Untitled

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An intetnet marketing company is runnuning an experment to compaare two different web page deasigns to see which design results in ha high number of sales. For this anallysis we explanatory variable is design and are designated as Design A and Design "B".

The experiment worked as follows. When a consumer went to the web pages home page the computer metaphorically flipped a coin. If the outcome was a *head* the consumer was sent to the design A web page. If the metaphorical coin flip was a *tail* the comsumer was sent to web page design B.

In either case the expriment recored if a sales was made.

Your job is to analyse the outcome of the experiment.

The experiment results in the following results.

```{r echo=FALSE} set.seed( 1123 ) dd <- 5 na <- rbinom( 1, 10000, 0.5 ) nb <- 10000 - na

pa <- 0.0500 pb <- 0.0225

xa <- 258 xb <- 125

phatA <- round( xa/na, dd ) phatB <- round( xb/nb, dd ) dif <- phatA - phatB

```

|  |  |  |  |
| --- | --- | --- | --- |
| Design | Sample size | Sales | Proportion |
| A | r na | r xa | r phatA |
| B | r nb | r xb | r phatB |
| Difference |  |  | r dif |

# Bootstrap analysis of difference in proportions

```{r, echo=FALSE}

require( simpleboot )

A <- c( rep( 1, xa ), rep( 0, 5015-xa )) B <- c( rep( 1, xb ), rep( 0, 4985-xb ))

reps=1000

bootOut <- two.boot( A, B, mean, R=reps )

pointEstimate <- bootOutt SE <- sd( bsDistribution )

cat( "estimates", "estimate:", round( pointEstimate, dd ), ":", round( SE, dd ))

bsMean <- mean( bsDistribution ) bias <- bsMean - pointEstimate apctBias <- abs( 100 \* bias / pointEstimate )

cat( "diagnostics", "distribution mean:", round( bsMean, dd), "bias:", round( bias, dd), "Percentage Error", round( apctBias,1 ),"%")

```

# Bootstrap sampling distribution histogram

```{r, echo=FALSE} require( ggplot2 )

ggplot( data.frame( bootOut$t ), aes( x=bootOut.t )) + geom\_histogram( binwidth=0.001, color="black", fill="yellow") + xlab( expression( hat(p)[A]-hat(p)[B]) ) + ylab( "Count" ) + ggtitle( "Bootstrap sampling distribution of the in proportions")

``` # Confidence interval

```{r echo=FALSE}

boot.ci( bootOut , conf=c( 0.90, 0.95, 0.98, 0.99 ), type=c("norm", "bac"))

```