COMPENG 4SL4

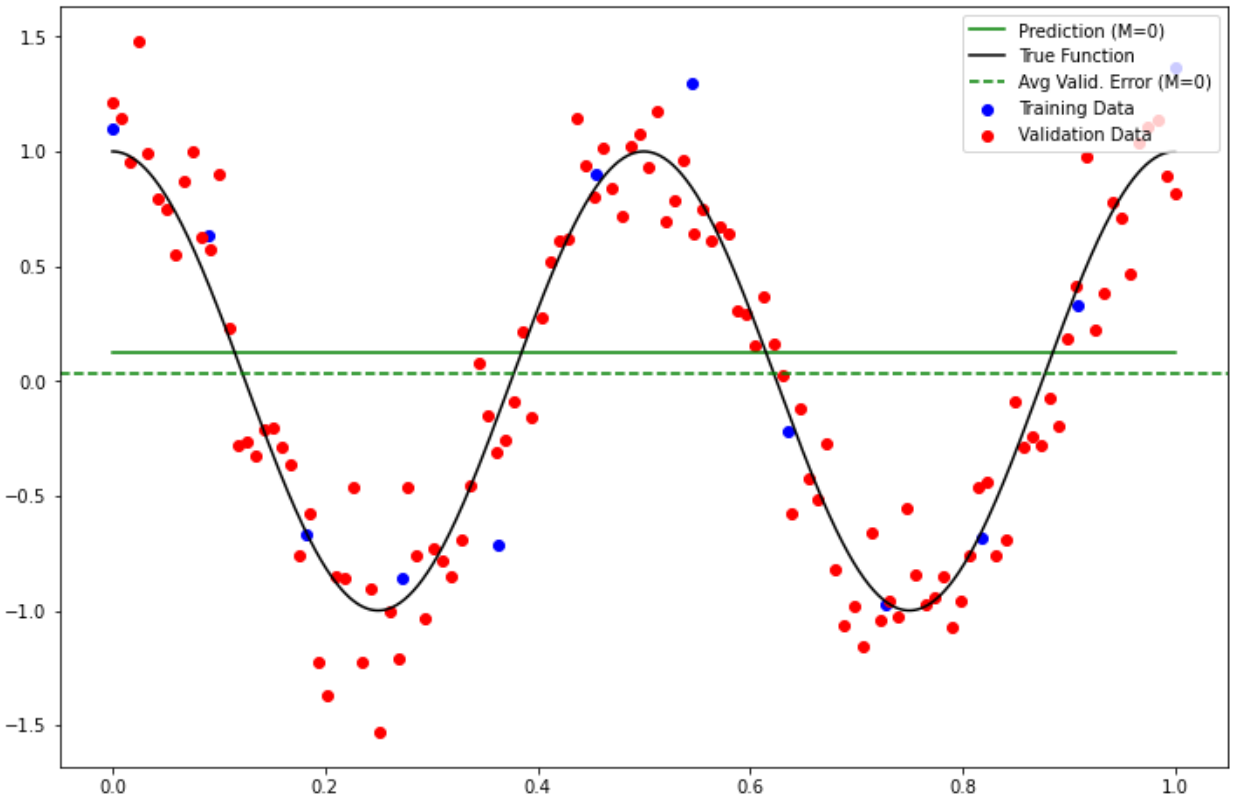
Assignment 1

Instructor: Dr. Dumitrescu

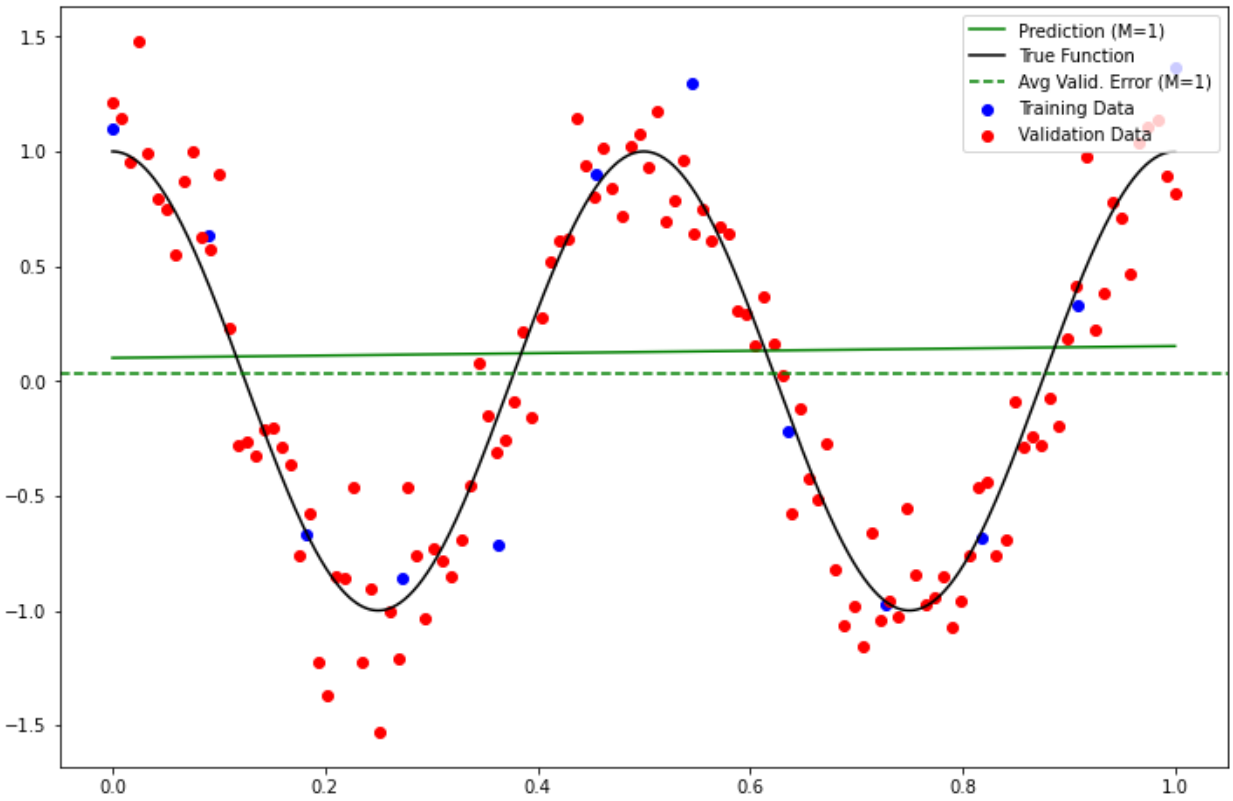
Hritheekka Chinnakonda – chinnakh – 400292782 – C01 – L03

