To,

IITD-AIA Foundation of Smart Manufacturing

Subject: **Weekly Progress Report for Week 4**

Dear sir,

Following is the required progress report to the best of my knowledge considering relevant topics to be covered.

What's happening this week:

- Studied how smart models work.
- Done BoW and encoding.
- Studied GPT.
- Tried to implement a model with the help of GPT-2
- Also search about LLaMa.

Weekly Progress:

June 26:
Studied how bots like ChatGPT and BERT work .

- Studied how bots learn from the data.
- How to train the bot by applying various algorithms.
- Specially QA model like Bert which learns from the users feedback.
- Transformer algorithm is a neural network architecture which is used in NLP, ML for training the model like BERT..

June 27:
Done with Some preprocessing techniques.

- performed Bag of words Model to the data.
- Studied how generative pre-trained transformer (GPT) work.
- Also perform one hot encoding on the data.
- Encoding is the conversion of word obtained from tokenization into numerical values like vectors.

June 28:
Learnt about GPT-2.

- Tried to implement a chatbot but unable to do it because open api key can be only used once for free version.
- Then Read about transformer and GPT-2 more.
- GPT-2 is open source so i would be using it for my project.

June 29:
Tried to train a model on the basis of GPT-2 as it is open source.

- Tried to work with GPT2 and make a model with my dataset. but facing issue with 'TFGPT2LMHeadModel', TensorFlow and PyTorch.
- in that model i tried to use hugging faces transformer too which provides pre-trained GPT.

June 30:
Resolved yesterday's problem and trained a model.

- Today, I tried to that GPT2 Model trained.
- I solved yesterday's issue by adding padding token to GPTTokenizer.
- Made training dataset and tokenized it, then created the GPT-2 model and Data Collator, passed the training arguments with epoch 5.
- Then tried to train it but it showing some error KeyError: 0, so I am stuck over there trying to figure out the mistake in tokenization of dataset..

July 01:
Tried to resolve the problem but it does not resolve. Then Studied about LLaMa.

- tried to tokenize the dataset again but still not able to solve issue.
- learnt about LLaMa model.
- LLaMA stands for "Low-Latency and Low-Memory ASR Model Architecture". Its main aim is to reduce resources and response time.
- LLaMa model is a model architecture specifically designed for automatic speech recognition tasks. Its purpose is to convert spoken language into written text efficiently and with low latency, optimizing computational resources and response time.

July 02:
Try to train a model.

- Today I didn't do much as i am having exam of Theory of computation.
- But still tried to train the model again with pre-processing the data again. and still not getting the better results

GANTT CHART FOR INTP23-ML-01

Task ID	Task Name	Start date	End date	Duration
1	Deep Learning	01-06-23	01-06-23	1
2	Python Libraris	02-06-23	02-06-23	1
3	Linear modelling	03-06-23	03-06-23	1
4	Deep Neural Network	04-06-23	04-06-23	1
5	Problems in network	05-06-23	05-06-23	1
6	Prevention Techniques	06-06-23	06-06-23	1
7	Resoruces (Project)	07-06-23	07-06-23	1
8	NLP	08-06-23	08-06-23	1
9	NLTK,Scipy libraries	09-06-23	09-06-23	1
10	Models for DL	10-06-23	10-06-23	1
11	Gradient Descent	11-06-23	11-06-23	1
12	Deep Reinforcement learning	12-06-23	12-06-23	1
13	Deep Learning Limitations	13-06-23	13-06-23	1
14	Python Libraries	14-06-23	14-06-23	1
15	Data extraction	15-06-23	15-06-23	1
16	Text cleaning	16-06-23	16-06-23	1
17	Text cleaning	17-06-23	17-06-23	1
18	Word2Vec model	18-06-23	18-06-23	1
19	Corpus making	19-06-23	19-06-23	1
20	EDA	20-06-23	20-06-23	1
21	EDA	21-06-23	21-06-23	1
22	EDA	22-06-23	22-06-23	1
23	EDA and twilio	23-06-23	23-06-23	1
24	EDA	24-06-23	24-06-23	1
25	EDA	25-06-23	25-06-23	1
26	Transformer	26-06-23	26-06-23	1
27	BoW and Encoding	27-06-23	27-06-23	1
28	GPT-2	28-06-23	28-06-23	1
29	Model Training	29-06-23	29-06-23	1
30	Model Training	30-06-23	30-06-23	1
31	Model Training	01-07-23	01-07-23	1
32	Model Training	02-07-23	02-07-23	1
33	Flow of model	03-07-23	03-07-23	1
34	Flow of model	04-07-23	04-07-23	1
35	Flow of model	05-07-23	05-07-23	1
36	Flow of model	06-07-23	06-07-23	1
37	Flow of model	07-07-23	07-07-23	1
38	Flow of model	08-07-23	08-07-23	1
39	Flow of model	09-07-23	09-07-23	1
40	UI	10-07-23	10-07-23	1
41	UI	11-07-23	11-07-23	1
42	UI	12-07-23	12-07-23	1
43	UI	13-07-23	13-07-23	1
44	Testing	14-07-23	14-07-23	1
45	Testing	15-07-23	15-07-23	1
46	Testing	16-07-23	16-07-23	1
47	Testing	17-07-23	17-07-23	1
48	Testing	18-07-23	18-07-23	1
49	Deployment	19-07-23	19-07-23	1
50	Deployment	20-07-23	20-07-23	1