Practical 9 - Deep Learning with PyTorch

Setup

Practical 9 runs on Cirrus, and uses two IPython Notebooks - `Practical9a.ipynb` and `Practical9b.ipynb` .

Please refer to the previous instructions for running practicals on Cirrus.

Note to m22ext users:

- *change any* `m22oc` *references to* `m22ext` *in the following*
- *where m22oc requires "-<username>" delete this:* `m22oc-<username> -> m22ext`

Connection

- Connect to Cirrus (Mac/Linux/Windows(with WSL)):

```
ssh <username>@login.cirrus.ac.uk
```

- Connect to Cirrus (Windows (with MobaXTerm)):

```
<SSH server> = login.cirrus.ac.uk
<Username> = <USERNAME>
<SSH port> = 22
```

Port Forward - AFTER starting Jupyter Lab Sessions - see below

- Port forward from Cirrus (Mac/Linux/Windows(with WSL)):

```
ssh <username>@login.cirrus.ac.uk -L 8991:<node>:8991
```

- port forward from CIrrus (Windows (with MobaXTerm)):

```
<Forwarded port> = 8991
<SSH server> = login.cirrus.ac.uk
<Username> = <USERNAME>
<SSH port> = 22
<Remote server> = <node> e.g., r1i1n0
<Remote port> = 8991
```

For Practical 9a

- use `srun` to request an interactive session on a **CPU** node:
  - `srun --exclusive --nodes=1 --time=01:00:00 --partition=standard --qos=standard --account=m22oc-<username> --pty /usr/bin/bash`
- source bashrc_pytorch:
  - `source /work/m22oc/m22oc/shared/DAwHPC/bashrc_pytorch`
- load PyTorch **CPU** module:
  - `module load module load pytorch/1.12.1`
- start Jupyter Lab session:
  - `jupyter lab --ip=0.0.0.0 --no-browser --port=8991`
- set up your port forwarding (see above):
  - to find your node, use `uname -n`

- open a browser and go to:
  - `127.0.0.1:8991`

After completing Practical 9a

- close your Jupyter Labs browser tab
- close your port forward
- in the terminal hit `Ctrl` + `C` then `Y` to end the Jupyter Labs session
- type `exit` to leave the **CPU** node

For Practical 9b

- use `srun` to request an interactive session on a **GPU** node:
  - `srun --nodes=1 --partition=gpu --qos=gpu --gres=gpu:1 --time=01:00:00 --account=m22oc-<username> --pty /bin/bash`
- source bashrc_pytorch:
  - `source /work/m22oc/m22oc/shared/DAwHPC/bashrc_pytorch`
- load PyTorch **GPU** module:
  - `module load module load pytorch/1.12.1-gpu`
- start Jupyter Lab session:
  - `jupyter lab --ip=0.0.0.0 --no-browser --port=8991`
- set up your port forwarding (see above):
  - to find your node, use `uname -n`
- open a browser and go to:
  - `127.0.0.1:8991`