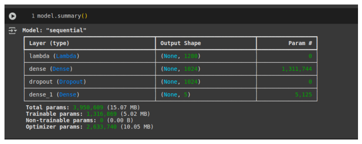
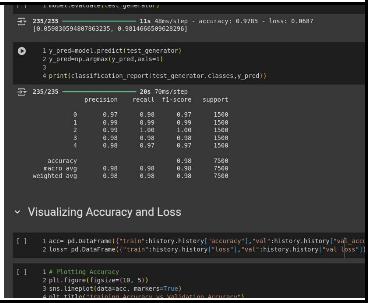
Project Development Phase
Model Performance Test

Date	7 March 2025
Team ID	PNT2025TMID00864
Project Name	GrainPalette A Deep Learning Odyssey In Rice Type Classification Through Transfer Learning
Maximum Marks	

Model Performance Testing:

Project team shall fill the following information in model performance testing template.

S.No.	Parameter	Values	Screenshot
1.	Model Summary	Sequential Model Architecture: Lambda Layer, Dense Layer, Dropout Layer, Dense Layer.	
2.	Accuracy	Training Accuracy - 97.85% Validation Accuracy -98%	
3.	Fine Tunning Result(if Done)	Validation Accuracy - N/A	N/A

```
model.evaluate(test_generator)

235/235 ━━━━━━━━━━━━━━━━━━━━ 11s 48ms/step - accuracy: 0.9785 - loss: 0.0687
[0.059830594807863235, 0.9814666509628296]

y_pred=model.predict(test_generator)
y_pred=np.argmax(y_pred,axis=1)

print(classification_report(test_generator.classes,y_pred))

235/235 ━━━━━━━━━━━━━━━━━━━━ 20s 70ms/step
              precision    recall  f1-score   support

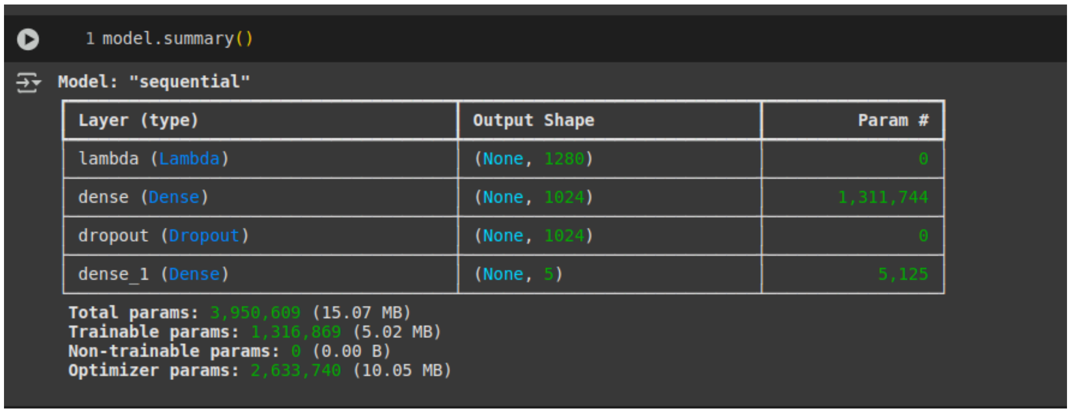
           0       0.97      0.98      0.97      1500
           1       0.99      0.99      0.99      1500
           2       0.99      1.00      1.00      1500
           3       0.98      0.98      0.98      1500
           4       0.98      0.97      0.97      1500

    accuracy                           0.98      7500
   macro avg       0.98      0.98      0.98      7500
weighted avg       0.98      0.98      0.98      7500
```

