MAXIMUM LIKELIHOOD The goal of maximum likelihood is to find the optimal way to fit a distribution > The are lots of different distributions for different type of data. and many more Gamma Exponential The reason you want to fit a distribution to your data is it can be easier to work and it is also more general -it applies to every experiment of the same type. Example - Let say we weighted a bunch of mice. In this case, we think the weight might be normally distributed.

, > Avg(mouse weigh) Normally distributed means a lot of things ) we expect most of the measurements (mouse weight) to be close to mean (average) 11) We expect the measurement to be relatively Weight of mier symmetrical around the mean. Normal distribution come in all shapes and (°) Most of mice weigh close the avg (i) Although the measurement (321 points) are not perfectly symmetrical around mean large boned medium they are not crazy skewed to one side either. 1) Once we choose the shape, we have to settle out where will be the center thing is most · Highest point of the value should be near the average. Likelihood According to normal dist mean is hore unfortunately most of the value are mean for from mean of observing the data X XXXXX MEAN The probability /likelihood of observation is low same with below case also, <del>\* \* \* \*\*\*\*</del> Low Weight of mice Best scenario, probability or likelihood High of observing weight is PointA from above graph. Plothing for > We want to locate "maximize the every normal ( X X XXXXX X X ) 19 kelihood" of observing the weight are Thus it is the "maximum tilselihood estimate for the mean". If we want to find maximum likelihood of standard deviation -> This point that standard deviation that maximize the likelihood of observing the weight that are measured. of obswin Now it someone say that maximum likelihood estimates the data for the mean or standard deviation or anything else we Known that they found the value of mean or standard devictions that maximizes the fikelihood that we observed the things \* we observed.