



E-News Express



Data Analysis Observations & Recommendation

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Business Problem Overview & Solution Approach

E-News operates an online news portal and aims to expand its business by acquiring new subscribers.

Key Question We Will Answer!

‘Will a redesigned homepage increase our subscriber conversion rate?’



What are we trying to solve for?

Does the new homepage outperform the old homepage and increase subscribers?

- **Financial Implications**

By converting a higher # of visitors to their website, E-News can grow the subscriber base to improve shareholder results by driving both bottom line (new customers) and incremental revenue from existing customers by cross-selling them new features.

Brief description of data provided

- The test was setup as a A/B test, where 100 visitors were randomly selected and shown either the old page or the new page.
- The data selected contained 100 users and we captured 6 variables for an *unknown period of time*.

Key Variables

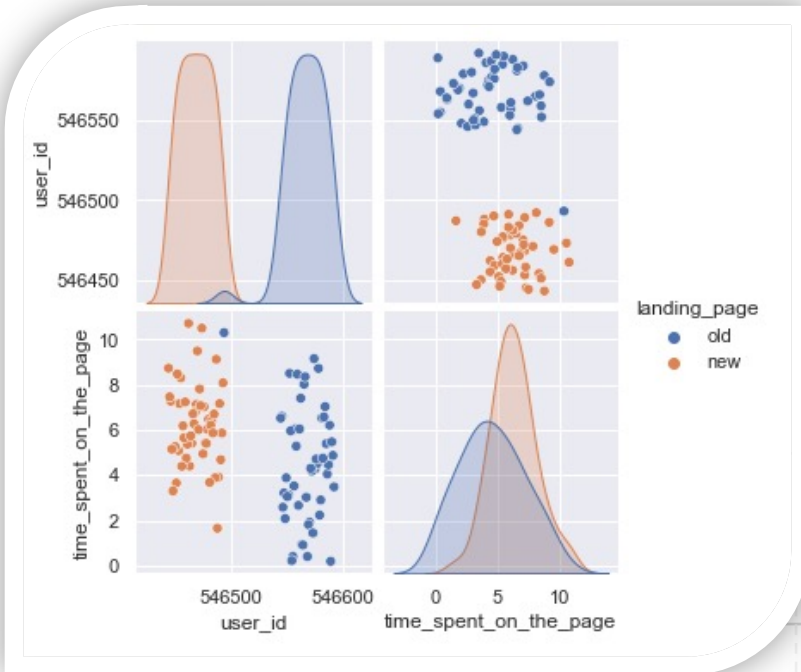
1. user_id - This represents the user ID of the person visiting the website.
2. group - This represents whether the user belongs to the first group (control) or the second group (treatment).
3. landing_page - This represents whether the landing page is new or old.
4. time_spent_on_the_page - This represents the time (in minutes) spent by the user on the landing page.
5. converted - This represents whether the user gets converted to a subscriber of the news portal or not.
6. language_preferred - This represents the language chosen by the user to view the landing page.

Brief description of significant manipulations made to raw

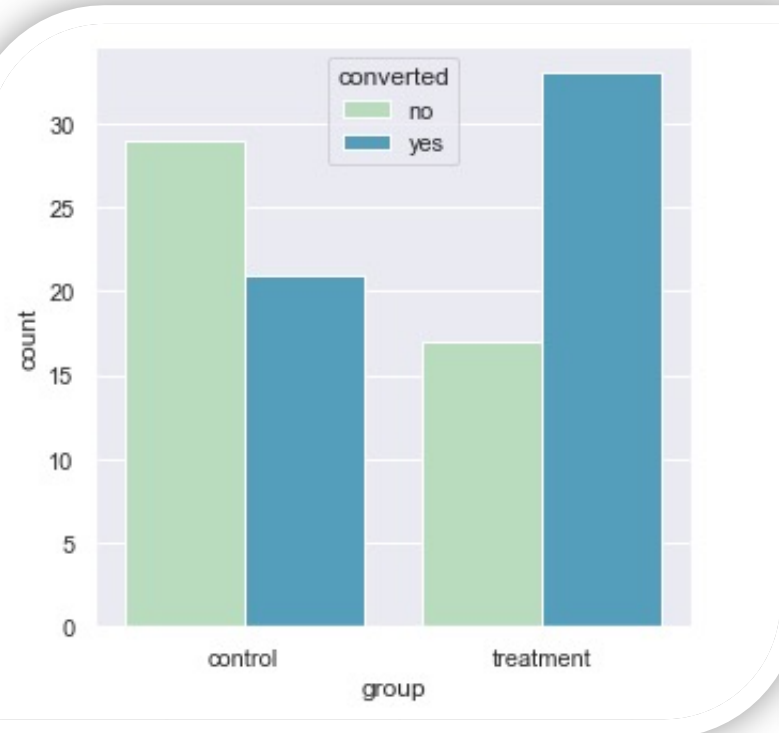
- The data was complete - no missing values
- No values were changed.

Going forward it will be useful to include the 'date' and 'time' for each observations which will aid in further analysis. There are several additional data fields that we will require and that will substantially add in the next phase of the analysis.

