Scikit-learn

```
import numpy as np
import scipy.stats as st
import sklearn.linear_model as lm
import matplotlib.pyplot as plt
%matplotlib inline
```

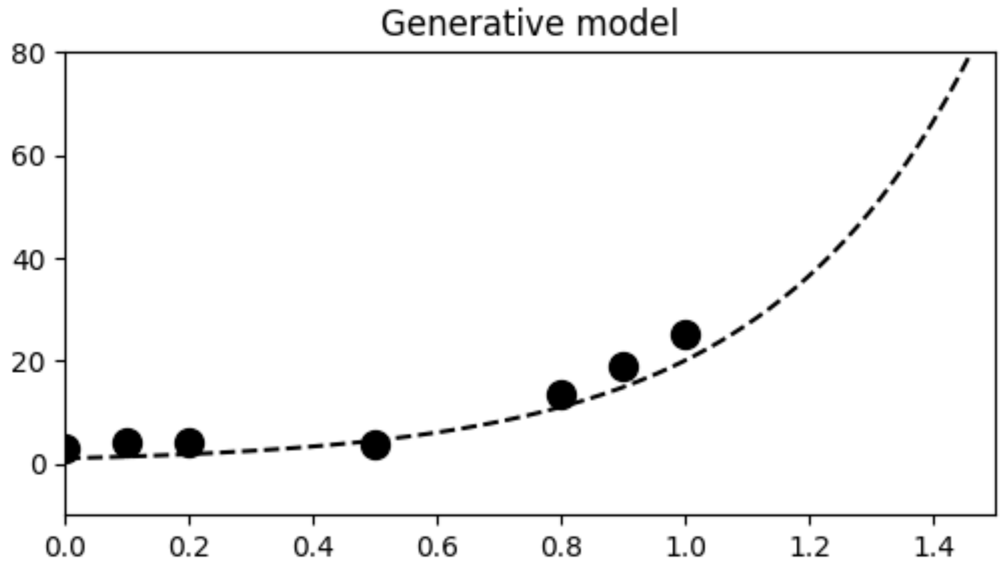
```
def f(x):
    return np.exp(3 * x)
```

```
x_tr = np.linspace(0., 2, 200)
y_tr = f(x_tr)
```

```
x = np.array([0, .1, .2, .5, .8, .9, 1])
y = f(x) + 2 * np.random.randn(len(x))
```

```
fig, ax = plt.subplots(1, 1, figsize=(6, 3))
ax.plot(x_tr, y_tr, '--k')
ax.plot(x, y, 'ok', ms=10)
ax.set_xlim(0, 1.5)
ax.set_ylim(-10, 80)
ax.set_title('Generative model')
```

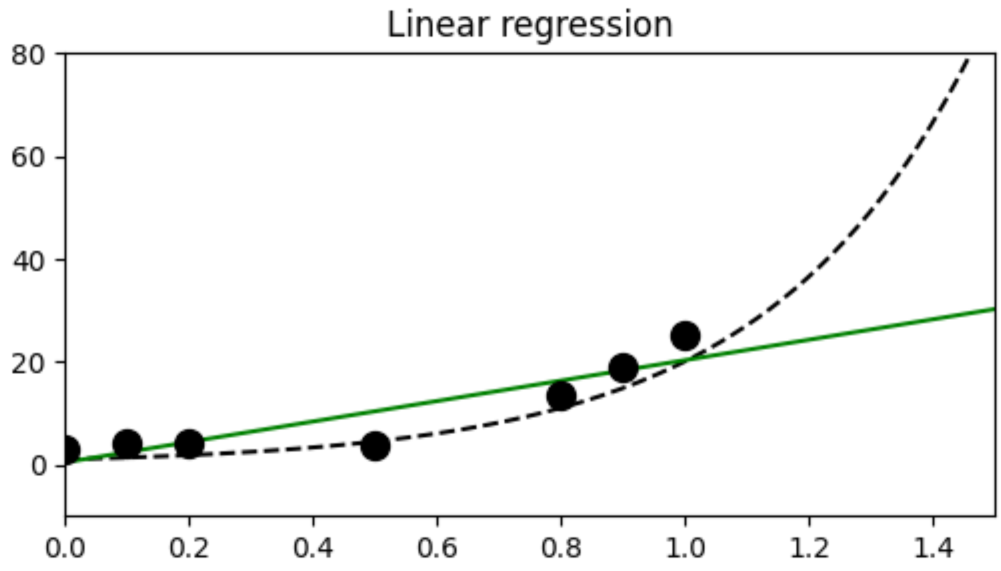
```
Text(0.5, 1.0, 'Generative model')
```



```
# We create the model.
lr = lm.LinearRegression()
# We train the model on our training dataset.
lr.fit(x[:, np.newaxis], y)
# Now, we predict points with our trained model.
y_lr = lr.predict(x_tr[:, np.newaxis])
```

```
fig, ax = plt.subplots(1, 1, figsize=(6, 3))
ax.plot(x_tr, y_tr, '--k')
ax.plot(x_tr, y_lr, 'g')
ax.plot(x, y, 'ok', ms=10)
ax.set_xlim(0, 1.5)
ax.set_ylim(-10, 80)
ax.set_title("Linear regression")
```

```
Text(0.5, 1.0, 'Linear regression')
```


Linear regression