As a future member of the engineering profession, the student is responsible for performing the required work in an honest manner, without plagiarism and cheating. Submitting this work with my name and student number is a statement and understanding that this work is my own and adheresto the Academic Integrity Policy of McMaster University and the Code of Conduct of the Professional Engineers of Ontario. Submitted by [Hritheekka Chinnakonda, chinnakh, 400292782]

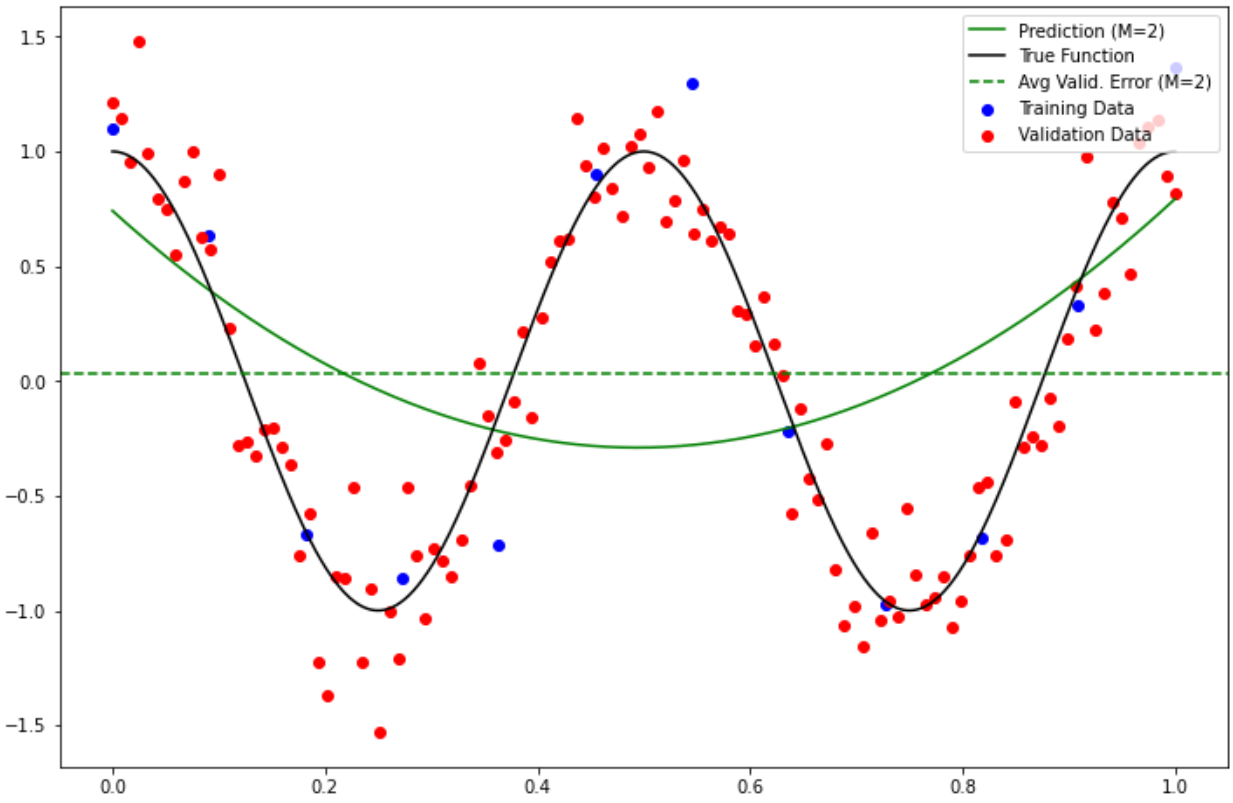
Degree 0: Training Error = 0.7545, Validation Error = 0.5963



