
BRIGHT FUTURE

Mini Project Report

Submitted in partial fulfillment of the requirements for the
award of the degree in

INTEGRATED M.Sc. PROGRAMME IN COMPUTER SCIENCE -DATA SCIENCE

Submitted by

KARTHIK UNNIKRISHNAN
REG. NO: 223142810012

Under the guidance of

Ms. S GOWRI KRISHNA
DEPARTMENT OF COMPUTER SCIENCE –
DATA SCIENCE

NIRMALA COLLEGE MUVATTUPUZHA (AUTONOMOUS)

(Affiliated to Mahatma Gandhi University, Kottayam)



NIRMALA COLLEGE MUVATTUPUZHA (AUTONOMOUS)

(Affiliated to Mahatma Gandhi University, Kottayam)



CERTIFICATE

This is to certify that the project entitled “**BRIGHT FUTURE**,” submitted in partial fulfillment of the requirements for the award of the degree in **Integrated M.Sc. Computer Science – Data Science**, constitutes a bonafide report of the mini project conducted by **Karthik Unnikrishnan (Reg. No: 223142810012)** during the academic year 2024-2025.

Internal Guide

Head of the Department

Examiner

ACKNOWLEDGEMENT

With immense gratitude, I acknowledge the divine guidance that has illuminated my path throughout this project and enabled its successful culmination. I sincerely appreciate all those who have contributed their wisdom, support, and encouragement to this endeavour.

My deepest thanks go to the esteemed Principal, **REV. DR. JESTIN K KURIAKOSE**, for providing me with the enriching academic environment of this institution. I would also like to express my sincere gratitude to the Head of the Department, **Ms. VIDHULA THOMAS**, for her support and facilitation throughout this project. I am particularly indebted to my project guide, **Ms. S GOWRI KRISHNA**, Assistant Professor in the Department of Computer Science- Data Science, Nirmala College, Muvattupuzha (Autonomous), whose insightful direction, innovative perspectives, and unwavering support were instrumental in shaping this project.

I also wish to express my gratitude to the faculty and staff for their invaluable assistance, cooperation, and the resources they provided, which greatly facilitated the completion of my work.

Finally, I wholeheartedly thank my family members and friends for their steadfast support and encouragement, which sustained me throughout this journey.

ABSTRACT

A growing concern in educational institutions is student attrition and the need for personalized learning support. Traditional methods of student support often struggle to proactively identify at-risk students and provide tailored guidance. This challenge is further amplified by the increasing demands on students and the need for effective tools to manage their academic journey.

Despite the availability of digital resources, many educational institutions still rely on conventional approaches that lack the predictive capabilities and personalized features necessary to significantly impact student success rates. These limitations can hinder the ability to provide timely interventions and optimize the learning experience.

In this project, we propose the development of BrightFuture, an integrated educational support system equipped with advanced dropout prediction, personalized course recommendations, and a comprehensive note-taking application to address the multifaceted challenges faced by modern students and educational institutions.

CONTENTS

1. Introduction.....	1
1.1. Need for study.....	1
1.1.1. Problem Statement.....	2
1.2. Objectives.....	2
1.2.1. Primary Objectives.....	2
1.2.2. Secondary Objectives.....	3
1.3. Summary.....	3
2. Literature Review.....	4
2.1. Introduction.....	4
2.2. Review of Literature.....	4
2.3. Requirement Analysis.....	6
2.3.1. Software Requirement Specifications.....	7
2.4. Proposed Model.....	10
2.5. Summary.....	11
3. Design Specifications.....	12
3.1. Table Design.....	12
3.2. Data Flow Diagram (Note-Taking App).....	21
3.3. Workflow (Machine Learning Model)	24
3.4. Workflow (Recommendation Model)	25
3.5. Workflow (Contact Functionality)	26
4. Implementation & Result.....	27
4.1. Prediction Model Implementation.....	27
4.1.1. Dataset & Dataset Preprocessing.....	28
4.1.2. Select important features.....	29
4.1.3. Removing outliers.....	32
4.1.4. Models Training.....	32
4.1.5. Models Result.....	36
4.1.6. Conclusion.....	36
4.2. Recommendation System Implementation.....	37
4.2.1. Data Source and Preprocessing.....	37
4.2.2. Core recommendation function and user interaction.....	37

4.2.3. Technology and methodology.....	38
4.2.4. Result.....	38
4.2.5. Conclusion.....	39
4.3. Note-Taking App Implementation.....	39
4.3.1. User authentication and access.....	39
4.3.2. Collection-based organization.....	40
4.3.3. Note and reference management.....	40
4.3.4. Multimedia integration and storage.....	40
4.3.5. Database storage and user profiles.....	40
4.3.6. Testing.....	40
4.3.7. Conclusion.....	43
4.4. Contact Functionality Implementation.....	44
4.4.1. Form implementation and user interaction.....	44
4.4.2. Email processing and delivery.....	44
4.4.3. Technology and methodology.....	44
4.4.4. Result and discussion.....	45
4.4.5. Conclusion.....	45
5. Conclusion.....	46
5.1. Advantages.....	46
5.2. Limitations.....	46
5.3. Future Scope.....	47
Reference.....	48
Appendix.....	49
Screenshots	