



Kohat University
of
Science & Technology

Semester Project “Deep Learning”

- 1) Logistic Regression**
- 2) Neural Network (1 hidden layer)**
- 3) Deep Learning (7 hidden Layers)**

Submitted To:

Dr. Irfan-Ud-Din

Submitted By:

Muzzamil Hussain (DS320182002)

Mudasser Saeed (DS320182001)

Department: Institute of Computing

Major: MS Data Science

Semester: 2nd

Semester Project “Deep Learning”:

This project implemented on the following three algorithms:

- 1) Logistic Regression
- 2) Neural Network (1 hidden layer)
- 3) Deep Learning (7 hidden layer)

The dataset used in the following three algorithm is “Honeybee Dataset” that is selected from “Kaggle”.

• Dataset Information:

“ Honeybee Dataset” is a binary class dataset having images of Pollen and non-pollen. The dataset consist of 700 images.

- Number of training examples: m_train = 700
- Number of testing examples: m_test = 270
- Height/Width of each image: num_px = 64
- Each image is of size: (64, 64, 3)

Logistic Regression:

Train Accuracy: 93.35180055401662 %

Test Accuracy: 86.59217877094972 %

Actual	Predicted	
	Negative	Positive
	Negative	Positive
	103	19
	5	76

Accuracy = 88.17733990147784

Precision = 80.0

Recall = 93.82716049382715

F1Score = 86.36363636363636

Neural Network (1 hidden layer):

- GRADED FUNCTION: two_layer_model

Train Accuracy: 90.30470914127425%

Test Accuracy: 86.03351955307263%

Actual	Predicted	
	Negative	Positive
	Negative	Positive
	102	16
	9	77

Accuracy = 87.74509803921569

Precision = 82.79569892473118

Recall = 89.53488372093024

F1Score = 86.03351955307264

- GRADED FUNCTION: L_layer_model

Train Accuracy: 100%

Test Accuracy: 88.26815642458101%

Actual	Predicted	
	Negative	Positive
	Negative	Positive
	99	15
	6	80

Accuracy = 89.5
Precision = 84.21052631578947
Recall = 93.02325581395348
F1Score = 88.39779005524862

Deep Learning (7 hidden layer):

➤ GRADED FUNCTION: two_layer_model

Train Accuracy: 97.78393351800556 %
Test Accuracy: 86.03351955307262 %

Actual	Predicted		
		Negative	Positive
	Negative	101	17
	Positive	8	78

Accuracy = 87.74509803921569
Precision = 82.10526315789474
Recall = 90.69767441860465
F1Score = 86.1878453038674

➤ GRADED FUNCTION: L_layer_model

Train Accuracy: 100%
Test Accuracy: 88.26815642458101%

Actual	Predicted		
		Negative	Positive
	Negative	99	15
	Positive	6	80

Accuracy = 89.5
Precision = 84.21052631578947
Recall = 93.02325581395348
F1Score = 88.39779005524862

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