Local explanations

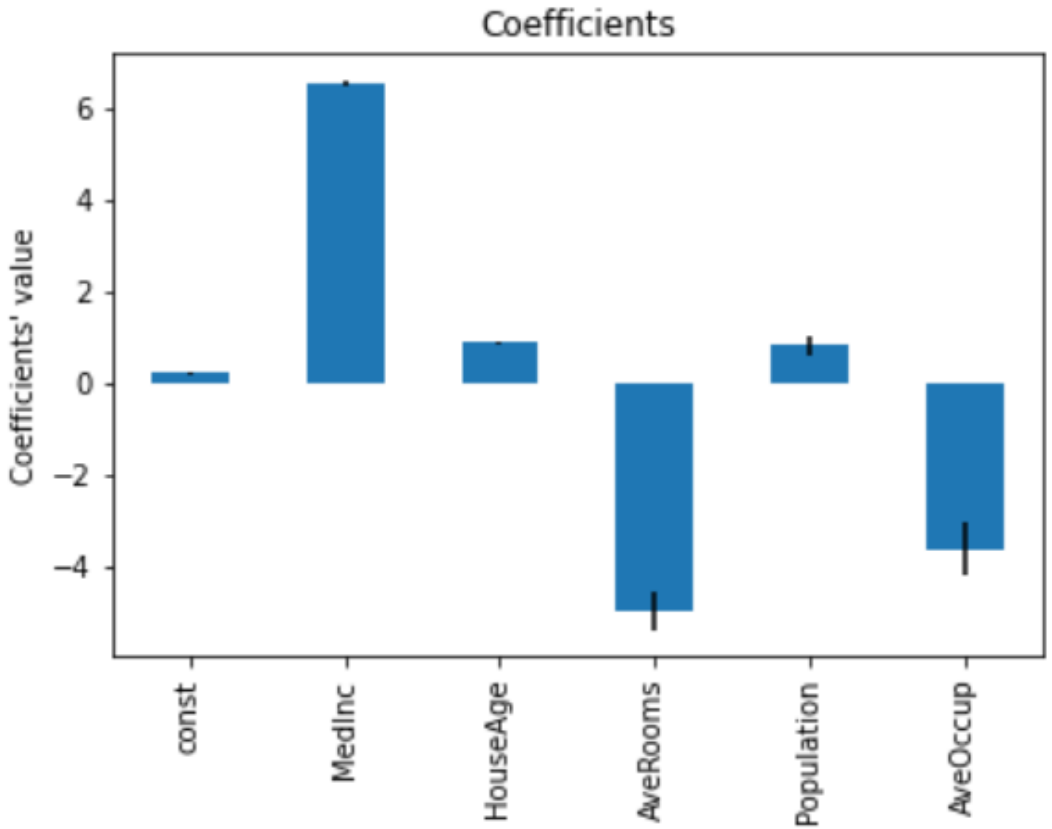
Linear regression model

$$y_i = \beta_0 + \beta_1 x_{1i} + \beta_2 x_{2i} + \ldots + \beta_n x_{ni} + \varepsilon_i$$

- Linear regression is modular.
- $\beta_n x_n$ is the contribution of feature *n* to the target.
- $\beta_n x_n$ is called the "effect".

