Q1: Implement a facial expression recognition system that incorporates a large language model (LLM) for feature extraction. Specifically, use the encoder part of an LLM to extract features from facial images and classify them into different expression classes, utilize FER2013 Dataset.

Q2: Implement an object detection system using the Ultralytics GitHub repository and train it with MobileNet and ResNet50 backbones on the specified dataset. Follow the steps below and provide the code and a detailed explanation of each step.

**Dataset:**

* Dataset [Link](https://www.kaggle.com/datasets/snehilsanyal/construction-site-safety-image-dataset-roboflow/data)

**Requirements:**

1. **Data Preparation:**
   * Download and preprocess the dataset from the provided link.
   * Ensure the data is formatted correctly for training with the Ultralytics repository.
2. **Model Setup:**
   * Clone the Ultralytics GitHub repository.
   * Set up the environment and dependencies as specified in the repository.
3. **Training with MobileNet Backbone:**
   * Configure the model to use the MobileNet backbone.
   * Train the object detection model on the provided dataset.
   * Save the trained model and its weights.
4. **Training with ResNet50 Backbone:**
   * Configure the model to use the ResNet50 backbone.
   * Train the object detection model on the provided dataset.
   * Save the trained model and its weights.
5. **Evaluation:**
   * Evaluate the performance of both models (MobileNet and ResNet50 backbones) on a test set.
   * Provide metrics such as accuracy, precision, recall, and F1-score for both models.
6. **Code and Explanation:**
   * Provide the complete code for your implementation, including data preprocessing, model training, and evaluation.
   * Include detailed comments and explanations for each part of your code.

Q3: Implement the methodology described in the attached CVPR paper using the datasets mentioned in the paper. And provide the code.

Mentioned Datasets in paper

<https://zenodo.org/records/5815488> Pixel-set dataset

<https://zenodo.org/records/5815523> pixel-patch dataset