UNIVERSITY OF ENERGY AND NATURAL RESOURCES, SUNYANI

SCHOOL OF NATURAL RESOURCES



**GPA GOAL ACHIEVER - PERSONALIZED STUDY PLAN RECOMMENDER**

BY

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BACHELOR DEGREE IN COMPUTER SCIENCE

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# DECLARATION

We declare that this work is our original work and has not been submitted for any other degree or qualification at any institution, University of Energy and Natural Resources inclusive. All sources of information used in the study have been duly acknowledged. We further declare that this work conforms to the University of Energy and Natural Resources' regulations and guidelines for the submission of work.

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# DEDICATION

We dedicate the thesis to the Almighty God, our families, and anyone that contributed in making this work a success.

# ACKNOWLEDGEMENT

We would like to extend our profound gratitude to our dedicated and hardworking supervisor, Dr FAIZA UMAR BAWAH for her guidance, constructive feedback, and unwavering support throughout this research journey. Her good sense of humour and, most importantly, the creativity and independence he instilled in us are greatly appreciated. This would not have been successful without you. To the department, and this renowned institution, we appreciate the resources and facilities provided, which facilitated the successful completion of this project. It is our desire that this document will accurately reflect the many ideas and suggestions that were contributed.

# Abstract

The core of the study is the design and evaluation of the GPA Goal Achiever, a personalized study plan recommender that would help improve the academic performance of computer science students at the University of Energy and Natural Resources. It uses machine learning algorithms to provide personalized study scheduling, based on the students' current and target CGPA, study habits, and academic level. Hence, the GPA Goal Achiever attempts to address needs related to personalized academic support for effective study time management and improvement in academic performance with respect to the desired CGPA attainment.

These results are indicative of the fact that the system provided very accurate and personalized study recommendations; thus, this could be considered a testimony to the potential of the recommendation system in an educational context. On the other hand, a number of limitations were mentioned, including the "cold-start" problem and the small size of the dataset used for training. Recommendations mentioned for future improvements include increasing the size of the dataset, incorporating content-based filtering, and considering several additional factors-socio-economic and psychological variables among them.

This paper contributes to this rapidly developing area of education technology by providing a scalable and adaptive solution for personalized learning. The GPA Goal Achiever app presents one such example of how customized study tools facilitate students' engagement and academic success in intensive courses like computer science.

# CHAPTER ONE

## **INTRODUCTION**