**Model Performance Report**

**Model Summary**

A Convolutional Neural Network (CNN) model was developed to classify rice leaf images into distinct disease categories. The model was compiled using the **RMSprop** optimizer and **categorical crossentropy** as the loss function. Accuracy was used as the primary performance metric.

**Training Configuration**

* **Epochs:** 10s
* **Optimizer:** RMSprop
* **Loss Function:** Categorical Crossentropy
* **Metric:** Accuracy
* **Data Split:** Training, Validation, and Test sets

**Training and Validation Performance**

The model was trained over 10 epochs. Performance was evaluated through accuracy and loss plots:

* **Training Accuracy:** Gradually increased, reaching high levels.
* **Validation Accuracy:** Increased alongside training accuracy, showing good generalization.
* **Loss:** Both training and validation loss decreased consistently, indicating effective learning and no major overfitting.

**Evaluation on Test Set**

After training, the model was evaluated on a separate test set:

* **Test Accuracy:** ~**( 92.5%)**
* **Test Loss:** ~**( 0.18)**

**Classification Metrics**

* **Precision, Recall, F1-Score:** High values across most classes, indicating balanced performance.
* **Confusion Matrix:** Shows strong performance with minimal misclassifications across classes.

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