```
from sklearn.datasets import fetch_lfw_people
import matplotlib.pyplot as plt
faces = fetch_lfw_people(min_faces_per_person=80)
```

```
    Downloading LFW metadata: https://ndownloader.figshare.com/files/5976012
    Downloading LFW metadata: https://ndownloader.figshare.com/files/5976009
    Downloading LFW metadata: https://ndownloader.figshare.com/files/5976006
    Downloading LFW data (~200MB): https://ndownloader.figshare.com/files/5976015
```

```
 _, h, w = faces.images.shape
 target_names = faces.target_names
```

```
 print(faces.target_names)
```

```
    ['Colin Powell' 'Donald Rumsfeld' 'George W Bush' 'Gerhard Schroeder'
     'Tony Blair']
```

```
print(faces.images.shape)
```

```
    (1140, 62, 47)
```

```
 # Create the model
from sklearn.svm import SVC
from sklearn.decomposition import PCA as RandomizedPCA
from sklearn.pipeline import make_pipeline
```

```
pca = RandomizedPCA(n_components=100, whiten=True, random_state=1)
svc = SVC(kernel='rbf', class_weight='balanced')
model = make_pipeline(pca, svc)
```

```
 # Split the dataset into training and testing
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(faces.data, faces.target,random
```

```
 model.fit(X_train, y_train)
```

```
    Pipeline(memory=None,
             steps=[('pca',
                     PCA(copy=True, iterated_power='auto', n_components=100,
                         random_state=1, svd_solver='auto', tol=0.0, whiten=True))
                    ('svc',
                     SVC(C=1.0, break_ties=False, cache_size=200,
                         class_weight='balanced', coef0=0.0,
                         decision_function_shape='ovr', degree=3, gamma='scale',
                         kernel='rbf', max_iter=-1, probability=False,
                         random_state=None, shrinking=True, tol=0.001,
                         verbose=False))],
             verbose=False)
```

```
y_pred = model.predict(X_test)
```

```
from sklearn.metrics import classification_report
print(classification_report(y_test, y_pred, target_names = faces.target_names))
```

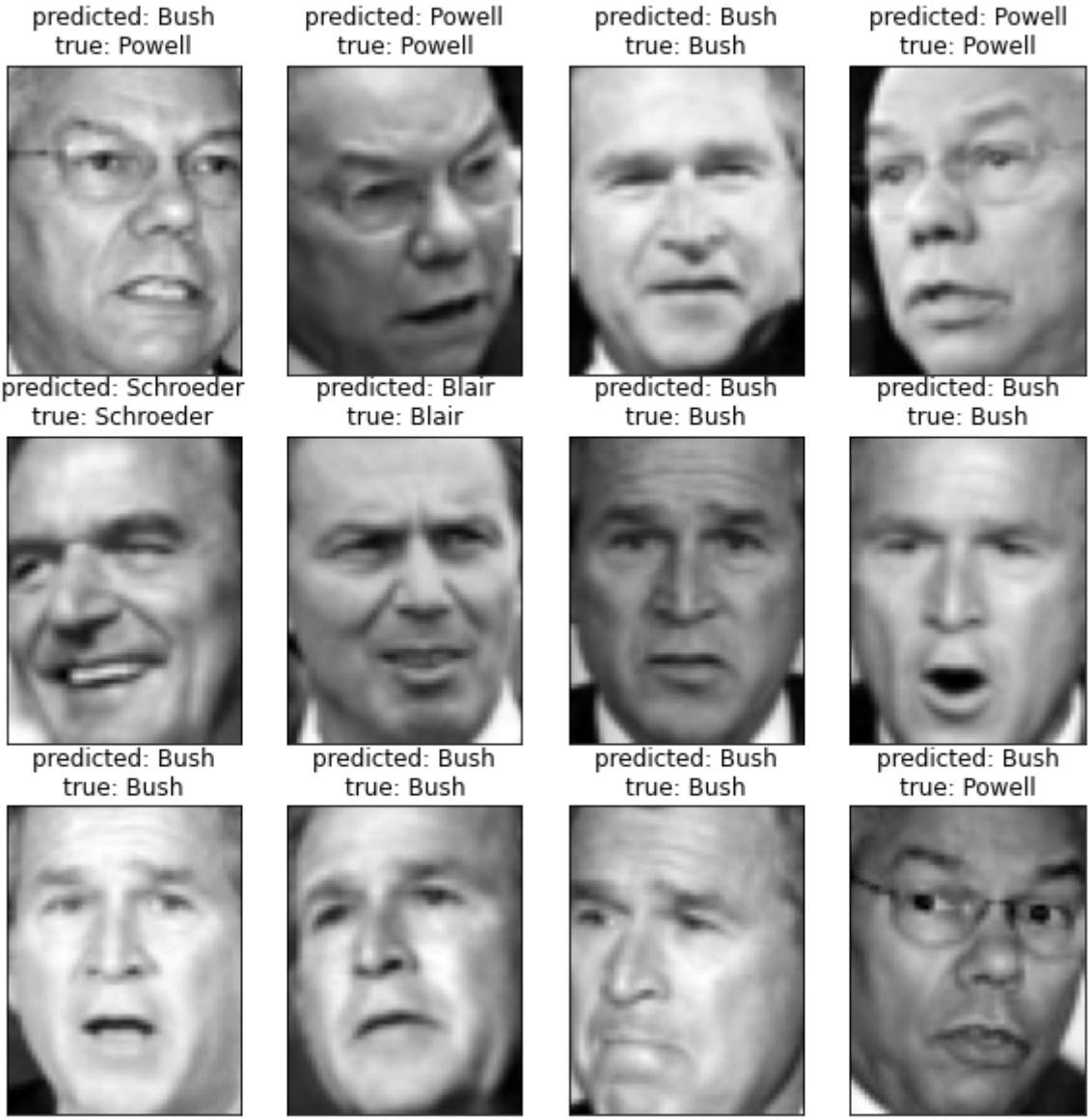
```
                   precision    recall  f1-score   support

     Colin Powell       0.88      0.92      0.90        53
  Donald Rumsfeld       0.76      0.76      0.76        21
    George W Bush       0.88      0.94      0.91       139
Gerhard Schroeder       0.93      0.74      0.83        35
       Tony Blair       0.88      0.76      0.81        37

         accuracy                           0.87       285
        macro avg       0.86      0.82      0.84       285
     weighted avg       0.87      0.87      0.87       285
```

```
def plot_gallery(images, titles, h,w, rows=3, cols =4):
  plt.figure(figsize=(10,10))
  for i in range(rows*cols):
    plt.subplot(rows,cols,i+1)
    plt.imshow(images[i].reshape(h,w),cmap=plt.cm.gray)
    plt.title(titles[i])
    plt.xticks(())
    plt.yticks(())
```

```
def titles(y_pred,y_test,target_names):
  for i in range(y_pred.shape[0]):
    pred_name = target_names[y_pred[i]].split(' ')[-1]
    true_name = target_names[y_test[i]].split(' ')[-1]
    yield 'predicted: {0}\ntrue: {1}'.format(pred_name,true_name)
```



```
prediction_titles = list(titles(y_pred, y_test, target_names))
plot_gallery(X_test, prediction_titles, h,w)
```



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