Suparna Dhar · Sanjay Goswami ·
Dinesh Kumar Unni Krishnan ·
Indranil Bose · Rameshwar Dubey ·
Chandan Mazumdar (Eds.)

Communications in Computer and Information Science 2224

Analytics, Machine Learning, and Artificial Intelligence

Second Analytics Global Conference, AGC 2024
Kolkata, India, March 6–7, 2024
Revised Selected Papers

Springer

ANALYTICS GLOBAL CONFERENCE 2024
AGC2024

Suparna Dhar · Sanjay Goswami ·
Dinesh Kumar Unni Krishnan · Indranil Bose ·
Rameshwar Dubey · Chandan Mazumdar
Editors

Analytics, Machine Learning, and Artificial Intelligence

Second Analytics Global Conference, AGC 2024 Kolkata, India, March 6–7, 2024 Revised Selected Papers

Springer

Editors
Suparna Dhar
NSHM Knowledge Campus
Kolkata, India

Sanjay Goswami
NSHM Knowledge Campus
Kolkata, India

Dinesh Kumar Unni Krishnan
Indian Institute of Management Bangalore
Bengaluru, India

Indranil Bose
Indian Institute of Management Ahmedabad
Ahmedabad, India

Rameshwar Dubey
Liverpool John Moore's University
Liverpool, UK

Chandan Mazumdar
Jadavpur University
Kolkata, India

ISSN 1865-0929 ISSN 1865-0937 (electronic)
Communications in Computer and Information Science
ISBN 978-3-031-75156-1 ISBN 978-3-031-75157-8 (eBook)
https://doi.org/10.1007/978-3-031-75157-8

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

Contents

Machine Learning-Driven Feature Selection for Performance Analysis in Student Mental Health

Sukarna Dey Mondal[1(✉)], Namita Tudu[2], Payel Karmakar[2], Samiha Baksi[2], Dipendra Nath Ghosh[3], and Pabitra Kumar Dey[2]

[1] Department of Mathematics, Dr. B.C. Roy Engineering College, MAKAUT, Durgapur, West Bengal, India
sukarnadey@gmail.com

[2] Department of Computer Applications, Dr. B.C. Roy Engineering College, Durgapur, West Bengal, India

[3] Controller of Examinations, Kazi Nazrul University, Asansol, West Bengal, India

Abstract. The National Education Policy (NEP) 2020 significantly impacts students' mental health by introducing a series of reforms aimed at creating a more balanced and supportive learning environment. This change reduces academic stress and fosters a deeper understanding of subjects. The term "student's mental health" encompasses students' psychological and emotional well-being, covering various aspects such as thoughts, feelings, and behaviors. It is crucial to recognize these features appropriately. This process enables identifying and prioritizing key factors that exert a substantial impact on academic outcomes. It explores the relationship between academic performance and the mental health of students. Therefore, a holistic approach has been made to scrutinize the consequences of the feature selection to analyze the mental health for the performance evaluation of students. The study uses a data-driven approach, collecting information from a diverse sample of students, including academic records, standardized test scores, and self-reported mental health assessments. The main objective of the research is to cultivate a more comprehensive and adaptive approach to student care, to enhance students' overall well-being. By acknowledging the impact of the National Education Policy (NEP) 2020 and its reforms on students' mental health, the study seeks to contribute to the creation of a learning environment that is not only academically enriching but also supportive of students' psychological and emotional needs.

Keywords: Students' Mental health · Feature selection · Feature Extraction method · Decision Tree classifiers · Support Vector classifiers

1 Introduction

NEP 2020 [22] emphasizes the importance of inclusive education, catering to diverse learning needs, and proposes the integration of counseling services within educational institutions. The provision of counseling aims to offer students psychological support,

S. Dhar et al. (Eds.): AGC 2024, CCIS 2224, pp. 83–94, 2025.
https://doi.org/10.1007/978-3-031-75157-8_6