# Starter guide - How to use Euler

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## 1 Connect to Euler and create a Python virtual environment

To connect to Euler, open your terminal and run:

```
ssh USERNAME@euler.ethz.ch
```

When using Python, it is generally advised to create an environment for each project. You can then work with a fixed version of each library. In the following example, `myenv` will be the name of your environment.

```
module load python
python -m venv --system-site-packages myenv
```

Once you have created your environment, you will need to activate it and have a look at the libraries it contains...

```
source myenv/bin/activate
pip list
```

...and install any other library you will need.

```
pip install pandas numpy seaborn scikit-learn matplotlib kaggle
pip list
```

To deactivate your environment, use:

```
deactivate
```

Note that you will need to activate your environment every time you connect to Euler.

# 2 First example on how to use Euler (dummy code)

First, create a `test` folder and relocate yourself in this folder.

```
mkdir test
cd test
```

Then, create a `test.py` which will print `Hello World`

```
echo "print('Hello World')" >> test.py
```

Finally, submit a job executing the `test.py` file using Slurm and check the status of the job.

```
sbatch --wrap="python test.py" --mail-type=END --time=00:10:00
squeue
```

# 3 Second example on how to use Euler (practice code)

To prepare a structure for your project, create 3 folders: one for the data, one for the code and one for the outputs.

```
mkdir {data,code,output}
```

## 3.1 Download data

From your computer, send your kaggle.json token to Euler:

```
scp kaggle.json USERNAME@euler.ethz.ch:/cluster/home/USERNAME/.kaggle
```

Then, on Euler, you can download the data from kaggle in a similar fashion as on Google Colab:

```
chmod 600 /cluster/home/USERNAME/.kaggle/kaggle.json
cd /cluster/home/USERNAME/test/data/
kaggle datasets list -s 'gene expression'
kaggle datasets download -d brunogrisci/brain-cancer-gene-expression-cumida
unzip brain-cancer-gene-expression-cumida.zip
```

## 3.2 Transfer the code

From your computer to Euler:

```
scp 17_Classification_on_Euler.py USERNAME@euler.ethz.ch:/cluster/home/
USERNAME/test/code/
```

### 3.3 Execute the code

```
cd ../code/
sbatch --wrap="python 17_Classification_on_Euler.py" --mail-type=END --time=00:10:00
squeue
```

## 4 Resources

Python virtual environment on Euler
Job submission on Euler
LSF to Slurm quick reference
Get started with Euler on Windows