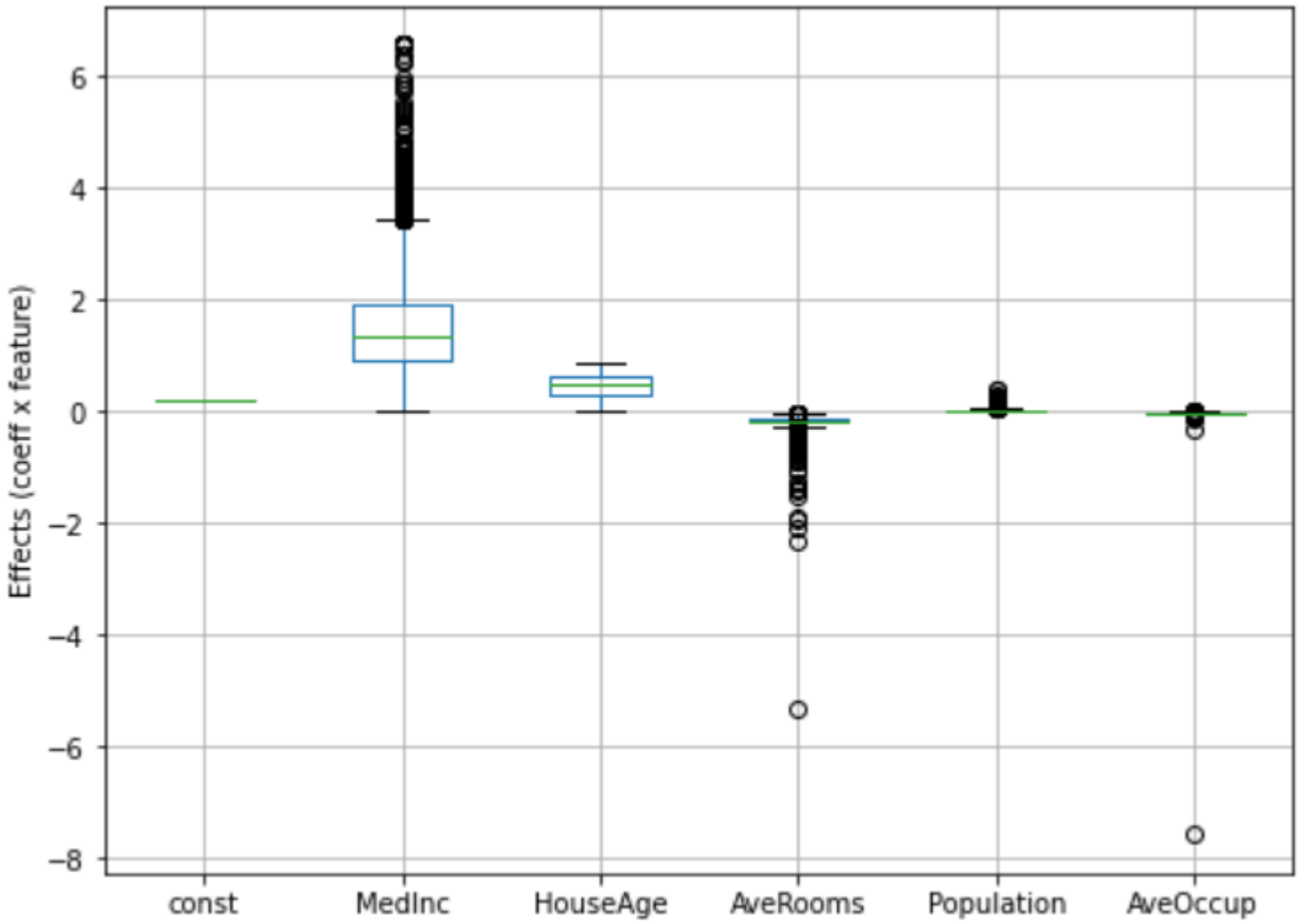
Coefficients

We'd think from this plot that the number of rooms has an enormous contribution to the house price.



