THESIS DEFENSE

Presented by GROUP 1
Marvin Lorico
Rairen Serrano
Joemaire Rizle Wayco

INTRODUCTION

- Equalizer Builders & Technologies Corporation (EBTC) is a design and construction group specializing in civil/architectural and electro-mechanical services.

- The company originated as a spin-off from Equalizer Temperature & System Services, which was formerly part of a renowned firm involved in the installation of various air-conditioning systems, including split-type, package-type, centralized, and precision air-conditioning units, as well as air-duct systems.

- In line with the increasing digitalization of the construction and service industries, EBTC recognizes the importance of adopting modern tools and systems to remain competitive.

- The company has identified the need to streamline its project management processes and improve client interactions through the implementation of a specialized project management and appointment scheduling system.

BACKGROUND OF THE STUDY

- Despite EBTC's years of experience and its solid reputation established through client referrals and recommendations, the company faces challenges related to operational inefficiencies and a lack of streamlined processes for managing projects and appointments. At present, EBTC relies heavily on manual processes and traditional methods for coordinating client interactions and scheduling services.

- Field representatives handle bookings and follow-ups, often resulting in fragmented communication, missed opportunities, and scheduling conflicts. While the company employs Google Drive for storage and utilizes Messenger for employees that are on the field for attendance tracking, these tools are not integrated into a centralized platform. They are insufficient for addressing the company’s growing operational demands.

OBJECTIVES

WEB APPLICATION

- Implement a Project Management
- Make an Appointment System
- Integrate a Content Management System (CMS)
- Provide Account Systems
- Generate Reports

SYSTEM SECURITY

- Multi-factor authentication (MFA)
- Password complexity
- SSL certificates encrypt data
- Firewalls
- Automated backups
- Blocking Brute force attacks
- Anti SQL Injection
- Session Timeout
- Role-Based Access Control

OBJECTIVES

WEB APPLICATION TESTING

- Ensuring Secure Transactions and Data Management
- Validating System Modules
- Identifying and Resolving Issues

ISO 25010 Standards

- Performing a detailed assessment of the system to establish whether the system passed the ISO 25010 usability performance security and reliability assessment criteria.

SCOPE

This study focuses on the design, development, and evaluation of a project management and appointment scheduling system tailored to the needs of Equalizer Builders and Technologies Corporation (EBTC).

LIMITATION

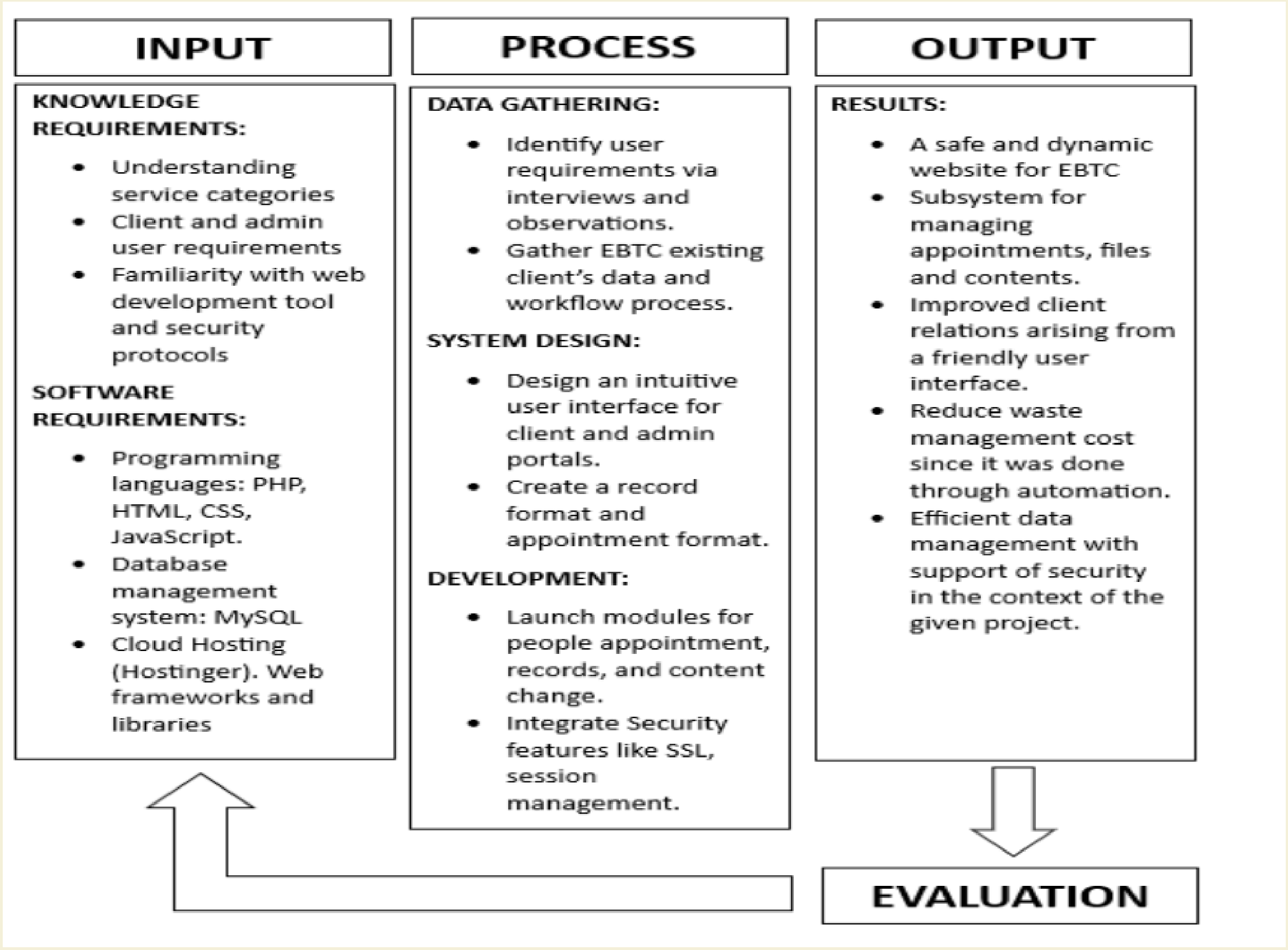
- This project aims to enhance EBTC's operations, but it comes with several limitations that should be acknowledged.

