

REPORT

Emotional Sentiment Analysis and Adaptive Response System

Summery :

Firstly I explored different dataset platforms for the dataset, on Kaggle I found a [Empathetic Dialogues \(Facebook AI\)](#) dataset.

Using preprocessing techniques converted the dataset into Instruction, input and output format. For training our dataset we used LLAMA 3 8b, Instead of using two different models, tried with one model for both Sentiment Analysis and Adaptive Response, We used a pre-trained model for fine tuning on our dataset.

Which gave a final model capable of giving emotion state and empathetic response to input of the user.

Data preparation :

- Found appropriate dataset on kaggle [Empathetic Dialogues \(Facebook AI\)](#)
- Removed unnecessary columns
- Removed null value rows
- Converted dataset into Instruction, Input and Output format dataset
- Export dataset as CSV and upload on hugging face
InfinityAyushh/empathaticDialogue_1k

Model choices :

As mentioned in the Assignment I used LLAMA, the recent model llama-3-8b was used for training, as it offers a good balance between performance and computational efficiency. It is easier to fine-tune and deploy on limited hardware, yet it is large enough to provide strong capabilities for many tasks.

Challenges :

- Getting the appropriate dataset was challenging since there isn't any exact format dataset available on the Internet.
- Finalizing model which offers a good balance between performance and computational efficiency.

Results :

1.

```
### Instruction:
Tell emotion of the user as 'Emotion : anger/sad/joyful', and give empathetic response as per emotion and tone.

### Input:
Wow, Today is a nice day!

### Response:
Emotion : Happy, I hope it stays nice for a while<|end_of_text|>
```

2.

```
### Instruction:
Tell emotion of the user as 'Emotion : anger/sad/joyful', and give empathetic response as per emotion and tone.

### Input:
I'm not going to forgive her!

### Response:
Emotion : angry, How could she do that to you?<|end_of_text|>
```

3 .

```
### Instruction:
Tell emotion of the user as 'Emotion : anger/sad/joyful', and give empathetic response as per emotion and tone.

### Input:
Look at that fool

### Response:
Emotion : funny, i have seen him do that a couple times<|end_of_text|>
```

4 .

```
### Instruction:
Tell emotion of the user as 'Emotion : anger/sad/joyful', and give empathetic response as per emotion and tone.

### Input:
Why it's so irritating?

### Response:
Emotion : irritated, I don't know. It's just a bad day.<|end_of_text|>
```

Future Goals/ Improvements :

- Using more specific dataset so that users will get culturally fit empathetic responses.
- Using a large dataset, with more training which will give more accurate results.
- Building a web app which can have a Bot like appearance.
- Using a bigger Llama 3 model with 13 and 70 billion parameters.
- Using other model such as Bert , Mistral, gemma
- Using different models for Sentiment analysis and Adaptive response.