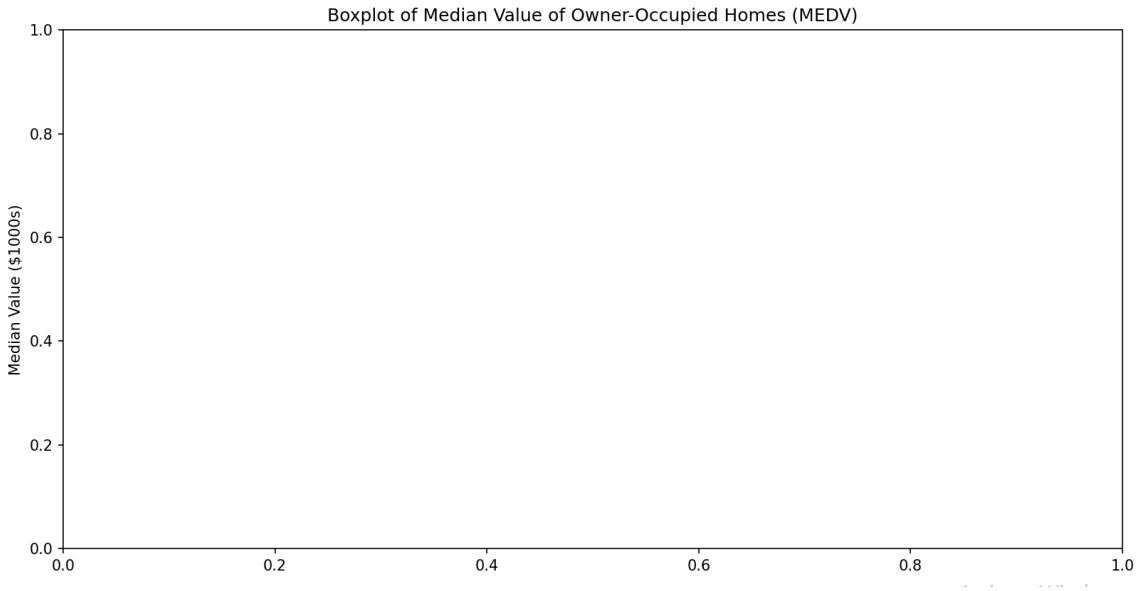
```
ython 3.13.0 (tags/v3.13.0:60403a5, Oct  7 2024, 09:38:07) [MSC v.1941 64 bit (AMD64)] on win32
ype "help", "copyright", "credits" or "license" for more information.
>> import pandas as pd
raceback (most recent call last):
 File "<python-input-0>", line 1, in <module>
   import pandas as pd
oduleNotFoundError: No module named 'pandas'
>> import numpy as np
>> import matplotlib.pyplot as plt
>> import seaborn as sns
raceback (most recent call last):
 File "<python-input-3>", line 1, in <module>
   import seaborn as sns
oduleNotFoundError: No module named 'seaborn'
>> from scipy import stats
raceback (most recent call last):
 File "<python-input-4>", line 1, in <module>
   from scipy import stats
oduleNotFoundError: No module named 'scipy'
>> from sklearn.linear_model import LinearRegression
raceback (most recent call last):
 File "<python-input-5>", line 1, in <module>
   from sklearn.linear_model import LinearRegression
oduleNotFoundError: No module named 'sklearn'
>>
>> # Load dataset (assuming CSV format; adjust path as needed)
>> boston = pd.read_csv('boston_housing.csv')
raceback (most recent call last):
 File "<python-input-8>", line 1, in <module>
   boston = pd.read_csv('boston_housing.csv')
            ^^
ameError: name 'pd' is not defined
>>
>> # Quick look at data
>> boston.head()
raceback (most recent call last):
 File "<python-input-11>", line 1, in <module>
   boston.head()
   ^^^^^^
ameError: name 'boston' is not defined
>> plt.figure(figsize=(8,6))
```

```
    ^^^^^^
NameError: name 'boston' is not defined
>>> plt.figure(figsize=(8,6))
<Figure size 800x600 with 0 Axes>
>>> sns.boxplot(y=boston['MEDV'])
Traceback (most recent call last):
  File "<python-input-13>", line 1, in <module>
    sns.boxplot(y=boston['MEDV'])
    ^^^
NameError: name 'sns' is not defined
>>> plt.title('Boxplot of Median Value of Owner-Occupied Homes (MEDV)')
Text(0.5, 1.0, 'Boxplot of Median Value of Owner-Occupied Homes (MEDV)')
>>> plt.ylabel('Median Value ($1000s)')
Text(0, 0.5, 'Median Value ($1000s)')
>>> plt.show()
```




```
>>> t_stat, p_val = stats.ttest_ind(chas_0, chas_1, equal_var=False)  # Welch's t-test
Traceback (most recent call last):
  File "<python-input-33>", line 1, in <module>
    t_stat, p_val = stats.ttest_ind(chas_0, chas_1, equal_var=False)  # Welch's t-test
                    ^^^^^
NameError: name 'stats' is not defined
>>>
>>> print(f"T-test Results:\n t-statistic = {t_stat:.3f}, p-value = {p_val:.3f}")
Traceback (most recent call last):
  File "<python-input-35>", line 1, in <module>
    print(f"T-test Results:\n t-statistic = {t_stat:.3f}, p-value = {p_val:.3f}")
                                             ^^^^^^
NameError: name 't_stat' is not defined
>>>
>>> if p_val < 0.05:
...         print("Reject null hypothesis: Significant difference in median house values by Charles River boundary.")
