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ISyE 2028 – Basic Statistical Methods - Fall 2015  
Bonus Project: “Big” Data Analytics  
Proposal

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High college tuition is always an issue for many American families. Lots of students went to collage with student loan, and lot of them came out with loan and spent years to pay it back. I am interested in the percentage of students that graduate with loan and the average amount of loan each student has. More importantly, I want to compare those data between public colleges and private colleges and see if there's a difference. Does private schools have higher student loan or lower compared to public schools?

The data source I will be using is on [ticas.org](http://ticas.org). It has a list of data showing some information about the colleges, including tuition, bachelor's degrees recipients, college expense, the proportion of students graduate with loan, and the average amount of student loan etc. The data is categorize by states and includes every official college in the state. I will use 3 states as samples, and get the data of the average amount of loan and proportion of students graduate with loan of each school in the state and use it in my project analysis.

I will use R to find out the mean and variance of the proportion of students graduate with loan, and the average amount of loan of students in public schools and private schools, and construct confidence intervals. I expect to see private schools has lower percentage of students graduated with loans, since students who go to private schools tend to have higher household income. I am not sure about whether private schools or public schools will have a higher average amount of loan. Although I expect to see lower percentage of students with loan in private schools, private schools have higher tuition and thus have higher loan per student. I hope my research will give me the answer. In addition, I will try to find out the relationship between the average amount of student loan and tuition. I expect to see linear relation of these two, that is, the higher the tuition , the higher the student loan.

