

**Ain Shams University**

**Faculty of Computer and Information Science**

**Scientific Computing department**

**Ain shams university**

**Faculty of computer and information science**

**Bioinformatics department**

**Assignment 3 – Deep Learning & Neural Networks Course**

**Multilayer perceptron**

**By Team: SC\_H26**

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| --- | --- | --- |
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**Training and Testing Hyper-parameters for Multilayer perceptron**

**(Penguins Dataset) Mandatory**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Activation Function | Train Accuracy | Test Accuracy | Bias | LR | Epochs | #Layers | #HiddenNodes |
| Sigmoid | **98.8** | **98.3** | **True** | **0.1** | **500** | **3** | **5, 4, 3** |
| Chart  Description automatically generatedChart  Description automatically generated | | | | | | | |
| Sigmoid | **92.2** | **91.6** | **False** | **0.1** | **400** | **3** | **5, 3, 3** |
| Chart, bar chart  Description automatically generated | | | | | | | |
| Tanh | **97.7** | **96.6** | **True** | **0.01** | **200** | **3** | **5, 4, 3** |
| Chart  Description automatically generatedChart  Description automatically generated with low confidence | | | | | | | |
| Tanh | **98.8** | **98.3** | **False** | **0.01** | **200** | **3** | **5, 4, 3** |
| A screenshot of a computer  Description automatically generated with low confidenceChart  Description automatically generated | | | | | | | |

**Bonus:**

**Training and Testing Hyper-parameters for Multilayer perceptron**

**(MNIST Dataset)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Activation Function | Train Accuracy | Test Accuracy | Bias | LR | Epochs | #Layers | #HiddenNodes |
| Tanh | **96.2** | **96** | **True** | **0.1** | **100** | **3** | **5, 16, 3** |
| Tanh | **89** | **88** | **False** | **0.1** | **200** | **3** | **5, 10, 3** |
| Sigmoid | **92.2** | **92.3** | **True** | **0.01** | **100** | **3** | **5, 4, 3** |
| Sigmoid | **86.1** | **85.4** | **False** | **0.01** | **200** | **3** | **5, 4, 3** |