Putting it all together

Pipelining

We have seen that some estimators can transform data and that some estimators can predict variables. We can also create combined estimators:

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Unknown directive type "literalinclude".

```
.. literalinclude:: ../../auto_examples/compose/plot_digits_pipe.py
    :lines: 23-63
```

Face recognition with eigenfaces

The dataset used in this example is a preprocessed excerpt of the "Labeled Faces in the Wild", also known as LFW:

http://vis-www.cs.umass.edu/lfw/lfw-funneled.tgz (233MB)

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Unknown directive type "literalinclude".

```
.. literalinclude:: ../../auto_examples/applications/plot_face_recognition.py
```

Prediction

Eigenfaces

Expected results for the top 5 most represented people in the dataset:

```
                   precision    recall  f1-score   support

     Gerhard_Schroeder       0.91      0.75      0.82        28
       Donald_Rumsfeld       0.84      0.82      0.83        33
            Tony_Blair       0.65      0.82      0.73        34
          Colin_Powell       0.78      0.88      0.83        58
       George_W_Bush       0.93      0.86      0.90       129

          avg / total       0.86      0.84      0.85       282
```

Open problem: Stock Market Structure

Can we predict the variation in stock prices for Google over a given time frame?

:ref:`stock_market`

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Unknown interpreted text role "ref".