- The system will be developed as a web application accessible through computers, mobile phones, and other devices, eliminating the need for a dedicated mobile app.

- However, it will not integrate with EBTC's existing tools, such as the biometrics system or Google Drive, requiring data management to be handled independently within the new platform.

SIGNIFICANCE OF THE STUDY

- Equalizer Builders and Technologies Corporation
- Clients
- Administrators and Staffs
- Mechanical Services Industry
- Future Researches

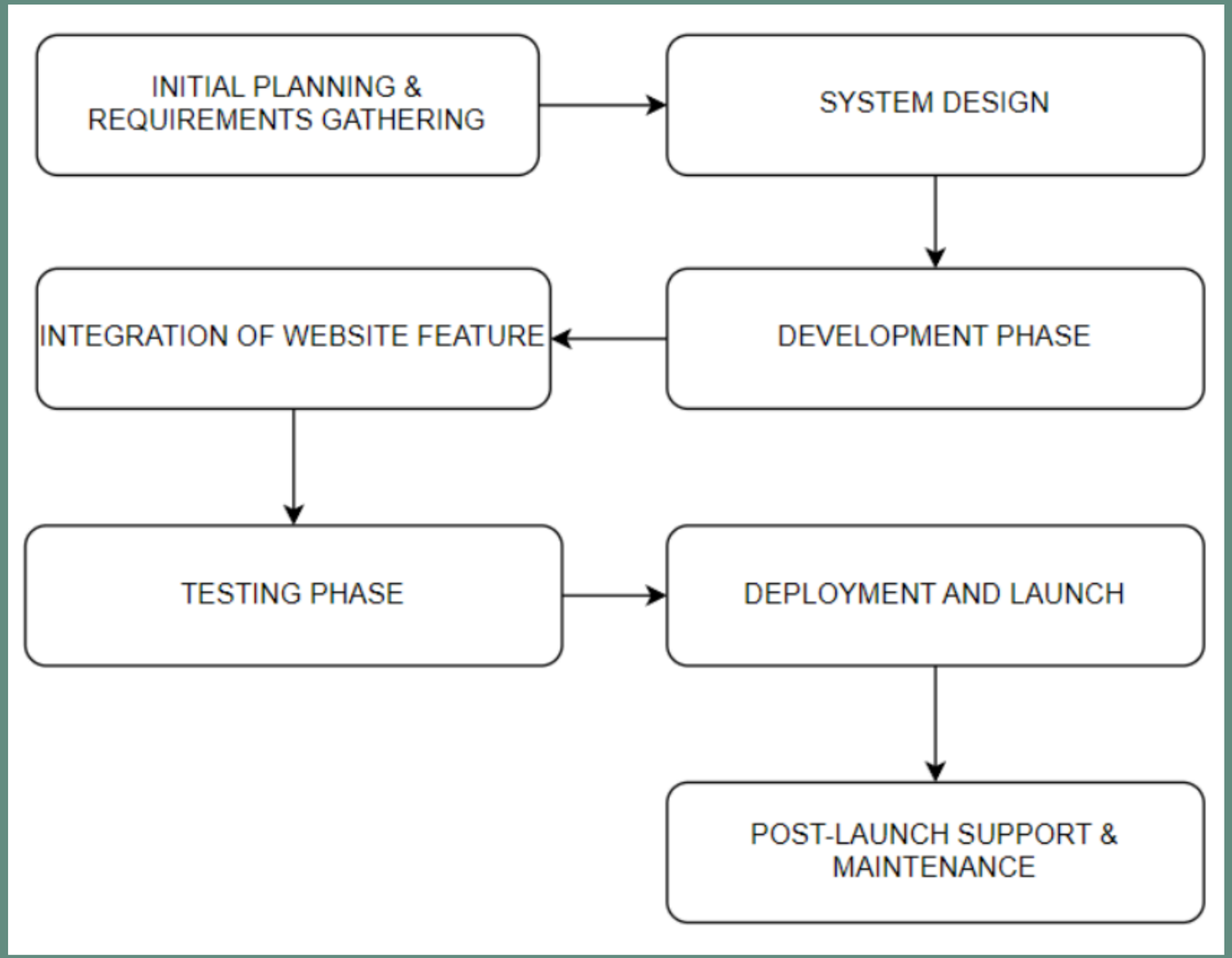

INPUT
PROCESS
OUTPUT
KNOWLEDGE REQUIREMENTS:
Understanding service categories
Client and admin user requirements
Familiarity with web development tool and security protocols
SOFTWARE REQUIREMENTS:
Programming languages: PHP, HTML, CSS, JavaScript.
Database management system: MySQL
Cloud Hosting (Hostinger). Web frameworks and libraries
DATA GATHERING:
Identify user requirements via interviews and observations.
Gather EBTC existing client's data and workflow process.
SYSTEM DESIGN:
Design an intuitive user interface for client and admin portals.
Create a record format and appointment format.
DEVELOPMENT:
Launch modules for people appointment, records, and content change.
Integrate Security features like SSL, session management.
RESULTS:
A safe and dynamic website for EBTC
Subsystem for managing appointments, files and contents.
Improved client relations arising from a friendly user interface.
Reduce waste management cost since it was done through automation.
Efficient data management with support of security in the context of the given project.
EVALUATION

RESEARCH DESIGN

- Evaluate a web-based appointment scheduling and management system for Equalizer Builders and Technologies Corporation (EBTC), aimed at streamlining operations and improving client interaction.

- Mixed-methods approach to combine quantitative data on system performance and security with qualitative feedback from users

PROJECT DEVELOPMENT



PROJECT DESIGN

- A management information system with features like email verification, two-factor authentication, role-based access control (RBAC), and audit trails is created by utilizing modern technologies. HTML, CSS, Bootstrap, and JavaScript are used in the front end to produce an engaging and dynamic user interface. PHP, MySQL, and JavaScript are used in the backend implementation to provide a scalable and effective application programming interface.

