Session-9-Assignment-1

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#1. If Z is norm (mean = 0, sd = 1)  
#Find P(Z > 2.64)  
1 - pnorm(2.64, mean=0, sd=1)

## [1] 0.004145301

#Find P(|Z| > 1.39)  
1-(pnorm(1.39)-pnorm(-1.39))

## [1] 0.1645289

#2. Suppose p = the proportion of students who are admitted to the graduate school of the University of California at Berkeley, and suppose that a public relation officer boasts that UCB has historically had a 40% acceptance rate for its graduate school. Consider the data stored in the table UCBAdmissions from 1973. Assuming these observations constituted a simple random sample, are they consistent with the officerâ..s claim, or do they provide evidence that the acceptance rate was significantly less than 40%? Use an Î± = 0.01 significance level.  
data("UCBAdmissions")  
xtabs(Freq ~ Admit, data = UCBAdmissions)

## Admit  
## Admitted Rejected   
## 1755 2771

phat <- 1755/(1755 + 2771)  
(phat - 0.4)/sqrt(0.4 \* 0.6/(1755 + 2771))

## [1] -1.680919

-qnorm(0.99)

## [1] -2.326348

#Our test statistic is not less than -2.32634832, so it does not fall into the critical region. Therefore, we fail to reject the null hypothesis that the true proportion of students admitted to graduate school is less than 40% and say that the observed data are consistent with the officer's claim at the alpha = 0:01 significance level.