SUBJECT: Machine learning and Data Science	
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EXPERIMENT NO- 01

TITLE: Neural Network

AIM: To create and visualize Neural Network for the given data.

SOFTWARES:

SOFTWARE	VERSION
Jupyter Notebook	V5.1

THEORY:

ANN Visualizer is a python library that enables us to visualize an Artificial Neural Network using just a single line of code. It is used to work with Keras and makes use of python's graph viz library to create a neat and presentable graph of the neural network you're building.

With advanced in deep learning, you can now visualize the entire deep learning process or just the Convolutional Neural Network you've built. We are going to build simple neural network using Keras and then use ANN visualizer to visualize our neural network.

Keras is a powerful and easy-to-use free open-source Python library for developing and evaluating deep learning models. It is part of the TensorFlow library and allows you to define and train neural network models in just a few lines of code.

INSTALLATION:

We will need 3 libraries for this demo

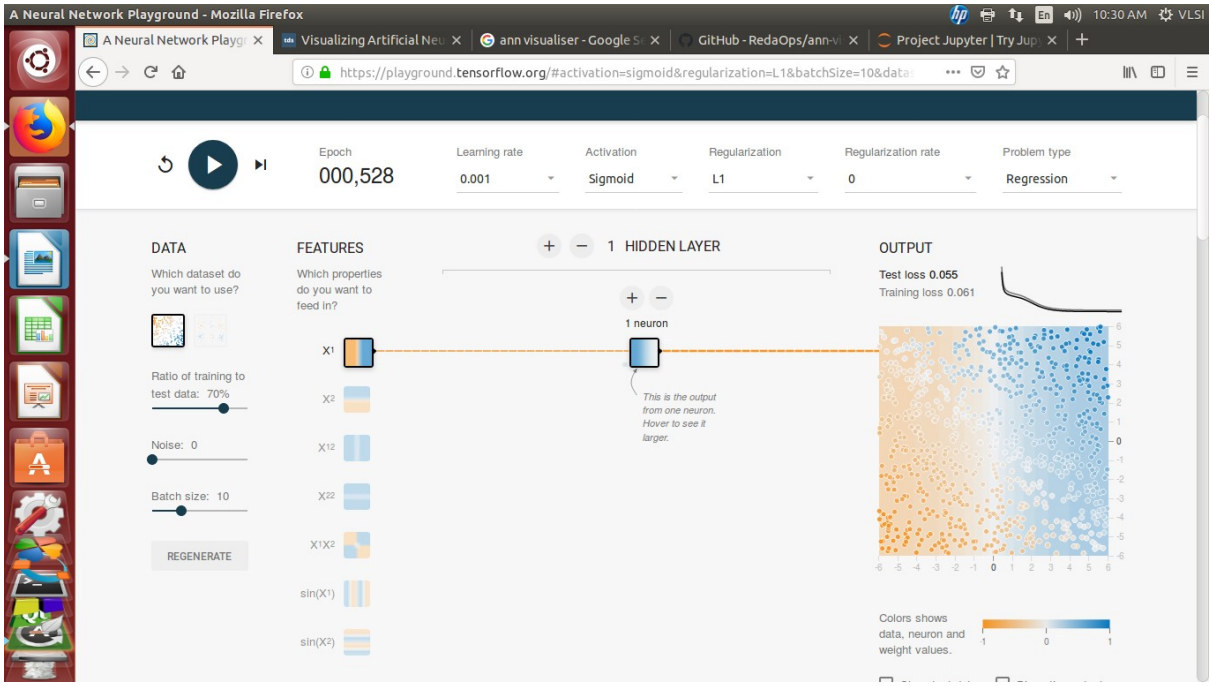
- Keras
- ANN Visualizer
- Graphviz

You can install the library using the below commands:

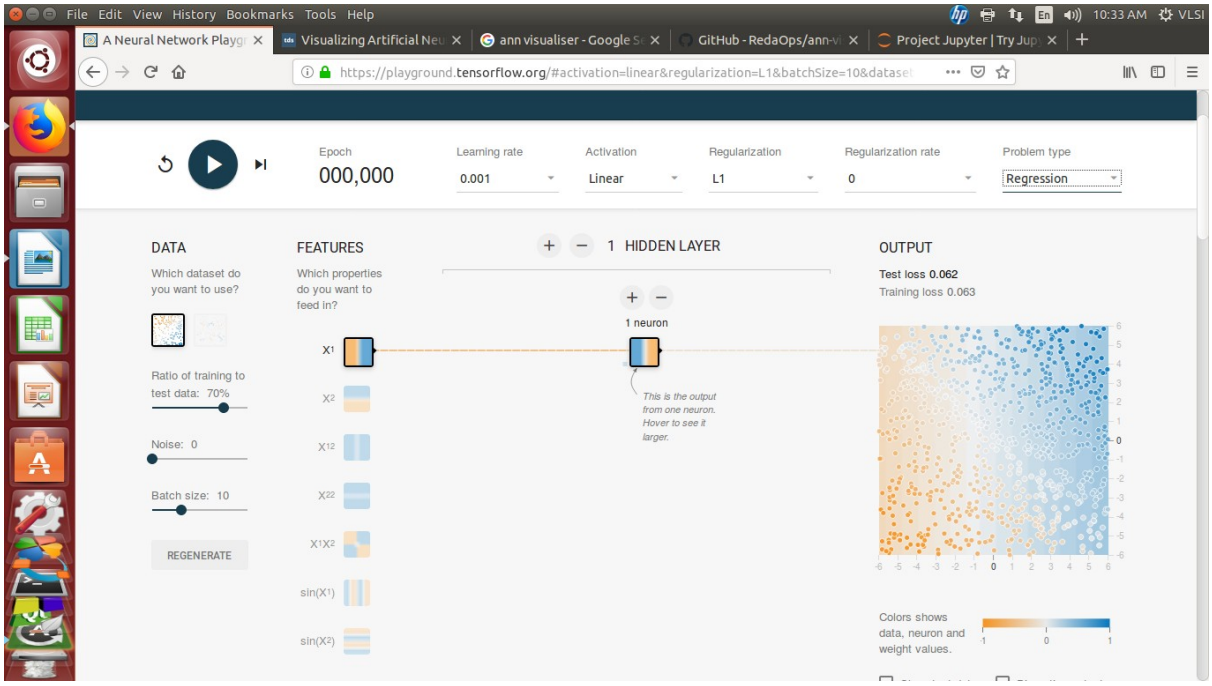
```
pip3 install keras
pip3 install ann_visualizer
pip install graphviz
```

