**Chapter Two**

2. System analysis

2.1.Introduction

2.1.1. Overview

This document presents a comprehensive analysis of the Ethiopian examination system, focusing on identifying opportunities for improvement through the implementation of a new and enhanced system. The current exam process faces several challenges that hinder its effectiveness and fairness. This analysis thoroughly explores the feasibility of a revamped system that addresses these issues and aims to enhance the overall quality of the exit exam experience. By carefully examining the existing procedures, identifying pain points, and proposing innovative solutions, this analysis aims to contribute to the development of a more efficient and equitable examination system that better serves the needs of students, educators, and the education system as a whole.

**2.1.2. Purpose**

The purpose of this document is to serve as a comprehensive guide for defining the requirements of the website and providing a detailed overview of its parameters and objectives. It aims to collect and analyze various ideas to ensure a thorough understanding of the desired functionality and behavior of the system.

Additionally, this document describes the external behavior of the system, including how users will interact with the website and the expected outcomes. It also incorporates non-functional requirements, such as performance, security, usability, and scalability, to ensure the website meets the desired quality standards.

Moreover, the document outlines any design constraints that need to be considered during the development process. These constraints may include technological limitations, compatibility requirements, or specific industry standards that must be adhered to.

4. Automated Grading and Result Generation: The system will incorporate automated grading

Mechanisms to streamline the evaluation process. It will provide accurate and timely results to

Students, eliminating manual grading efforts and reducing the chances of errors or biases in the Evaluation process.

5. Secure Data Management: The project will prioritize the security and confidentiality of exam Data. Robust data encryption and access control measures will be implemented to protect student Information and ensure compliance with data protection regulations.

6. Accessibility and Usability: The online exam platform will be designed with a user-centric Approach, considering the diverse needs and technological capabilities of students. The system will Be accessible across different devices and screen sizes, ensuring usability for students with varying Levels of digital literacy.

7. Scalability and Performance: The system will be designed to handle a large number of Concurrent users and accommodate future growth. Scalability measures, such as load balancing And optimized database management, will be implemented to ensure smooth performance during Peak usage periods.

By defining the scope of the project, including the outlined functionalities and considerations, the Aim is to deliver a comprehensive and innovative Bekur exams system that addresses the current Limitations and enhances the overall examination experience for Ethiopian students. This scope Provides a clear roadmap for the development and implementation of the system, guiding the Project team towards a successful and impactful solution.

**2.1.4. Objective of the proposed system**

The objectives of the proposed Bekur exams system are as follows:

1. Enhance Efficiency: The primary objective of the system is to improve the efficiency of the Exam process. By transitioning to an online platform, the system aims to automate various manual Tasks, such as exam creation, distribution, and grading. This automation will significantly reduce Administrative burden and time required for exam management, allowing educators to focus more On teaching and students to have a smoother exam experience.
2. Ensure Fairness and Integrity: The system aims to ensure fairness and integrity in the exam Process. By implementing secure user authentication and robust exam monitoring features, the System will prevent cheating and unauthorized access to exam materials. It will also provide a level Playing field for all students by presenting exam questions randomly or in different orders, Minimizing the chances of unfair advantages.
3. Improve Accessibility: The proposed system seeks to enhance accessibility to exams for all Students. By providing an online platform, the system will eliminate geographical barriers and Enable students from remote areas or with limited mobility to participate in exams conveniently.

The system will also be designed to accommodate students with disabilities, ensuring inclusivity In the assessment process.

1. Increase Accuracy and Consistency: The system aims to improve the accuracy and Consistency of exam grading. By automating the grading process, it minimizes human errors and Biases. The system will adhere to predefined grading criteria, ensuring consistency in evaluating Student responses. This objective will contribute to more reliable and objective assessment Outcomes.
2. Expedite Result Generation: The system aims to expedite the generation and delivery of exam Results. By automating the grading process, results can be generated promptly after exams are Completed, reducing the waiting time for students. This objective will enable timely feedback and Allow students to track their progress effectively.
3. Enable Data-Driven Insights: The proposed system seeks to provide educators and Administrators with valuable data insights. By capturing and analysing exam performance data, The system will generate reports and analytics that can be used to identify areas of improvement in The curriculum, teaching methods, and student learning patterns. These insights will facilitate data driven decision-making and contribute to educational enhancements.
4. Enhance Security and Data Privacy: The system aims to ensure the security and privacy of Exam-related data. Robust security measures, including encryption, access controls, and data Backups, will be implemented to protect sensitive information. Complying with data privacy Regulations, the system will prioritize the confidentiality and integrity of student data.

By achieving these objectives, the proposed Bekur exams system aims to revolutionize the exam process in Ethiopia, offering a more efficient, fair, and accessible platform for students and educators. The system will leverage technology to improve the overall exam experience and contribute to the growth and development of the education system in the country.

**2.2.Current system**

Here is a general outline of a system for an exit exam: Registration: Students interested in taking the exit exam register on the website. They provide their personal information, such as name, identification number, contact details, and educational background.

Exam Selection: The website offers a variety of exam options based on the student's educational level and desired field of study. Students can select the specific exam they wish to take, such as a secondary school exit exam or a university entrance exam.

Exam Preparation: The website provides study materials, resources, and practice exams to help students prepare for the upcoming exam. This may include subject-specific study guides, sample questions, and interactive learning modules.

Exam Scheduling: Once registered, students can choose a convenient date and time slot for their exam. The website provides a scheduling system that allows them to select an available slot from a predefined schedule.

Exam Administration: On the day of the exam, students log in to the website using their unique credentials. The exam is conducted online, and students are presented with a series of questions or tasks relevant to their chosen exam. The website ensures the security and integrity of the exam content.

