**Exercise: Regularized Linear Regression and  
Bias vs Variance Analysis**

**Overview:**

In this exercise, you will implement regularized linear regression and use it to study models with different bias-variance properties.

**List of Files for this assignment:**

ex5.py - script that steps you through the exercise

ex5data1.mat - Training set of water flowing out of dam with respect to change in water level

ex5modules.py - the script that needs to be filled in by you for this assignment. It performs regularized linear regression cost function, generates a learning curve, maps data into polynomial feature space, and generates a validation curve.

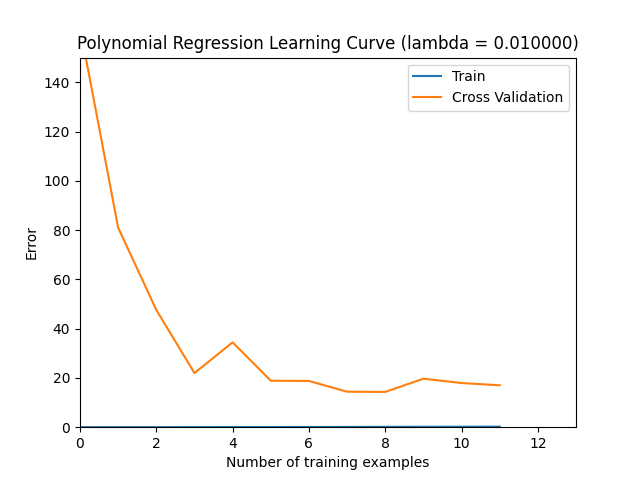
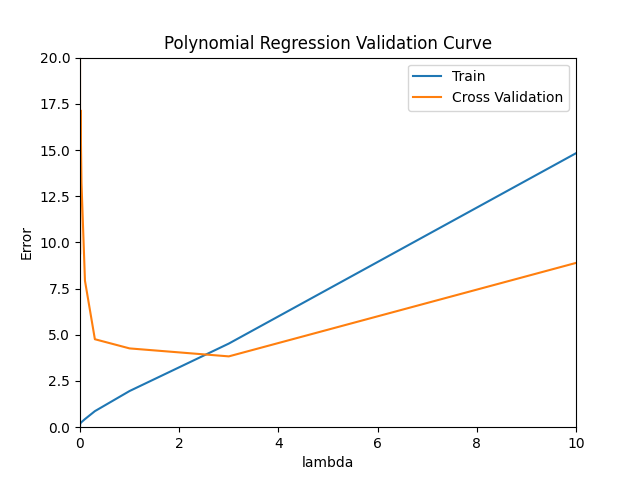
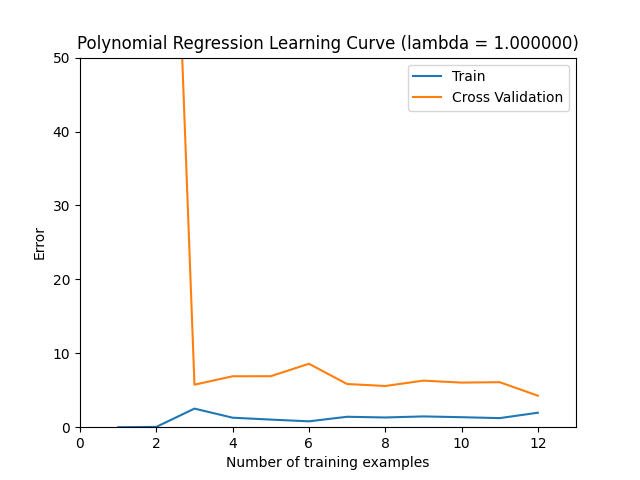
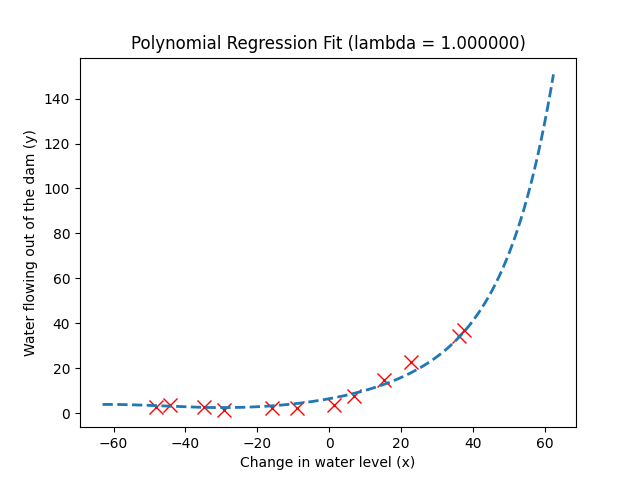
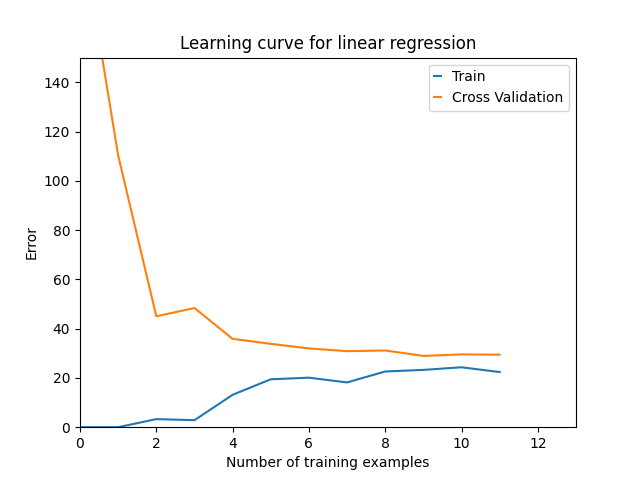
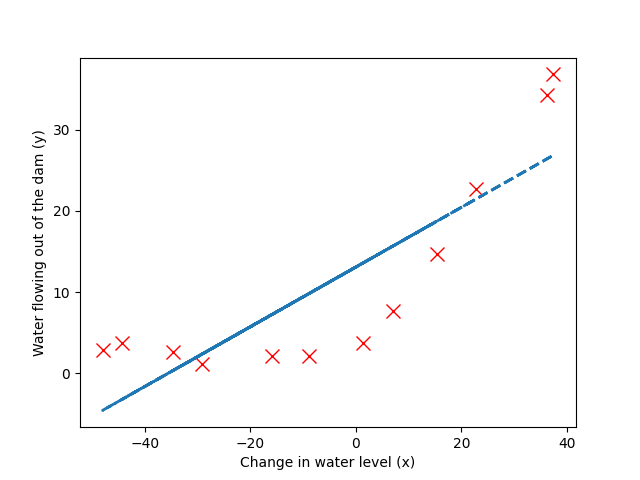
**What you should do:**

Note that some functions declared in ex5modules.py are not yet implemented. Your task is to implement the functions by filling in “YOUR CODE HERE” sections. After you have finished filling in your code, activate Miniconda, change directory to where your ex5.py is located, then type in following command and press Enter:

|  |
| --- |
| python ex5.py |

This will run the ex5.py Python script. During the execution, you will see output text results in console and graphic results in a separate window. If your implementation is correct, the graphic results will be similar to what is shown on the “Sample Results” section of this instructions sheet.

**Sample Results:**

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