SCHOOL OFCOMPUTER SCIENCE AND APPLICATIONS

A Project Report
On
Predictive Analytics for Dyslexia: A Cloud Based Machine Learning
Approach
Submitted in Partial fulfillment of the requirements for the award of the Degree of

Bachelor of Science (Honors) in Computer Science –
Cloud Computing and Big Data

Submitted by

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R22DB044

Under the guidance of
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<u>CERTIFICATE</u>

The project work titled – '**Predictive Analytics for Dyslexia: A Cloud Based Machine Learning Approach',** is being carried out under our guidance by **Keerthivasan R V (R22DBO44)**, a bonafide student of REVA University, and is submitting the project report in partial fulfillment, for the award of **Bachelor of Science (Honors) in Computer Science – Cloud Computing and Big Data** during the academic year **2024–25**. The project report has been approved, as it satisfies the academic requirements with respect to the Project Work prescribed for the aforementioned Degree.

Signature with date   **Signature with date**

Mrs. Jesla Joseph
Internal Guide

                                                                                   Dr. G. Sasikala
                                                                          Head of the Department-BSc

Signature with Date

Dr C K Lokesh

Director

Name of the Examiner with Affiliation   **Signature with Date**

1.

2.

DECLARATION

I, Mr. Keerthivasan R V (R22DB044), pursuing my **Bachelor of Science (Cloud Computing and Big Data)**, offered by School of Computer Science and Applications, REVA University, declare that this Project title - **"Predictive Analytics for Dyslexia: A Cloud Based Machine Learning Approach"**, is the result of the Project Work done by me under the supervision of **Mrs. Jesla Joseph,** at Reva University.

I am submitting this Project Work in partial fulfillment of the requirements for the award of the degree of **Bachelor of Science (CC & BD)** by REVA University, Bengaluru, during the Academic Year 2024-25.

I further declare that this Project Report or any part of it has not been submitted for the award of any other Degree / Diploma of this University or any other University/ Institution.

(Signature of the candidate)

Signed by *me* on:

Certified that this project work submitted by Mr.Keerthivasan R V has been carried out under our guidance and the declaration made by the candidate is true to the best of my knowledge.

Signature of Internal Guide

Date :………..

Signature of Director of the School

Date :………..
Official Seal of the School

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ABSTRACT

Dyslexia, a common reading disability, affects numerous children and young people worldwide. It significantly impacts their ability to read, write, and process language, creating challenges in their academic and personal lives. Early detection and intervention are crucial in mitigating its effects. With advancements in technology, Machine Learning (ML) and Artificial Intelligence (AI) have become valuable tools in predicting dyslexia symptoms and understanding reading habits. These tools are used to analyse various patterns in behaviour, speech, and cognitive activities, offering an innovative approach to early diagnosis.

Data is the foundation for these predictive models. Information collected from individuals, including their reading patterns, response times, and error rates, is stored and processed using secure cloud storage services. Cloud platforms not only provide scalability and accessibility but also enable seamless collaboration among researchers and developers working on dyslexia prediction models. This ensures that large datasets can be analyzed efficiently, supporting diverse ML and AI techniques.

Several ML algorithms, including Decision Trees, Support Vector Machines (SVM), and Neural Networks, are applied to this data. These algorithms identify patterns and correlations that might not be apparent to human observers, enabling the creation of models that predict the likelihood of dyslexia with varying levels of accuracy. The effectiveness of these algorithms depends on several factors, such as the quality and quantity of the data, feature selection, and the algorithm's complexity.

The accuracy of dyslexia prediction varies among algorithms. For instance, while Neural Networks often achieve higher precision due to their ability to capture complex patterns, simpler models like Decision Trees may still be preferred for their interpretability. Continual advancements in ML and AI technologies, combined with the increasing availability of high-quality datasets, hold promise for even more reliable and accessible tools for dyslexia detection. By leveraging these cutting-edge technologies, researchers are paving the way for early diagnosis and support, enabling individuals with dyslexia to achieve their full potential.

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