**Project Title: Rice Leaf Disease Detection using PyTorch**

**Overview**: This project focuses on the detection of diseases in rice leaves using PyTorch. The objective is to develop a model capable of accurately identifying various types of diseases affecting rice plants. The project took approximately one week to prepare. Upon running the provided code, the necessary datasets are automatically downloaded, eliminating the need for manual intervention. The dataset, named Rice Leaf, is sourced from Kaggle.com.

**Dataset**: The Rice Leaf dataset, sourced from Kaggle.com, is utilized in this project. The dataset contains images of rice leaves affected by various diseases. Preprocessing techniques are applied to the dataset to enhance its suitability for training the model.

**Code** **Structure**: The codebase includes components such as RiceDataset for dataset handling, data visualization procedures, and data splitting using torch.data.utils random\_split. Furthermore, the data is organized into train, validation, and test datasets using dataloaders. The model architecture utilizes the ResNet18 neural network for training.

**Model Architecture**: The model architecture incorporates a convolutional neural network (CNN) with ResNet18 layers. The CNN is trained using the provided datasets for a total of 5 epochs to learn and identify patterns indicative of different rice leaf diseases.

**Training Process**: The training process involves training the model with the specified datasets using ResNet18 and convolutional layers. The model is trained over 5 epochs to optimize its performance in disease detection. Inference: Inference is performed to assess the model's ability to detect rice leaf diseases. Additionally, external images downloaded from the internet are used to test the model's detection capabilities on unseen data.

**Results:** The results indicate that while the model's performance is satisfactory given the limited number of epochs, further training could potentially improve its accuracy in disease detection. The inclusion of more training epochs may enhance the model's ability to accurately identify and classify rice leaf diseases.

**Contact Information**: For any inquiries or collaboration opportunities, feel free to contact 무함마드 at +821082403311 or via LinkedIn at Muhammadziyo Vahobjonov.