

Addis Ababa Science and Technology University

College of Engineering

Department of Software Engineering

[Your title here]



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Department of Software Engineering

Title: [Your title here]

Group Members:

No.	Name [Alphabetical order]	ID

Advisor Name: _____
Signature_____

[MONTH, YEAR]

Acknowledgement

[This page is for the author to express professional and/or personal indebtedness, people or institutions that have contributed to the content of his/her project, permission(s) to use previously copyrighted materials, receipt of grant funds, special assistance and guidance given by individuals, institutions or government bodies, recognition of “readers”, etc. is acknowledged on this page.]

Table of contents

[The titles of sections, chapters and their principal subdivisions along with the page numbers on which they appear should be listed in the Table of Contents. Titles should be worded exactly as they appear in the text of the report. Reports with many subdivisions should use a hierarchical numbering system for headings and sub-headings (e.g., 3.1). Such a numbering system combined with the judicious use of upper and lower case, indentations and italics should provide a summary of the relationships between the sections of the report. The table of contents should be generated automatically. The following is a recommended content structure.]

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Lists of Tables, Figures/Illustrations, Plates/Photographs

[These lists consist of the exact titles (including numbering) of all tables, figures and plates that appear in the report. All tables, figures and plates should be numbered consecutively throughout the text.

If the whole document contains only one or two figures, then a List of Figures is not necessary. Always place a period after the number, before the caption (e.g., Fig. 1.1. Caption of figure).]

List of Abbreviations, Symbols, Specialized Nomenclature

[This list is optional, depending on the subject of the report. All scientific symbols and nomenclature should follow the standard SI-system.]

Abstract

[An abstract in both Amharic and English are required. The English version must include the title written in English for a report written in Amharic, and vice versa. The abstract is a summary of the entire report. It should briefly outline the research problems addressed by the report, the findings, and the significance of the work in the context of the field of study. The abstract should not exceed one typewritten single-spaced page of text (c. 300-400 words) with the font size of 11- points. Abstracts in English should be in italic.]

Chapter One: Introduction

[Introductory part of the overall project. Here, you can discuss the background of your area, organization/company that the research is held on (if any). Additionally, provide statistical data pertaining to the current state of affairs in the area under study. Discuss the shortcomings of the existing system and any attempted solutions aimed at addressing these issues.]

1.1. Statement of the Problem

[This section should clearly define the problem that your study aims to address. It should explain why the problem is significant and worth investigating, setting the stage for the rest of the document.]

1.2. Objectives

[Here, you'll list the specific goal and objectives of your study. These should be clear, concise, measurable, and achievable goals that guide the direction of your research and system development.]

1.2.1. General Objective

[Simply, your title here. It should state how the existing problem will be tackled or researched.]

1.2.2. Specific Objectives

[Usually in bullet points, specific objectives are statements that are steps to follow in order to achieve the general objective. Here, you can include requirement gathering, requirement analysis, system design, implementation with testing and deployment steps with some description related with your specific proposed solution.]

1.3. Scope and Limitation

[The scope section defines the boundaries of your study, detailing what is included and what is not. It helps to manage expectations and provides clarity to the reader about the extent of your research.

The Limitation section should state any feature that was listed on the scope, but due to various reasons it is not implemented in the research project.]

1.4. Methodology

[This part should describe the methods you will use to conduct your study. It includes the research design, data collection techniques, and analysis strategies, system design and implementation styles and technology stacks, standards on testing and deployment that will be employed.]

1.5. Plan of Activities

[Outline the planned activities and the timeline for your study in this section. It should include key milestones and deliverables, providing a roadmap for the project’s progression.]

1.6. Budget Required

[Here, you should provide an estimate of the budget required for your study. It should cover all necessary expenses, such as equipment, materials, and resources.]

1.7. Significance of the Study

[This section should highlight the importance of your study. It should discuss the potential impact and contributions to the field, as well as any broader implications.]

1.8 Outline of the study

[Finally, this section should show the overview of how the study is structured and what chapter will cover which will provides a roadmap for the reader to understand the organization of the documents.

In addition, it should present the brief recap of the key points discussed in the introduction and reinforces the importance of the study and sets the stage of the subsequent chapters.]

Chapter Two: Literature Review

[In this part, the brief overview of the purpose and importance of the literature review needs to be discussed. This explanation shows how the afterwards literature review fits into the overall study.]

2.1. Study Related Works

[This section should provide a comprehensive review of works related to your study. It should include a critical analysis of previous research, theories, and findings that are pertinent to your project's focus.]

