Handwritten Intro to COVID Modeling

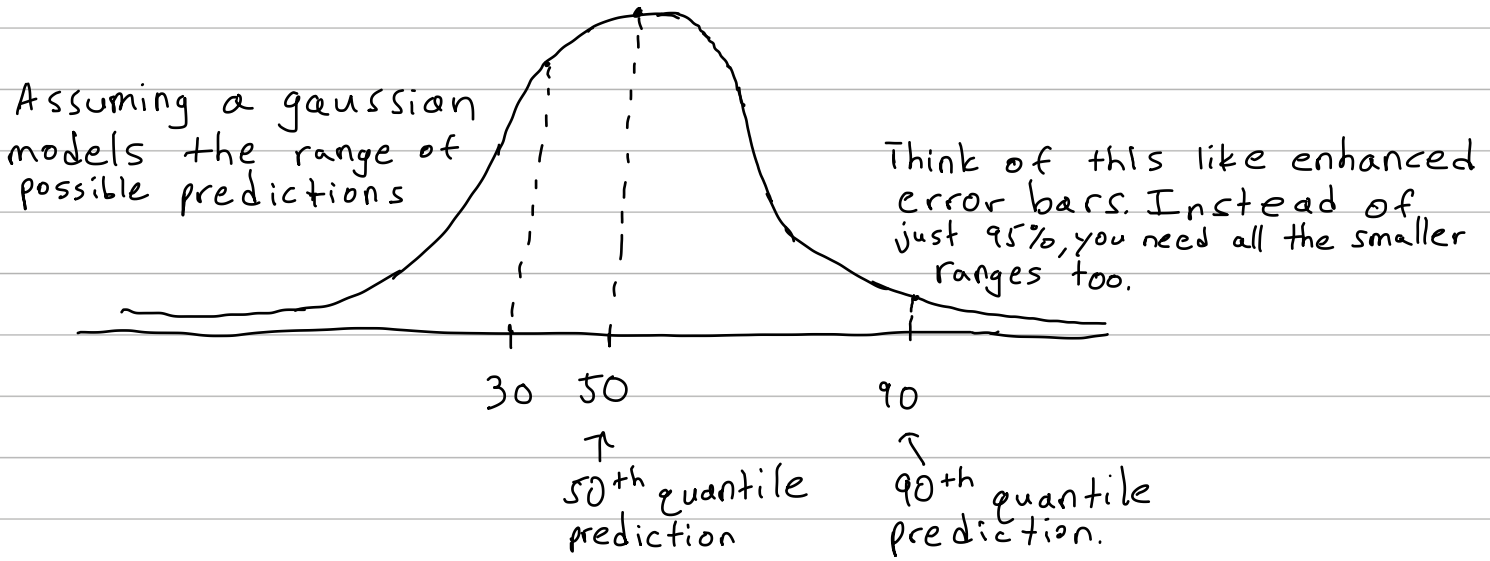
Disclaimer: I am new myself to modeling

The Problem

Predict the daily new amount of deaths in every county of the U.S.

