Homework 02

Start Assignment

Due Monday by 11:59pm   **Points** 16   **Submitting** a file upload
Available Feb 5 at 4pm - Feb 19 at 11:59pm

Use the code provided in demo 02 to complete this assignment.

Step 1. Follow along with the tutorial to gain an understanding of the process

Step 2. In a new .ipynb notebook, reproduce the results utilizing the "QMNIST" dataset

Step 3. Report on the results in terms of prediction accuracy on the train and test datasets

Step 4. Choose one of the proposed modifications below:

- Add another Dense layer of 128 nodes
- Increase the current number of nodes in the layer to 256

Hypothesize how it would change the performance results

Step 5. Modify the model based on the chosen method and train

Step 6. Report on the results of the modified model and if it matches your hypothesis

Step 7. Experiment with different optimizers, loss functions, dropout, and activation functions, and observe the change in performance as you tune these hyperparameters.

Step 8. Show an example of a backpropagation algorithm by hand (one round of forward step and backward step on a smaller network by performing derivatives by hand instead of using coding libraries, you can use the reference video:
https://www.youtube.com/watch?v=0e0z28wAWfg) ⤴ **(https://www.youtube.com/watch?v=0e0z28wAWfg))**

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