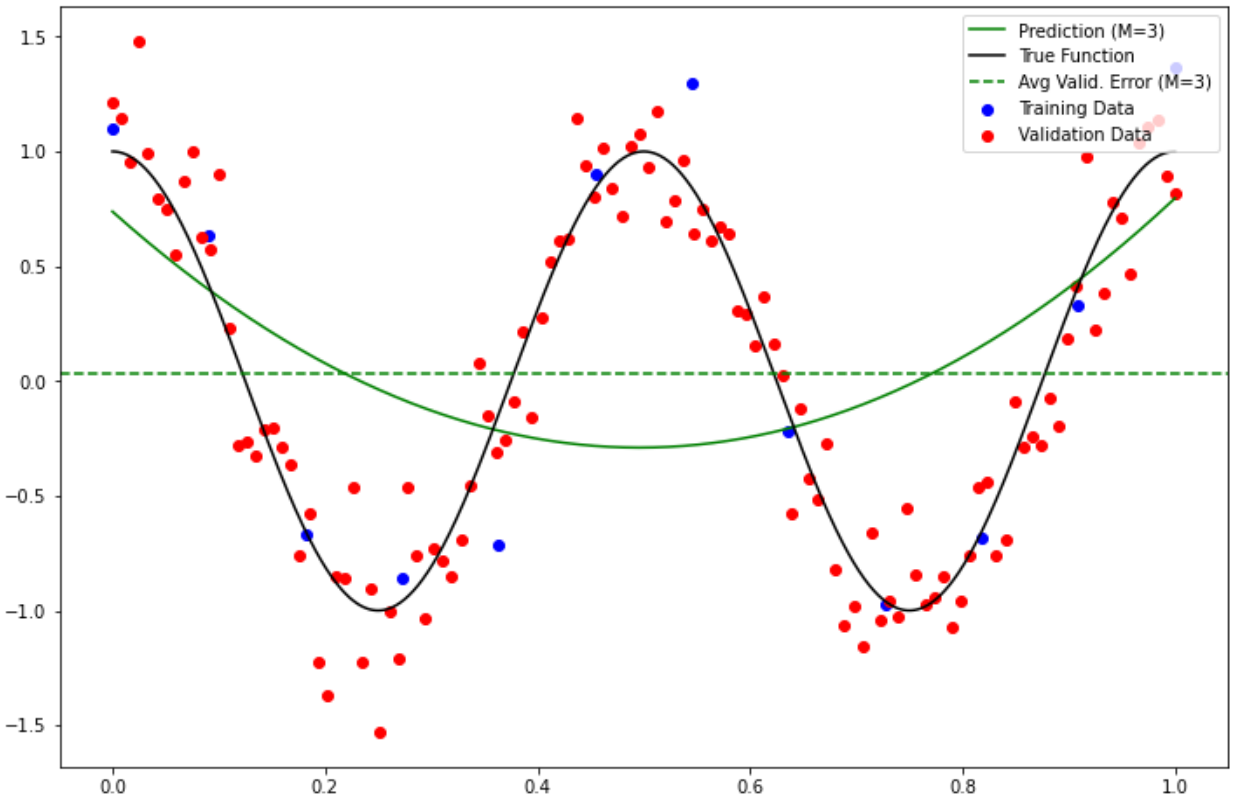
Degree 1: Training Error = 0.7542, Validation Error = 0.5975



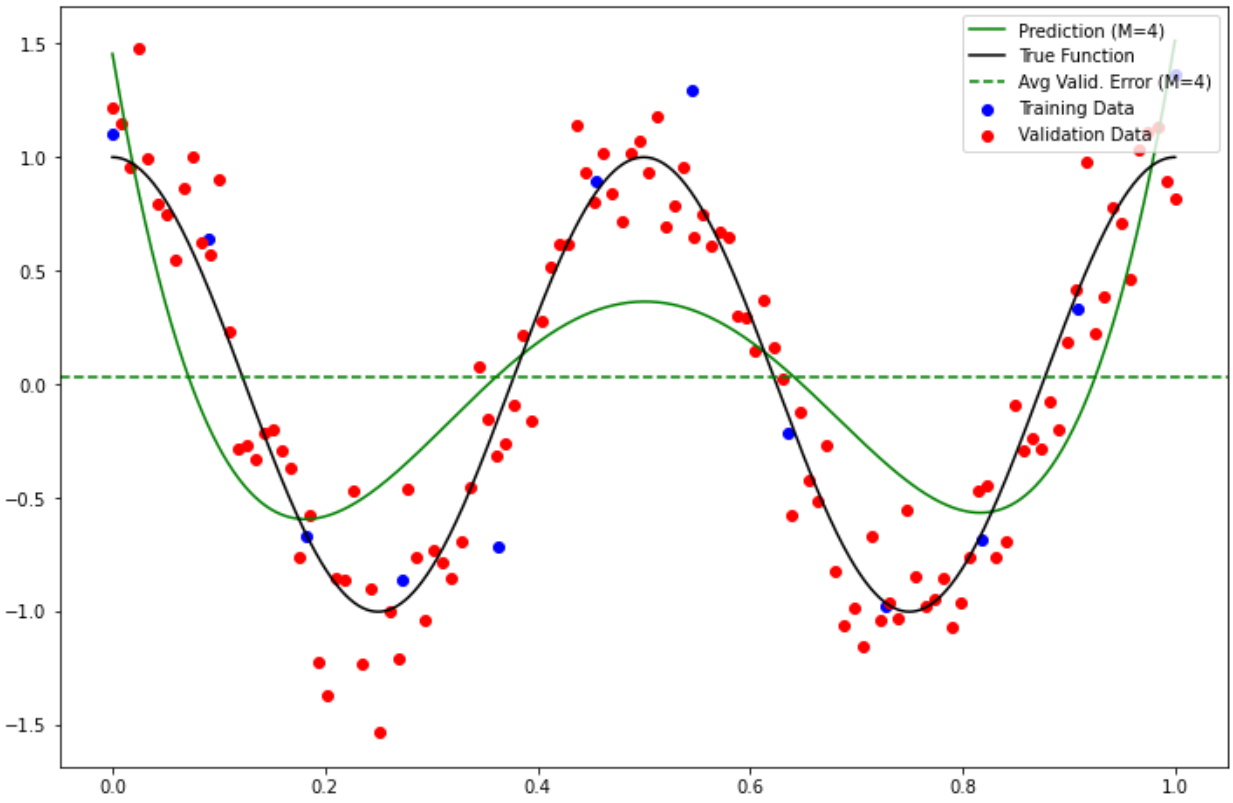
Degree 2: Training Error = 0.6183, Validation Error = 0.5616



