Programming Assignment 3

Issued: Monday 12$^{\text{th}}$ November, 2018   **Due:** Tuesday 20$^{\text{th}}$ November, 2018

3.1. Suppose we are given a dataset $\{(x^{(i)}, y^{(i)}) \colon i = 1, 2, \ldots, m\}$

$$y^{(i)} = \sin x^{(i)} \quad i = 1, 2, \ldots, m$$

(a) (10 points) Design and train a network to represent this function using back-propagation, the structure of this network is :

- Input layer, shape: $N \times 1$, N is batch size
- Fullyconnect layer, shape: 1×80
- ReLU activation layer
- Fullyconnect layer,also be the output layer, shape: 80×1

         `Pa3_2018.py` will walk you through this exercise.

Notice:

- Submit your codes.

- Do not change any parts of codes unless the given specific parts for you to code,the parameters are carefully setted, do not change it.

- If your codes are right, the result will be like below:
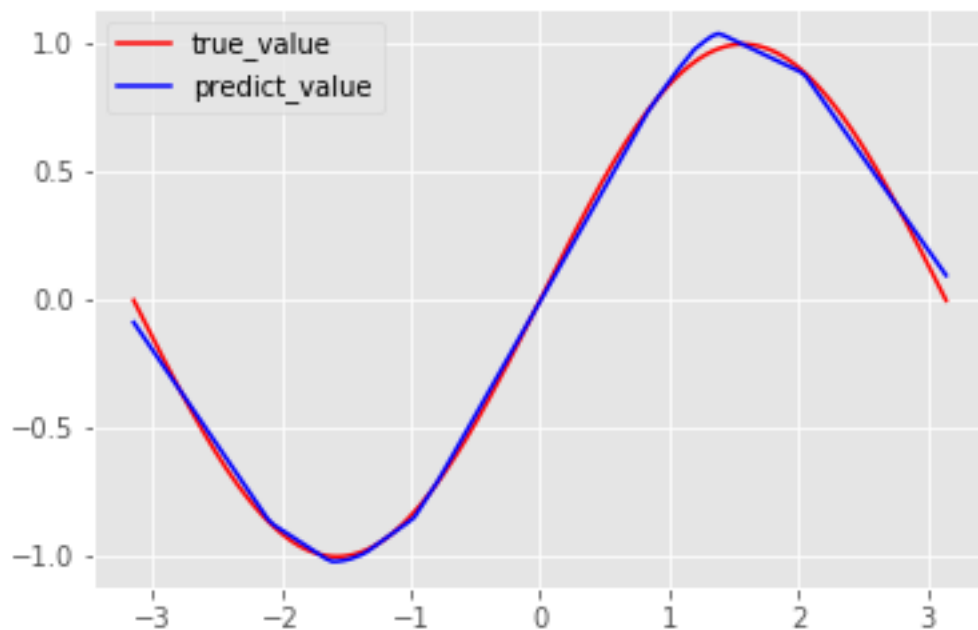
- The running time is about one minute.

- After finish your job, try to change the parameters and structure, or activation function, lots of things to explore, have fun!