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

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### **Does wearing shoes affect the height of a vertical jump?**

In today's world we have thousands of different sport accessories ranging from sport footwear and sport active wear to different personal fitness recorders and power balance wristbands. All of these products in one way or another are supposed to help with enhancing or even improving our fitness abilities. In this project I will be focusing specifically on active footwear. I am curious to see if sport footwear in anyway enhances our abilities to jump better and with that higher. This experiment will show the effects of wearing sport shoes while doing a vertical jump.

During the experiment I will do two tests on my subjects. The first test will require the participants to jump without any shoes. I will record the distance they were able to reach while jumping vertically up by following these steps:

- Stand with your side to a wall
- With your feet flat on the ground, reach the arm closest to the wall as high as possible
- Mark the highest spot you can reach (I'll mark it with tape)
- From the same standing position, jump and hit the wall at the highest point of your jump (it will be marked by colorful powder on fingertips)

That will be repeated 3 times and the highest of the 3 will be recorded by subtracting the standing reach from the jumping reach to get your vertical jump distance.

Then I will ask the subject to put on their sport shoes. And I will be able to record the measurements by following the same procedure as before.

I will conduct an experiment on around 30 people of the age group 18-24 and check the differences between the vertical jump with or without shoes. The students will be from the floor that I live on and from a living and learning community I was in last year. The data will be collected on an excel spreadsheet. And I will be measuring the vertical jumps in centimeters.

I'm going to be using hypothesis testing and looking at the difference between the two means. My hypothesis will be that wearing a sports shoe does change the vertical distance a person can jump.