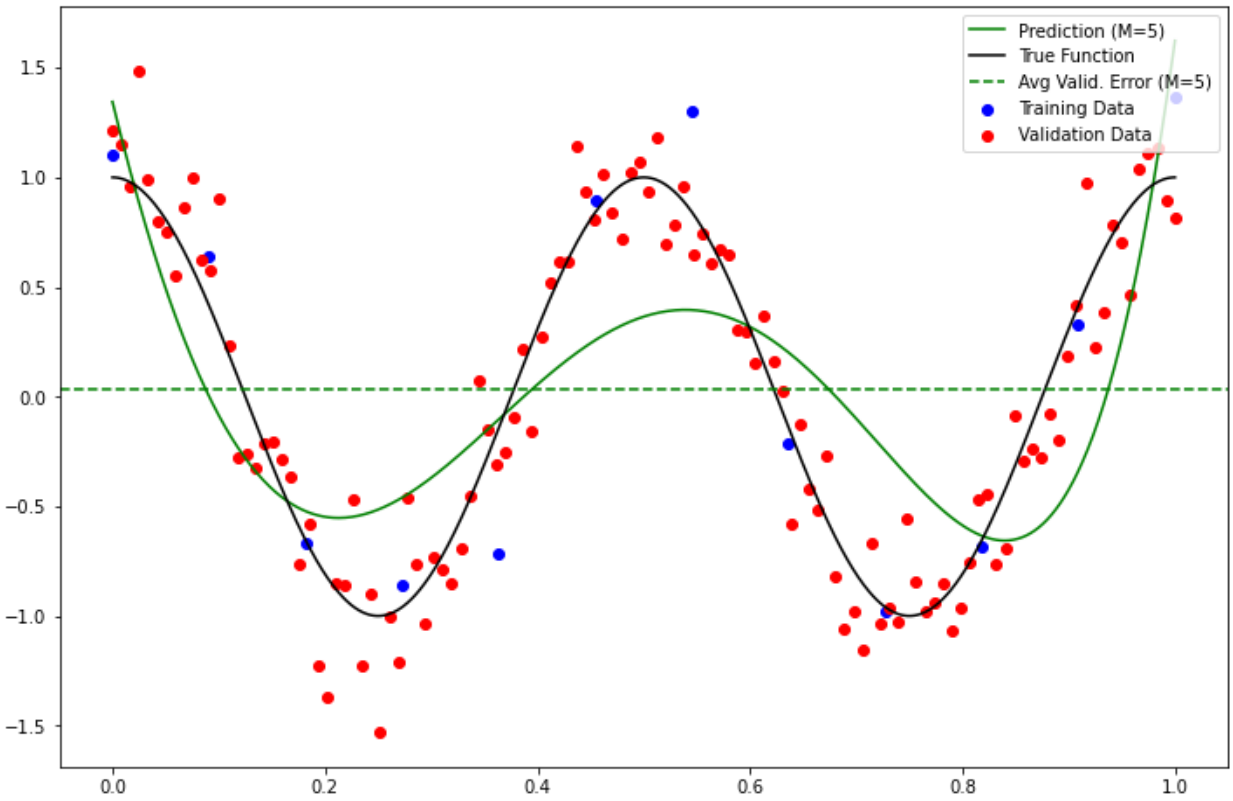
Degree 3: Training Error = 0.6183, Validation Error = 0.5616



