INSTALLATION GUIDE FOR SOFTWARE PROTOTYPE

This guide describes how to install and run the software prototype across three different codes with step-by-step instructions: CNN_B0, CNN_B0_SVM, and CNN_B0_SVM_GENETIC. The first two codes are originally developed in Google Colab and the third code is developed in Visual Studio Code. The guide shows how to execute these codes in a local machine using Visual Studio Code coding plataform.

REQUIREMENTS

Ensure you have Python installed on your system. The recommended version is Python 3.8 or higher.

1. Brain Tumor MRI Dataset:

- Download dataset_brain_tumor_mri dataset from Github or directly in Kaggle.

2. General Packages:

- `pip install numpy pandas matplotlib seaborn scikit-learn tensorflow keras`

3. Specific Packages:

- **CNN_B0_SVM_GENETIC:** `pip install pygad plotly`

CODE MODIFICATIONS FOR LOCAL EXECUTION

The code was developed in Google Colab, you need to modify it to run on a local machine. Specifically, remove or comment out this line related to Google Colab import and functionality:

```
# from google.colab import drive
 # drive.mount('/content/drive')
```

RUNNING THE CODE LOCALLY

I. EfficientNetB0 Prototype

a) Download the code from CNN_B0 Colab Link or GitHub.
b) Install the required packages as listed above. Modify the code to remove Google Colab-specific lines.
c) Correct path for `'dataset_brain_tumor_mri'`

II. Support Vector Machine Prototype

a) Download the code from CNN_B0_SVM Colab Link or GitHub.
b) Install the required packages as listed above.. Modify the code to remove Google Colab-specific lines.
c) Correct path for `'dataset_brain_tumor_mri'` and the saved EfficientNetB0 model.

III. Genetic Algorithm for Support Vector Machine Hyperparameter Optimization:

a) Download the code from CNN_B0_SVM_GENETIC GitHub Link.
b) Install the required packages listed above
c) Correct path for `'dataset_brain_tumor_mri'` and the saved EfficientNetB0 model.

FINAL NOTES

- The Pre-Trained EfficientNetB0 (`'efficientnetb0_model.h5'`) model Can be downloaded from GitHub.
- Ensure the paths to the **dataset_brain_tumor_mri** image directory and to the pre-trained model are correctly set in the code.