Hi everyone, I am Chun-Li Hou. This is my final presentation today. The title is improving rental price in the United States.

This project main client is the management in the rental industry. In the United States, more than 65% of the people rent for living. Thus, how to set a profitable price and maximize profit are important issues for the management of the rental industry.

Then, the data comes from the machine learning repository at the University of California in Irvine. The author is Fredrick Nilsson. The data collected from web crawling the rental websites, which are shown on the slide. The dimension is 9,958 rows and 15 columns. Totally, we have 4 numerical variables and 11 factorial variables.

In the first step, we use 7 machine learning algorithms and rank its performance by the root mean square error. The algorithms we used are shown on the slide. The best one with the lowest root mean square error is the multiple linear regression algorithm.

Therefore, we have the multiple linear regression model as this log-linear regression model. And, this is the formula with the estimates and coefficients. The r square is 0.332 and the adjusted r square is 0.331. All assumptions for the regression model are satisfied.

So, here is our first business question. The first one is as considering exercise facility, what exercise facility does positively affect the price? Having the outdoor sport facility, such as basketball filed or tennis court, the price decreases by 13.51%. On the other hand, having the indoor sport facility, such as gym or fitness center, the price increase by 11.67%. Thus, indoor exercise facility is more profitable.

The second one is what apartment attributes affected the price is the most interesting? The second highest coefficient is the elevator. Having an elevator would be an interesting insight. For example, as having an elevator, the price increases by 22.31%.

The last one is a prediction testing. How much should the new releasing apartment set the price for some requirements? We search the new apartment on the rental website. An apartment with 808 square feet, in Richardson TX, 1 bedroom and 1 bathroom, with gym, parking, and pet allowed. The actual monthly rent is $1,340. And, the predicted monthly rent is $1,225. Thus, with this model, we could provide a reasonable price for a new releasing apartment.

That would be all today. Thanks for your listening.