

CHAPTER-7

CONCLUSION AND FUTURE WORK

7.1 Conclusion

The study of educational data mining (EDM) focuses on using statistical, machine learning, and data mining techniques. EDM entails creating and implementing data mining techniques that make it possible to analyze vast amounts of data from various educational backgrounds. In EDM, it is seen to be important to make predictions about how students will learn and evaluate their success. In this study, a recommender system is introduced to forecast student scholastic achievement by linking features from the emotional domain, cognitive domain, and scholastic achievement.

Sentiment analysis, a widely used Natural Language Processing (NLP) application, is employed to discern human intents from reviews. Opinion mining is done in the educational industry to collect student comments and pedagogically improve learning-teaching practices. In this study, sentiment analysis is utilized to anticipate students' affective states by evaluating responses from closed-ended questionnaires. The research involves assigning polarity scores to the questionnaire choices. Students are then categorized based on the cumulative scores utilizing SA.

The connection between emotional states and scholastic achievement is established utilizing the Reclust clustering method and ARMpred. Clustering proves to be an efficient approach to categorize student objects using various questionnaires, such as EIQ, RSE, SDS, PANAS, EPI, OHQ, and GSE. Each cluster is modeled regarding the corresponding questionnaire. The clusters identified are Outstanding, High Achiever, Competent, Above Average, Average, and Below Average, all based on performance.

The elevated scholastic proficiency of students in a intense emotional condition is demonstrated in this test, and it recommends focusing on students with reduced emotional well-being for emotional interventions. A robust connection between affective attributes and academic performance is unveiled in the correlation analysis. The recommendation system was designed to enable the prediction of academic achievements of potential students throughout the educational procedure by mining association rules.

7.2 Future work

- In the future, our research will investigate and apply novel methodologies to predict students' academic performance concerning different affective parameters.
- This research uses a closed-ended questionnaire to predict the student's affective state. Different questionnaire types will be used for student affective state prediction in the future.
- The system can be integrated into an e-learning environment to predict academic performance and analyze the effectiveness of e-learning.
- To predict student affective state and academic performance based on the impact of the institution/discipline and teaching.