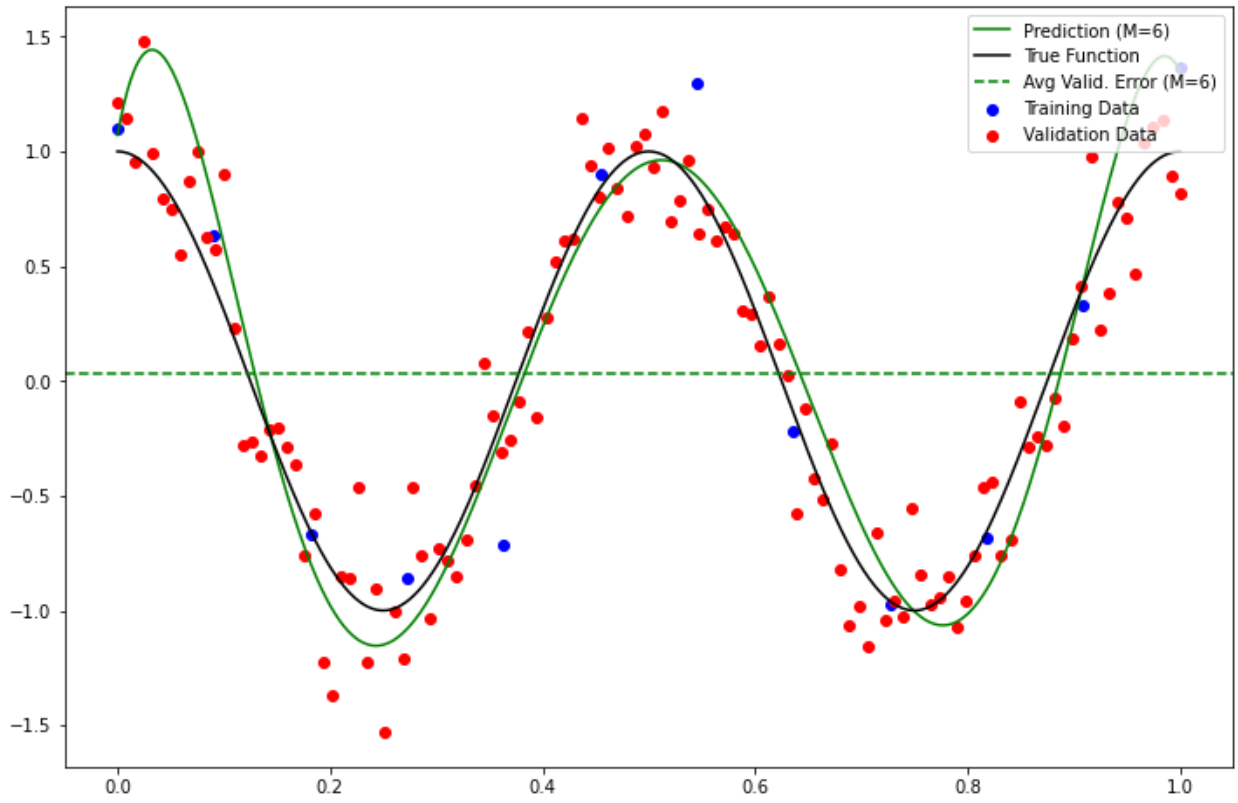
Degree 4: Training Error = 0.3036, Validation Error = 0.2355



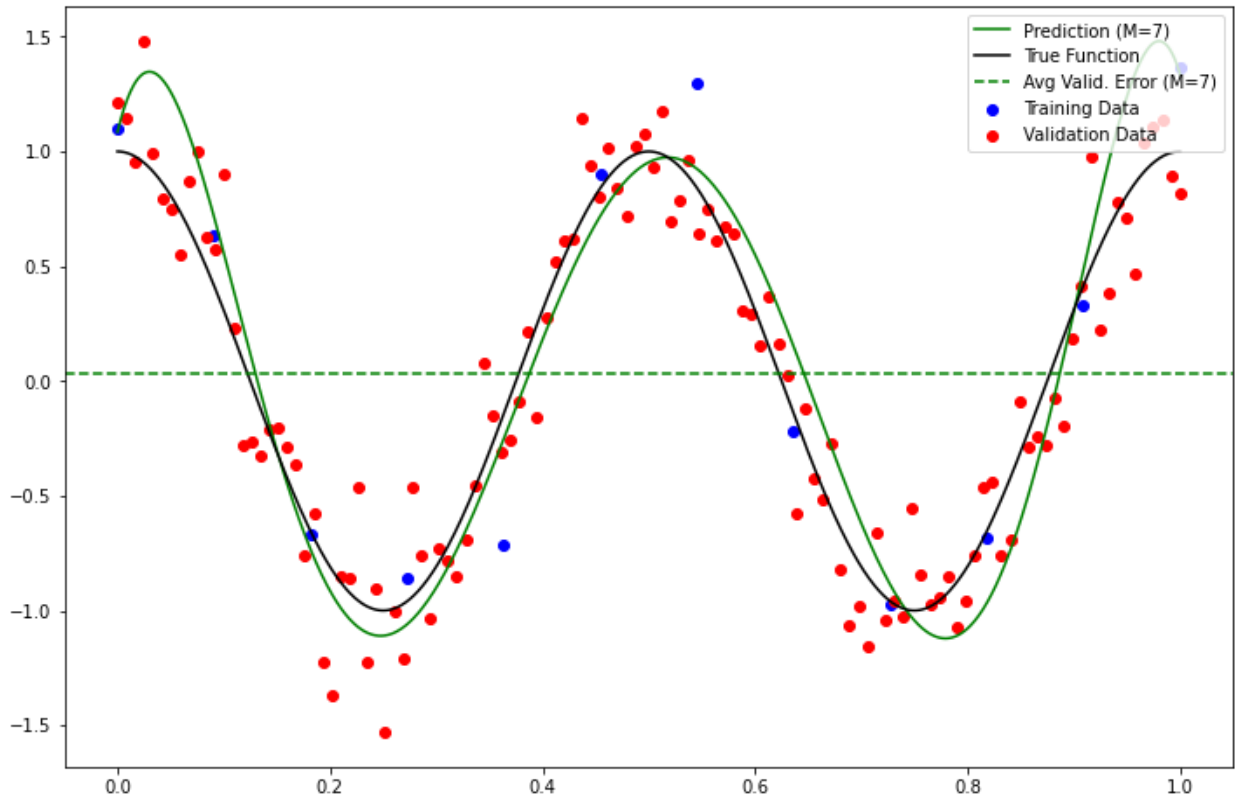
Degree 5: Training Error = 0.2888, Validation Error = 0.2434