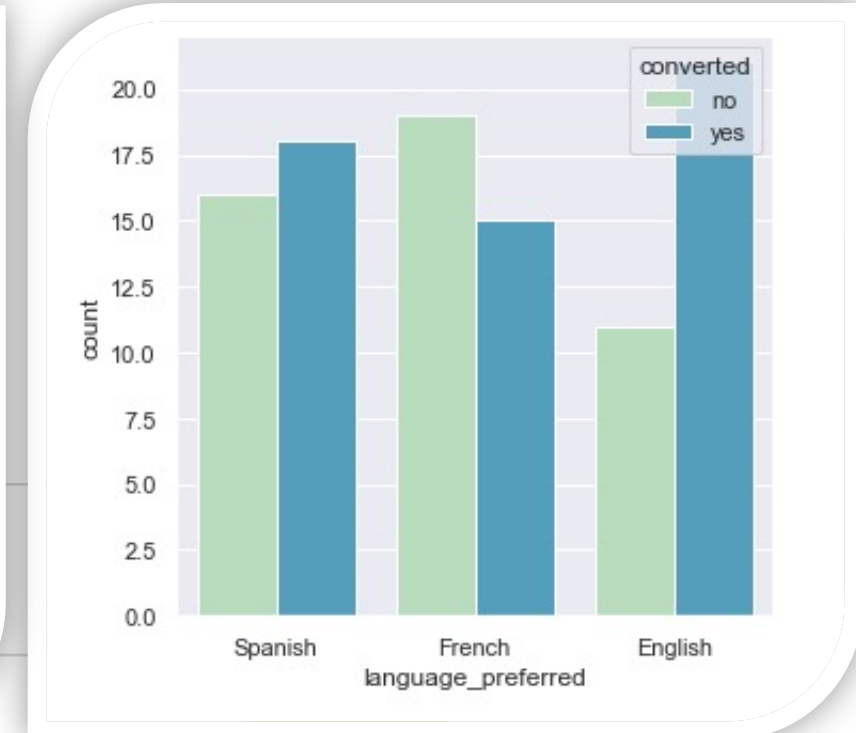
Exploratory Data Analysis (EDA)



Initial results suggest users are spending more time on the new redesigned homepage!



Initial results suggest a higher conversion rate on the new redesigned homepage!



Our English readers are outpacing our French and Spanish.

We may need to look at a deeper level of location analysis to ensure geo-specific translation e.g. Mexico vs. Spain

What does the data really tell us?

Important Questions	Statistical Analysis	Explanation
<ul style="list-style-type: none">Do the users spend more time on the new landing page than the old landing page?	<ul style="list-style-type: none">Average new page time group is 6.22 vs. 4.53 for the old page.Small P! As the p-value (~0.00013) is less than the level of significance we do have enough evidence to support the claim.	<ul style="list-style-type: none">This is a statistical test that measures the significance of the result ... how strong is it?The new page is better ... great job to the design team!
<ul style="list-style-type: none">Is the new page conversion rate better than the old page?	<ul style="list-style-type: none">The page observed conversion rate (66.00%) and is 57.14% higher than old page's conversion rate (42.00%).Small P!	<ul style="list-style-type: none">You can be 95% confident that this result is a consequence of the changes you made and not a result of random chance.
<ul style="list-style-type: none">We are a multinational news site ... does the preferred language make a difference in conversion rate?	<ul style="list-style-type: none">Good Chi^2! Our test (stat) >= critical: With the help of Chi-Squared test, As we have accept the H0, that there is no relationship between these categorical variable. We can conclude that is no dependency of "language preferred" attribute on the target variable "conversion"	<ul style="list-style-type: none">We needed to make sure that a "conversion" wasn't contingent upon or depends upon the other language.We do have work to do to make sure our translation are region specific (e.g. Mexico vs Spain)
<ul style="list-style-type: none">We are a multinational news site ... does the preferred language matter in terms of how long it takes the user to read the page?	<ul style="list-style-type: none">Short Answer = NO!Super complicated Test!! We used all our stat friends to figure this out (Anova, Shapiro-Wilks, and Levene) = large P's.	<ul style="list-style-type: none">We had to look at and compare the variances of the time and that the samples were all independent from one another...no outside influence.



Business Insights and Recommendations

Recommendations we can implement now to drive E-News revenue.

- ✓ The increase in conversion rate exceeded our expectations!
- ✓ We need to continue the 'A/B' test and confirm that over a longer duration we see a direct impact (higher new subscribers).
- ✓ This opens the door as we increase the base subscribers, we should look competitively at what other opportunities do we have to monetize that loyal customer base.
- ✓ Since A/B testing is new to the company, I want to look at the team and skills we have in place and ensure we are properly staffed with the right experts to make this more than a "one-time" deal.



Continue to enhance actionable insights based on the results of ongoing analysis!

- 1. *More data is need to further understand the drives behind E-News's business:***
- 2. *Date and time of each visitor***
- 3. *What other news sites do they user***
- 4. *More competitive pricing analysis***

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Thank You

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