EXISTING WORKFLOW OF EBTC

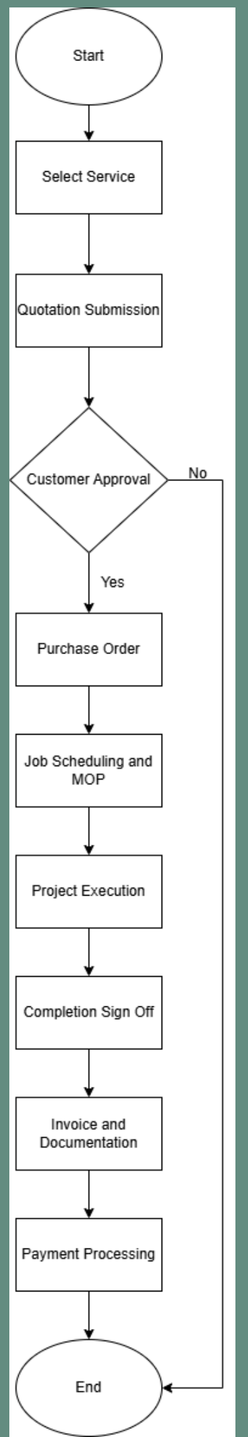


FIGURE 3.3 DATA FLOW DIAGRAM OF WEB-BASED PROJECT MANAGEMENT SYSTEM FOR EBTC