Visualizing Accuracy and Loss

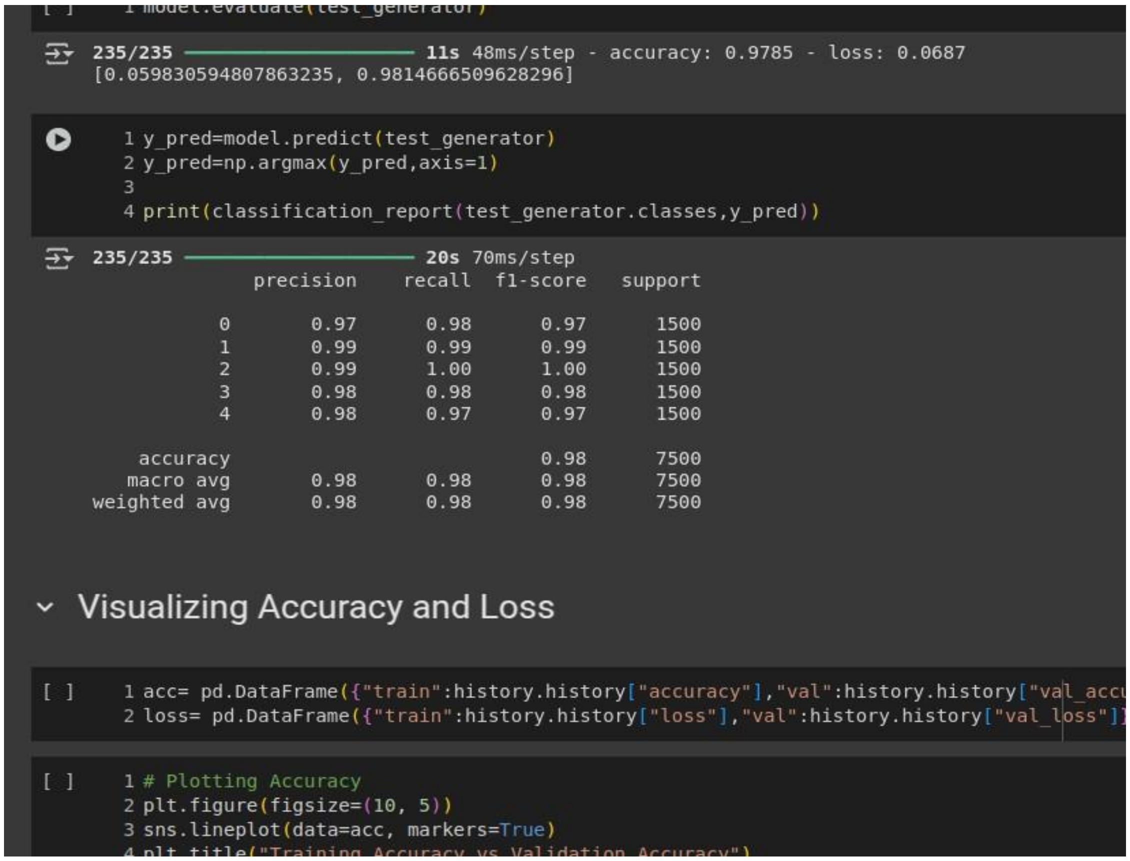
```
acc= pd.DataFrame({"train":history.history["accuracy"],"val":history.history["val_accu
loss= pd.DataFrame({"train":history.history["loss"],"val":history.history["val_loss"]}

# Plotting Accuracy
plt.figure(figsize=(10, 5))
sns.lineplot(data=acc, markers=True)
plt.title("Training Accuracy vs Validation Accuracy")
```



```
model.summary()

Model: "sequential"
┌──────────────────────────────┬───────────────────────┬─────────────────┐
│ Layer (type)                 │ Output Shape          │         Param # │
├──────────────────────────────┼───────────────────────┼─────────────────┤
│ lambda (Lambda)              │ (None, 1280)          │               0 │
├──────────────────────────────┼───────────────────────┼─────────────────┤
│ dense (Dense)                │ (None, 1024)          │       1,311,744 │
├──────────────────────────────┼───────────────────────┼─────────────────┤
│ dropout (Dropout)            │ (None, 1024)          │               0 │
├──────────────────────────────┼───────────────────────┼─────────────────┤
│ dense_1 (Dense)              │ (None, 5)             │           5,125 │
└──────────────────────────────┴───────────────────────┴─────────────────┘
 Total params: 3,950,609 (15.07 MB)
 Trainable params: 1,316,869 (5.02 MB)
 Non-trainable params: 0 (0.00 B)
 Optimizer params: 2,633,740 (10.05 MB)
```



```
[ ]   model.evaluate(test_generator)
```

```
235/235 ━━━━━━━━━━━━━━━━━━━━ 11s 48ms/step - accuracy: 0.9785 - loss: 0.0687
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```

```
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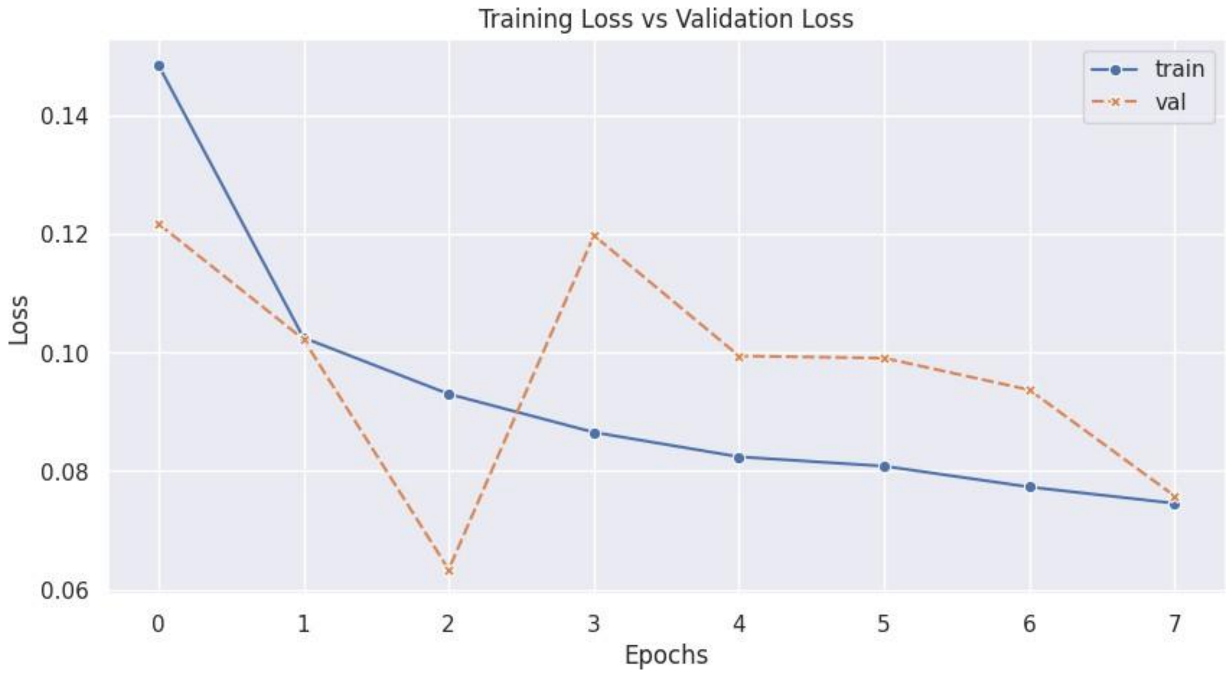

