Assignment 10

```matlab
data=load('Lab 10-Real Estate Data.txt');
%data2=load('Lab 10 - Real Estate Data.csv');
```

```matlab
% Extract the columns into variables for clarity
SellingPrice = data(:, 1); % Column 1: Selling Price
Bedrooms = data(:, 2);      % Column 2: Bedrooms
Bathrooms = data(:, 3);     % Column 3: Bathrooms
Floors = data(:, 4);        % Column 4: Floors
Waterfront = data(:, 5);    % Column 5: Waterfront
Condition = data(:, 6);     % Column 6: Condition
Grade = data(:, 7);         % Column 7: Grade
YearBuilt = data(:, 8);     % Column 8: Year Built
LivingSpace = data(:, 9);   % Column 9: Living Space (sq. ft.)
LotSize = data(:, 10);      % Column 10: Lot Size (sq. ft.)
```

```matlab
A = [ones(size(SellingPrice)), Bedrooms, Bathrooms, Floors, Waterfront, ...
      Condition, Grade, YearBuilt, LivingSpace, LotSize];
```

```matlab
b = SellingPrice;
```

```matlab
x_hat = (A' * A) \ (A' * b)
```

```
x_hat = 10×1
10^6 ×
    7.5151
   -0.0101
    0.1204
    0.0164
    0.7703
    0.0209
    0.1633
   -0.0044
    0.0001
   -0.0000
```

```matlab
fprintf('Least-squares solution (x_hat):\n');
```

```
Least-squares solution (x_hat):
```

```matlab
disp(x_hat);
```

```
    1.0e+06 *

    7.5151
   -0.0101
    0.1204
    0.0164
    0.7703
    0.0209
```

```
    0.1633
   -0.0044
    0.0001
   -0.0000
```

```matlab
% Predict the selling price for the given test data
Bedrooms_test = 6;
Bathrooms_test = 6;
Floors_test = 2;
Waterfront_test = 1; % Yes
Condition_test = 4;
Grade_test = 12;
YearBuilt_test = 1991;
LivingSpace_test = 4320; % sq. ft.
LotSize_test = 24619;    % sq. ft.
```

```matlab
test_vector = [1, Bedrooms_test, Bathrooms_test, Floors_test,
Waterfront_test, ...
                Condition_test, Grade_test, YearBuilt_test, LivingSpace_test,
LotSize_test];
```

```matlab
PredictedPrice = test_vector * x_hat
```

```
PredictedPrice =
2.6081e+06
```

```matlab
fprintf('Predicted Selling Price: $%.2f\n', PredictedPrice);
```

```
Predicted Selling Price: $2608060.01
```

```matlab
% Check if the result matches the expected predicted price
ExpectedPrice = 2608060.01; % Expected predicted price
fprintf('Expected Predicted Price: $%.2f\n', ExpectedPrice);
```

```
Expected Predicted Price: $2608060.01
```

```matlab
fprintf('Difference: $%.2f\n', abs(PredictedPrice - ExpectedPrice));
```

```
Difference: $0.00
```