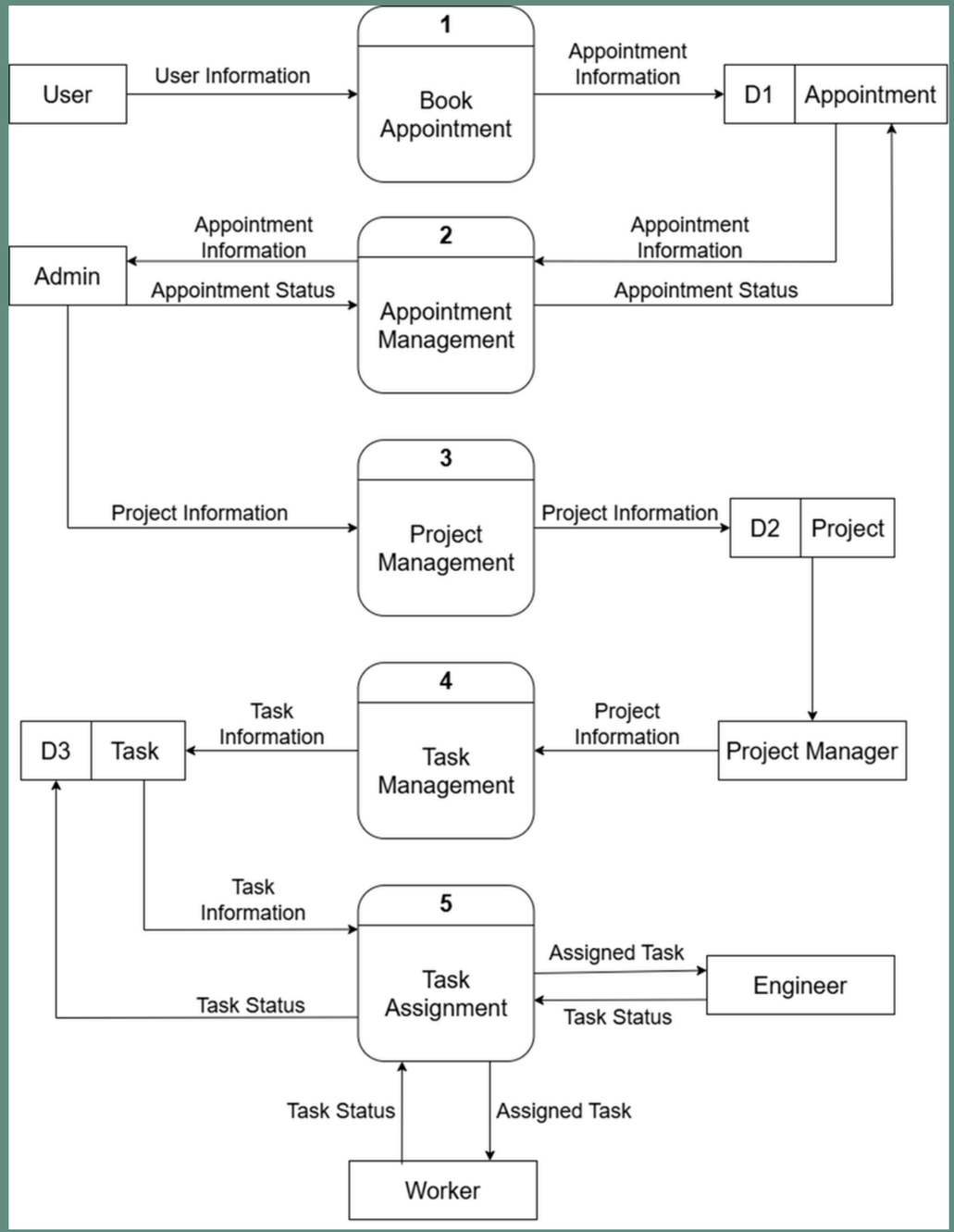


FIGURE 3.4 CHILD DIAGRAM FOR PROCESS 1 (USER)

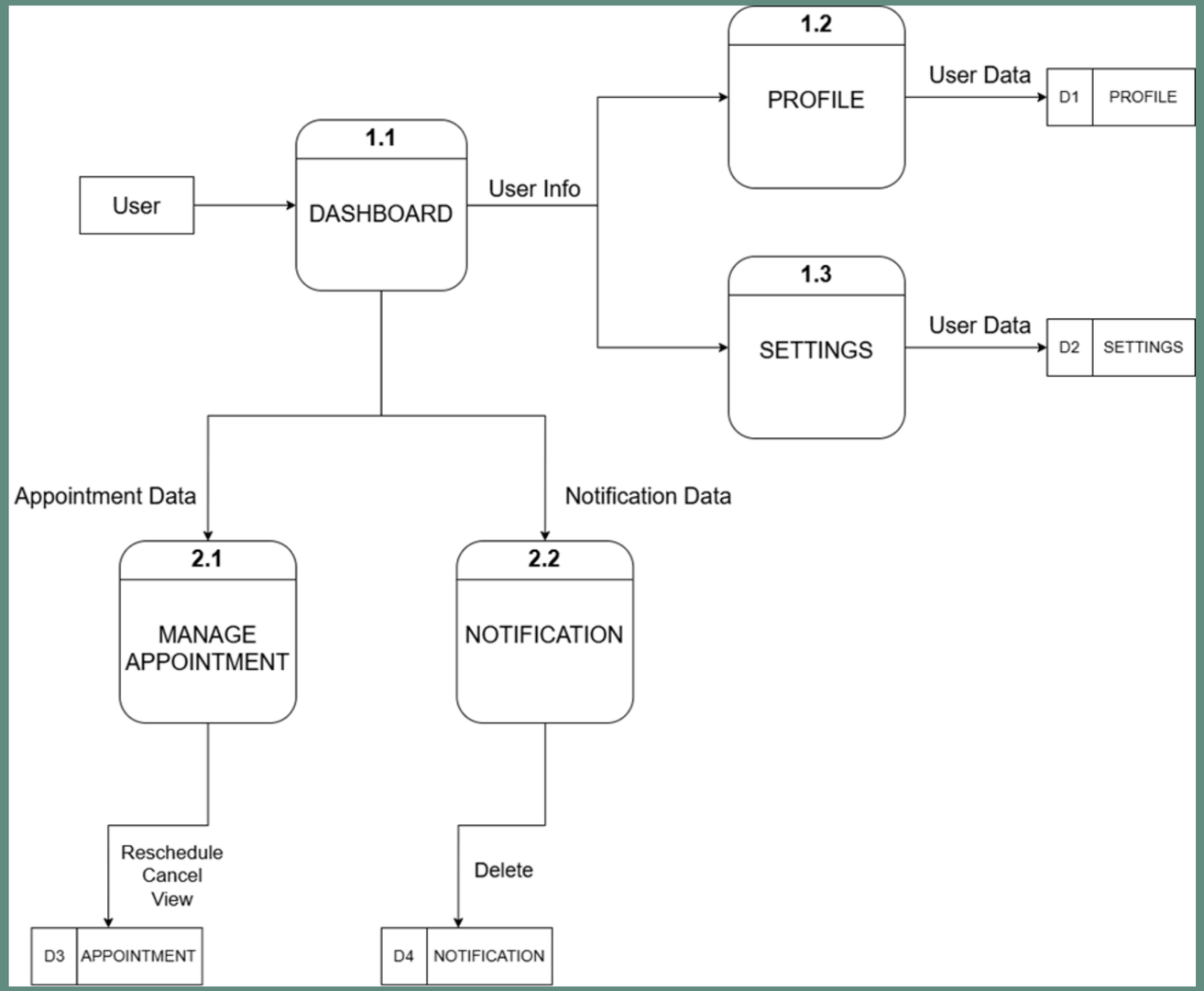


FIGURE 3.5 CHILD DIAGRAM FOR PROCESS 2 (ADMINISTRATOR)

