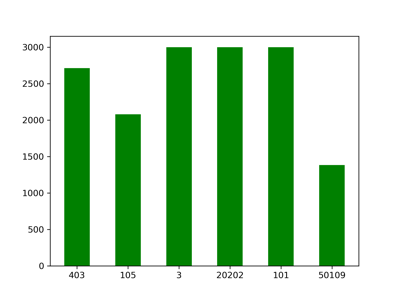
**Midterm Exam(AI6315)**

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\*Describe the question below with a screeshot.

**1. Check distribution by object.(3 points)**

1.1 Train data class distribution

{'403': 2712, '105': 2077, '3': 3000, '20202': 3000, '101': 3000, '50109': 1381}

1.2 Train data RGB mean, std

print(meanR, meanG, meanB) # 0.29392457 0.30366316 0.29798967

print(stdR, stdG, stdB) # 0.15284057 0.14239912 0.14335868

**2. Dataloader – explain the dataloader with code(6 points)**

2.1 extract paths from data folder

tr\_image\_paths, tr\_labels = utils.load\_path(filepath='Midterm/data/train', train=True)

ts\_image\_paths, \_ = utils.load\_path(filepath='Midterm/data/test\_3000\_nolabel', train=False)

2.2 set dataset with transform and load data

tr\_dataset = utils.LandmarkDataset(tr\_image\_paths, class\_to\_idx, tr\_transform)

ts\_dataset = utils.LandmarkDataset(ts\_image\_paths, None, ts\_transform)

tr\_loader = torch.utils.data.DataLoader(

tr\_dataset, batch\_size=batch\_size, shuffle=True, num\_workers=2)

ts\_loader = torch.utils.data.DataLoader(

ts\_dataset, batch\_size=batch\_size, shuffle=False, num\_workers=2)

**3. Train and test explain the train and test model with code(6 points)**

3.1 set network, criterion, optimizer

net = SimpleDLA(num\_classes=len(class\_to\_idx))

3.2 train

for epoch in range(start\_epoch, start\_epoch+epochs):

train\_loss, train\_acc = train(epoch)

3.3 test and extract the csv file

test\_labels = test()

result\_df = pd.DataFrame(

{'imagename': test\_id,

'predicted': test\_labels

})

result\_df.to\_csv("Midterm/result/results.csv", index=False)

**5. Describe how you improved your accuracy (5 points)**

5.1 Test Accuracy with two models

|  |  |  |
| --- | --- | --- |
| Epoch | Simple CNN | Simple DLA |
| 50 | 0.936 | 0.96266 |
| 100 | 0.95133 | 0.96533 |
| 150 | **0.96133** | **0.97933** |
| 200 |  | 0.97533 |

5.2 SimpleDLA Test Accuracy with/without Dropout

|  |  |  |
| --- | --- | --- |
| Epoch | with Dropout | without Dropout |
| 150 | 0.96733 | **0.97933** |
| 200 | **0.97933** | 0.97533 |
| 250 | 0.97533 |  |