AI Tasks for Students

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## Task 1: Emotion Detection in Text

### Scenario:

A mental health app wants to understand users' emotional states by analyzing short text messages. Your task is to build a simple classifier that can identify emotions like joy, sadness, anger, and fear.

### Objective:

Use an NLP model (like DistilBERT or a basic logistic regression) to classify input text into emotions.

### Requirements:

- Prepare or use a small labeled dataset (e.g., from Kaggle or EmotionDataset).

- Train or fine-tune a classifier.

- Create a notebook input where a user can paste text and see the detected emotion.

### Time Allocation:

~1.5 hours

### Evaluation Criteria:

- Accuracy of emotion prediction

- Simplicity and usability of interface

- Code clarity and structure

## Task 2: Mask Detection with OpenCV

### Scenario:

During health crises like COVID-19, it's useful to detect if individuals are wearing masks. Your goal is to use a computer vision model to identify whether a person is wearing a mask in an image.

### Objective:

Use OpenCV and a simple CNN or pre-trained model to detect masks in static images.

### Requirements:

- Load a pre-trained mask detection model (or train a basic one).

- Take 5 test images (mask/no mask).

- Output the image with label annotations.

### Time Allocation:

~2 hours

### Evaluation Criteria:

- Accuracy and precision of detection

- Correct labeling of images

- Clear visualization in notebook

## Task 3: Student Performance Predictor

### Scenario:

A school wants to predict whether a student is likely to pass based on their study habits. You're tasked with creating a simple machine learning model that can do this.

### Objective:

Use a dataset with features like hours studied, attendance, and assignment scores to predict pass/fail.

### Requirements:

- Use scikit-learn to build a classifier (Logistic Regression or Decision Tree).

- Train it on a synthetic or real dataset.

- Provide predictions for new student data.

### Time Allocation:

~1 hour

### Evaluation Criteria:

- Accuracy and F1-score

- Code simplicity and readability

- Use of appropriate features