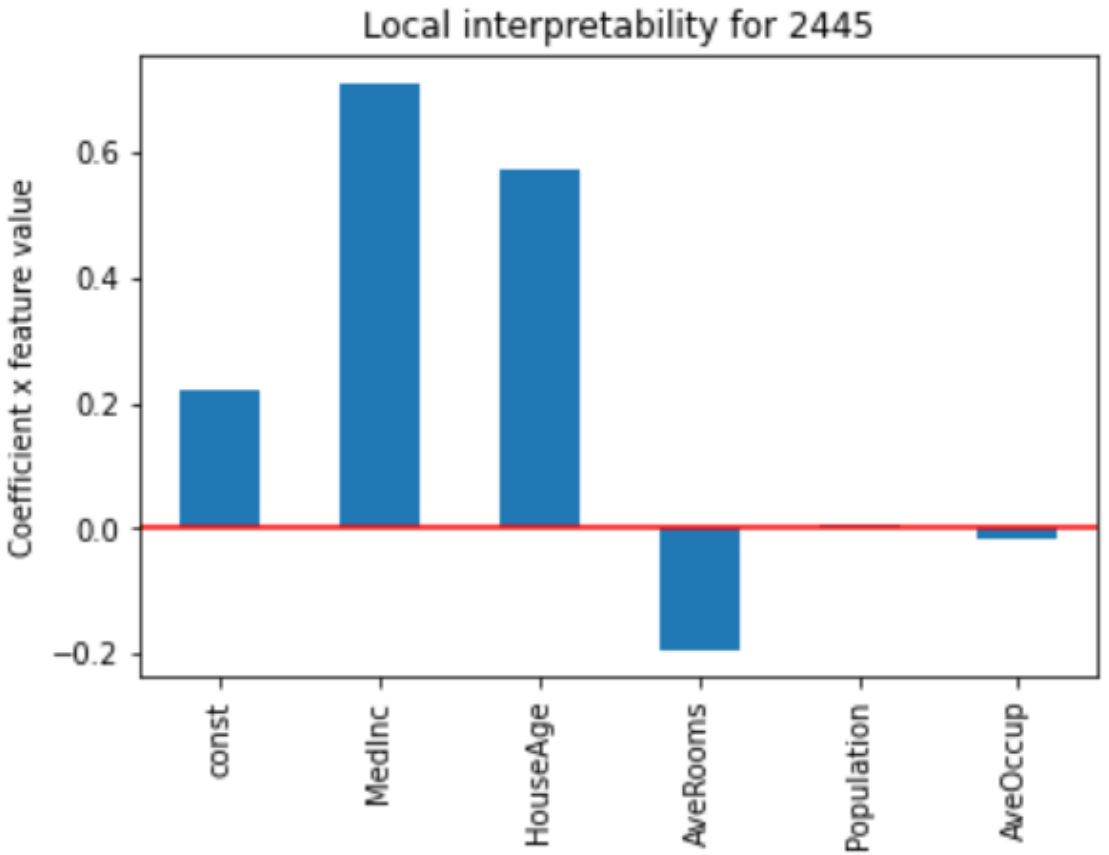
Effects plot

- Boxplot of the effects.
- Effects: variable x its coefficient.



