Neural Network Multi-Layer Perceptron (MLP) 4-2-4 Encoder

## Purpose

This laboratory (lab) aimed at building an Error Back-Propagation training algorithm (EBP) for a multi-layer perceptron (MLP) 4-2-4 encoder using Python.

The MLP had an input layer of four units, a hidden layer of two units and an output layer of four units.

layer I layer J layer K

(input layer) (hidden layer) (output layer)

Bias\_J Bias\_K

Figure 1: MLP 4-2-4 Encoder Structure

The system was supposed to take a four-unit input pattern encode it using the hidden layer and output a four-unit output pattern as shown in the table below.

Table 1: Input to Desired Output patterns for the 4-2-4 Encoder

|  |  |
| --- | --- |
| Input Pattern | Desired Output Pattern |
| 1,0,0,0 | 1,0,0,0 |
| 0,1,0,0 | 0,1,0,0 |
| 0,0,1,0 | 0,0,1,0 |
| 0,0,0,1 | 0,0,0,1 |

## Procedure

## Implementation

### **Software**

**\*Declarations\***

## Conclusion