...         else:
...                     print("Fail to reject null hypothesis: No significant difference detected.")
...                     group1 = boston[boston['AGE_group'] == '<=35 years']['MEDV']
...                     group2 = boston[boston['AGE_group'] == '36-70 years']['MEDV']
...                     group3 = boston[boston['AGE_group'] == '>70 years']['MEDV']
...
  File "<python-input-37>", line 3
    else:
    ^^^^
SyntaxError: invalid syntax
>>> f_stat, p_val = stats.f_oneway(group1, group2, group3)
Traceback (most recent call last):
  File "<python-input-38>", line 1, in <module>
    f_stat, p_val = stats.f_oneway(group1, group2, group3)
                    ^^^^^
NameError: name 'stats' is not defined
>>>
>>> print(f"ANOVA Results:\n F-statistic = {f_stat:.3f}, p-value = {p_val:.3f}")
Traceback (most recent call last):
  File "<python-input-40>", line 1, in <module>
    print(f"ANOVA Results:\n F-statistic = {f_stat:.3f}, p-value = {p_val:.3f}")
                                           ^^^^^^
NameError: name 'f_stat' is not defined
```

```
>>> f_stat, p_val = stats.f_oneway(group1, group2, group3)
Traceback (most recent call last):
  File "<python-input-38>", line 1, in <module>
    f_stat, p_val = stats.f_oneway(group1, group2, group3)
                    ^^^^^
NameError: name 'stats' is not defined
>>>
>>> print(f"ANOVA Results:\n F-statistic = {f_stat:.3f}, p-value = {p_val:.3f}")
Traceback (most recent call last):
  File "<python-input-40>", line 1, in <module>
    print(f"ANOVA Results:\n F-statistic = {f_stat:.3f}, p-value = {p_val:.3f}")
                                           ^^^^^^
NameError: name 'f_stat' is not defined
>>>
>>> if p_val < 0.05:
...             print("Reject null hypothesis: At least one AGE group differs significantly in median house value.")
...             else:
...                             print("Fail to reject null hypothesis: No significant difference among AGE groups.")
...                             corr_coef, p_val = stats.pearsonr(boston['NOX'], boston['INDUS'])
...
  File "<python-input-42>", line 3
    else:
    ^^^^
SyntaxError: invalid syntax
>>> print(f"Pearson Correlation:\n Correlation coefficient = {corr_coef:.3f}, p-value = {p_val:.3f}")
Traceback (most recent call last):
  File "<python-input-43>", line 1, in <module>
    print(f"Pearson Correlation:\n Correlation coefficient = {corr_coef:.3f}, p-value = {p_val:.3f}")
                                                             ^^^^^^^^^
NameError: name 'corr_coef' is not defined
>>>
>>> if p_val < 0.05:
...                 print("Reject null hypothesis: Significant correlation between NOX and INDUS.")
...                 else:
...                                     print("Fail to reject null hypothesis: No significant correlation detected.")
...                                     X = boston[['DIS']]  # Independent variable
...                                     y = boston['MEDV']   # Dependent variable
...
  File "<python-input-45>", line 3
    else:
```

```
SyntaxError: invalid syntax
>>> model = LinearRegression()
Traceback (most recent call last):
  File "<python-input-46>", line 1, in <module>
    model = LinearRegression()
            ^^^^^^^^^^^^^^^^
NameError: name 'LinearRegression' is not defined
>>> model.fit(X, y)
Traceback (most recent call last):
  File "<python-input-47>", line 1, in <module>
    model.fit(X, y)
    ^^^^^
NameError: name 'model' is not defined
>>>
>>> coef = model.coef_[0]
Traceback (most recent call last):
  File "<python-input-49>", line 1, in <module>
    coef = model.coef_[0]
           ^^^^^
NameError: name 'model' is not defined
>>> intercept = model.intercept_
Traceback (most recent call last):
  File "<python-input-50>", line 1, in <module>
    intercept = model.intercept_
                ^^^^^
NameError: name 'model' is not defined
>>> r_sq = model.score(X, y)
Traceback (most recent call last):
  File "<python-input-51>", line 1, in <module>
    r_sq = model.score(X, y)
           ^^^^^
NameError: name 'model' is not defined
>>>
>>> print(f"Regression Results:\n Coefficient (DIS) = {coef:.3f}")
Traceback (most recent call last):
```

```
NameError: name 'model' is not defined
>>>
>>> print(f"Regression Results:\n Coefficient (DIS) = {coef:.3f}")
Traceback (most recent call last):
  File "<python-input-53>", line 1, in <module>
    print(f"Regression Results:\n Coefficient (DIS) = {coef:.3f}")
                                                       ^^^^
NameError: name 'coef' is not defined
>>> print(f"Intercept = {intercept:.3f}")
Traceback (most recent call last):
  File "<python-input-54>", line 1, in <module>
    print(f"Intercept = {intercept:.3f}")
                         ^^^^^^^^^
NameError: name 'intercept' is not defined
>>> print(f"R-squared = {r_sq:.3f}")
Traceback (most recent call last):
  File "<python-input-55>", line 1, in <module>
    print(f"R-squared = {r_sq:.3f}")
                         ^^^^
NameError: name 'r_sq' is not defined
>>>
>>> if coef < 0:
...                     print("Interpretation: Increasing distance to employment centers decreases median house value.")
...                     else:
...                                             print("Interpretation: Increasing distance to employment centers increases median house value.")
...
```