**Hands-on Assignment 4**

For students choosing Option 2 only. HA3 and HA4 are mutually exclusive.

**Due Date: See web**

**Objective:**

This assignment provides a chance for the students to gain hands-on experiences with several popular pre-trained models. There are 10 test images in the accompanying zip file. Classify them using the following models:

* AlexNet
* VGG16
* ResNet50
* Inception V3
* DenseNet121
* MobileNetV2

You can download pre-trained version of the models from <https://pytorch.org/vision/0.8/models.html>, where you can also find instructions on how to use the pre-trained models in PyTorch.

Write a simple report to summarize the results. The report should contain predictions made by the models, input images, and probabilities of the prediction (i.e., the image [x] is classified to “car” with 0.8 probability with model [a]).  **The results should be well organized and is not simply a collection of Python outputs.**  Instead, report the experiment results in the style of a research paper. The results should be presented in an organized and easy-to-understand way. Tables and graphs are both effective ways to do this. Discuss the empirical findings, such as differences in predictions by models and what might have caused the differences. The grading will be based on the amount of work as reflected in your report, coherence of the results, insightfulness of discussions, and clarity of your presentation.

**Notes**:

1. Similarity scores will be computed for this assignment and **similarity penalty will be applied** (details see the course webpage).

Directly copying a batch of Python outputs to the report may cause a high similarity score of your submission. In general, we **will not** accept requests for exemptions from the similarity penalty due to the duplication of Python outputs.

1. Submission: Submit a report in **docx or pdf** format via Canvas. The report should be named as **Student\_ID\_HA4.docx/pdf**.

There is **no need** to submit your code.

**Grading scheme:**

* Efforts (1 point): Did the student complete all assigned tasks?
* Results (0.5 points): Are the results coherent and interesting?
* Report (0.5 points): Is the report well-organized and polished

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