In [1]:
```
# Import Libraries

import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
from sklearn.metrics import mean_squared_error, r2_score
```

In [4]:
```
# Load the Boston Housing Dataset
boston_df = pd.read_csv("boston_housing_data.csv")
print("Linear Regression on Boston Housing Dataset")
```

```
Linear Regression on Boston Housing Dataset
```

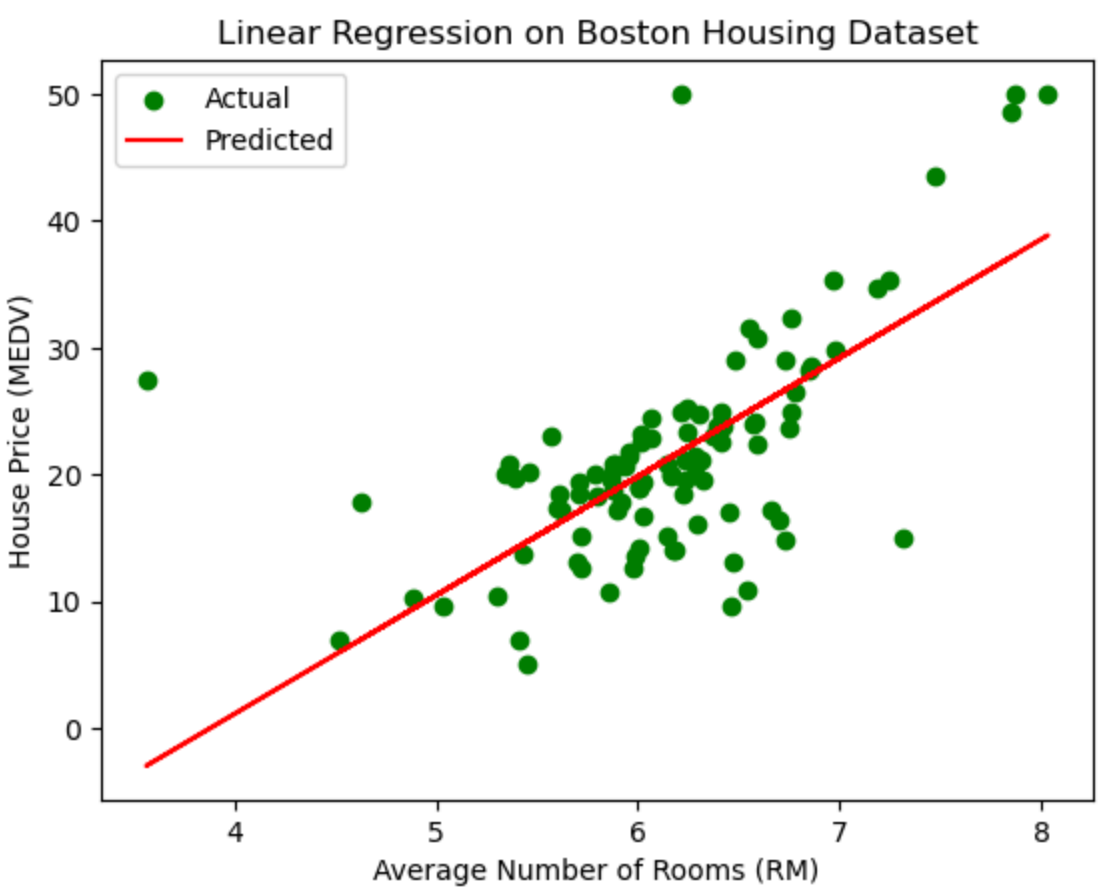
In [6]:
```
X = boston_df[['RM']]  # Using 'RM' (average number of rooms) as the feature
y = boston_df['MEDV']  # Target variable

# Split the data into training and testing sets
X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.2, random_state=42)
```

In [8]:
```
# Create and train the Linear Regression model
LR_model = LinearRegression()
LR_model.fit(X_train, y_train)

# Make predictions
y_pred = LR_model.predict(X_test)
```

In [10]:
```
# Evaluate the model
mse = mean_squared_error(y_test, y_pred)
r2 = r2_score(y_test, y_pred)
print(f"Mean Squared Error: {mse:.4f}")
print(f"R^2 Score: {r2:.4f}")
```

```
Mean Squared Error: 46.1448
R^2 Score: 0.3708
```

In [12]:
```

# Plot the results
plt.scatter(X_test, y_test, color='green', label='Actual')
plt.plot(X_test, y_pred, color='red', label='Predicted')
plt.xlabel('Average Number of Rooms (RM)')
plt.ylabel('House Price (MEDV)')
plt.title('Linear Regression on Boston Housing Dataset')
plt.legend()
plt.show()
```


Linear Regression on Boston Housing Dataset
Actual
Predicted
House Price (MEDV)
Average Number of Rooms (RM)
0
10
20
30
40
50
4
5
6
7
8