

Create the **model** from a given set of parameters

### Model

$$y_i = \beta_0 + \beta_1(x_i) + \epsilon_i$$
$$\epsilon_i \stackrel{i.i.d.}{\sim} \mathcal{N}(0, \sigma)$$

$$\beta_0 = 0.2 \quad \beta_1 = 0 \quad \sigma = 1$$

**Generate observations** from this model

In each trial of the simulation the  $x$ -values are the same and the  $y$ -values are generated using:

$$y_i \stackrel{i.i.d.}{\sim} \mathcal{N}(0.2, 1)$$

**Collect statistic(s)** of interest from each trial

**Evaluate** the distribution of each statistic of interest (e.g., plot, compute mean, sd)

### Trial 1

$x_1$	$y_1$
$x_2$	$y_2$
$x_3$	$y_3$
$\vdots$	$\vdots$
$x_n$	$y_n$

### Trial 2

$x_1$	$y_1$
$x_2$	$y_2$
$x_3$	$y_3$
$\vdots$	$\vdots$
$x_n$	$y_n$

### Trial 3

$x_1$	$y_1$
$x_2$	$y_2$
$x_3$	$y_3$
$\vdots$	$\vdots$
$x_n$	$y_n$

### Trial 4

$x_1$	$y_1$
$x_2$	$y_2$
$x_3$	$y_3$
$\vdots$	$\vdots$
$x_n$	$y_n$

...

$b_1, R^2$

$b_1, R^2$

$b_1, R^2$

$b_1, R^2$

