Notes on A/B Testing

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This is the notes I took from the A/B testing course on Udacity.

1 Hypothesis Testing

- Study P(results due to chance), which is p-value
- Two groups: control group (orange button) and experiment group (pink button)
- Assumptions: the number of clicks on each group follows a binomial distribution
  - p_{cont} = probability of clicking in the control group
  - p_{exp} = probability of clicking in the experimental group
- Null hypothesis (H_0): $p_{cont} - p_{exp} = 0$
  - The null hypothesis is what our results would look like if the experiment have no effect.
- Alternative hypothesis (H_a): $p_{cont} - p_{exp} \neq 0$
  - The alternative hypothesis is what our results would look like if the experiment dose have effect.
- Estimate p_{cont} and p_{exp} from the data we collected, i.e., measure $\hat{p}_{cont}$ and $\hat{p}_{exp}$.
- Calculate p-value = $P(\hat{p}_{cont} - \hat{p}_{exp}|H_0)$
- Reject H_0 is p-value is small enough, i.e. p-value ¡ α.

1.1 Pooling

2 Metrics

2.1 High-level concepts for metrics

- **Business objective:** helping students get jobs; financial sustainability
  Funnel: Homepage visits → Exploring the site → create account → register courses →

pay for the courses → complete courses → purchase more related courses →complete more related courses → find a job

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