Linear Regression

- and are both real numbers, to be estimated from the data
- are the random errors

$$y_i = \beta_0 + \beta_1 x_i + \epsilon_i$$


β_1

$$y = X\beta + \epsilon$$

Matrix Notation

- , and are all vectors

- is the data matrix with all entries in the the first column equal to 1

$$X = (\mathbf{1}, x)$$

Linear Regression

$$y_i = \beta_0 + \beta_1 x_i + \epsilon_i$$

- β_0 and β_1 are both real numbers, to be estimated from the data
- ϵ_i are the random errors

Matrix Notation

$$\boldsymbol{y} = X\boldsymbol{\beta} + \boldsymbol{\epsilon}$$

- $\boldsymbol{y}$, $\boldsymbol{\beta}$ and $\boldsymbol{\epsilon}$ are all vectors
- $X = (\mathbf{1}, x)$ is the data matrix with all entries in the the first column equal to 1

Minimisation Of Errors