An Integrated Framework for Students' Academic Performance Prediction Based on Affective and Cognitive State Using Mixed Numeric and Categorical Data

By

M. Amala Jayanthi
19PHCSP001

Supervisor

Dr. I.Elizabeth Shanthi
Professor
Department of Computer Science

A Thesis Submitted to
Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore - 641043

In Partial fulfilment of the requirements for the degree of
Doctor of Philosophy in Computer Science

August 2023

An Integrated Framework for Students' Academic Performance Prediction Based on Affective and Cognitive State Using Mixed Numeric and Categorical Data

80_RECOMMENDATIONS

- In the research, a polarity score is assigned to the choices of the questionnaire. Based on the total score, students are categorized using sentiment analysis.
- The proposed clustering classified the student objects based on Emotional Intelligence Questionnaire, Rosenberg Self Esteem Scale, Self Determination scale, Positive Affect and Negative Affective scale, General Efficacy Scale, Oxford Happiness Inventory, Eysenck Personality questionnaire, and models each cluster respect to the questionnaire.
- The association rules were mined to design the recommender system to predict students' academic performance during the learning process using the proposed association rule mining algorithm.
- Correlation analysis divulges a strong association between Emotional Intelligence, Personality, Self Esteem, Emotions, Self Determination, Self Efficacy, Emotional Well-being and Academic Performance.
- This system helps the teacher understand students' affective state, who are lagging. By analyzing the gap between the chosen affective attributes, teachers can be emotional mentors so that they groom their students affectively strong to excel in academics.