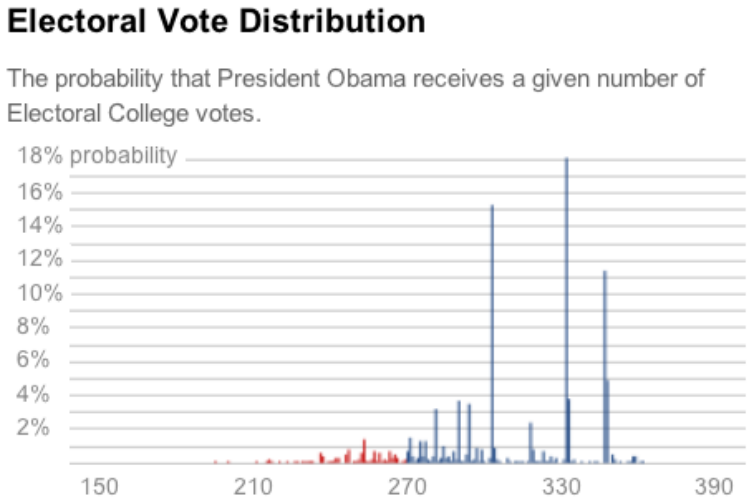
Student Name: _____

Introduction to Statistical Modeling

Likelihood and the Election

Who is going to win the presidential election? We don't know yet, but we do have some information that can be encoded in the form of probabilities.

Here is a graphic from Nate Silver's "FiveThirtyEight" blog, whose name refers to the number of presidential electoral votes. The graphic assigns a probability to each possible outcomes over the likely range. To win, a candidate needs 270 electoral votes.



Construct your own model of the probability of each possible outcome. To keep things simple, you should construct your model as a linear combination of four different probability distributions:

1. Silver's distribution, shown in the graphic.
2. A normal distribution.
3. Another normal distribution.
4. A uniform distribution.

To make your model, specify the parameters and weights for each of the four distributions. **Your weights must all be non-negative and must add to 1.**

		Params for Normals		Params for Uniform	
Distribution	Weight	Mean	Standard Dev.	Min	Max
Silver's		—	—	—	—
Normal 1				—	—
Normal 2				—	—
Uniform		—	—		

After the election, we'll evaluate each prediction.

The prediction with a largest **likelihood** will win $10. (Ties to be split.)

The "likelihood," a technical term, is the conditional probability p(outcome | model).

Of course, both the uniform and normal distribution are continuous. The electoral vote outcome is discrete. We'll integrate the model density over the range ± 0.5 around the outcome.