**Neural Network Project\_**

*By*

“ **Classification** ”

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1. Python Package.
2. Neural Network Architecture.
3. Classification Algorithm.
4. Figures.
5. Run The Algorithm.

**Spam detection Model**

1. **Used Ml python package :**

* **Keras:**
  + Keras is a deep learning API written in Python, running on top of the machine learning platform.
* **Matpyplot:**
  + a [plotting](https://en.wikipedia.org/wiki/Plotter) [library](https://en.wikipedia.org/wiki/Library_(computer_science)) for the [Python](https://en.wikipedia.org/wiki/Python_(programming_language)) programming language and its numerical mathematics extension.
* **Numpy:**
  + It provides an [object-oriented](https://en.wikipedia.org/wiki/Object-oriented_programming) [API](https://en.wikipedia.org/wiki/API) for embedding plots into applications using general-purpose [GUI toolkits](https://en.wikipedia.org/wiki/GUI_toolkit) like [Tkinter](https://en.wikipedia.org/wiki/Tkinter), [wxPython](https://en.wikipedia.org/wiki/WxPython), [Qt](https://en.wikipedia.org/wiki/Qt_(software)" \o "Qt (software)), or [GTK+](https://en.wikipedia.org/wiki/GTK%2B).

1. **Neural Network Architecture :**

\*No of layer : 4 layers

* **Layer -1(input layer):** one input neuron.
* **Layer -2:** 8 neurons.
* **Layer -3:** 8 neurons.
* **Layer -4 (output layer):** one neuron.

**Spam detection Model**

1. **Classification algorithm used:**

\*Logistic Regression:

* is the appropriate regression analysis to conduct when the dependent variable is dichotomous (binary).  Like all regression analyses, the logistic regression is a predictive analysis.
* Logistic regression is used to describe data and to explain the relationship between one dependent binary variable and one or more nominal, ordinal, interval or ratio-level independent variables.
* Sometimes logistic regressions are difficult to interpret; the Intellectus Statistics tool easily allows you to conduct the analysis, then in plain English interprets the output.

\*Activation functions used :

* Relu – Sigmoid.

**Spam detection Model**

**\*No.of records in Sms spam Data Set :** 2100.

**\*No.of training records :** 2000.

**\*No.of testing records :** 100.

**\*No .of Epochs :** 8.

**\*\*Accuracy :** 100% .

**Spam detection Model**

1. **Figures.**

**Spam detection Model**

1. **Run The Algorithm.**