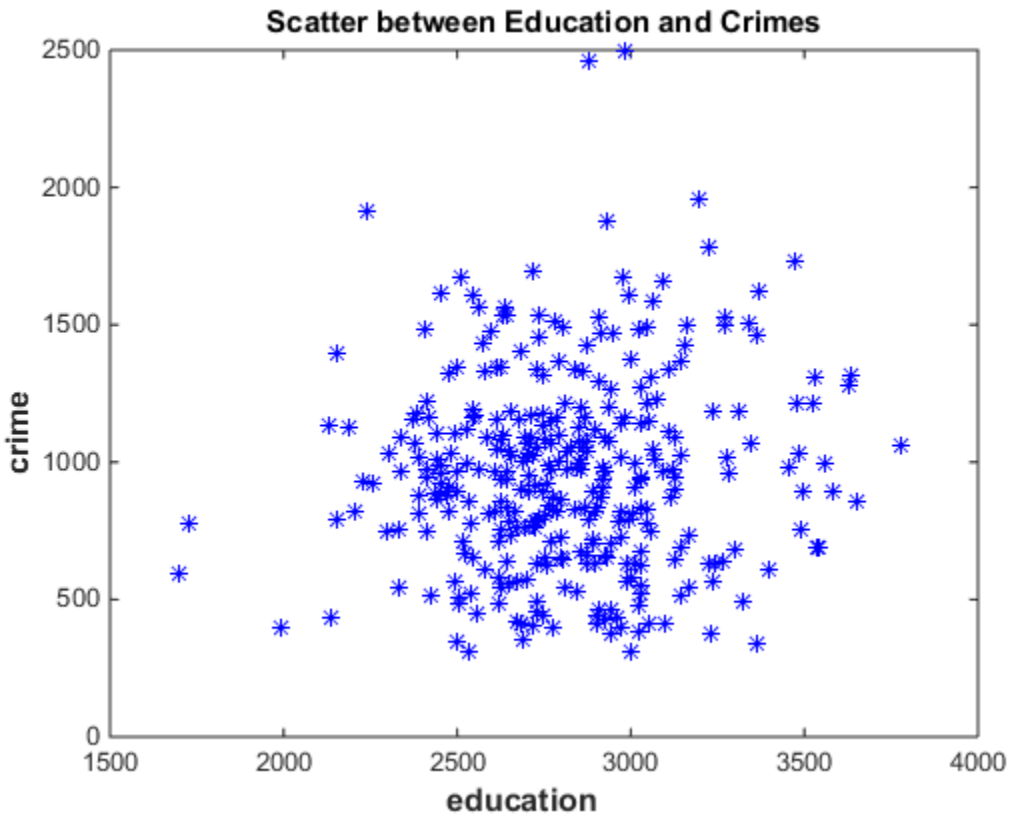
```
X_hat = ratings(:,6); % Ratings for Education
Y_hat = ratings(:,4); % Ratings for Crimes
plot(X_hat,Y_hat,'b*');
xlabel(categories(6, :), 'FontSize',12,'FontWeight','bold');
ylabel(categories(4, :), 'FontSize',12,'FontWeight','bold');
title('Scatter between Education and Crimes');
```



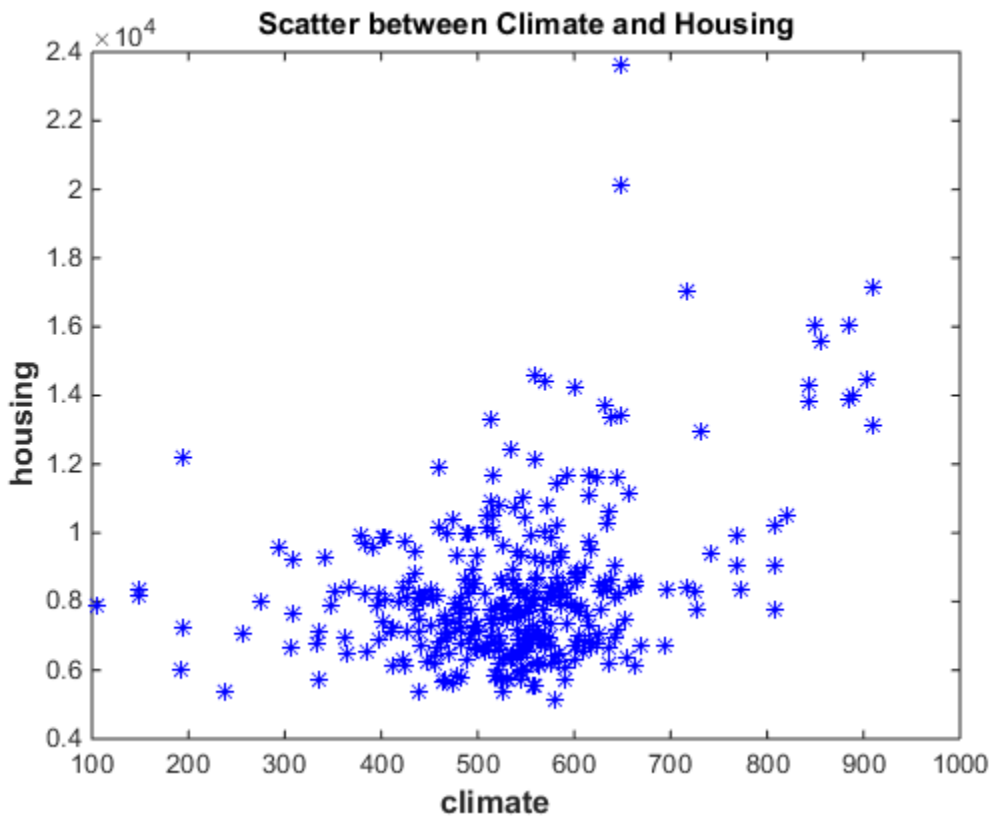

```
format short
sCov = cov(X_hat, Y_hat)
sCor = corr(X_hat, Y_hat)
sCov =    1.0e+05 *

           1.0291    0.0853
           0.0853    1.2756


sCor = 0.0744
```

