Hypothesis Test for the Difference in the Proportion for the Average Conversion rate between the two groups

Two-sample z-interval test with pooled proportion

group	COUNT of id	AVERAGE of conversion	STDEV of conversion
A	24343	0.03923099043	0.1941480575
B	24600	0.04630081301	0.2101400552
Grand Total	**48943**	**0.04278446356**	**0.2023728984**

Calculation	**Notation**	**Value**
sample size (control)	n1	24343
sample size (treatment)	n2	24600
sample proportion (control)	p1 bar	0.03923099043
sample proportion (treatment)	p2 bar	0.04630081301
pooled sample proportion	p	0.04278446356
standard error_pooled	SE_pooled	0.001828488403
z - statistic	Z	-3.866484779
degrees of freedom	df	24342
p-value	pval	0.0001107022292
Critical value	CV	1.644853625
Margin of error		0.003007595779
Confidence Interval - Lower Bound	L_CI	0.04329321723
Confidence Interval - Upper Bound	U_CI	0.04930840879
Confidence Width	Cw	0.006015191557

Conclusion : p = 0.0001, statistically significant. We reject the null hypothesis that there is no difference in the user conversion rate between the control and treatment.

The numbers show a big difference between the treatment and control groups. More people in the treatment group did something compared to the control group.

		pooled sample proportion (p-pooled)	
		p1*n1	0.00167847688
		p2*n2	0
		n1+n2	0.08553180344
		p-pooled	0.019624009
		pooled standard error	
r		p1(1-p1)	0.03769191982
s		r/n1	0.000001548367
u		p2(1-p2)	0.04415704772
v		u/n2	0.000001795001
w		s+v	0.000003343369
SE pooled		sqrt(w)	0.001828488403

Conclusion -
The 95% confidence interval, with a margin of error of 0.003, suggests the actual value we're estimating is likely between 0.043 and 0.049. The small confidence width of 0.006 shows we're pretty certain about this range, giving us confidence in our estimate. This implies a high degree of confidence that the true population parameter falls within this range.