**Basic programming constructs in SciLab/Python**

**Preamble**

Scilab [1] is a free and open source software for engineers & scientists, with a long history (first release in 1994) and a growing community. This assignment is carried out to understand basic programming constructs [2] in Scilab such as Loops, User-defined and built-in functions, Matrices and plots.

**Exercises**

**Q1.** Learn all the exercise from Scilab Tutorial.

**Q2.** Plot the activation functions used in Neural Networks.

1. Sigmoid,
2. ReLU,
3. Leaky ReLU,
4. Tanh,
5. Exponential Linear

1. Study each activation functions, and write its property.
2. Change the parameter of the activation function, find their impact and write comments.
3. Draw the structure of all the mentioned activation functions.

**Q3**. Visit Artificial Intelligence Playground and observe the following demonstration.

1. Visit <http://nvidia-research-mingyuliu.com/ganimal> to visualize Image-to-Image Translation.
2. Visit <https://gincker.com/AI/convolutional-neural-network> to visualize Handwriting (numbers) recognition using CNN.
3. Observe loss function and accuracy of the network by changing hyper-parameter (epochs, learning rate, batch size, and training size).

**References**

[1] <https://www.scilab.org/about/scilab-open-source-software>

[2] <https://www.scilab.org/tutorials/scilab-beginners-%E2%80%93-tutorial>