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import pandas as pd
from sklearn.datasets import load_iris
from sklearn.model_selection import GridSearchCV
from sklearn.svm import SVC
import joblib

# Load iris dataset
iris = load_iris()
X = pd.DataFrame(iris.data)
y = pd.DataFrame(iris.target)

# Define parameter grid
parameters = {
    'kernel': ['linear', 'rbf'],
    'C': [0.1, 1, 10]
}

# SVM model
svc = SVC()

# Grid search
cv = GridSearchCV(svc, parameters, cv=5)
cv.fit(X.values, y.values.ravel())

# Print results
print("BEST PARAMS:", cv.best_params_)
for mean, params in zip(cv.cv_results_['mean_test_score'], cv.cv_results_['params']):
    print(f"{mean:.3f} for {params}")

# Get best model and save it
best_model = cv.best_estimator_
print(best_model)

joblib.dump(best_model, 'SVM_model.pkl')
```

◆ [Analyze files with Gemini](#)