UDACITY

PROJECT SPECIFICATION

# Predicting Boston Housing Prices

## Data Exploration

| CRITERIA | MEETS SPECIFICATIONS |
|---|---|
| Statistical Analysis | All requested statistics for the Boston Housing dataset are accurately calculated. Student correctly leverages NumPy functionality to obtain these results. |
| **Question 1**: Feature Observation | Student correctly justifies how each feature correlates with an increase or decrease in the target variable. |

## Developing a Model

| CRITERIA | MEETS SPECIFICATIONS |
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| **Question 2**: Goodness of Fit | Student correctly identifies whether the hypothetical model successfully captures the variation of the target variable based on the model's R^2 score. The performance metric is correctly implemented in code. |

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| **Question 3**: Training and Testing | Student provides a valid reason for why a dataset is split into training and testing subsets for a model. Training and testing split is correctly implemented in code. |

## Analyzing Model Performance

| CRITERIA | MEETS SPECIFICATIONS |
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| **Question 4**: Learning the Data | Student correctly identifies the trend of both the training and testing curves from the graph as more training points are added. Discussion is made as to whether additional training points would benefit the model. |
| **Question 5**: Bias-Variance Tradeoff | Student correctly identifies whether the model at a max depth of 1 and a max depth of 10 suffer from either high bias or high variance, with justification using the complexity curves graph. |
| **Question 6**: Best-Guess Optimal Model | Student picks a best-guess optimal model with reasonable justification using the model complexity graph. |

## Evaluating Model Performance

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| **Question 7:** Grid Search | Student correctly describes the grid search technique and how it can be applied to a learning algorithm. |
| **Question 8:** Cross-Validation | Student correctly describes the k-fold cross-validation technique and discusses the benefits of its application when used with grid search when optimizing a model. |
| Fitting a Model | Student correctly implements the `fit_model` function in code. |
| **Question 9:** Optimal Model | Student reports the optimal model and compares this model to the one they chose earlier. |
| **Question 10:** Predicting Selling Prices | Student reports the predicted selling price for the three clients listed in the provided table. Discussion is made for each of the three predictions as to whether these prices are reasonable given the data and the earlier calculated descriptive statistics. |
| **Question 11:** Applicability | Student thoroughly discusses whether the model should or should not be used in a real-world setting. |