

# Worksheet: Model Persistence & Troubleshooting

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This worksheet guides you through the process of debugging a model and serializing it for production injection.

## Step 1: Debugging & Validation

Before saving, ensure your model is performing as expected.

- Review the **classification\_report()** to ensure precision/recall meet thresholds.
- Use **print(model.best\_params\_)** to verify the tuning results.

## Step 2: Serializing the Model

Use the `pickle` library to save your trained model artifact to your local drive.

```
import pickle
# 'model' is your trained GridSearchCV object
with open('optimized_model.pkl', 'wb') as file:
    pickle.dump(model, file)
```

*\* Note: 'wb' mode is critical for binary serialization.*

## Step 3: Verifying Production Injection

Test the saved model by loading it in a fresh environment:

```
import pickle
# Load the model
loaded_model = pickle.load(open('optimized_model.pkl', 'rb'))
# Predict on new data
predictions = loaded_model.predict(new_data)
```