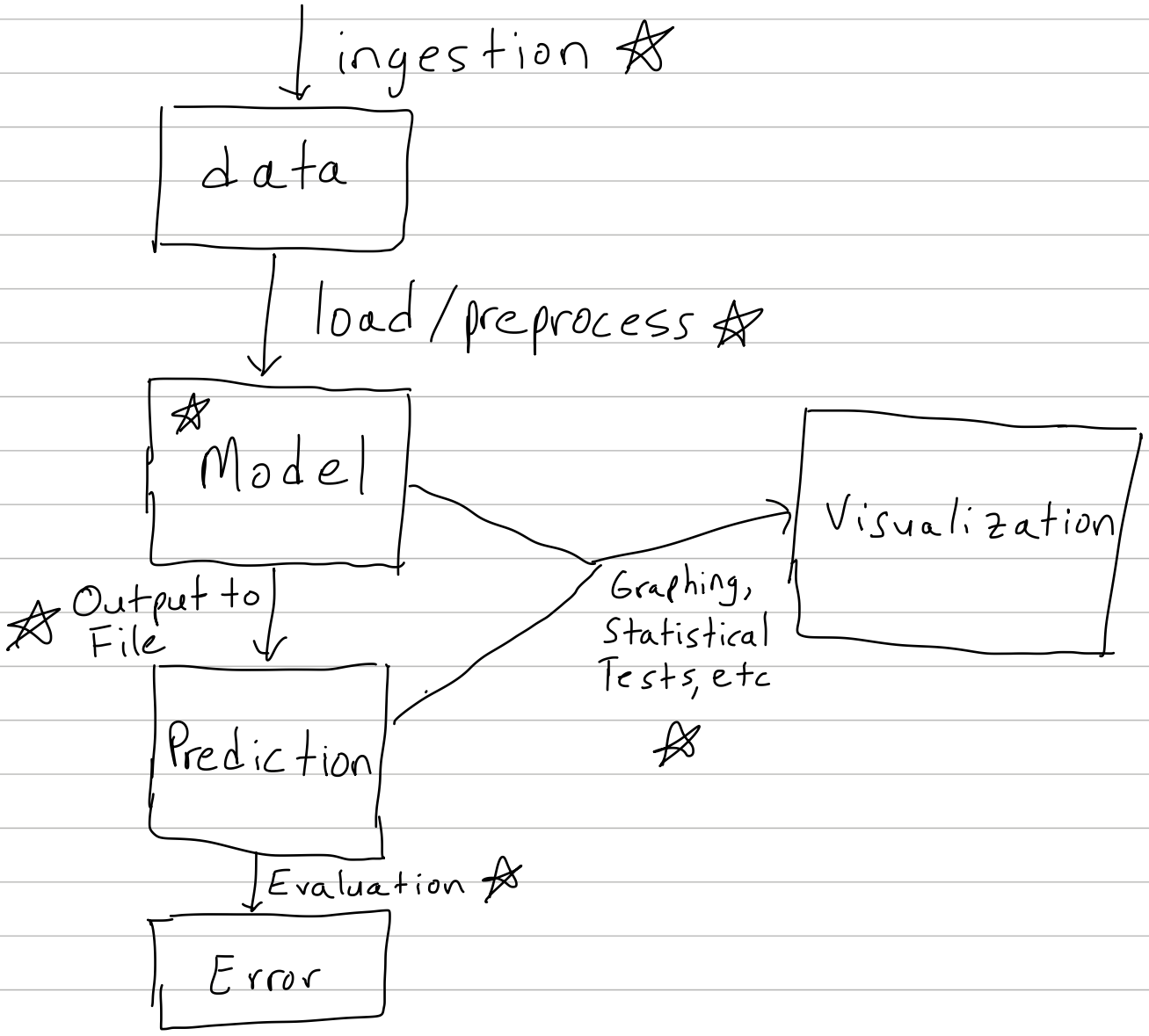
You will produce submission csv files that will be evaluated using pinball loss.

For each date and county, you will produce quantiles to capture your confidence in your prediction. For example:



There's a sample submission if you're confused.

Structure



The structure of the starting code looks like this. Every starred label has a corresponding folder.

Model Classes

Curve fitting
↳ The IHME model, the current bench mark for the world covid situation, is largely based on least sq fitting of curves to data. These predefined functions are known to do well on pandemics in general. Such functions include gaussian erf or logistic.

SEIR
↳ Susceptible, Exposed, Infected, Recovered. Compartmental Model. Google it.
↳ Can easily add more parts, eg a "quarantined" component.

Strong ML techniques
↳ eg neural net, decision tree
↳ no model. Data hungry. As of May 2020 these do not perform well. Moving forward as data increases, who knows?

Other
↳ ARIMA, Facebook Prophet, Bayesian Models, ...