ASSIGNMENT- For the position of RA at IACV Lab, Department of Electrical Engineering, IISc Bangalore

Submission Deadline: 29th June (EOD) (late submission will not be accepted)
(Send us a document containing your results along with a screenshot of your running UI.)

Part 1: Inference Script + Analysis

You will be provided with:
- The REDDOT paper
- The codebase of the REDDOT paper (Which we used to train the provided checkpoints)
- A trained REDDOT model checkpoint (trained on specific model parameters)
- Test samples from:
    1. **Tampered Dataset**
    2. **IFND Indian Dataset**

Your Task:
Create a **custom inference script** that:
- Uses an image and a caption, prepares the input for the model, and predicts whether the news is **true/fake.**
- Determine **confidence score** and calculate **entropy scores** for each sample.
- Analyse the results and draw your conclusion.

Model Parameters to be used:
- Use the Clip L/14 encoder wherever needed
- Use evidence = 0
- Use neg evidence = 0
- Tf layers = 4
- Tf head = 8
- Tf dim = 128

Follow the Readme provided by us.
Use **CLIP ViT-L/14** for any multimodal embeddings extraction.
You may add/modify the additional modules, but the **Model architecture/parameters should remain unchanged.**

Part 2: Local Deployment (FastAPI + Streamlit)

In this part, you are required to deploy the inference pipeline from Part 1 as a local web application.
- Use FastAPI (preferred) or any other framework for the backend
- Use Streamlit for the frontend.

We encourage creativity in how you design and structure the system, but your solution must meet the following minimum requirements:
Frontend (Streamlit) must display:
1. The input data (uploaded image and caption)
2. The time taken for model inference.
3. The model output includes predicted label (True/Fake), the Confidence score, Entropy score for the sample.

Bonus (Optional):

Design the frontend to **support multiple samples at once**, and display all results in a **clean, structured format.**

You are free to design the interface, structure, and flow as you like, as long as these elements are visible.