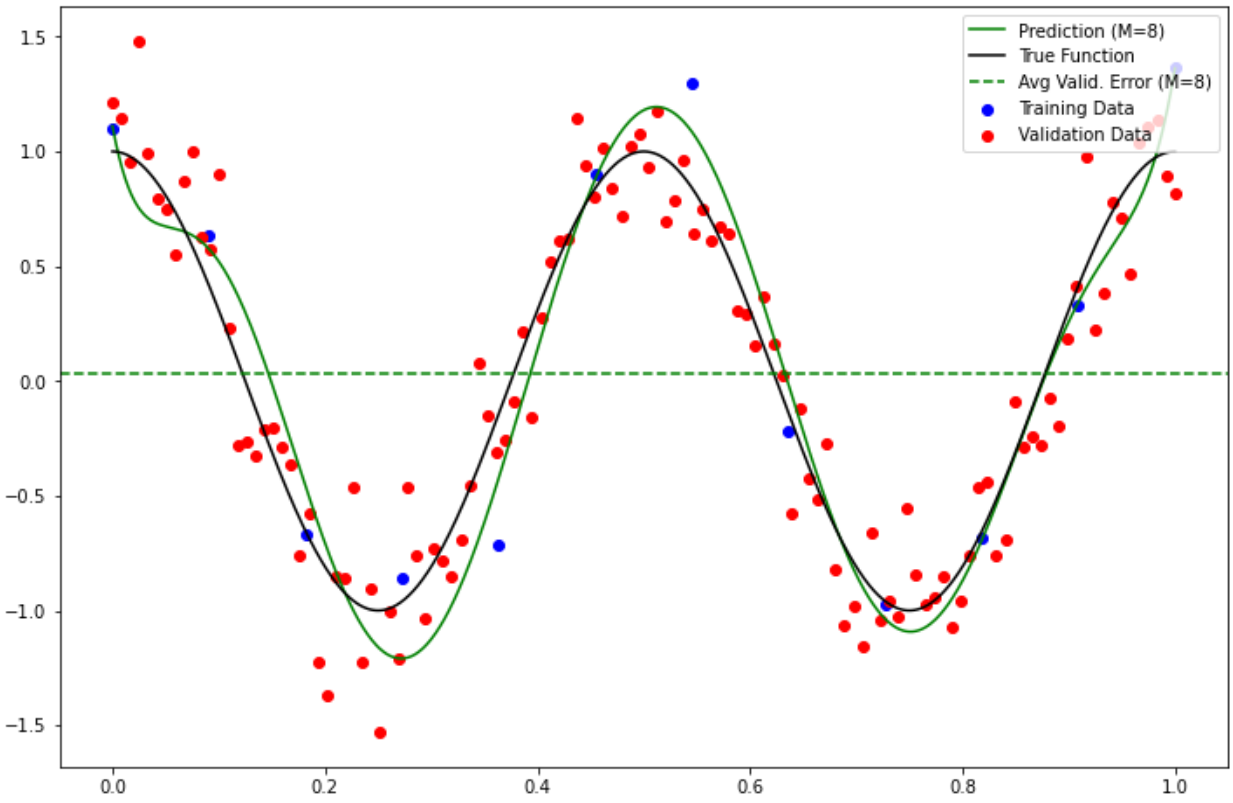
Degree 6: Training Error = 0.0592, Validation Error = 0.0878



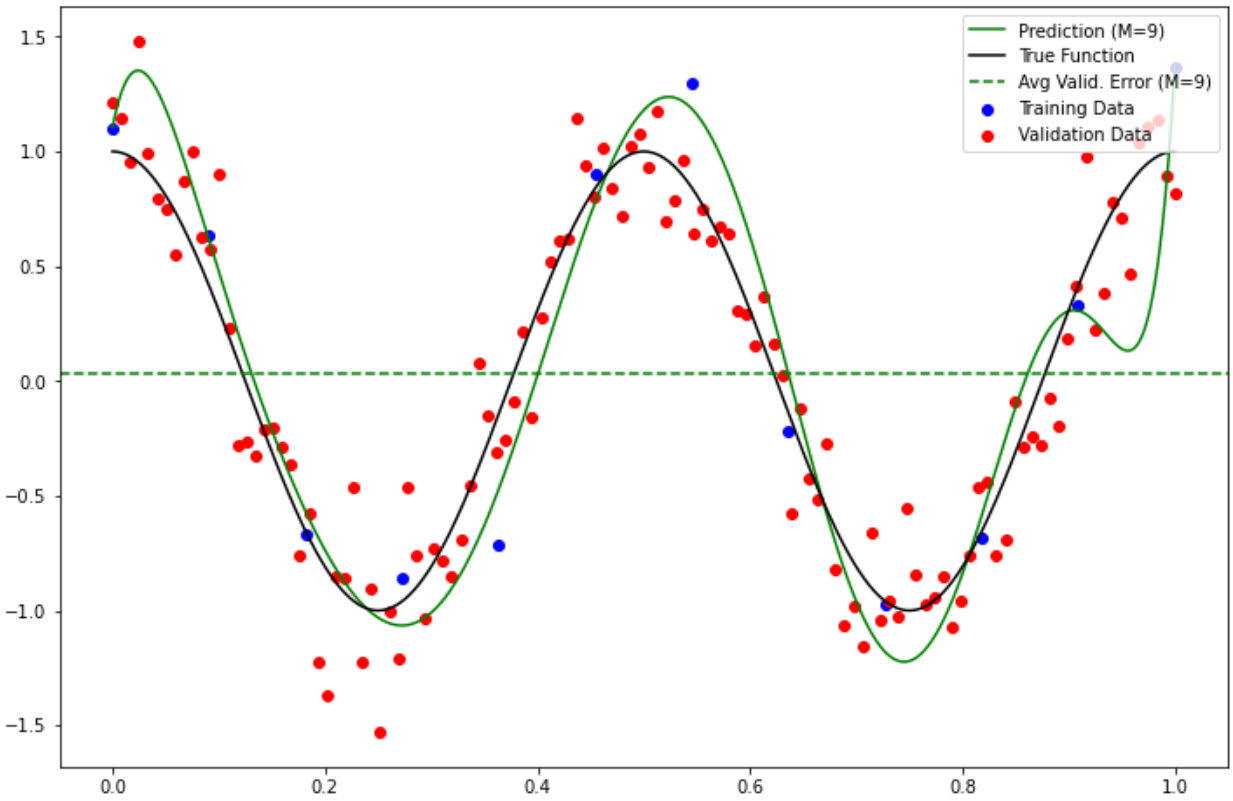
Degree 7: Training Error = 0.0574, Validation Error = 0.0948