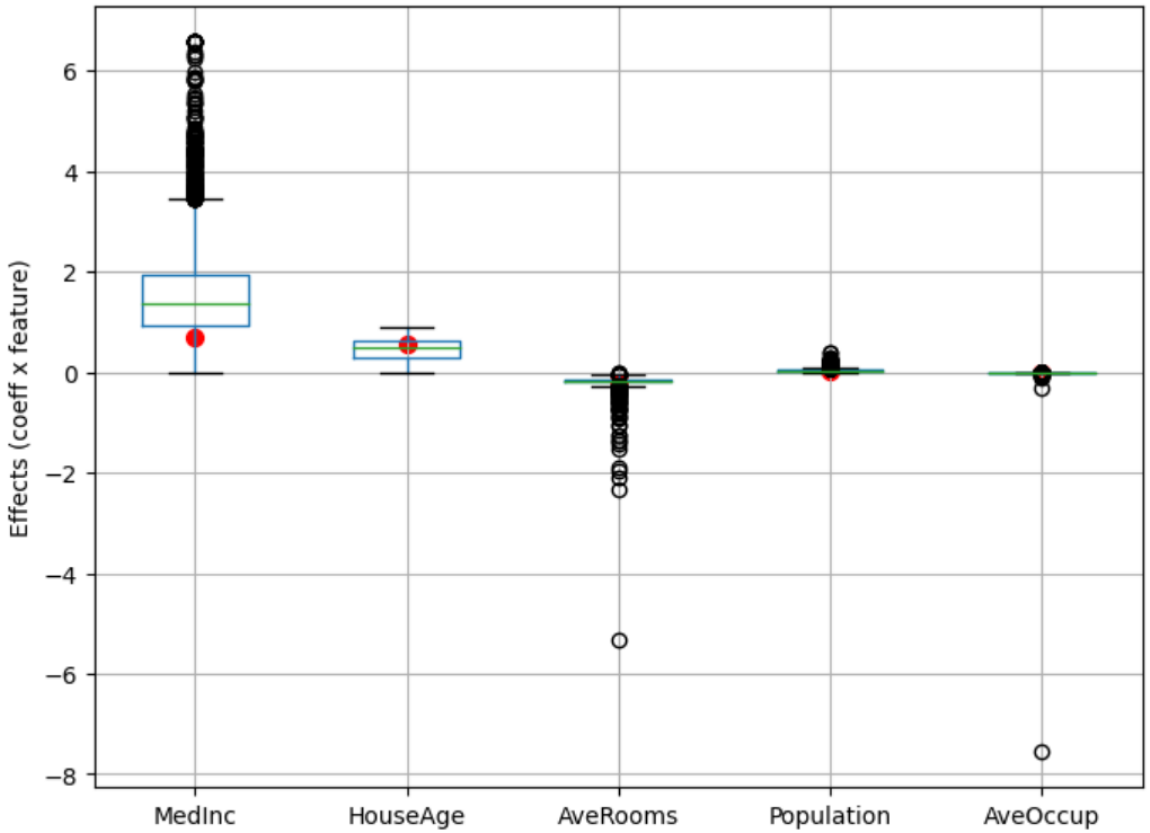
Local explanations

- MedInc contributes ~ 0.7 to the price.
- House Age adds ~0.5 to the price.
- The number of rooms reduces the price by 0.2.



