QUESTION:

Progress of world record times in seconds for the 10k run for man (from 50s to 90s of 20th century) shown in the following table.

X (year)	56	60	65	73	78	84	89	95	98
Y (time)	1773	1699	1660	1651	1642	1634	1628	1603	1583

Use MATLAB to plot the least squares regression line from the data bo and b1 should be calculated by your MATLAB program. Submit the Source-code.

SOLUTION:

CODE:

```
clc
clear all
close all
x=[56 60 65 73 78 84 89 95 98];
y=[1773 1699 1660 1651 1642 1634 1628 1603 1583];

y_mean=mean(y);
y_minus_y_mean=y-y_mean;
square_of_y_minus_y_mean=y_minus_y_mean.*y_minus_y_mean;

x_mean=mean(x);
x_minus_x_mean=x-x_mean;
square_of_x_minus_x_mean=x_minus_x_mean.*x_minus_x_mean;

x_minus_x_mean_p_y_minus_y_mean=x_minus_x_mean.*y_minus_y_mean;

sumision_square_of_x_minus_x_mean=sum(square_of_x_minus_x_mean);

sumision_x_minus_x_mean_p_y_minus_y_mean=sum(x_minus_x_mean_p_y_minus_y_mean)
;

b1=x_minus_x_mean_p_y_minus_y_mean/square_of_x_minus_x_mean;

b0=y_mean-(x_mean*b1);

figure
ax1 = subplot(1,1,1);
scatter(ax1,x,y)
h1 = lsline(ax1);
h1.Color = 'r';
h1.LineWidth = 1.5;
grid on;
xlabel('x axis');
ylabel('y axis');
title('x vs y');
```

OUTPUT:
VALUE OF b1 & b0:

```
Command Window                                    ⊙

  b1 =

      -3.8104


  b0 =

      1.9481e+03

fx >>
```

GRAPH:
    Plot OF the **Least Squares Regression Line** from the data.