ReadMe:

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** Disclaimer: For this assignment I used the following articles:

1. https://github.com/jacobgil/pytorch-grad-cam
2. https://github.com/facebookresearch/moco

The file is divided into 3 parts: The notebook should not be run unless one wants to inspect other parts of the code. The notebook inspects:

Part One – **Project DL**

1. **Import and downloads:**

   - Mount to Drive: Press the provided link, copy the validation code, paste into the box and press enter.
   - Change to a relevant path: Change the path in "path" to a desired directory to be able to open/save the data from the Drive folder.

2. **Creating Datasets**
   - In "Project DL" we define the transformations to be applied to the images. This way we augment the dataset, allowing for better generalization and helping prevent overfitting

3. **Running different nets:**
   - Make sure you got all the data been created and, in the directory, you crated
   - Run the nets but the different fit cells
   - Make sure you put a different number of epochs in each net.

4. **Summary of results:**
   - Get different convolutions for each net
   - Get different grad come of each net

Part two- **Self Supervise Model:**

1. **Import and downloads:**

   - Mount to Drive: Press the provided link, copy the validation code, paste into the box and press enter.
   - Change to a relevant path: Change the path in "path" to a desired directory to be able to open/save the data from the Drive folder.

2. **Avoiding from changing the data path**

3. **Creating Datasets**
   - In "Self Supervise" we define the transformations to be applied to the images. This way we augment the dataset, allowing for better generalization and helping prevent

4. **Summary of results:**
   - Get different convolutions for each net

Part Three - **GAN Model**:

1. **Import and downloads:**

   - Mount to Drive: Press the provided link, copy the validation code, paste into the box and press enter.
   - Change to a relevant path: Change the path in "path" to a desired directory to be able to open/save the data from the Drive folder.

2. **Creating Datasets:**

   - For the first run we're going to create the base network class, this way we can define steps that are general for training and data handling that's independent (to a certain degree) of the specific network architecture.
   - Run the GAN model with 500 epochs and LR of $2 * e^{-4}$

3. **Summary of results:**
   - Get different convolutions matrix for each net