



Hypothesis Testing *Difference in means test*

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Used to test claim about **differences** between two population means.

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- Testing whether customer satisfaction across service companies in US is greater than that for Europe.
- The 'Food & Drug Administration' may want to compare the difference between two disease treatment regimes.
- Testing whether average productivity of women employees is greater than that for men employees.
- Checking the claim that Finance majors earn on average 10,000\$ more than other majors.

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Three kinds ...

1. Paired t-test for differences in means.
 - Used when there is a sense of '*pairing*' in the data
2. t-test for differences in means 'assuming equal variance'.
3. t-test for differences in means 'assuming unequal variance'.

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The online store sells office products across 13 provinces.

The file contains four years of sales data.

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The data can be thought of as a sample from a larger population.

We wish to test whether the monthly dollar sales across the provinces of Alberta and British Columbia are the same.

In other words we wish to check if there is any difference in monthly dollar sales across these two provinces.

We will be making this inference using the 48 months of sample sales data we have.

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- Use the data analysis toolbox of Excel.

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