

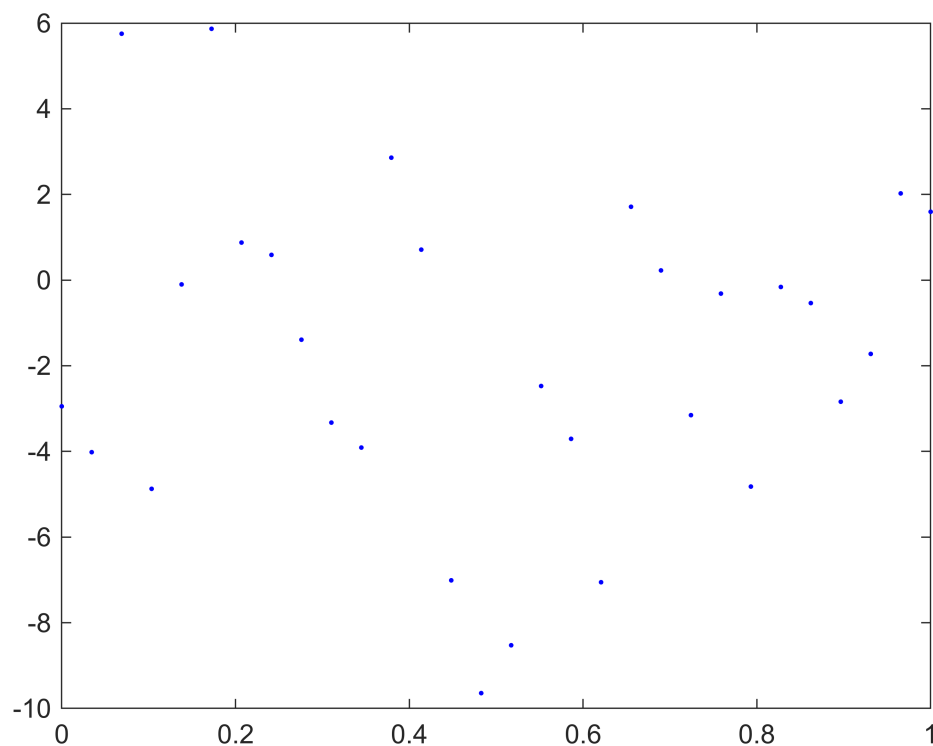
```
clear all;  
close all;
```

Load the data. Make sure you have the directory containing the file in your MATLAB path. This provides two variable "xs" and "data" (the x-values and y-values).

```
load("Quiz3.mat")  
ys = data; % In case you like "y" better than "data"
```

You can visualize the data.

```
fig1 = figure(1);  
clf(fig1,"reset");  
plot(xs, data, ".b");  
hold on;
```



Build the the [matrix A](#) whose column space we are trying to minimize the distance to.

```
% Enter your "design" matrix.  
A = [ones(size(xs)) xs xs.^2 sqrt(xs)];
```

Find the least-square solution to $Ax = data$

```
% Enter an expression providing a least squares solution to  $Ax = ys$ 
```

```
xhat = A\ys
```

```
xhat = 4×1  
-4.0425  
-70.6405  
39.8049  
36.6561
```

Compute the element in $CS(A)$ closest to the data.

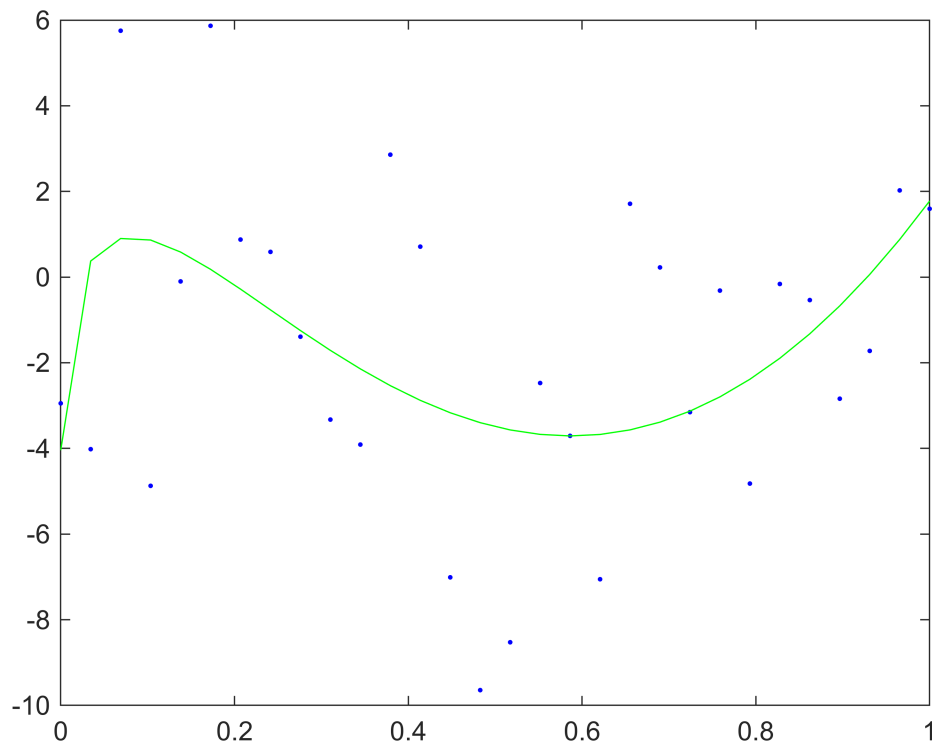
```
% Enter an expression that computes the projection of the data (ys) onto  
% CS(A). This is the values your model predicts at the xs.  
yhat = A*xhat;
```

Enter the function you have computed:

$$f(x) = -4 - 70.6x + 39.8x^2 + 36.7\sqrt{x}$$

Add your model to the plot.

```
plot(xs, yhat, "-g");
```



Do not edit below here.

```
function n = replaceMe()
```

```
display('You must replace this with your answer');  
n = 0;  
end
```