
Statistics for Engineers

Experiment 7

1. In the large city A, 20 per cent of Random sample of 900 School children had defective eye -sight. In the large city B, 15 percent of random sample of 1600 school children had the same defective. Is this Difference between the two Proportions Significant? Obtain 95% confidence limits of the difference in the population proportions.

```
> x<-c(180,240)
```

```
> n<-c(900,1600)
```

```
> prop.test(x,n,correct=FALSE)
```

2-sample test for equality of proportions without continuity
correction

data: x out of n

X-squared = 10.302, df = 1, p-value = 0.001329

alternative hypothesis: two.sided

95 percent confidence interval:

0.01855096 0.08144904

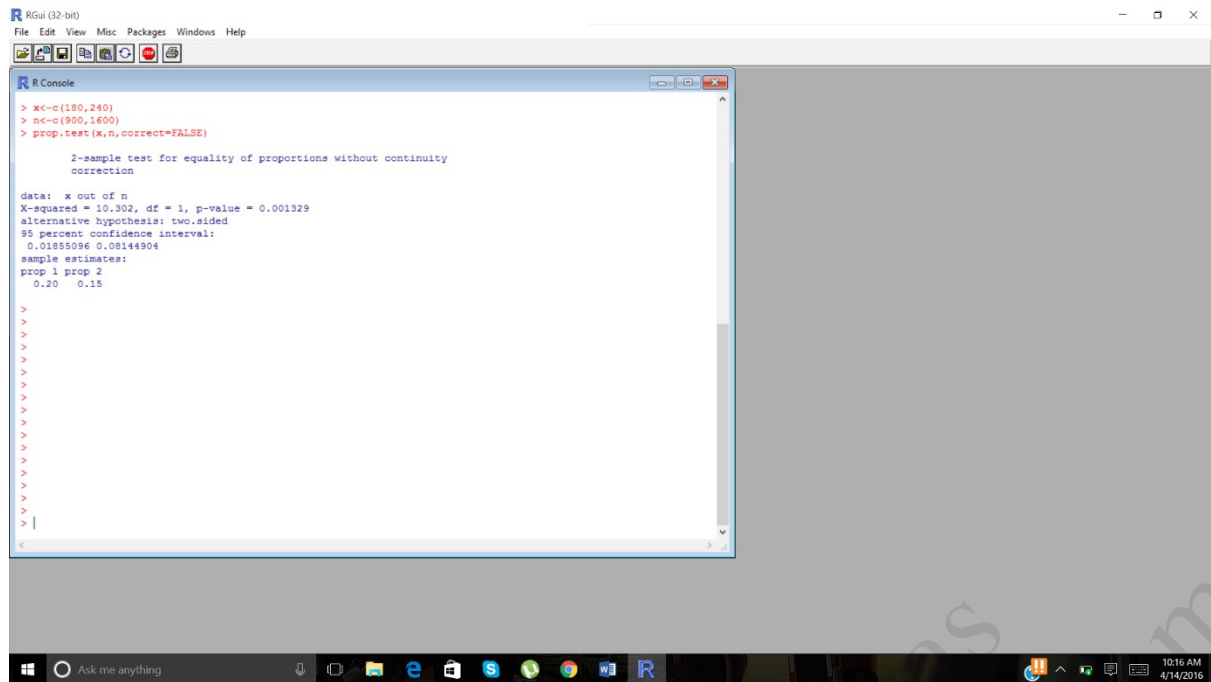
sample estimates:

prop 1 prop 2

0.20 0.15

Here there is significance as "P" value is less than 0.05

The confidence limits are 1.855% to 8.14%.



