Page
Date / /

| 5. A/B Testing for Website Convension Rate of | hamin |
|--|-------|
| | = ~W0 |
| Datastin . 2 1 mm and it has a di to la ministra | |
| | |
| Cyroup Converted Count | |
| | |
| A . O. 199. 469526. | |
| 1 305 | |
| B 0 4607 | |
| 1 393: | Ž. |
| | * |

| Group | Converted | COUNT | A of Use |
|------------|-----------|-------|----------|
| A | | 0 | 4695 |
| | | 1 | 305 |
| A Total | | | 5000 |
| - B | | , 0 | 4607 |
| | | 1 | 393 |
| | | | 5000 |
| Grand T | oial | | 10000 |

Converted 0.0 i. i. A. of Use 0 9302 1 698

Eroup COUNTRY A 5000 B 5000 Grand Total 10000

Group (A) ((ontrol):

· no. of were: na = 5000

conversions: $\gamma_n = 305$

Treatment):

· no.ed convenions: $\chi_B = 393$

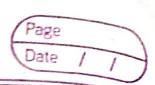
sample convention rates:

pA = XA = 305 0.0610 = 6.10%

5000

0.0786= 7.86% $p_{B} = \chi_{B} = 3.93$ ng 5000

Compute: (3E) for each - proportion:



SFA= 0.003386

SFB= 6.003806

Construct the 95% Confedence Intervals:

4 95/2 confidence internal for a proportion: 15 gaventy: 1.

p ± 72/2 X SE(p)

for 95% (I, 72=0.5/2 = 70.05 = 1.96

Curoup A:

Lower Bound:

LA = PA-1.96xSFA= 0.0610-(1.96x 0.0.03580)

= 0.0610 - 0.006635; = 0.05437

Upper Bound:

Up = pp+1.96x SFp= 6.06764

· 95% (I for Group A & (0:0544, 0.0676).

Group B:

Lower Bound:

 $L_{B} = p_{B} - 1.96 \times SF_{B} = 0.0786 - 1.96 \times 0.003866$

50.07.114 deep to may 100 all

Upper Bound:

UB= PB + 1.96xSEB = 0.08606

· 95% (I for Group B in (0.0711, 0.0861)

Interpretation

A) (orversion rate à 6.10% with a 95% (T of approx. (5.446, 6.76%)

(B) T.R. 2 7.86% with a 95% (T (7.11%, 816%)

The treatment group shows a higher convedicing.

rate than the control growp and (I. suggest that the difference might be datistically significant.

Define Hypothesis
Null Hypothesis (Ha):

The convençion rates i arie equal between the two

Ho: pa=PB

Altunative hypothesis (H):

The convenion rota. differ bluthe two groups:

HI: PA + PB

* Data and sample proportions-

Under mill hypotheris, we assume convergence $\beta = 2000 = 698 = 0.0698$ hptDB 10000 · (orpute the(SE). GE = 1 6(1-b) 1-1 + 1-1 S.E. = 10.00002596 = 0.00510 · Z-statistic - vii $Z = p_{B} - p_{R} = 0.0786 - 0.0610 = 0.0176 = 3.45$ SE 0.00510 0.00510 · Determine the p-value in the think - Z=3.45, one taled prob. is very small (around 0.0007) - iforitwo-tailed text: p-value = 2 xP(Z>3.45)

= 0.0006

p-value << 0.05, reject to.

Inderpretation -

· the two-proportion 7-test => 7 statistic value of 3.45 with p-value of 0.0006

thu provides strong evidence against the null hypothesis, indicating that new checkout page has significantly higher conversions rute than the existing page.

Potential risks of Type I (false positive) and

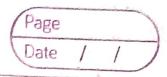
Type I (Falle Positive):

· Rijecting the null hypothesis when it is actually

· Concluding that the new observant page (treatment)

improve convenion rates when in reality, there is

no difference.



| bundit the company. |
|--|
| bunchit the company. |
| |
| · failing to reject the null hypotheris when the |
| · failing to reject the null hypotheris when the alternative hypothesis is actually true |
| · Conduding that there is no difference bala |
| the checkout pages when new harr does in fact |
| the checkout pages when new page does in fact improve convenion rates: |
| this would mean missing an opportunity to Incience |
| conversions mean missing an apportunity to Incicare |
| X |
| → X |