     Q1: Which features have higher importance in the prediction? (Section 2.1)

Answer: From the feature importance bar chart and the PD plots in the image, the top three most features (with the highest importance scores) are:

1. F\_5- Importance: 6.057
2. F\_12-Importance: 4.159
3. F\_7-Importance:0.589

These features contribute the most to the model’s predictions for the target feature ‘medv’.

Q2: What can you conclude with the PD plots? (Section 2.2)

Nox: nox is a strong negative predictor. Higher pollution is associated with lower house prices, which aligns with expectations about air quality affecting property values. The ice lines show high consistency, indicating that this relationship holds for most individual data points. A clear drop around 0.6+ suggests a threshold effect.

B(proportion of black population): PD trend is very slight upward trend, but generally flat. Ice lines is highly dispersed and noisy—little to no consistent individual-relationship.

Dis(Distance to employment centers): PD line shows a sharp drop in in predicted medv as dis increases from 2 to 5. After that the curve flattens—beyond ~5, increasing distance has minimal effect on predictions. Ice lines start off clustered near 0, then drop steeply in early values of dis, and stabilize further out. There is some variability among individuals at low dis (2-4\_, but most follow the same decreasing trend. The histogram at the bottom shows a concentration of samples between 2 and 6. The histogram also indicates that the model has most of its training data in that range—so predictions here are more reliable.

Q3: Discuss with the TA the results (heatmaps). (Section 2.2)

I intentionally selected one important feature and one less important one to observe interactions. I chose ‘slic’ which splits the image into many small regions. The output explanation.anchor highlights the critical segments that must be present for the prediction to remain the same with high confidence. These segments likely highlight the cat’s fur pattern.