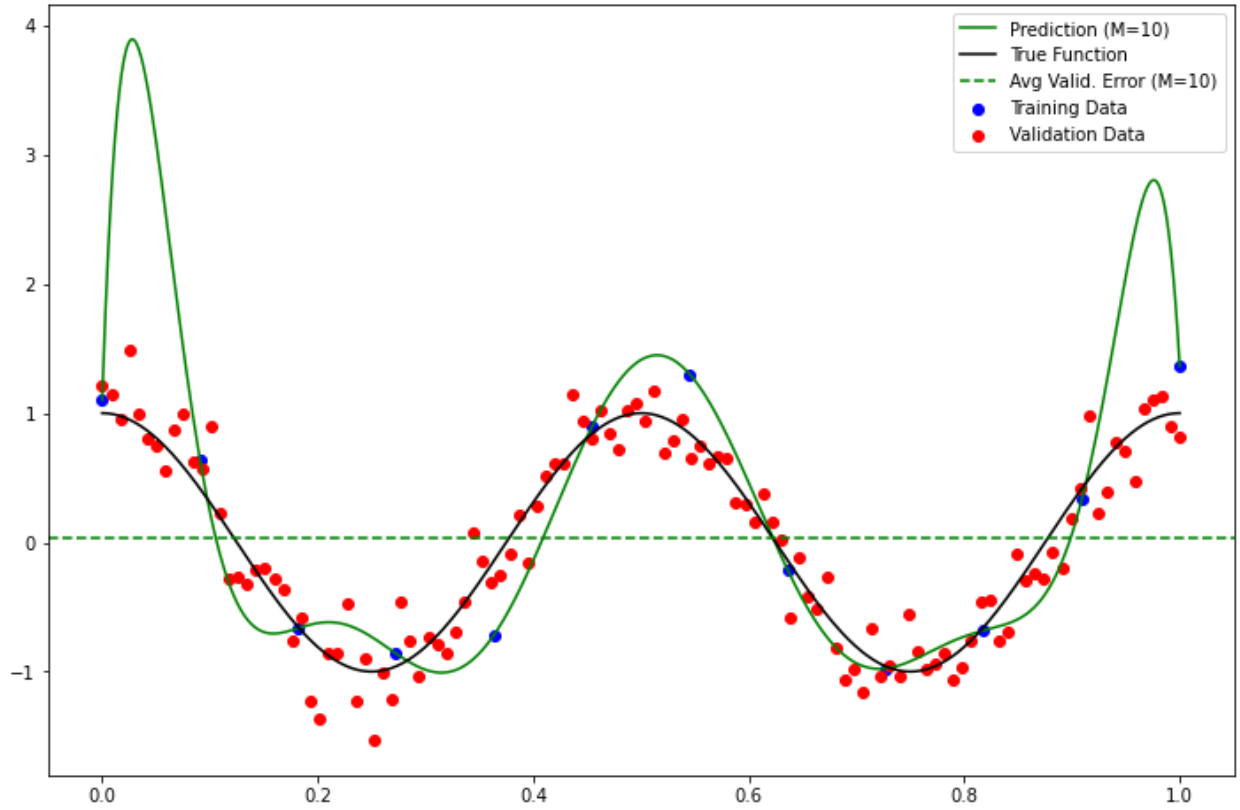
Degree 8: Training Error = 0.0286, Validation Error = 0.0846