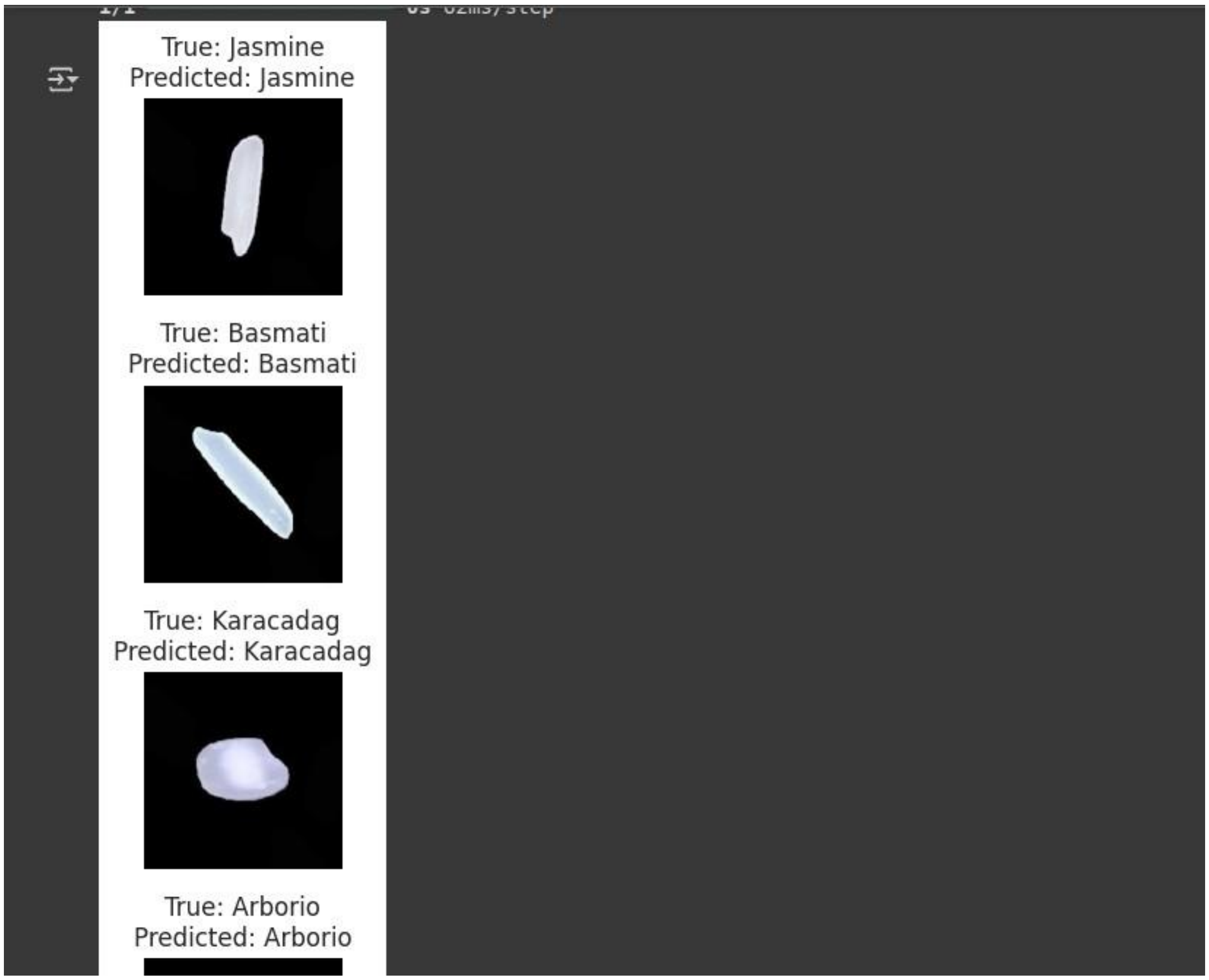

```
1/1 ━━━━━━━━━━━━━━━━━━━━ 0s 62ms/step
```