Time Limit and Submission: The exam is timed, and students must complete it within the allocated time. The website tracks the time spent on each question or section and automatically submits the answers once the time limit is reached or when the student manually submits the exam.

Automated Scoring: The website employs an automated scoring system to evaluate the student’s Responses. It may use algorithms or predefined criteria to assess the correctness and quality of the Answers. The exam results are generated immediately after submission.

Result Publication: Once the exam is scored, the website provides instant feedback to the Students. They can view their exam scores, overall performance, and any feedback or suggestions For improvement. The exam results are securely stored and accessible only to the student and Authorized administrators. Certification and Validation: If the exit exam is intended for certification purposes, the website May generate a digital certificate or official document indicating the student’s performance and Successful completion of the exam. The certificate can be downloaded or printed for future Reference.

Support and Assistance: The website offers customer support and assistance to address any Technical issues or inquiries related to the exam. Students can reach out to the website Administrators through online chat, email, or a dedicated support system While administering an exit exam through a website can offer several advantages, it is important To consider potential downsides and challenges associated with this approach. Here are some

Possible downsides:

1. Technical Issues: Online platforms may experience technical glitches, such as server downtime, Connectivity problems, or software errors. These issues can disrupt the exam process, causing Frustration for students and potentially affecting their performance. Adequate technical supportAnd robust infrastructure are essential to minimize such disruptions.
2. Cheating and Security Concerns: Conducting exams online raises the possibility of cheating Or academic dishonesty. Students may attempt to access unauthorized resources or collaborate with Others during the exam, compromising the integrity of the assessment. Ensuring effective security Measures, such as secure browser requirements, plagiarism detection tools, or remote proctoring Solutions, is crucial to maintain the credibility of the exam.
3. Limited Environment Control: Unlike traditional exam settings, where students are monitored In person, conducting exams online provides less control over the testing environment. Studentsmay face distractions, interruptions, or external assistance, which can impact the fairness and Validity of the results. Maintaining academic integrity requires implementing measures to Minimize external influences and ensure a controlled testing environment.
4. Technical Competency Requirements: Online exams may require students to possess a certain Level of technical proficiency and familiarity with the website’s interface. Students who are less Technologically inclined or lack access to reliable internet connections may face challenges in Navigating the platform or submitting their answers. Ensuring user-friendly interfaces, clear Instructions, and support resources can help mitigate this issue.
5. Access and Equity: Online exams assume that all students have access to the necessary Technology and resources. However, disparities in internet access, device availability, or digital Literacy can create inequities among students. It is essential to address the disparities and provide Alternative options or accommodations for students who may face barriers to online participation.
6. Loss of Personal Interaction: Online exams eliminate the opportunity for personal interaction Between students and exam administrators. Students may miss the ability to clarify doubts, seek Clarification, or receive immediate feedback during the exam. Providing channels for Communication and timely support can help mitigate this loss of personal interaction.
7. Reliability and Trustworthiness: Students and educational institutions may question the Reliability and trustworthiness of online exams, particularly if they are unfamiliar with the platform Or have concerns about data security. Ensuring transparency, using established and recognized Assessment methods, and addressing concerns around data privacy and security can help build trust In the online exam system.

**2.3.Proposed System**

* Improvements through the Bekur Exam Platform. The proposed system aims to address the downsides of the current exit exam system in Ethiopia By introducing the Bekur exam platform. This platform incorporates several improvements to Enhance the reliability, fairness, and effectiveness of the assessment process. The proposed system

Includes:

Curriculum Alignment: The Bekur exam platform ensures a close alignment between the exit

Exams and the national curriculum standards, ensuring a comprehensive assessment of students’ Knowledge and skills across relevant subjects.

Question Variety and Authenticity: The platform offers a wide range of question types, Including multiple-choice, essay, and practical assessments, designed to assess students’ Understanding, critical thinking, and real-world application of knowledge.

Enhanced Security Measures: The Bekur exam platform implements advanced security Measures, such as biometric authentication, secure browser lockdowns, and remote proctoring, to Maintain the integrity and credibility of the exams, deterring cheating and creating a fair Assessment environment.Comprehensive Feedback and Remedial Measures: The platform provides detailed feedback to

Students based on their exam performance, enabling them to identify areas of improvement. This Feedback helps students understand their strengths and weaknesses and supports their efforts to Enhance their skills and knowledge.

The proposed Bekur exam platform aims to provide a more robust, equitable, and effective Assessment process for students. Through curriculum alignment, question variety and authenticity,

Enhanced security measures, and comprehensive feedback, students can expect a more Comprehensive evaluation of their knowledge and skills, empowering them to improve and excel In their academic journey. The platform’s focus on fairness, integrity, and personalized feedback Will help students make informed decisions regarding their educational or career paths.

**2.3.1. Overview**

The proposed Bekur exam platform aims to address the downsides of the current exit exam system In Ethiopia. By incorporating curriculum alignment, question variety and authenticity, enhanced Security measures, comprehensive feedback, timely result publication, and data analysis and Reporting, the platform seeks to provide a more robust, equitable, and effective assessment process For students. The proposed system envisions a comprehensive, technology-driven solution for conducting exit exams in Ethiopia, addressing the limitations of the current system and enhancing the overall assessment process.

It encompasses:

➢ Computer-based testing: Transition from paper-based to computer-based

exams, streamlining administration, and reducing manual errors.

➢ Digital question bank: A centralized repository of questions, facilitating secure

storage, retrieval, and randomization.

➢ Automated scoring: Instant and accurate grading, minimizing subjectivity and

inconsistencies.

➢ Online result dissemination: Timely and accessible result access for

students, parents, and institutions.

➢ Centralized database: A repository for exam data, enabling tracking, analysis, and

informed decision-making.

➢ Security measures: Robust protection against unauthorized access, data breaches, and

exam fraud.