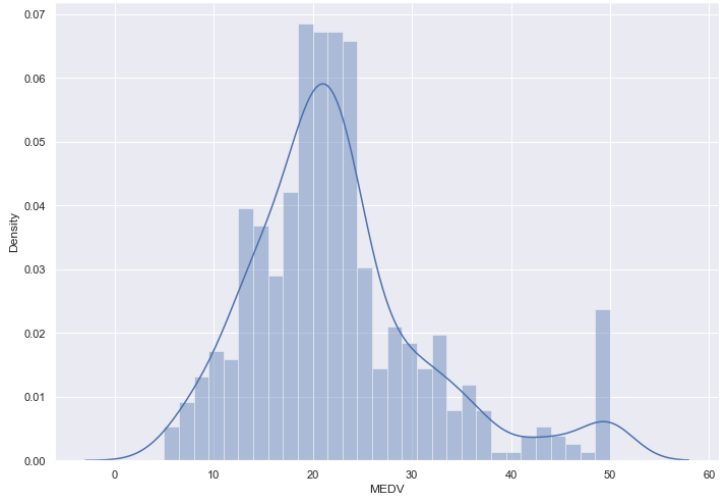
In this analysis, I hypothesize that price of a house is positively associated with the number of the rooms the house possesses. In order to test this hypotesis, I used the Boston House Dataset which consists of fourteen economic, geographic, and demographic variables for 506 instances. The dataset only covers the prices of houses in Boston during early 1990s.

My dependent variable is the price of the houses which is coded as **MEDV** in the dataset, and also measured as median value of owner-occupied homes in $1000s. It appears that the values of the dependent variable are distributed normally having only a few outliers.



The explanatory variable for the changes in the house price is the average number of rooms per dwelling which is coded as **RM** in the dataset. I assume that as the number of rooms increase in a dwelling, there is a high possiblity that its price will also rise because of the apperant reason that larger houses are more likely to cost much. Yet, thre might be other reasons that might affect the price of a house other than the number of rooms. Hence, in order to control the potential effects of the other factors, I added several control variables. For instance, the proportion of people who are considered as being from lower socio-economic background in a neighborhoood might have a negative impact on the price of houses as wealthier people might opt to live next to their fellow high-status dwellers. In the dataset percentage of lower status population is coded as LSTAT. Additionally, the crime rate in a neighborhood might have a negative impact on the price of the houses as people might be less willing to pay higher prices for houses located in unsafe environments. In the dataset, the percentage of the crime s coded as **CRIM,** measured as per capita crime rate by town. Finally, price of a house might be affected by the closeness of the house to the employment centers as there is a high possibility that people who are leaving near to the employment centers would be working low-salary jobs, and therefore less able to pay higher prices. In the dataset, it is coded as **DIS.**

The results shows that there is a positive association between the the price of a house in Boston and the numb of rooms in that house. Accordingly, an increase of one unit in the number of rooms (RM) is associated with a $4,97 increase in home value. Adittionally, the control variables present a negative relation with the outcome variable.

OLS Regression Results

Dep. Variable:	y	R-squared:	0.658
Model:	OLS	Adj. R-squared:	0.655
Method:	Least Squares	F-statistic:	240.6
Date:	Thu, 29 Apr 2021	Prob (F-statistic):	3.96e-115
Time:	05:17:59	Log-Likelihood:	-1569.0
No. Observations:	506	AIC:	3148.
Df Residuals:	501	BIC:	3169.
Df Model:	4		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
const	2.2306	3.322	0.671	0.502	-4.296	8.758
x1	-0.6617	0.051	-12.974	0.000	-0.762	-0.562
x2	4.9765	0.439	11.340	0.000	4.114	5.839
x3	-0.1281	0.032	-3.992	0.000	-0.191	-0.065
x4	-0.5632	0.135	-4.159	0.000	-0.829	-0.297

Omnibus:	140.884	Durbin-Watson:	0.883
Prob(Omnibus):	0.000	Jarque-Bera (JB):	433.300
Skew:	1.305	Prob(JB):	8.13e-95
Kurtosis:	6.707	Cond. No.	234.

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.