Readme File Deep Learning Ex1

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# How to mount Google Drive to the Colab

In order to load trained models, and test for accuracy, as well as saving the models you train, mounting google drive to the colab is useful.

1. In the drive, create the following folders, where indentation indicates sub-directory:

* deep\_learning
  + Ex1
    - logs
    - models
      * batch\_normalization
      * drop\_out
      * weight\_decay
      * no\_regularization

2. Run section 1, or alternatively, run sections 1.1 , 1.2, 1.3. when you reach section 1.3, follow the instructions written in the colab. If you do not do this, the code will raise error and will not run properly.

2.1. Go to the site by clicking on the link

2.2. Choose the drive you want to mount to the colab (which you created the deep\_learning folder and the subfolders)

2.3. Enter the confirmation code in the designated area, and press enter to finish mounting the drive.

2.4. If you fail to complete these steps, please contact either Tomer or Yoni, and we will be of further assistance.

3. Run the rest of section 1.

# Training a network from scratch

In order to train a network with a specific model:

1. Run sections 2. And 3. Of the colab.

2. Go to section 2.1. in the colab, the Config section

3. Change the “TRAIN\_SPECIFIC\_MODE” variable from False to True and run section 2.1. to implement the change.

3.1. If wanted, you can set the different setting as wanted:

* EPOCH NUM – number of epochs of the training
* MU – the learning rate of the training
* BATCH\_SIZE – the batch size (must be a power of 2)
* DROPOUT\_RATE – the drop out rate of the drop-out regularization
* WEIGHTDECAY\_RATE – the penalty of the weight-decay regularization

4. Go to section 6. Of the colab, “Training a specific mode”

5. Choose the wanted regularization mode and allocate the mode variable to that mode.

6. Run section 6. Of the Colab.

# Training all modes sequentially with default settings

1. Run sections 2. And 3. Of the colab.

2. Go to section 2.1. in the colab, the Config section

3. Change the “PER\_MODE\_CONVERGENCE” variable from False to True and run section 2.1. to implement the change.

3.1. If wanted, you can set the different setting as wanted:

* EPOCH NUM – number of epochs of the training
* MU – the learning rate of the training
* BATCH\_SIZE – the batch size(must be a power of 2)
* DROPOUT\_RATE – the drop out rate of the drop-out regularization
* WEIGHTDECAY\_RATE – the penalty of the weight-decay regularization

After finishing the change, run section 2.1. of the colab again to implement the changes.

4. go to section 5. Of the colab and run it.

# Loading a pre-trained model and test the accuracy

1. Run sections 2. And 3. Of the colab.

2. Go to section 2.1. in the colab, the Config section

3. Change the “LOAD\_AND\_TEST” variable from False to True and run section 2.1. to implement the change.

3.1. If wanted, you can set the different setting as wanted:

* EPOCH NUM – number of epochs of the training
* MU – the learning rate of the training
* BATCH\_SIZE – the batch size(must be a power of 2)
* DROPOUT\_RATE – the drop out rate of the drop-out regularization
* WEIGHTDECAY\_RATE – the penalty of the weight-decay regularization

4. Go to section 7. Of the colab, “Loading a trained model & performing accuracy test”

5. Choose the wanted regularization mode and allocate the mode variable to that mode.

6. Run section 7. Of the Colab.