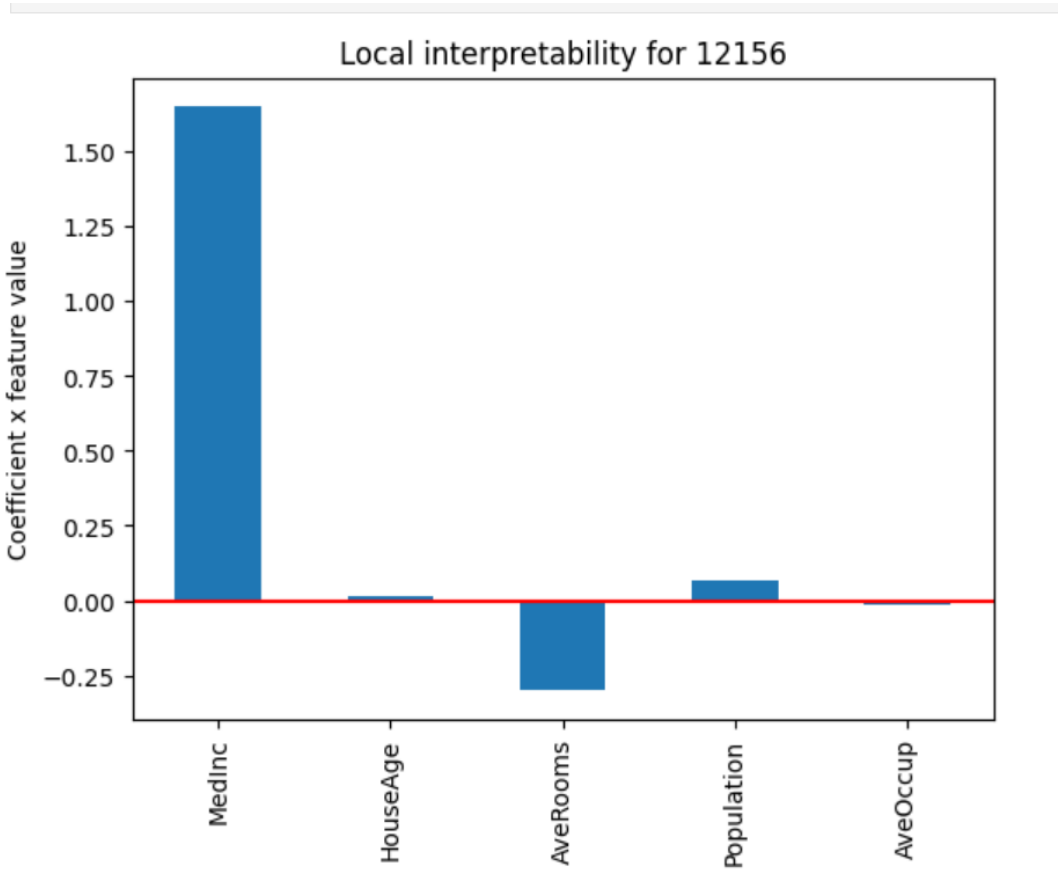
Local explanations

- This house is in a much lower income area compared to the rest of the houses.
- It is one of the older houses in the dataset.



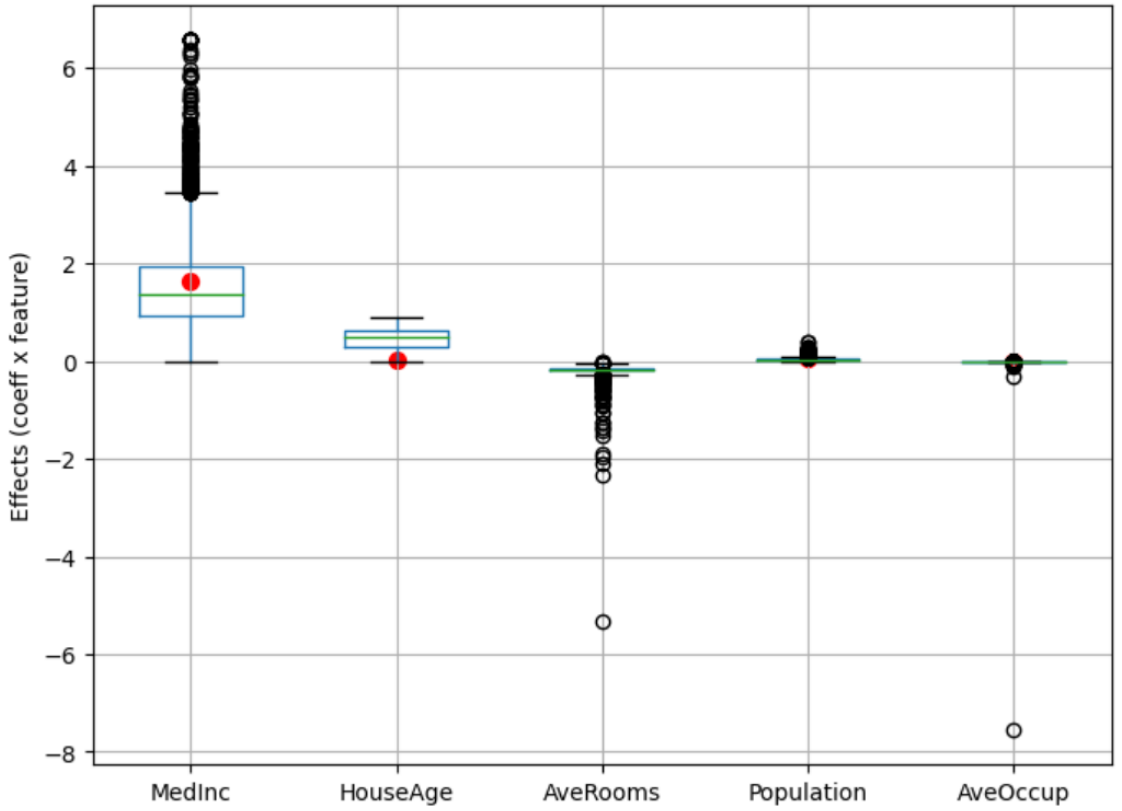
Local explanations

- MedInc contributes ~ 1.6 to the price.
- House Age doesn't add much to the price.
- The number of rooms reduces the price by 0.25.



Local explanations

- This house is in an area of higher income, compared to other houses.
- It is one of the newest houses in the dataset. Hence, according to our model, it is OK that it does not add too much to the price.



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THANK YOU

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