ANN Visualizer Playground

Activation function - Sigmoid
Problem Type - Regression

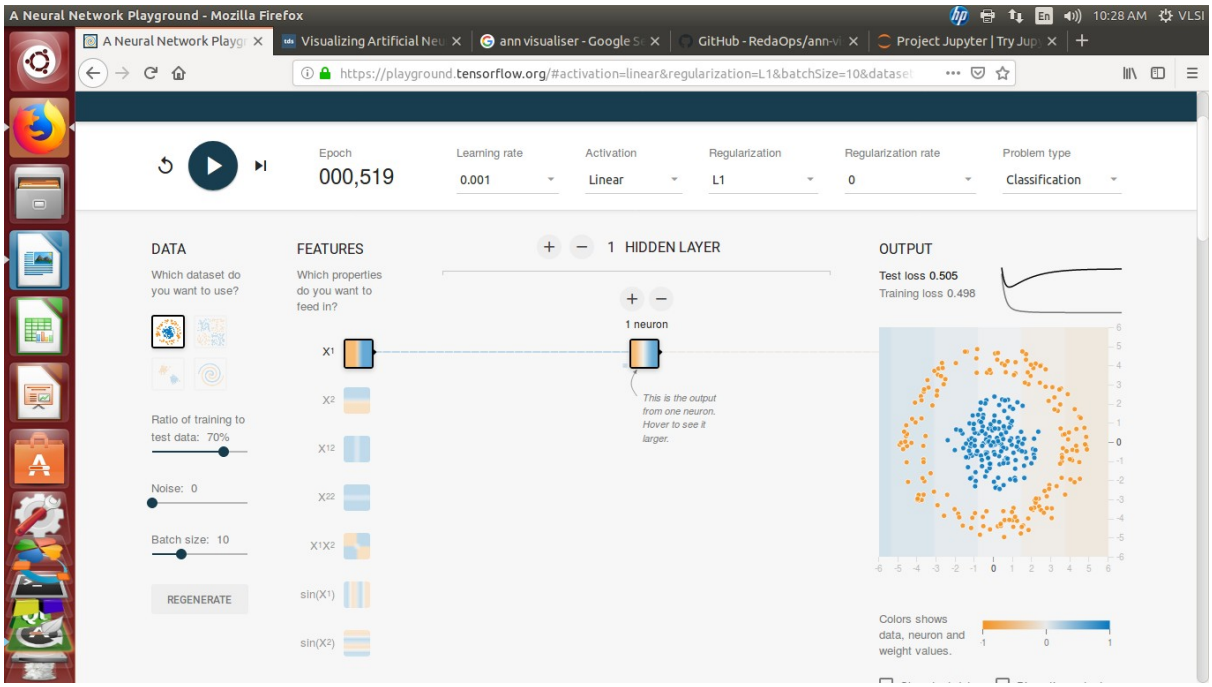


Activation function - Linear
Problem Type - Regression

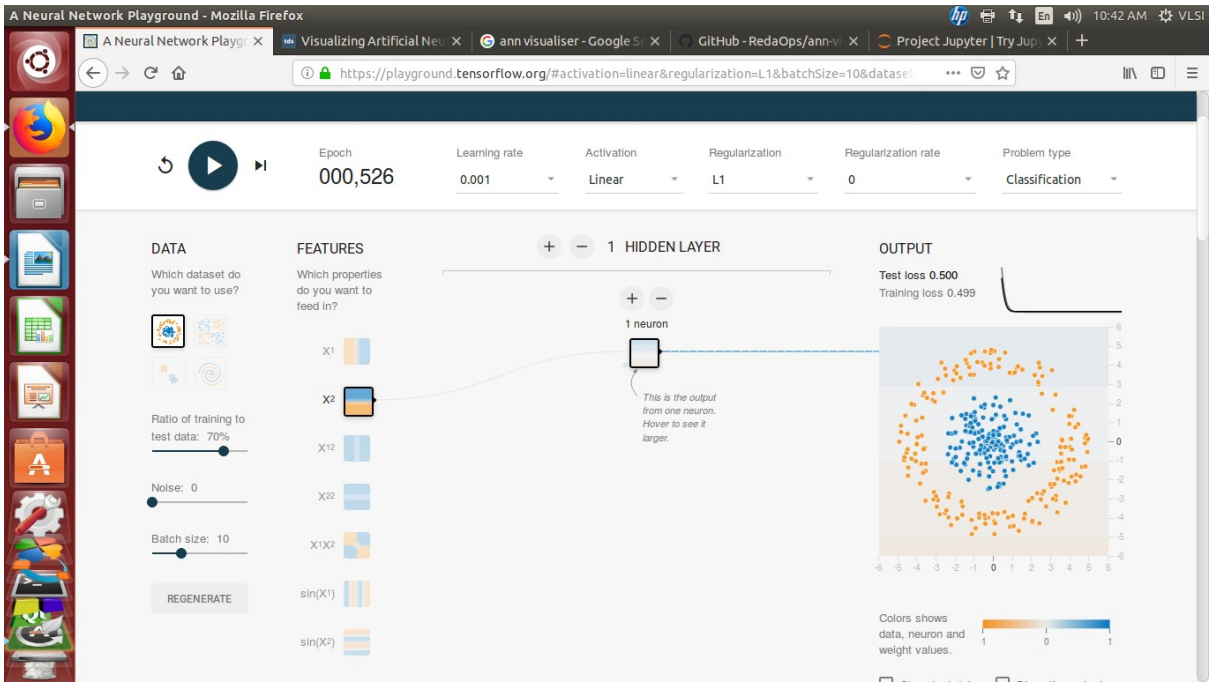


Activation function - Sigmoid

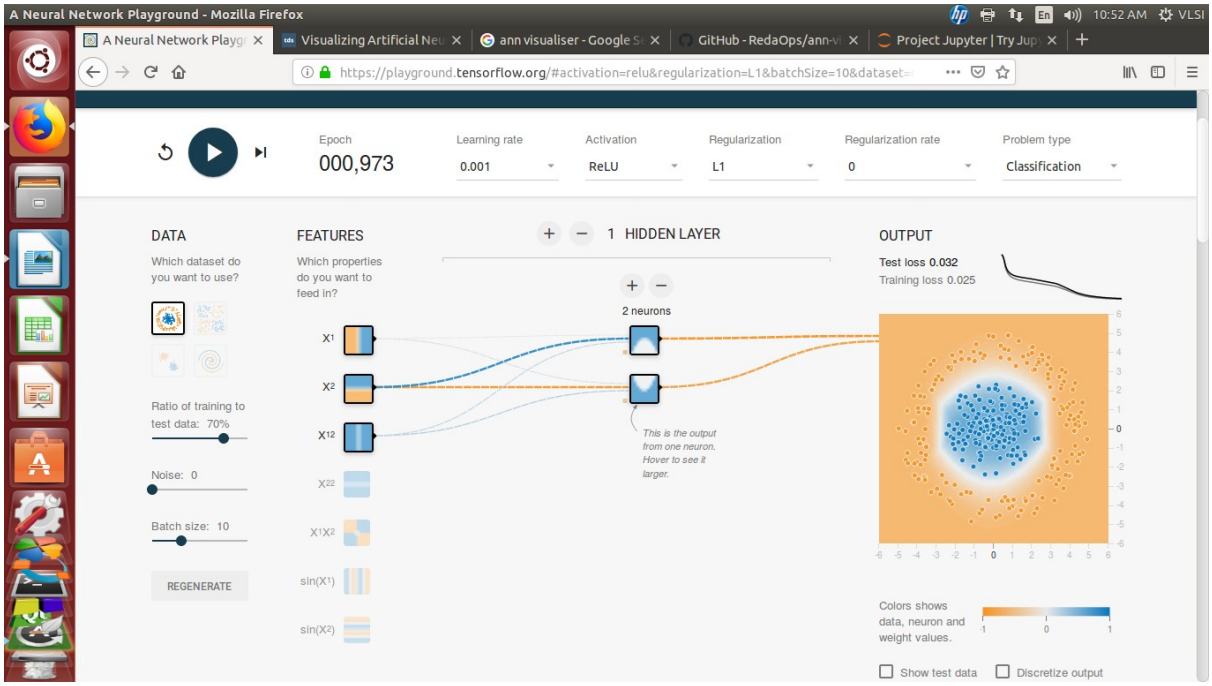
Problem Type - Classification



Activation function - Linear
Problem Type – Classification



Activation function - ReLU
Problem Type – Classification



CONCLUSION:

We visualize ANN using ANN visualizer “https://playground.tensorflow.org” and found that after setting hyper parameter
Learning Rate – 0.001
Number of neurons - 2
Activation Function - ReLU
Gives the lowest test loss.