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| A/B Testing  |  | | --- | | ADVANTAGES Decisions based on the test may:   * Increase page engagement: visitors stay on page longer, attract more visitors to page * Increase economic growth: profits, revenue, higher demand on company product * Increase conversion rates: click on desired advertisements or specified tabs that lead to purchases * Increase demand: by having more visitors on page * Decrease acquisition rates: these rates depict the total cost that a company recognizes for advertising, property or equipment after adjusting for discounts, incentives, closing costs and other necessary expenditures before sales tax | | A/B Testing  |  | | --- | | DISADVANTAGES May be time consuming   * Requires minimum of 2-3 weeks   o Needs Regular Updating  o May experience Flicker Effect  o May experience confounding variables   * Internal confounding variables: accounts for things such as the number or frequency of words in a title rather than the words themselves * External confounding variables: include the demographic of the people who visited website or if a popular movie related to the website was just released which could account for an influx of visitors | |  | |  | | --- | | BACKGROUND  * Marketing analyzation method * Utilized to promote successful marketing strategies for businesses and entrepreneurs * Typically used for e-commerce company websites to test different versions of web page * Also known as split testing  explanation  * Think of A/B testing as testing a new idea about your e-commerce website   + Example of ideas: will changing logo color scheme, tab location, word font of website lead to more consumer visitors * Process is as follows:   + Have question→ generate hypothesis → utilize statistics to validate or f ail to validate hypothesis → update more successful idea → repeat cycle | | steps  1. Have a question you’re trying to answer 2. Form a hypothesis based on your question 3. Explore statistical test    * 1. Logistic/Linear regression, T-test or Chi-Square 4. Check assumptions of statistical test 5. Launch test 6. Learn from results 7. Make changes based on results 8. Repeat with different alterations | |  | | |  | |  | | --- | | BACKGROUND  * Marketing analyzation method * Utilized to promote successful marketing strategies for businesses and entrepreneurs * Typically used for e-commerce company websites to test different versions of web page * Also known as split testing  explanation  * Think of A/B testing as testing a new idea about your e-commerce website   + Example of ideas: will changing logo color scheme, tab location, word font of website lead to more consumer visitors * Process is as follows:   + Have question→ generate hypothesis → utilize statistics to validate or f ail to validate hypothesis → update more successful idea → repeat cycle  steps 1. Have a question you’re trying to answer  2. Form a hypothesis based on your question  3. Explore statistical test   * + 1. Logistic/Linear regression, T-test or Chi-Square   4. Check assumptions of statistical test  5. Launch test  6. Learn from results  7. Make changes based on results  8. Repeat with different alterations | | ASSUMPTIONS  * Control and Test should run simultaneously * Between groups should:   + Come from the same random group   + Have no qualitative differences * Within group  ASSUMPTIONS FOR CHI-SQUARE  * Large enough sample size and Independent obs. | | BRIEF DESCRIPTION OF DATa  * A/B testing is used to see if the new advertisement will result in a higher conversion rate compared to the old advertisement * 5 variables: user id, time stamp of the website visit, group, landing page and converted page.   + 294,478 observations   + Group variable - identified observation as a control group or a treatment group   + Landing page variable- identify observation as old page and new page     - old page correlate with control and new with treatment   + Time of collection for this data frame: January 2nd, 2017 to January 24th, 2017.   + Converted group- 2 possible values of 0 and 1.     - 0- no conversion     - 1- conversion occurred.   + Conversion rate:  Rate = (Those who clicked) / (Total visitors) | |

## analysis of data

* Create a line plot that shows the difference in conversion per webpage condition each day
  + No constant pattern
  + Small difference in conversion rate between groups
* Result of Chi square test shows whether there’s significant difference in conversion rate between old website and new website.
  + Test the null hypothesis that states that there’s no difference between old page and new page’s conversion rate.
  + Large p value that fails to reject the null hypothesis (~0.19)
* Confidence interval
  + Small confidence interval-validate accuracy of the test
  + True mean difference of “0” lies in between the interval

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