

Null and alternative hypothesis:

$$H_0: \mu = 5000$$

$$H_1: \mu \neq 5000$$

Significance level:  $\alpha = 0.01$

Test statistics:

$$z = \frac{x - \mu}{\sigma} = \frac{5100 - 5000}{50} = 2$$

Let's find critical value:

$$z_{critical} = z_{1-\frac{\alpha}{2}} = z_{0.995} = 2.57583$$

Since  $z < z_{critical}$  we fail to reject Null hypothesis. There is not enough evidence to conclude that  $\mu \neq 5000$ .