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Project: Manga Character Mood Classifier

Dataset: https://www.kaggle.com/datasets/mertkkl/manga-facial-expressions

1. **Choice of dataset**

   The dataset I chose contains 462 images of manga (Japanese comics) characters and 7 different classes. Since the faces are already sorted by their classes, the dataset can be used for classification. I also found a few implementations of a mood classifier using this dataset and another very similar dataset on Kaggle, which will help me with my project.

2. **Methodology**

   a. **Data Preprocessing**
   I am currently unsure if the dataset I chose is feasible. I am planning to use neural networks to classify these images, but I do not know if the amount of data (around 50 images per class) is enough to train a deep learning model. In terms of preprocessing, I am planning on resizing the images. Also, I saw that someone "sharpened" the images as a form of preprocessing, which I could try.

   b. **Machine Learning Model**
   Using this dataset, I want to predict (classify) the mood of a manga character. From what I have seen, people have either made their own convolutional neural networks or used a pretrained model (ResNet-50). In my case, I will try using ResNet-50 and train it using my own data since my knowledge is still limited. That may not give me the best control over the model itself to tune it, but it will be probably easier to make the project.

   c. **Evaluation Metric**
   To evaluate the accuracy of my model, I will use the ratio of images that were predicted correctly out of the total number of images. After testing some projects on Kaggle, I've seen that the accuracy is usually around 30-40% (for 50 epochs). I would like to reach at least 50% of accuracy for my model. For my loss function, I will be using Cross-Entropy loss since I want a probability value between 0 and 1 and I am making a classification model.

3. **Application**

I will make a website where the user will be able to upload an image, or their own drawing and the model predicts the mood of the character in the input. Ideally, I would like the user to be able to draw directly on the website and have the model make predictions while they draw.