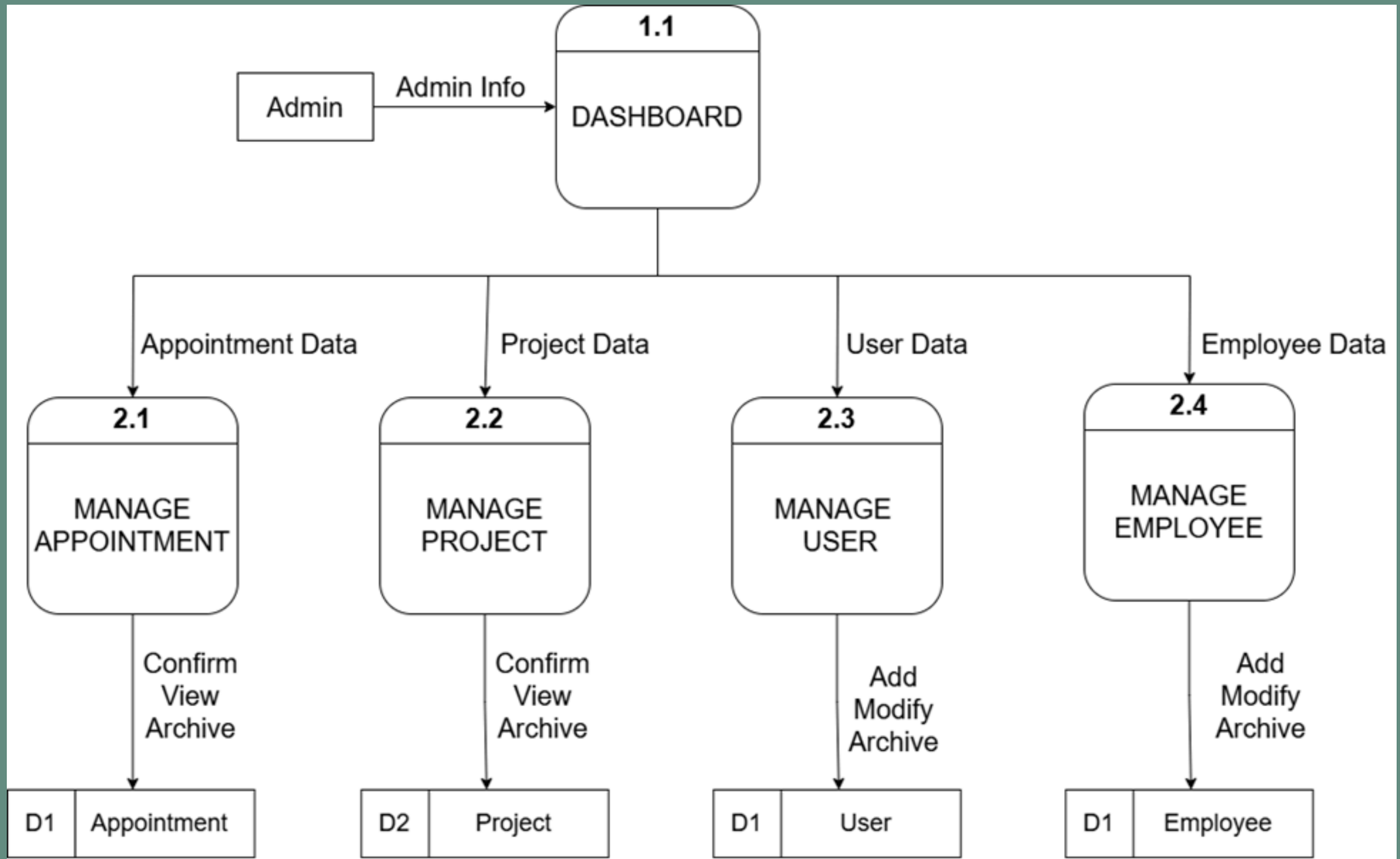


FIGURE 3.6 CHILD DIAGRAM FOR PROCESS 3 (PROJECT MANAGER)