2.2. Identifying Milestones of the Related Literatures and Finding the Gaps

[Here, the focus is on identifying key milestones in the literature that have shaped the field. This includes the critical evaluation and synthesis of the literature review including the strength, weaknesses, gaps and contradictions. Furthermore, it involves highlighting significant studies and then pinpointing the gaps or areas that have not been explored, which your study aims to address.]

2.3. Lessons Learned from Literatures

[The final section should summarize the main lessons learned from the literature review. It should reflect on the key findings and insights gained from the literature review. Afterwards, it should drive the transition to the next chapter by highlighting how the literature review informed the direction of your study, as well as the design and implementation of your system.]

Chapter Three: Problem Analysis and Modeling

[This section should present a brief overview of the chapter's purpose and its significance in the study. It involves the explanation of how problem analysis ad modeling contributes to addressing the research problem.]

3.1. Existing System and Its Problems

[This section should offer a detailed examination of the current system, identifying its limitations including its underlying causes, stakeholders and impacts that need resolution. It should provide a critical analysis of the system's shortcomings and how they affect stakeholders. It should also show the utilization of various analytical tools and techniques to dissect the problem and understand its complexity. Here, any supporting documents can be captured and presented as a picture or as a permanent link.]

3.2. Specifying the Requirements of the Proposed Solution

[Here, the process of gathering and documenting requirement from stakeholders needs to be presented in order to understand their needs and expectation. The techniques such as interviews, surveys, and observations may be use to elicit the requirements. Requirement elicitation further involves outlining the functional and non-functional requirements that the new system must meet to overcome the problems identified in the existing system.]

3.3. System Modeling

[The final section should focus on the creation of models that represent the proposed system's structure, behavior, and interactions. The modeling techniques such as Unified Modeling Language (UML), Data

Flow Diagram (DFD), or Entity-Relationship Diagram (ERD) can be utilized to perform further activities including actor identification, use case descriptions, use case diagram, activity diagrams, sequence diagrams, state diagrams and class diagram that help visualize and validate the system's requirements and proposed functionalities.]

3.3.1. Functional Requirements

[This sections involves the identification and specification of the system's functional requirements which is what the system should do. The representation of requirements may involve using use cases, scenarios, or user stories.]

3.3.2. Non-Functional Requirements

[In this section, the system quality attributes such as performance, reliability, and security need to be specified to show the proposed system non-functional behavior. This involves the definition of metrics and criteria to evaluate the fulfillment of non-functional requirements.]

3.4. System Architecture

[This section should present the design and description of the high-level architecture of the system, including components, module and their interactions. Therefore the author(s) should consider the factors such as scalability, maintainability, and extensibility.]

3.5. Model Validation

[This section should present the verification and validation of the problem analysis and system models to ensure their correctness and completeness.]

Chapter Four: System Design

4.1. Overview

[This introductory section sets the stage for the chapter by highlighting the critical role of system design in achieving the project's objectives. It provides a concise summary of the design's purpose, emphasizing its contribution to the project's success.]

4.2. Specifying the Design Goals

[Here, the design goals are articulated, ensuring they are in harmony with the project's overarching aims. This section elaborates on key considerations such as performance, scalability, security, availability, and usability, which guide the design process towards fulfilling the project's requirements.]

4.3. System Design

[The core of the chapter, this section delves into the intricate details of the system's design. It discusses the proposed software architecture, the interplay between high-level components, and the rationale behind selecting specific design patterns, methodologies, and technologies.]

4.3.1. Proposed Software Architecture

[This subsection provides an in-depth look at the proposed software architecture, detailing the components and their interactions.]

4.3.2. Subsystem Decomposition

[Subsystem decomposition is examined here, breaking down the architecture into manageable subsystems. This approach clarifies the system's structure and facilitates a more focused development process.]

4.3.4. Database Design

[Persistent data management and database diagram are the focus here, outlining how data is stored, accessed, and managed over time. This subsection ensures that data handling is efficient and secure, meeting the system’s long-term needs.

On the database diagram section, the database entities, their constraint, and relationship should be clearly listed.]

4.3.5. Deployment Diagram

[Deployment diagrams are presented, depicting the physical arrangement of system components. These diagrams are crucial for understanding the deployment architecture and identifying any potential issues related to scalability or performance.]

4.3.6. User Interface Design

[The user interface design is explored, with potential wireframes, mockups, or prototypes provided to visualize the UI’s layout and interaction design. This subsection emphasizes the importance of a user-centered design approach to ensure a seamless user experience.]

