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## Handout #11: Project Module 1
Due March 23nd 2025, before 11:59 pm
Submit your report via Gradescope.

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# General Instructions

- We will be making use of Jupyter notebooks to modularize and visualize the code. Please find the install instructions at the webpage:

  <https://jupyter.org/install>

  You may also find useful the following resources, which provide tutorials on how to use Jupyter notebooks and the python `numpy` library.

  <https://www.codecademy.com/article/how-to-use-jupyter-notebooks>

  <https://cs231n.github.io/python-numpy-tutorial/>

  <https://numpy.org/doc/stable/user/quickstart.html>

- The project module directory structure is as follows:

```
    Project_Module1
├──utils
│   ├── attention_rollout.py
│   └── data_load.py
├──transformer.ipynb
├──vit_cnn.ipynb
└──Project_Module2.pdf
```

You will only need to make changes to the files `transformer.ipynb` and `vit_cnn.ipynb`. Please do not change the location of any files and maintain the same directory structure.

- **Important:** Any portions of the code that you must modify start with `YOUR CODE HERE`.

- You must upload a pdf of your report to Gradescope by **Sunday, 23nd March 11:59 p.m.** You may export your Jupyter notebooks to a pdf format and combine them in one pdf file.

- Include a small section towards the end of your report on the contributions of each group member in the project.

# 1 Transformers

Complete the file `transformer.ipynb`.

# 2 Vision Transformer and CNN

Complete the file `vit_cnn.ipynb`. The version of the packages needed are in the comments of the first block. Check them if you cannot run the code successfully.