Intuition: https://www.youtube.com/watch?v=1dKRdX9bfIo (https://www.youtube.com/watch?v=1dKRdX9bfIo)

Imports and global variables

In [7]:

```
import pandas as pd
import numpy as np
from sklearn.linear_model import ElasticNetCV
from sklearn.datasets import load_breast_cancer
from sklearn.model_selection import train_test_split
```

Implement Elastic Net regularization, as developed in the lecture. Use either ElasticNetCV (from sklearn), or ElasticNet together with Grid-Search (CV), or augment (from scratch) the LASSO program from the lecture. Test your implementation by analyzing a dataset of your choice, e.g., the cancer database as presented in the lecture.

Load data

In [8]:

```
# Load database
cancer = load_breast_cancer()

# Create data frame
cancer_df = pd.DataFrame(cancer.data, columns=cancer.feature_names)

# Construct train and test data sets
X = cancer.data
Y = cancer.target

X_train, X_test, y_train, y_test = train_test_split(
                                    X,Y, test_size=0.3, random_state=31,
stratify=Y)
```

Instantiate ElasticNetCV

In [9]:

```
instance_elastic_net_cv = ElasticNetCV(l1_ratio=0.5, eps=0.001, n_alphas=100, al
```

Fit and test the elastic net

In [10]:

```
instance_elastic_net_cv.fit(X_train, y_train)
instance_elastic_net_cv.score(X_test, y_test)
```

```
/home/janspoerer/anaconda3/lib/python3.7/site-packages/sklearn/model_s
election/_split.py:1978: FutureWarning: The default value of cv will c
hange from 3 to 5 in version 0.22. Specify it explicitly to silence th
is warning.
  warnings.warn(CV_WARNING, FutureWarning)
```

Out[10]:

```
0.6449769463131869
```

In [ ]:

```

```