Ans 1. To estimate a value from a sample, you aim to get a number from which the deviations are minimum, which corresponds to the mean / average. Thus mean is a good estimate, as it cancels out the deviations.

Still do not expect the value to be the value. IN order to make the sample value comparable to population value, in estimation, along with mean, we take deviation into account.

So if we calculated avg deviation, mean of the sample is 550 and mean abs deviation 130, we can say ur rent, may vary from 550 +- 130.

The answer of the rate of 1 austin apartment is similar to the approach of the mean of all Austin apartment

**How** much be an apartment with 1000ft?

Do it by linear regression

Get the results as 665

Can we say it is exactly this? No

One way to support this is :

Calculate the standard error by the linear regression formula : it came to be 69

Thus, we can say it is 665 +- 69

This is very small as compared to the mean deviation : reduced by half : thus, more variables which can explain the situation better it is

By what confidence you can tell the rent write

Estimate the mean rent of all 1000 apartments?

665

How much can you xpect the mean to differ from mean?

69? No!

Given in the SAS output of the answer

How much confidence that the population mean will be in that range above?

Apply central limit theorem : since residuals followed the normal distribution and thus average of average will be also normal distribution, thus 68%

R square : proportion of distribution explained by the variaboles

Rsq and rmse (standard error) vary inversely with each other

Estimate the mean rent of all 1000 apartments with 2 bathrooms

Bayesian Probability:

* Never an absolute number ; number with an interval -> probability distribution