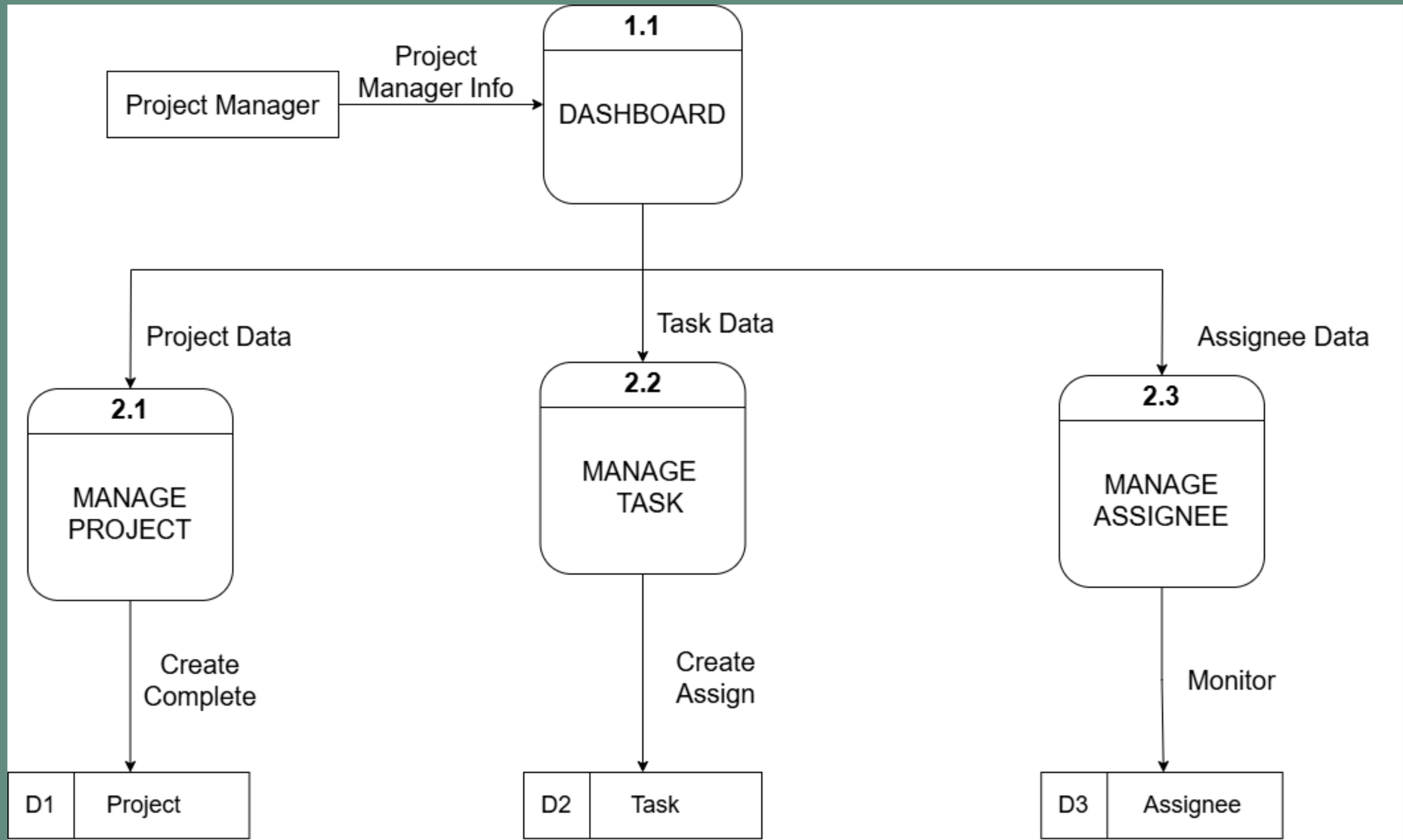


FIGURE 3.7 CHILD DIAGRAM FOR PROCESS 4 (ENGINEER, TECHNICIAN, WORKER)

