ML Intern Assignment @Enterpret

You can do one of the below assignments.

Interview process

- 1 week to complete the assignment
- 1 technical round (assignment discussion + ML)
- 1 cultural round
- 6 months of internship - 70k INR/month
- conversion to full time based on performance

Assignment 1

Problem Statement (ABSA - Aspect Based Sentiment Analysis)

- Given a text and a "phrase" from it, detect the sentiment expressed towards the "*phrase*" in the text instance.

Examples

- cannot rely on both milk delivery and grocery | milk | Negative
- your customer service is terrible! | customer service | Negative
- i love notion as a tool | tool | Positive
- notion is a great site and an Iphone app. | notion | Positive
- Asked for a workspace name or billing email address | billing | Neutral

Motivation

- Aspects are **important words** that would matter to our customers, we want to be able to provide our customers with insights on how their customers feel about these important words.
- Model evaluation will be based on performance on only Positive and Negative classes since samples with neutral class lead to no insight for our users.

Submission

Mail us the link to the google drive when you are done.

All artifacts have to be in this format in a folder in google drive

- absa/src - contains all the source needed for model inferencing
- absa/notebooks - experimental notebooks
- absa/models - contains all models
- absa/src/evaluation.py - should load the model and test file, generate results and save the result to `absa/data/results/test.csv` with columns `text, aspect and label`
- training_methodology - google doc about your training approach
  - literature survey of research papers
  - explain your approaches
  - final metrics of each approach
  - ablation study table
  - error analysis
  - conclusion

- deployment_pipeline - google doc about your deployment pipeline in AWS for live inferencing (not a batch process)
    - You can choose any approach to deploy
    - API should be able to scale as needed
    - Load profile in live inferencing is bursty in nature i.e can have spikes of load
- requirements.txt - all dependencies

Timeline

You have to submit the assignment in 7 days.

Evaluation criteria

- Training approach (40)
    - Training approaches (35)
    - Evaluation metric (5)
- Code quality (20)
- Brevity and explanation quality of the docs
    - approach doc (20)
    - inference deployment doc (20)
- Deadline extension (-10 for an extension of deadline. Can be extended by only 2 more days)

Dataset information

- The CSV files have 3 columns
    - Text: the text entry from which phrase is extracted
    - Aspect: The phrase from the text entry for which the sentiment needs to be calculated
    - Label: The sentiment label for the data
        - 0: Negative
        - 1: Neutral
        - 2: Positive
- The dataset has been cleaned to a certain extent. You can probe more.

Files

train file link

test file link

Assignment 2

Problem Statement

Submit a design doc for continuous training and deployment of a transformer text classification model on AWS. Retraining is triggered on model staleness. Using Sagemaker is not necessary.

Constraints

- Request per second - 0 to 10000 per second
- GPU training completion within 15 min for data upto 10GB
- CPU inferencing for batch and live predictions

Evaluation criteria

- Model training (20)
- Model performance monitoring (20)
- Continuous training (20)
- Live inference (10)
- Batch inference (10)
- A/B testing (10)
- Cost optimisations (10)

We would like to see an architecture diagram, write-up, HLD(High level design) and LLD(Low level design) if applicable on each evaluation topic.

Make any assumptions as needed. You can submit the assignment in 7 days.