2. A cigarette manufacturing firm claims its brand A of the cigarettes outsells its brand B by 8%.if its found that 42 out sample of 200 smoker prefer brand A and 18 out of another random sample of 100 smokers prefers brand B, test whether the 8% difference is a valid claim.

```
> x<-c(42,18)
> n<-c(200,100)
> prop.test(x,n,alternative="greater",correct=FALSE)
```

2-sample test for equality of proportions without continuity
correction

data: x out of n

X-squared = 0.375, df = 1, p-value = 0.2701

alternative hypothesis: greater

95 percent confidence interval:

-0.04897867 1.00000000

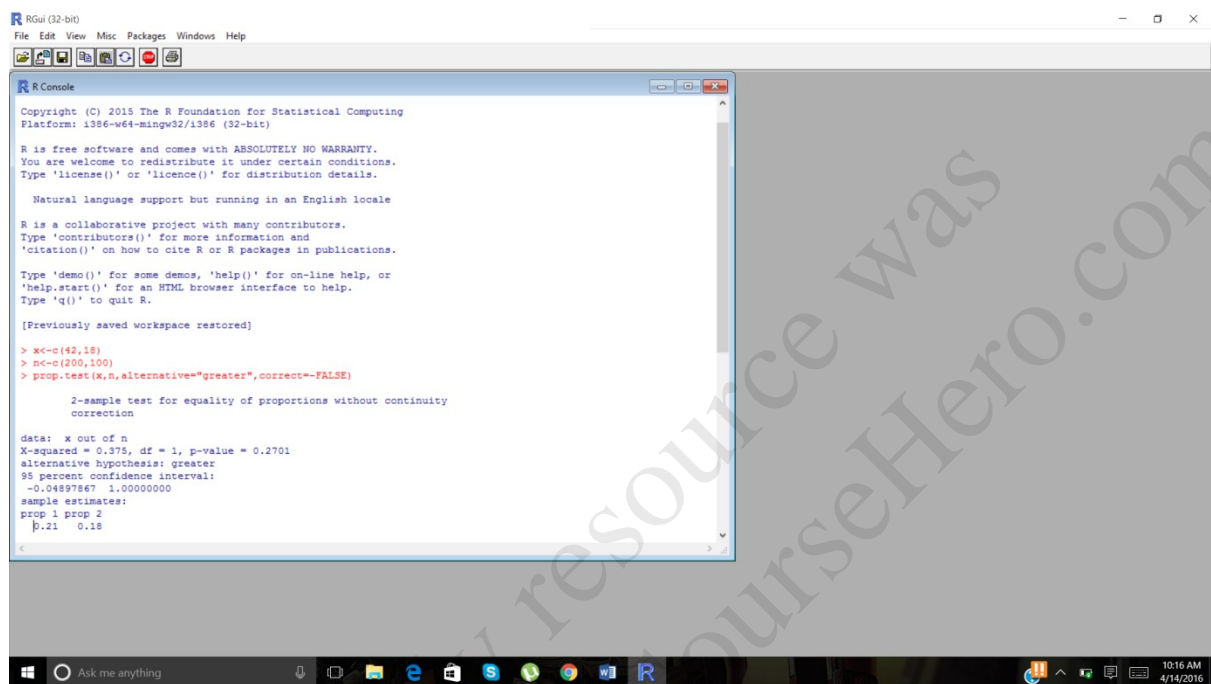
sample estimates:

prop 1 prop 2

0.21 0.18

Here the P value is greater than alpha L.O.S value.

Hence accept the null hypothesis.



```
RGui (32-bit)
File Edit View Misc Packages Windows Help

R Console
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Platform: i386-w64-mingw32/i386 (32-bit)

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[Previously saved workspace restored]

> x<-c(42,18)
> n<-c(200,100)
> prop.test(x,n,alternative="greater",correct=FALSE)

2-sample test for equality of proportions without continuity
correction

data:  x out of n
X-squared = 0.375, df = 1, p-value = 0.2701
alternative hypothesis: greater
95 percent confidence interval:
 -0.04897867  1.00000000
sample estimates:
prop 1 prop 2
 0.21  0.18
```