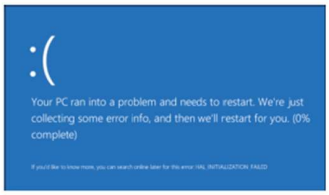
Defining Bernoulli RVs

$X \sim \text{Ber}(p)$ $\quad p_X(1) = p$
$E[X] = p$ $\quad p_X(0) = 1 - p$



Run a program
- Crashes w.p. p
- Works w.p. $1 - p$

Let X: 1 if crash

$$X \sim \text{Ber}(p)$$
$$P(X = 1) = p$$
$$P(X = 0) = 1 - p$$

Serve an ad.
- User clicks w.p. 0.2
- Ignores otherwise

Let X: 1 if clicked

$$X \sim \text{Ber}(0.2)$$
$$P(X = 1) = 0.2$$
$$P(X = 0) = 0.8$$

Roll two dice.
- Success: roll two 6's
- Failure: anything else

Let X : 1 if success

$$X \sim \text{Ber}\left(\frac{1}{36}\right)$$
$$E[X] = \frac{1}{36}$$