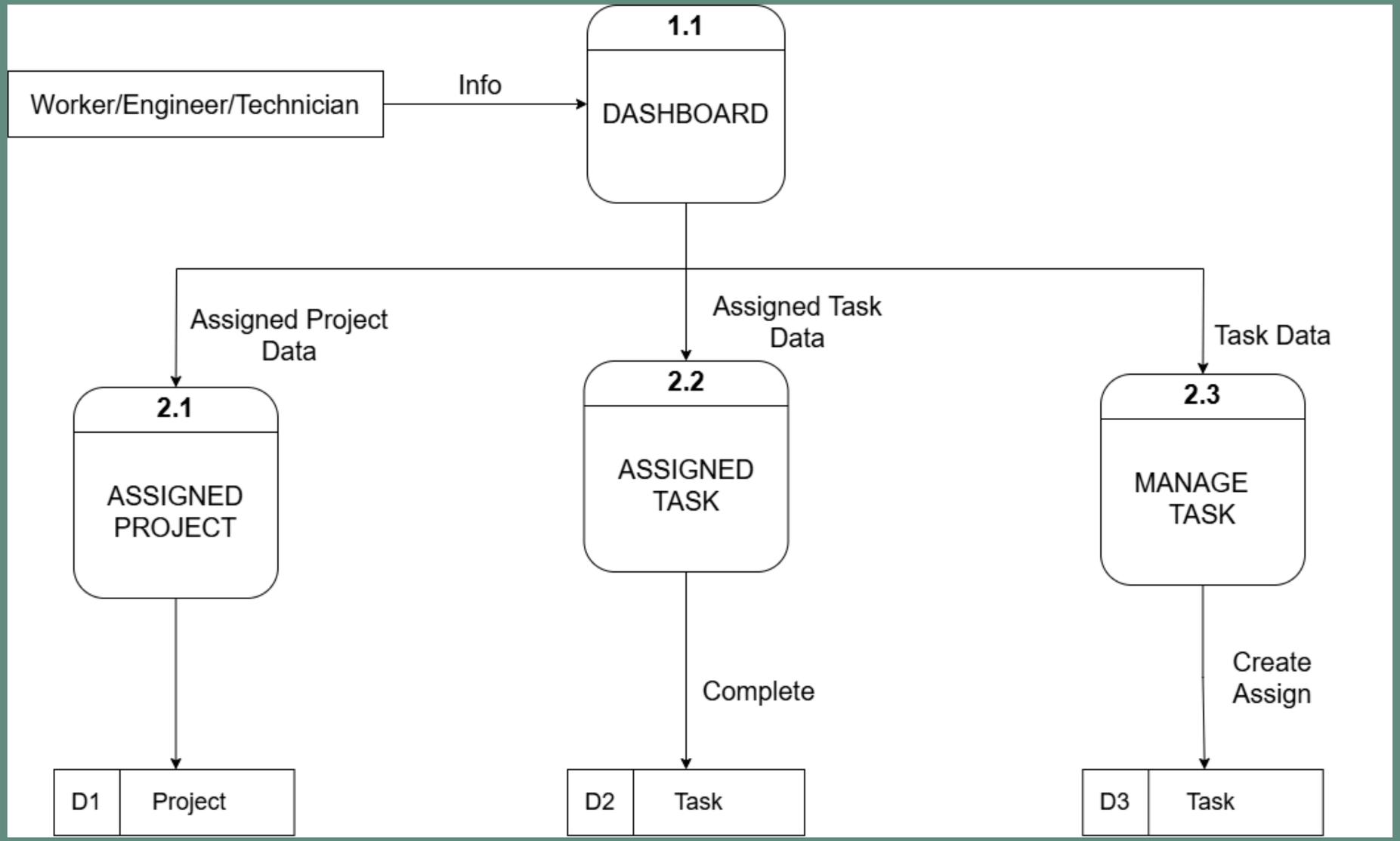


FIGURE 3.8 USER LOGIN FLOW CHART

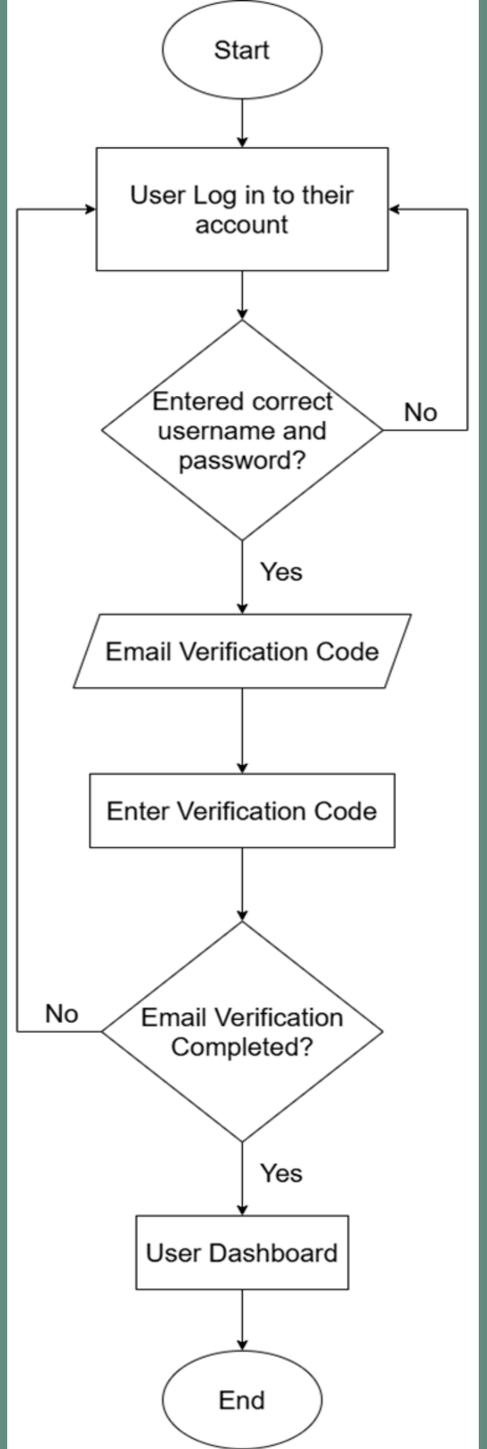
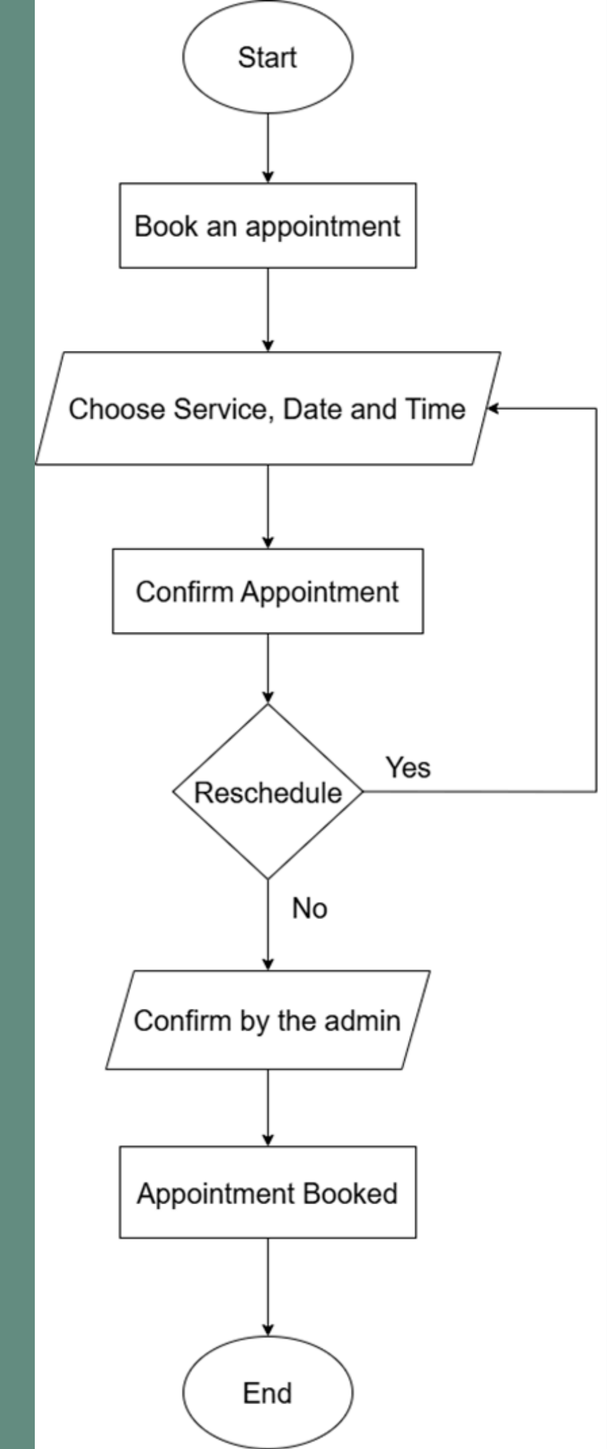


