Demo Thesis using Machine Learning Algorithms

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June, 2019

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The undersigned hereby certify that Author 1 and Author 2 of the Computer Science and Engineering Discipline, Khulna University, Khulna have successfully completed the thesis entitled ”Detection of Stroke Disease using Machine Learning Algorithms” in partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering (CSE) at Khulna University, Khulna.

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We undersigned hereby declare that this thesis is a presentation of our original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgment of collaborative research and discussions. The work was done under the guidance of [Name of the supervisor], at the Computer Science and Engineering Discipline, Khulna University, Khulna.

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Acknowledgment

First of all, we would like to thank Almighty Allah for giving us enough mental and physical strength to complete our thesis properly. We would like to express our sincere gratitude to our supervisor [Name here] for his cooperation, suggestion, guidance, and continuous encouragement through the course of the study. We are highly grateful to our second examiner [Name here] for reviewing this report and giving us suggestions to improve it.

Besides our supervisor, we would like to acknowledge our honorable teachers of Computer Science and Engineering Discipline for their encouraging support and discussion. We also thank our parents for their encouragement, support, and attention. We are also thankful to our classmates for their moral support which helped us to accomplish our thesis.

Dedication

To our parents and our family. Both our parents give enough inspiration and encouragement to complete our thesis work.

Abstract

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Chapter I

Background

1.1 Introduction

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1.2 Motivation

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1.3 Organization of the Report

The organization of this report is as follows:

Chapter 1 (Background): Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim ve-

niam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.
Chapter 2 (Literature Review): Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.
Chapter 4 (Methodology): Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.
Chapter 5 (Results and Analysis): Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.
Chapter 6 (Conclusion and Discussion): Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

Chapter II

Literature Review

2.1 Introduction

In recent years, there were published different works based on Machine Learning algorithms. Some of them are briefly discussed in this chapter.

2.2 A section here

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2.3 Another section

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Chapter III

Methodology

3.1 Introduction

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3.2 Section Name

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Figure 3.1: A demo figure.

Figure 3.2: A demo figure small scale.

Table 3.1: A table demo.

Sl.	Attributes	Description
1	Name	Lorem ipsum dolor sit amet, consectetur adipiscing elit
2	Sex	Lorem ipsum dolor sit amet, consectetur adipiscing elit-Lorem ipsum dolor sit amet, consectetur adipiscing elit
3	University	Lorem ipsum dolor sit amet, consectetur adipiscing elit
4	Subject	Lorem ipsum dolor sit amet, consectetur adipiscing elit
5	Whatever	Lorem ipsum dolor sit amet, consectetur adipiscing elit

A demo table is shown in Table 3.1.

Equation and symbols

$$E = E_{DP09} - \sum_{k=3}^{5} \sum_{i} (Pen^k(mer_i^k)) \tag{3.1}$$

$\alpha\beta\gamma\phi\Delta\delta\triangle 25^\circ$

3.2.1 Algorithm

A demo algorithm

Algorithm 1 Crossover

Input: $m_1[1, 2, ..., n], m_2[1, 2, ..., n]$
Output: m_{11}, m_{22}
$x \leftarrow random(1 : n)$
$y \leftarrow random(1 : n)$
for $i \leftarrow 1$ to n **do**
    if $(i < x$ or $i > y)$ **then**
        $m_{11}[i] \leftarrow m_1[i]$
        $m_{22}[i] \leftarrow m_2[i]$
    else if $(x \leq i$ and $i \leq y)$ **then**
        $m_{11}[i] \leftarrow m_2[i]$
        $m_{22}[i] \leftarrow m_1[i]$
    end if
end for

Chapter IV

Results and Analysis

4.1 Introduction

To evaluate the performance, we have used Accuracy, Precision, Recall, and F1-score. Classification accuracy is the ratio of correct predictions to total number of predictions made by the model. Precision is the ratio of true positive to the true positive and false positive prediction. Recall is defined as the ratio of true positives to the true positive and false negative. F1-score or F-measure is the balance measure to express the performance in a single quantity. It is the harmonic mean of precision and recall They are formulated as follows:

$$Accuracy = \frac{TP + TN}{P + N} \tag{4.1}$$

$$Precision = \frac{TP}{TP + FP} \tag{4.2}$$

$$Recall = \frac{TP}{TP + FN} \tag{4.3}$$

$$F - measure = \frac{2 \times Precision \times Recall}{Precision + Recall} \tag{4.4}$$

Where,
TP: correct positive prediction,
FP: incorrect positive prediction,
TN: correct negative prediction,
FN: incorrect negative prediction,
P: TP+FP,
N: TN+FN.

4.2 Performance Analysis

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Chapter V

Conclusion and Discussion

5.1 Conclusions

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5.2 Future Directions

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[1] M. S. Islam, “A thesis demo using machine learning algorithms,” *CSEKU*, pp. 1–12, 2019.