

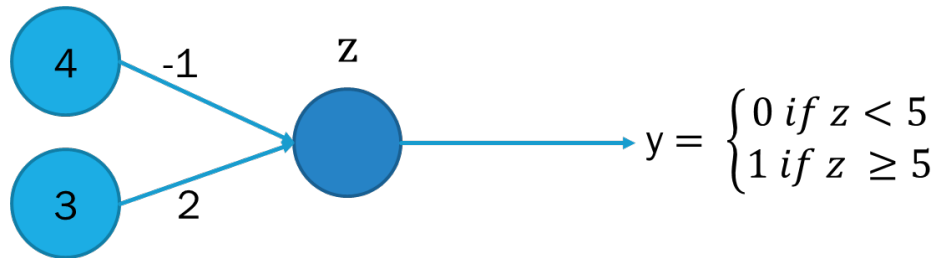
# 6COSC020W Applied AI

## Tutorial Week 8: Artificial Neural Networks

Aim:

- Review the perceptron and forward propagation
- Experiment with TensorFlow and neural networks
- Train and evaluate a neural network (model)
- Understand the performance of the network
- Improve the performance of the network by changing some hyper parameters

1.- Using forward propagation, calculate the output (y) of the following perceptron:



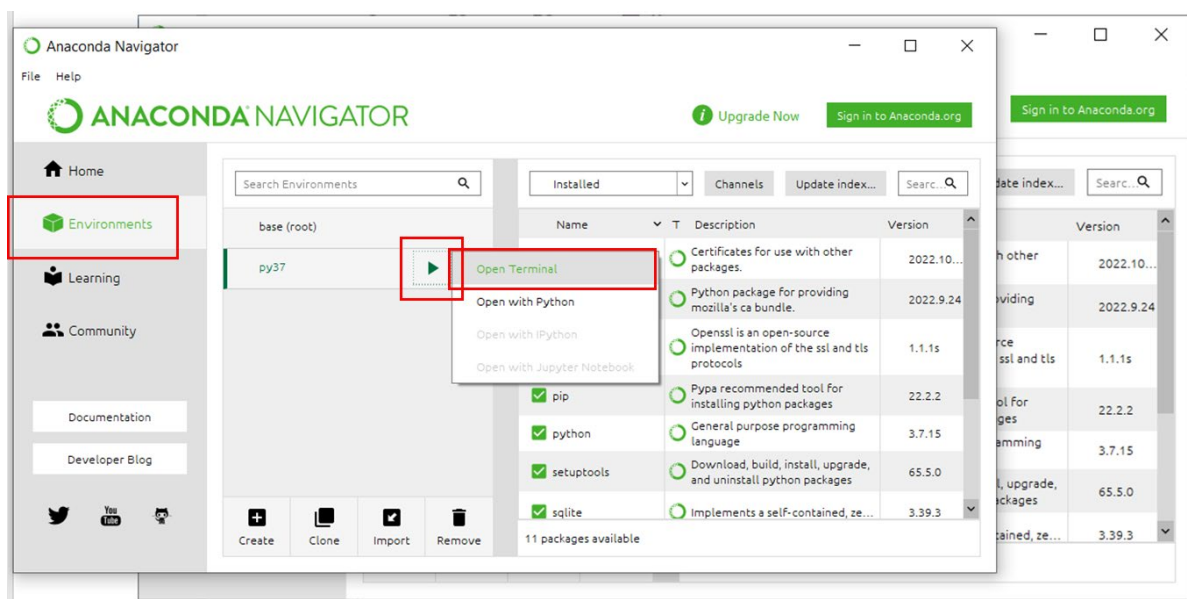
Hint: Find first the value of z and then the value of y.

2.- Tutorial\_Week8.ipynb.

- 1) Download the file *Tutorial\_Week8.ipynb* from Blackboard and save it in your H: drive (in a folder of your choice).
- 2) Open Anaconda and launch JupyterLab.
- 3) Open a Terminal.
- 4) Create and activate a new environment with Python 3.7:

```
conda create -n py37 python=3.7
```

- 5) Activate environment using the Anaconda Navigator interface (**using conda activate py37 does not work if you use AppsAnywhere**). Go to Environments, then select the triangle next to py37 and choose "Open terminal" (see picture below).



- 6) In the terminal: install Jupyter:

```
pip install jupyter --user
```

7) In the terminal: install TensorFlow:

```
pip install tensorflow -- user
```

8) In the terminal: go to the folder where you saved *Tutorial\_Week8* (use `cd H:`).

9) In the terminal. R]run Jupyter lab from the folder where your *Tutorial\_Week8.ipynb* is:

```
jupyter lab
```

10) Open *Tutorial\_Week8.ipynb* and work through the Jupyter Notebook. Answer the questions and do the exercises.