FIGURE 3.9 BOOKING APPOINTMENT FLOWCHART



LIKERT SCALE

RATING	SCALE	VERBAL INTERPRETATION
5	4.21 - 5.00	Strongly Agree (SA)
4	3.41 - 4.20	Agree (A)
3	2.61 - 3.40	Neutral (N)
2	1.81 - 2.60	Disagree (D)
1	1.00 - 1.80	Strongly Disagree (SD)

TOTAL RESPONDENTS

RESPONDENTS	TOTAL RESPONDENTS
INVESTORS	6
EMPLOYEE	19

TOTAL OF 25

INVESTORS

CHARACTERISTICS	TOTAL INVESTORS' RESULTS
EFFECTIVENESS	4.43
USABILITY	4.10
SECURITY	4.57
FUNCTIONALITY	4.54

EMPLOYEES

CHARACTERISTICS	TOTAL EMPLOYEES' RESULTS
EFFECTIVENESS	4.52
USABILITY	4.35
SECURITY	4.57
FUNCTIONALITY	4.46

TOTAL AVERAGE RATING

CHARACTERISTICS	TOTAL EVALUATION RESULTS
EFFECTIVENESS	4.49
USABILITY	4.29
SECURITY	4.59
FUNCTIONALITY	4.48

SATISFACTORY IN THE FEATURES

SYSTEM FEATURES	SATISFACTION
Content Management System (CMS)	Very Satisfied
All system responses and actions	Satisfied
The system ensures real-time data updates	Very Satisfied
The system is capable of handling concurrent user operations efficiently.	Very Satisfied
Collaboration Tools	Satisfied
Document Management	Very Satisfied
Notifications & Alerts	Very Satisfied
Employee & User Management	Very Satisfied
Reports & Analytics	Very Satisfied

SUMMARY OF FINDINGS

- The evaluation of the Web-Based Project Management System for Equalizer Builders and Technologies Corporation (EBTC) confirms its strong functionality, security, usability, and effectiveness. Survey results highlight its success in supporting project execution, task management, and operational efficiency while maintaining robust security measures.

- Employees (76% of respondents) emphasized its role in workflow optimization, while investors (24%) recognized its importance in financial planning and decision-making. Users expressed high satisfaction with key features, including the Content Management System (CMS), real-time data updates, document management, notifications, and analytics. While most features received "Very Satisfied" ratings, system response accuracy and collaboration tools were rated as "Satisfied," indicating minor refinements are needed.

- The system has been well-received, enhancing project management, streamlining workflows, and ensuring secure operational processes within EBTC.

RECOMMENDATIONS

- It is recommended to store the backup system outside company facilities to protect data from system failures, disasters, and security threats, while integrating cloud storage in future updates to enhance reliability, accessibility, and scalability for employees and clients.

- It is advisable to implement an automatic detection system that reports unauthorized access attempts from unknown devices or IP addresses, with additional notifications sent to administrators to trigger further security checks.

RECOMMENDATIONS

- To improve the appointment system, it is suggested to integrate a virtual meeting option, enabling clients to discuss projects remotely through video conferencing, real-time document sharing, and digital contracts to enhance communication, reduce in-person visits, and streamline project planning.

- It is recommended to integrate advanced project management features such as Gantt charts, resource allocation tracking, and task dependencies to enhance project planning and execution, making the system more suitable for complex projects.

RECOMMENDATIONS

- Developing a dedicated mobile application with push notifications is suggested to improve accessibility, allowing users to manage appointments and projects seamlessly from their devices.
- To strengthen security, it is advisable to implement session timeout and automatic logout features to prevent unauthorized access from inactive sessions, along with regularly updating security protocols to ensure data protection.

Thank You