neurons

AI Engineer assignment

Overview

The overall objective of the assignment is to build a workflow involving multiple processes (or tasks) with multi-modal LLMs. The purpose of the assignment is to assess your problem-solving skills, i.e. how you would generally approach such a problem, and the current level of your technical competencies in Gen AI.

The problem is framed within a marketing context, where a user (e.g. a Creative Designer) can upload a creative asset (image) to a platform or an app, along with their brand kit that contains the relevant brand compliance information. The primary goal of the proposed workflow is to assess whether the uploaded asset is compliant with the requirements, e.g. font style & size, logo size & position and colour palette.

Instructions

- In terms of preferred tech stack, the workflow should be implemented using Python and FastAPI, whilst the optional UI can be implemented as a Streamlit or Gradio app.
- You are free to make use of a framework such as LangChain or your own preferred/custom framework for implementing the workflow, and also employ any tools you deem suitable.
- Prior to the technical meeting, please send us the link to a repository (e.g. GitHub).
- For the multi-modal LLMs, you are free to use any open-source models from HuggingFace or any commercial APIs (e.g. Anthropic).
- Any optional enhancements or features are marked as [**optional**] below.
- During the technical meeting, please walk us through the core components of the code and the results obtained with the three images provided. If you can demo the application using Gradio/Streamlit, that would be much appreciated.

Thank you very much in advance for investing your time and efforts in working through this assignment. Please schedule the technical meeting at your own convenience, and do not hesitate to let us know if you have any questions (d.ramanah@neuronsinc.com).

Detailed requirements

Available material

- Three images from Neurons Marketing team for testing purposes.
- Neurons brand kit.

Proposed workflow

- You are free to design and implement a multi-process workflow, i.e. structure with various processes, as per your own preferences and best practices.
- Set up the workflow as part of an API using Docker.
- The main steps encompass the following:
    - Upload a brand kit (PDF format).
    - Extract brand compliance information (cf. next section) from the brand kit using e.g. PyMuPDF package.
    - Upload an image asset (JPG or PNG format).
    - Use a multi-modal LLM to assess whether the image is compliant with the information from the brand kit. The final assessment from the LLM should be in the form of a score in the range of [0, 4].
    - The compliance grade is the final desired output of the workflow.
    - An optional feature is to have the LLM provide the reasoning behind the score assigned to each brand compliance element listed in the following section [**optional**].

Brand compliance information

There are 4 elements to be assessed for the overall grade in range [0, 4], where each requirement being satisfied should contribute a single point to the overall grade.

- Font style.
- Logo safe zone.
- Logo colours.
- Colour palette (overall image).

Backend service

- Develop a RESTful API using FastAPI for processing the brand compliance requests.
- Implement proper error handling and status reporting [**optional**].
- Include proper logging for debugging and monitoring [**optional**].

Frontend app

- Design an intuitive user interface with drag-and-drop file upload capabilities using Streamlit or Gradio [**optional**].
- Use a docker-compose framework to deploy both the frontend and backend services [**optional**].

Further optional enhancements

- Write unit tests covering core functionality [**optional**].
- Performance optimisations for faster processing [**optional**].

Deliverables

- Code repository with the following:
    - Source code with clear documentation.
    - Setup instructions for local development and deployment of backend service (ideally using Docker).