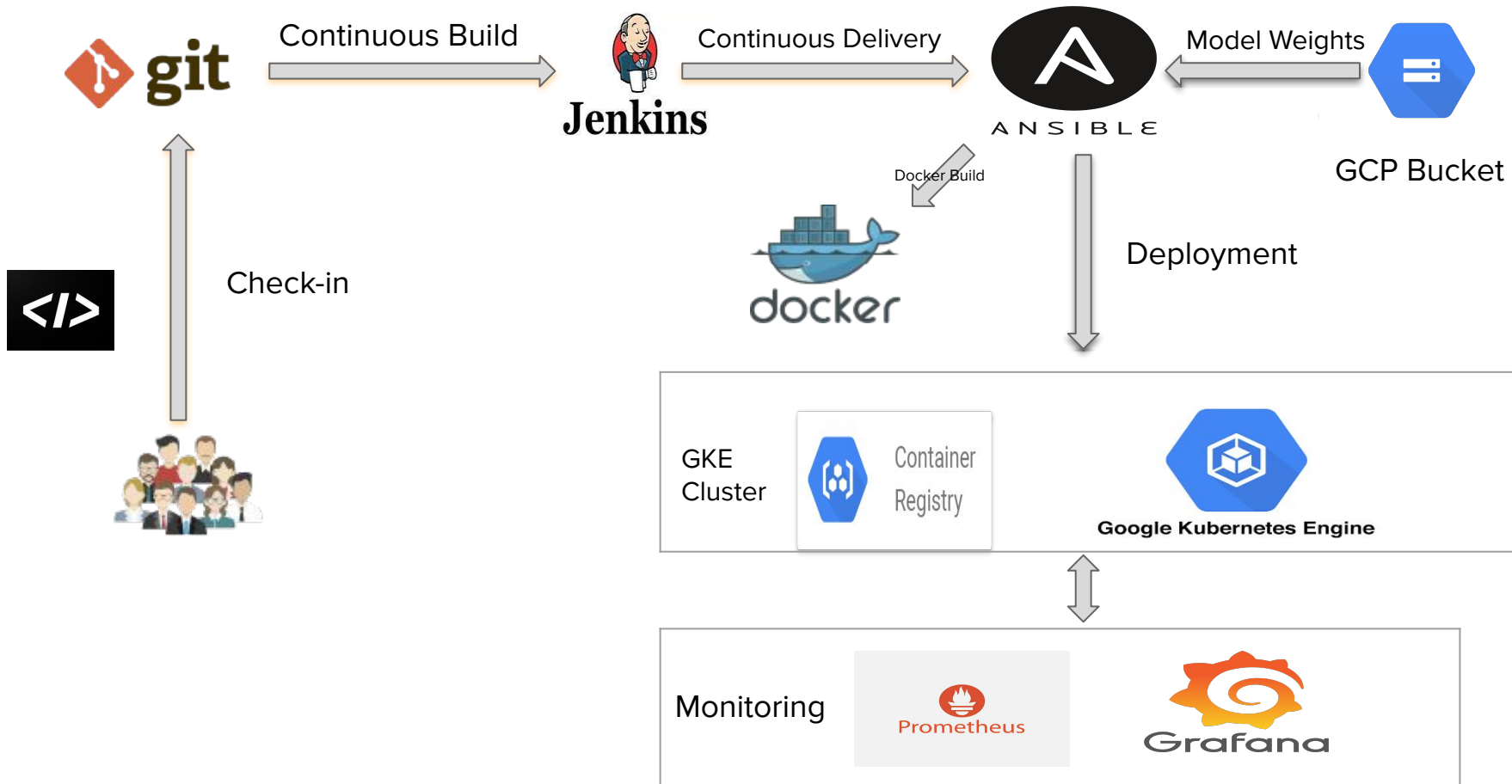
} Candidates

} History

Technical Architecture



DL Ops





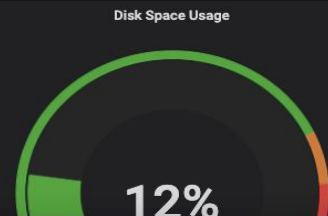
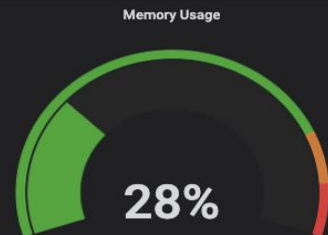
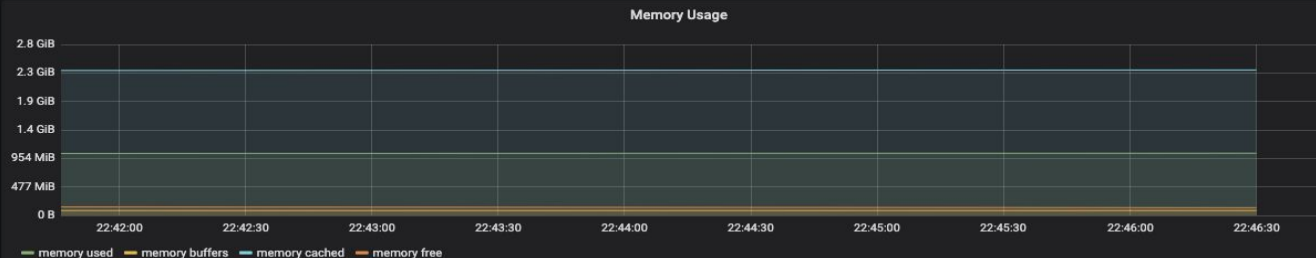
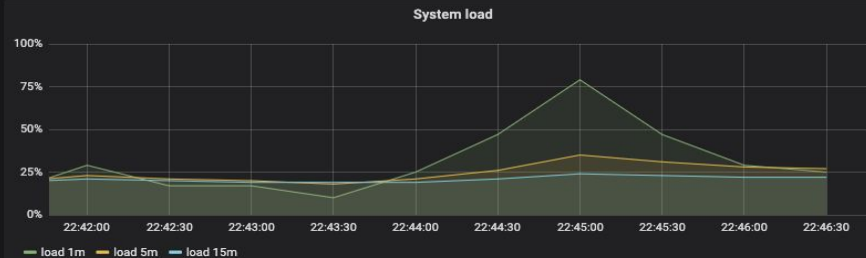
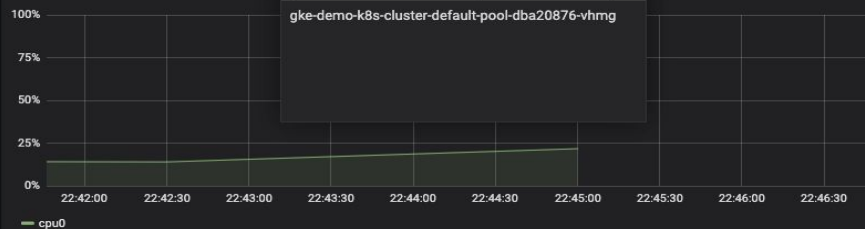
Nodes ▾

