**DESIGN AND IMPLEMENTATION OF AN** **ADAPTIVE LEARNING MANAGEMENT SYSTEM**

**Project Submitted in Partial Fulfillment of the Requirement**

**for the Degree of**

**B.Sc.**

**In**

**INFORMATION TECHNOLOGY**

**By**

**ABUBAKAR ISIYAKU ABDULLAHI**

**BU/22B/IT/6977**

**To**

**The Department of Computer Science**

**Baze University, Abuja.**

**November 2023.**

**DECLARATION**

This is to certify that this Thesis entitledADAPTIVE LEARNING MANAGEMENT SYSTEM, which is submitted by Abubakar Isiyaku Abdullahi in partial fulfillment of the requirement for the award of a degree for B.Sc. in Information Technology to the Department of Computer Science, Baze University Abuja, Nigeria, comprises of only my original work and due acknowledgment has been made in the text to all other materials used.

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Abubakar Isiyaku Abdullahi Date

BU/22B/IT/6977

**APPROVED BY** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Head of Department,**

Department of Computer Science

**CERTIFICATION**

This is to certify that this Thesis entitled ADAPTIVE LEARNING MANAGEMENT SYSTEM, which is submitted by Abubakar Isiyaku Abdullahi in partial fulfillment of the requirement for the award of a degree for B.Sc. in Information Technology to the Department of Computer Science, Baze University Abuja, Nigeria is a record of the candidate’s own work carried out by the candidate under my/our supervision. The matter embodied in this thesis is original and has not been submitted for the award of any other degree.

Date: Supervisor:

**APPROVAL**

This is to certify that the research work, (TOPIC) and the subsequent preparation by Abubakar Isiyaku Abdullahi with BU/22B/IT/6977 has been approved by the Department of Computer Science, Faculty of Computing and Applied Science, Baze University, Abuja, Nigeria.

By

Dr Usman Bello Abubakar

Supervisor Date

Assoc Prof. Chandrashekhar Uppin

Head of Department Date

Prof Peter Ogedebe

Dean, Faculty of Computing and Applied Science Date

Prof Choji Davou Nyap

External Examiner Date

**DEDICATION**

**[This is the dedication page.]**

**ABSTRACT**

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**CHAPTER ONE**

**INTRODUCTION**

* 1. **Overview**

The rise of online learning systems has led to a transformative era in education, offering unparalleled accessibility, flexibility, and diverse learning opportunities. As these platforms continue to expand and shape the future of learning, there exist intricacies and challenges yet to be fully addressed. This project stands at the intersection of these complexities, seeking to explore, analyze, and contribute to the enhancement of online learning systems.

* 1. **Background and Motivation**

The roots of online learning can be traced back to the early days of computer-based training and distance education. The transition from correspondence courses to the integration of multimedia and web-based technologies laid the groundwork for modern online learning systems. Pioneering efforts in the 1990s and early 2000s by institutions and organizations paved the way for the virtual classrooms and learning management systems we see today.

A myriad of studies and research endeavors have been conducted to explore various facets of online learning systems. These studies encompass a broad spectrum, investigating topics such as learning methodologies, instructional design, learner engagement, effectiveness of assessments, and the impact of technology on education. Significant research works by notable scholars and institutions have contributed to our understanding of the strengths and limitations of these systems.

While building upon the foundation laid by prior studies, this project aims to focus on the enhancement of personalized learning experiences, optimizing student engagement, and bridging the gap between technological advancements and effective pedagogical strategies. The theoretical framework will draw from learning theories, cognitive psychology, user experience design, and technological integration within educational settings.

* 1. **Statement of the Problem**

The core issue in online learning systems centers on the limited utilization of AI-driven adaptive learning algorithms to tailor educational content. This results in a lack of personalized learning experiences that can dynamically respond to individual student progress, preferred learning styles, and knowledge retention rates. The absence of a sophisticated, integrated adaptive learning framework impedes the platforms' ability to maximize student engagement, hindering the effective translation of technological advancements into impactful pedagogical tools. This deficiency ultimately restricts the achievement of optimized learning outcomes for a diverse student population.

* 1. **Aim and Objectives**

To tackle the challenge of limited engagement and personalization within online learning systems, the Interactive Learning Ecosystem (ILE) is proposed. This system is designed to enhance student interaction, collaborative learning, and individualized content delivery, creating a more engaging and personalized educational experience.

The Interactive Learning Ecosystem will be designed with a user-friendly interface, emphasizing intuitive navigation, clear pathways, and interactive features. It will seamlessly integrate with existing Learning Management Systems and offer compatibility across various devices to ensure accessibility and ease of use for both educators and learners.

* 1. **Significance of the Project**

The Adaptive Learning Management System serves as a groundbreaking tool for educational professionals and institutions. It equips educators with innovative techniques and strategies to offer personalized learning experiences, enhancing teaching methodologies and promoting student engagement. The findings and recommendations derived from this study will provide guidance for educational practitioners seeking to optimize learning outcomes and foster a more engaging educational environment.

It also addresses the need for personalized and adaptive learning experiences for diverse student populations. It benefits learners with varied learning styles, pace, and proficiency levels. The ALMS enables individualized learning pathways that accommodate students' unique needs, for a supportive and engaging environment conducive to improved learning outcomes and knowledge retention.

* 1. **Project Risks Assessment**

**1.7 Scope/Project Organization**

(currently making a Gantt chart for this)