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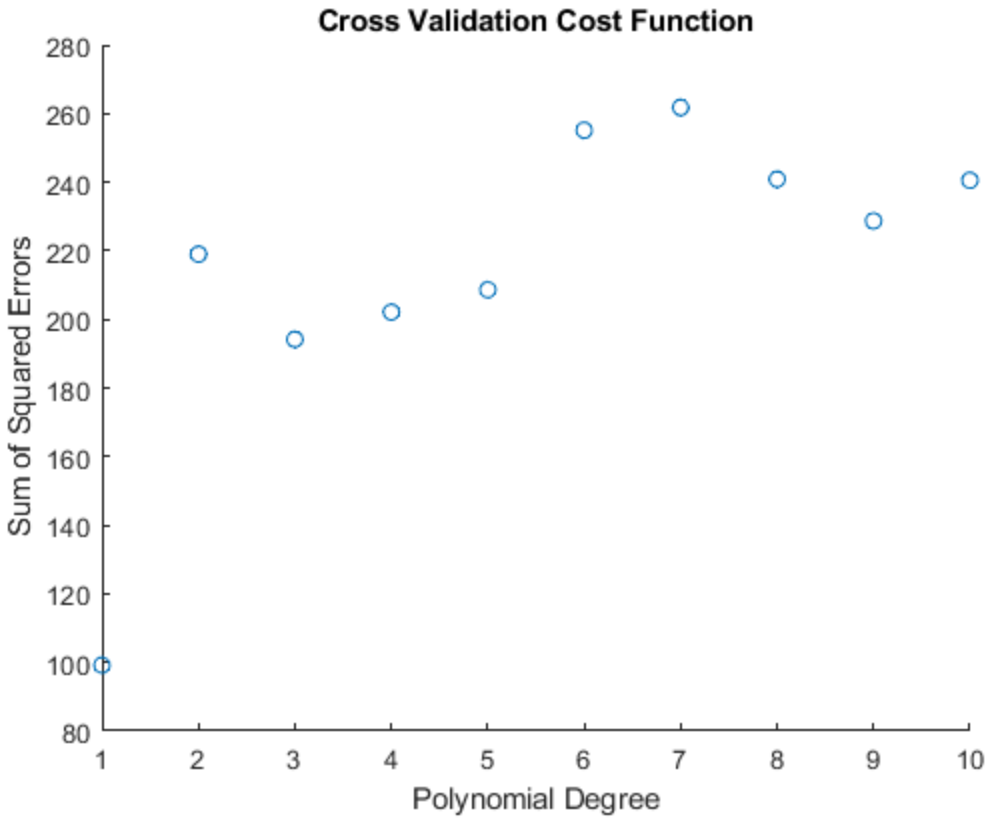
Data Science, Problem Set 5 Solutions Dana Golden

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

Problem 1

```
load('datasetPS5.mat');
data=[x y];
[CostFunctionTrain,CostFunctionCrossValid,CostFunctionTest,beta]=PolynomialRegressions(dat

%A polynomial of the third degree minimizes the cost function on the
%cross-validation data. The beta value and cost on the test function are
%below:

beta

CostFunctionTest
```

```
Warning: Matrix is close to singular or badly scaled. Results may be
inaccurate. RCOND =  2.961615e-18.

beta =

   -7.3786
    9.0522


CostFunctionTest =

  990.5178
```

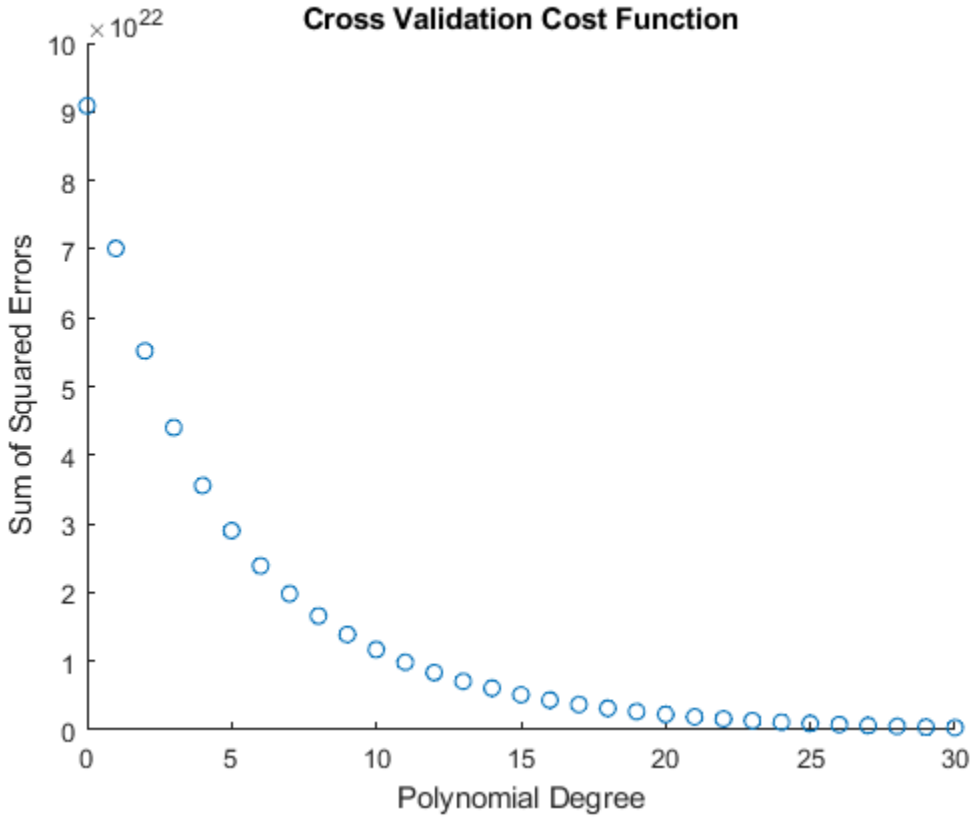


Problem 2

```
[CostFunctionTrain,CostFunctionCrossValid,CostFunctionTest,beta,lambda] =
 PolynomialRegressionRegularized(data);
% The regularization parameter that minimized the cost function on the
% cross-validation data is reported below alsngside the cost function on
% the testing data and the discovered beta values.
lambda
CostFunctionTest
beta
```

```
lambda =

    30


CostFunctionTest =

   1.2575e+21


beta =

   1.0e+10 *
```

```
-1.4477
 0.0000
-0.0000
 0.0000
 0.0000
-0.0000
 0.0001
-0.0003
 0.0006
-0.0007
 0.0003
```



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