☆ 🔄 ⚙️ 💬 Last 5 minutes 🔍 ↺ ▾

datasource prometheus ▾

instance

gke-demo-k8s-cluster-default-pool-dba20876-mr3g
gke-demo-k8s-cluster-default-pool-dba20876-vhmg



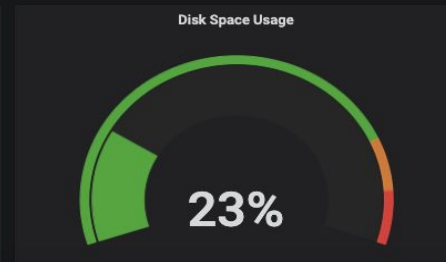
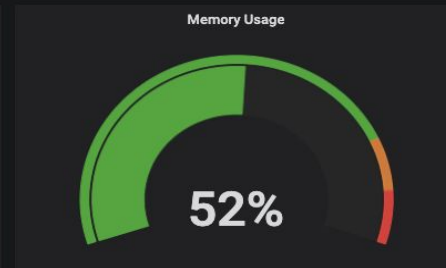
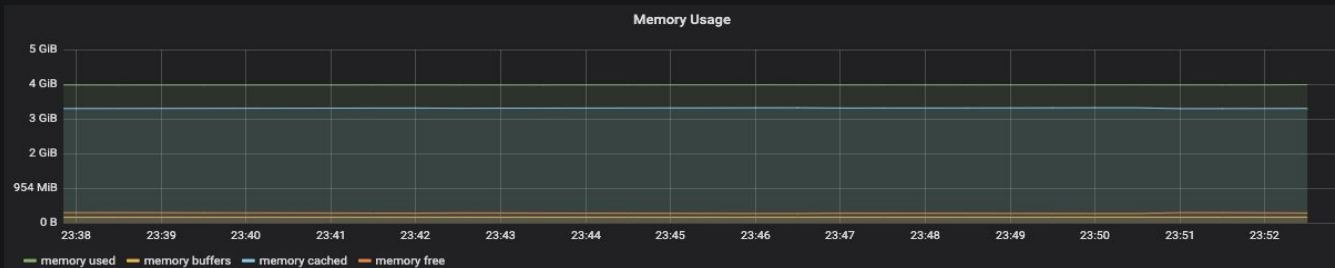
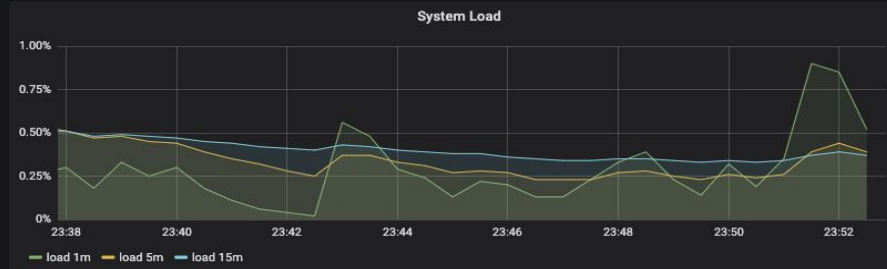
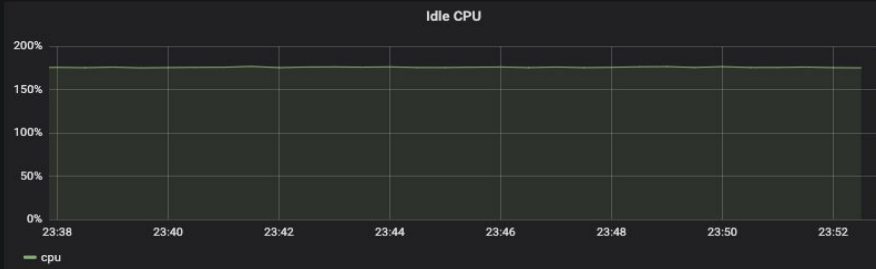


Kubernetes Capacity Planning -



Last 15 minutes





Thank You

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Money can buy you a fine dog, but only
love can make him wag his tail.

-Richard Friedman