The sample correlation is very large, which confirm the ratings of the two categories are positive correlated. We expect 0.7 unit of rating increasing for 'Crimes' by increasing one unit of rating for 'Education'

```
2.      X_hat = ratings(:,1); % Ratings for Climate
        Y_hat = ratings(:,2); % Ratings for Housing
        plot(X_hat,Y_hat,'b*');
        xlabel(categories(1, :), 'FontSize',12,'FontWeight','bold');
        ylabel(categories(2, :), 'FontSize',12,'FontWeight','bold');
        title('Scatter between Climate and Housing');
```



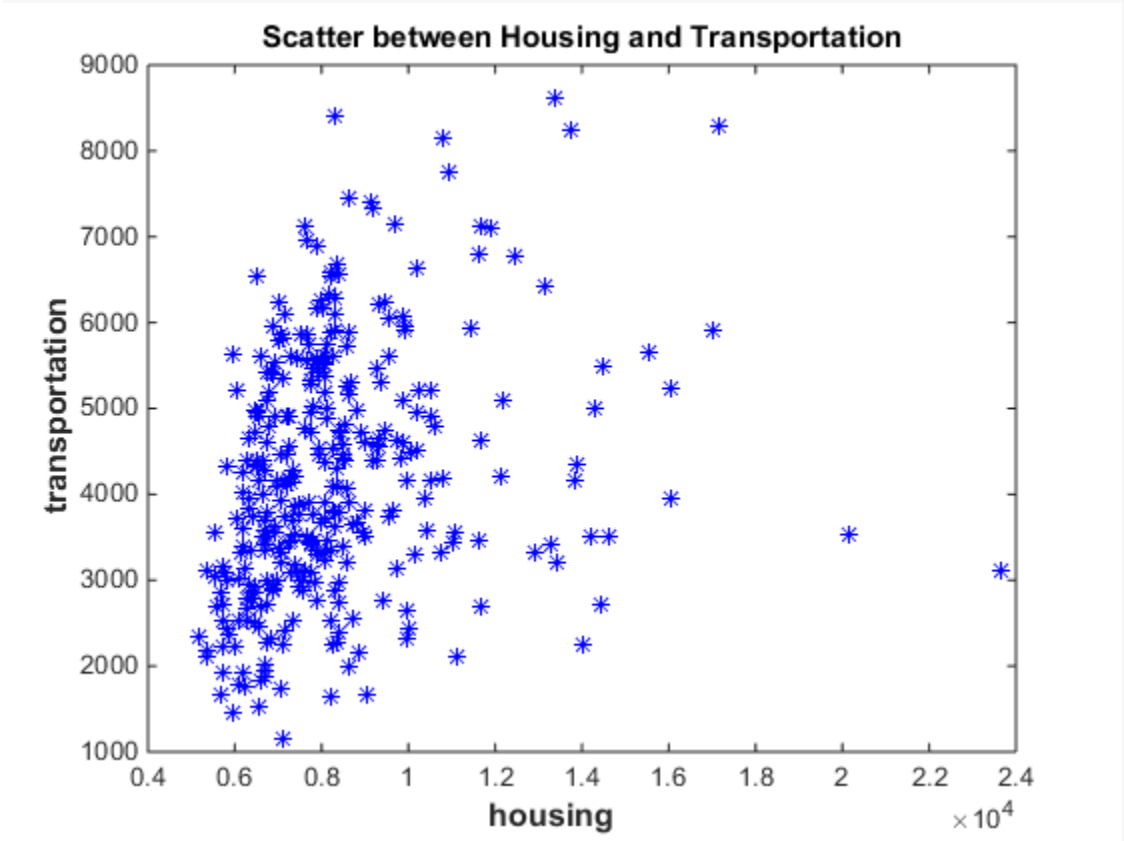

```
format short
sCov = cov(X_hat, Y_hat)
sCor = corr(X_hat, Y_hat)
sCov =   1.0e+06 *

          0.0146    0.1113
          0.1113    5.6895

sCor = 0.3863
```

The graph has cluster of correlation on X- Axis. It has positive correlated.

```
3.      X_hat = ratings(:,2); % Ratings for Housing
        Y_hat = ratings(:,5); % Ratings for Transportation
        plot(X_hat,Y_hat,'b*');
        xlabel(categories(2, :), 'FontSize',12,'FontWeight','bold');
        ylabel(categories(5, :), 'FontSize',12,'FontWeight','bold');
        title('Scatter between Housing and Transportation');
```




```
format short
sCov = cov(X_hat, Y_hat)
sCor = corr(X_hat, Y_hat)
sCov = 1.0e+06 *
        5.6895    0.9412
        0.9412    2.1059


sCor = 0.2719
```

This graph has a cluster of correlation on the y-axis and it's scattered throughout the graph.

2. Housing and Transportation categories are least correlated, because it has correlation closets to 0.