***Udacity Data Analyst Track***

**I. Into to Descriptive Stats**

2. Estimation

* John Tucket 🡪 an approximate answer to the right problem is worth much more than the exact right answer to the approximate problem
* **Margin of error =** amount of error predicted when estimating population parameters from sample statistics 🡪 computed as **Z\*** · **sigma/sqrt(n)**
* Z\* = the **critical z-score** for the level of confidence.
* **Confidence level** = estimate of the % of all possible sample means that fall w/in a margin of error of our estimate.
* “we are some % sure the *true* population parameter falls w/in a specific range”
* **Confidence Interval =** a range of values in which we suspect the population parameter lies between.
* To compute the confidence interval we use the formula: x¯ +/- Z\* · sigma/sqrt(n)
* Basically the margin of error times the sample mean
* This gives us an upper (+) and lower bound (-) that captures our population mean.
* **Critical Z-Score** = used to define a critical region for our confidence interval.
* Observations beyond this critical region = observations so extreme that they were very unlikely to have just happened by chance.
* Klout review 🡪 pop = 1048, mean = 37.72, Sigma = 16.04
* From the CLT, if we took all possible samples of the same size + found the mean of each sample and graphed the distribution (**sampling distribution**) of those sample means, we get a normal curve w/ mean = sigma and the sampling distribution SD/**Standard Error (SE)** = sigma / Sqrt(n)
* If we took a sample of size 35 of users who used Bieber Tweeter and found the mean = 40 (a **point estimate**), then if *everyone* *in the population* started using Bieber Tweeter we’d expect our best *GUESS* of the pop. mean to be = 40
* There’s some range around 40 wherein the TRUE population mean would be in this case
* Approximately 95% of sample means fall between 2(Sigma)/sqrt(n)) in this case, and 68% are w/in (Sigma)/sqrt(n))
* Find a confidence interval for the distribution of pizza delivery times.
* Company A
* 20.4
* 24.2
* 15.4
* 21.4
* 20.2
* 18.5
* 21.5