4.3.7. System Integration

[The system integration is a planning and strategies for integrating various components, modules, and third-party service into the system. this section considers the systems interoperability, compatibility, and data exchange between different parts of the system.]

4.3.8. Security design

[This section shall present the identification and implementation of security measures to protect the system from threats and vulnerabilities. This considers of authentication, authorization, encryption, and other security mechanism.]

4.4. Verifying the Requirements in the Design

[The chapter concludes with a verification of the design against the specified requirements. This section discusses the methods used to ensure the design aligns with both functional and non-functional requirements, addressing any discrepancies and detailing the resolution process.

This refined content aims to provide a clear and structured overview of the system design, facilitating a comprehensive understanding for all stakeholders involved in the project.]

Chapter Five: System Implementation

5.1. Reviewing the Design Solution

[This section should revisit the design solution, evaluating its alignment with the project's objectives. It's an opportunity to reflect on the design decisions made and ensure they are still valid as the project moves into the implementation phase.]

5.2. Deciding on the Development Tools

[Here, the focus is on selecting the appropriate development tools that will be used to build the system. This includes programming languages, frameworks, libraries, and any other software or hardware tools that will facilitate the development process. In addition, the installation and configuration of the software development, environments, version control systems, and other necessary tools shall specify and discuss here]

5.3. Developing the Solution

[The main body of this chapter, this section details the actual development of the system. It should cover the coding practices, integration strategies, and any challenges faced during the development.

Here, students are supposed to include major functionality codes.]

Chapter Six: System Evaluation

6.1. Preparing Sample Test Plans

[This section should outline the methodology for preparing test plans that will be used to evaluate the system. It includes defining test cases, criteria for success, and the tools and techniques that will be employed to conduct the testing.]

6.2. Evaluating the Proposed Design and Solutions

[Here, the focus is on the actual evaluation process of the design and the product. It can be started by executing the test plans, monitoring the system's behavior, and collecting data on its performance and other relevant metrics. Usually, tables will be there for documenting the result with the list of test cases and the actual outcome observed followed by pass/fail status]

6.3. Discussing the Results

[The final section is dedicated to analyzing the results of the evaluation. It should discuss whether the system met the defined criteria, any issues or defects discovered during testing, and the implications of the findings. This section may also suggest improvements or further work needed based on the evaluation results.]

Chapter Seven: Conclusions and Recommendations

7.1. Conclusion of the Study

[This chapter should present conclusions about the investigation and outline further work. This chapter should not be left until the end of the project period. Valuable ideas should be collected throughout the project. The chapter should re-outline what has been done in the investigation, and been shown in the report. The lessons learned from the overall investigation should be presented with appropriate examples by synthesizing the findings from the previous chapters, providing a concise summary that highlights the key outcomes of the study and final artifact. It should reflect on the objectives set out at the beginning and discuss how they have been met through the system design and evaluation.]

7.2. Recommendations of the Study

[Based on the conclusions drawn, this section should offer thoughtful recommendations for future work. These could include suggestions for further development, potential improvements, or areas for additional research. The recommendations should be actionable and grounded in the study's findings. The further work section should be substantial in that this is an important part of a scientific investigation.]

References

[Any report, which makes use of other works, either in direct quotation or by reference, must contain references listing all of these sources. Only works directly cited or quoted in the text should be included in the references correctly and consistently. The list of references should appear as a consolidated list as sequentially as they appear in the text of the document.

For referencing an article in a scientific journal, the suggested format should contain the following information: authors, title, name of journal, volume number, page numbers and year.

For referencing an article published in a book, the suggested format should contain, authors, the title of the book, editors, publisher, year, page number of the article in the book being referred to.

For referencing a thesis, the suggested format should contain, author, the title of thesis, where thesis was submitted or awarded, and year.

Examples:

Journals

H.E. Exner, “AI and the Feature,” International AGI Review, 1999, v. 24, pp. 149-173.]

Books

R.M. German, AI and the Feature, AI Powder Industries Federation, Princeton, NJ, USA, 2000.

Thesis

J.L. Johnson, “The impact of AI,” Ph.D. Thesis, The Pennsylvania State University, University Park, PA, USA, 2023.

Appendices

[This section is optional and will depend on the individual report content. It contains supplementary illustrative material, original data, and quotations too long for inclusion and not immediately essential to an understanding of the subject. This section may be divided into sections as Appendices A, B, C, etc. Any figures or tables included in the appendix should be numbered and captioned as for all text tables and figures.]