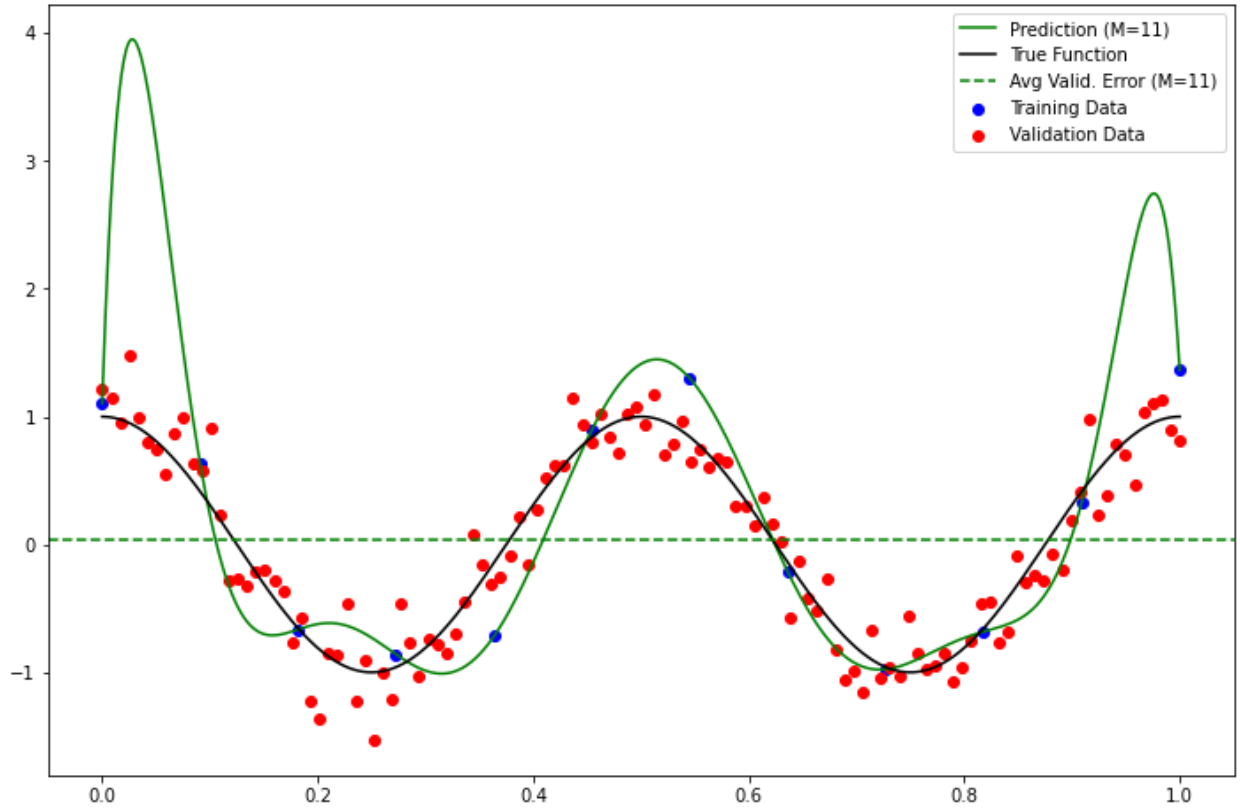
Degree 9: Training Error = 0.0209, Validation Error = 0.1137

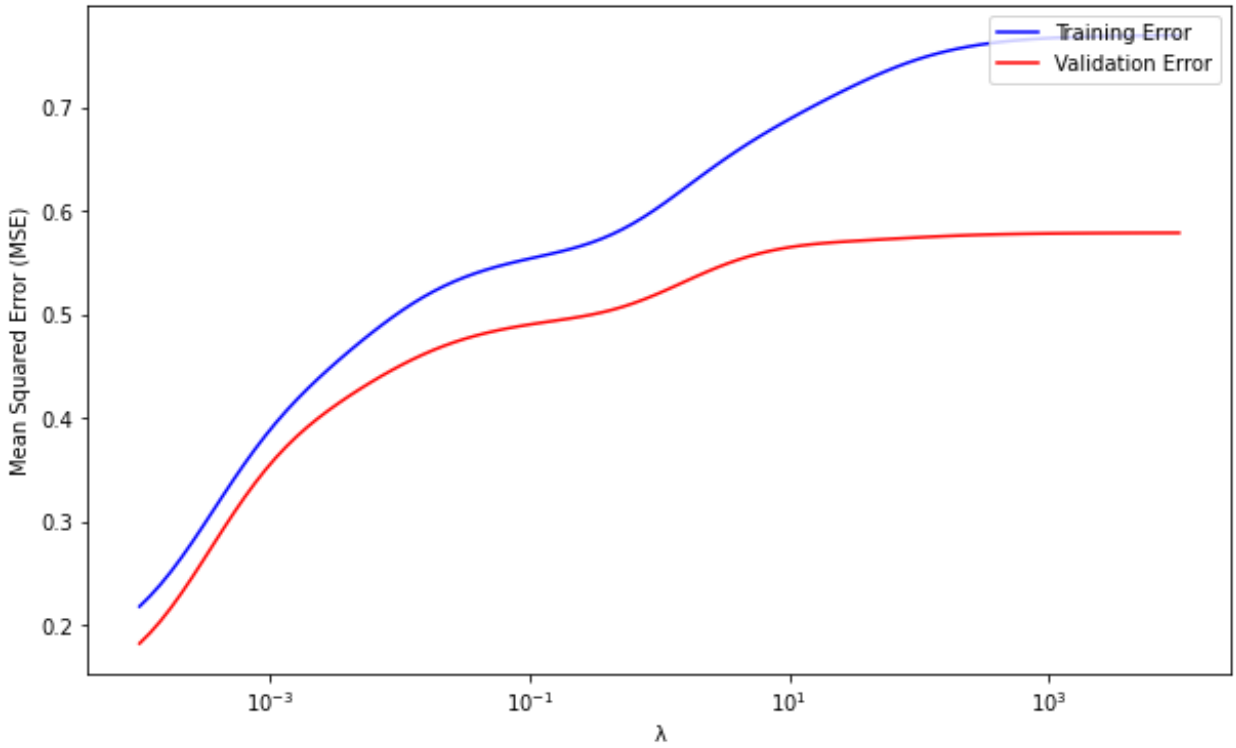


Degree 10: Training Error = 0.0000, Validation Error = 0.5966



Degree 11: Training Error = 0.0000, Validation Error = 0.6020





The average squared error is 0.031524474082016814

Also include in this plot the average squared error between the targets and the true function $f_{true}(x)$ for the examples in the validation set (this will be a horizontal line). What does this value represent?

The average squared error serves as a reference point. This helps to understand and gauge the performance of the regression model. In an ideal performance, the average squared error would be zero. This occurs when the model has learned the underlying patterns in the data and makes accurate predictions.