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Hosting Organization: Dallol Tech

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DECLARATION

As a Fifth-year Electrical & Computer engineering student at Debre Berhan University (DBU), we had the opportunity to complete a three-month internship at Dallol Tech. During this internship, we were under the supervision of Mr. Abel Mulugeta, who was our direct supervisor at the company, and Mr. Bilew Alemu, who served as advisor from DBU. Our three-month internship at Dallol Tech was a valuable experience that allowed us to integrate theoretical knowledge with practical application. It provided us with an opportunity to work on real-world engineering projects, collaborate with professionals from different disciplines, and enhance our communication and teamwork skills. By following DBU guidelines, we ensured that our internship report was well-structured and met the required standards. This internship has undoubtedly contributed to our growth as a Electrical & computer engineering student and prepared us for future professional endeavors.

Name of student

1. Henos YIfu
2. Dawit Tekele

Date

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Signature

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Approval of Advisor

1. Mr. Bilew Alemu

Date

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Signature

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Acknowledgement

It gives us great pleasure to express our sincere appreciation to everyone who contributed to the successful completion of our internship and this report. This internship has been a valuable part of our academic journey, and we are grateful for the support and guidance we received throughout the experience.

We would like to extend our deepest gratitude to **Debre Berhan University**, especially the **Department of Electrical and Computer Engineering**, for organizing and facilitating this internship opportunity. The solid academic background and continuous support provided by the university laid the foundation for our successful engagement in the field.

Our special thanks go to **Dallol Tech** for welcoming us as an intern and allowing us to explore practical aspects of the computer stream within the electrical and computer engineering discipline. We particularly thank the professionals and staff at Dallol Tech for their mentorship, patience, and willingness to share their expertise. The knowledge and skills we gained during this internship have significantly enhanced our understanding and confidence in applying theoretical concepts to real-world scenarios.

In conclusion, We sincerely appreciate everyone who supported us during this important phase of my academic and professional development. This experience has not only enriched our knowledge but also motivated us to pursue our future career with greater dedication and clarity.

Henos Yifru & Dawit Tekele
Electrical and Computer Engineering (Computer Stream)
Debre Berhan University
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Executive Summary

This report presents a comprehensive overview of the internship undertaken at Dallol Tech as part of the requirements for the Electrical and Computer Engineering program (Computer Stream) at Debre Berhan University. The internship aimed to bridge the gap between academic knowledge and practical experience by exposing students to real-world applications in the tech industry.

During the internship period, We were actively involved in various tasks and projects related to computer systems, software development, IT infrastructure, and technical support. Under the guidance of experienced professionals, we were able to enhance ours technical skills in areas such as programming, troubleshooting, system integration, and collaborative work. We also had the opportunity to observe and participate in the development, implementation, and support of IT solutions, which helped us to gain a deeper understanding of industry workflows, operational standards, and best practices.

The experience provided valuable insights into the daily operations of a technology company and strengthened our ability to apply theoretical concepts in a professional environment. It also improved our problem-solving, communication, and time-management skills—critical attributes for a successful career in the field of computer engineering.

This report details the activities carried out during the internship, the skills acquired, challenges faced, and lessons learned. It concludes with reflections on the overall experience and its contribution to our academic and professional development.

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Chapter 1 : Internship Hosting Company

1.1 Brief history of Dallol Tech

Founded approximately five years ago, **Dallol Tech** is a dynamic and forward-thinking technology company based in Ethiopia. The company was established with the vision of addressing local and global challenges through the innovative use of technology. Its name, “**Dallol**,” is inspired by the Dallol region in the Afar. A region known for its extreme conditions, symbolizing resilience, strength, and the ability to thrive in adversity. This symbolism reflects the company’s core philosophy of breaking down technological, social, and economic barriers by developing inclusive, impactful solutions.

Since its inception, Dallol Tech has rapidly grown into a reputable and trusted provider of cutting-edge digital solutions. It has earned recognition for its ability to deliver scalable, secure, and user-friendly technologies that meet the unique demands of various sectors. The company’s journey began with a small team of passionate professionals who shared a common goal: to harness technology in a way that brings long-lasting benefits to both businesses and communities.

From these humble beginnings, Dallol Tech has expanded its operations to include a multidisciplinary team of software developers, system architects, IT consultants, and project managers. The company prides itself on fostering innovation, maintaining a high standard of excellence, and remaining adaptable in an ever-evolving technological landscape.

Over the years, Dallol Tech has positioned itself as a leader in **enterprise software solutions, IT infrastructure modernization, cloud services, and data management**. The firm has successfully implemented numerous projects for public institutions, private enterprises, educational facilities, and nonprofit organizations across Ethiopia and beyond. Dallol Tech is particularly noted for its **inclusive approach**, developing multilingual software that accommodates Ethiopia’s diverse linguistic landscape—including languages such as Amharic, Oromo, Tigrinya, Somali, Afar, as well as international languages like English, French, and Arabic.

With a **mission** rooted in empowerment and sustainable progress, Dallol Tech continues to push the boundaries of what technology can achieve. The company is deeply committed to **bridging the digital divide**, fostering local innovation, and supporting community advancement through responsible technology practices. Their solutions not only support operational efficiency for their clients but also contribute to wider societal goals such as education, accessibility, environmental sustainability, and digital literacy.

Looking forward, Dallol Tech aspires to expand its reach and impact by scaling its operations, exploring emerging technologies, and forming strategic partnerships that align with its vision of **a digitally inclusive and empowered future** for Ethiopia and the African continent at large.

1.2 Main Products & Services

Dallol Tech delivers a comprehensive suite of technology solutions designed to support digital transformation, streamline operations, and promote business growth. With a strong focus on innovation, customization, and security, the company offers the following core products and services:

1. IT Design & Development

Dallol Tech specializes in crafting state-of-the-art technology solutions tailored to the specific needs of its clients. Their development capabilities span across:

- ✧ Custom Software Applications
- ✧ Mobile Applications (Android/iOS)
- ✧ Hardware and Embedded Systems
- ✧ Biometric Systems
- ✧ Value-Added Services (VAS)
- ✧ Simulation Systems

2. IT Consulting

Dallol Tech offers expert IT consulting services to help organizations align their technology strategies with business goals. These services include:

- ✧ Strategic IT Planning and Roadmapping
- ✧ Infrastructure Evaluation and Optimization
- ✧ System Design and Integration
- ✧ Cloud Architecture and Migration Support

3. Business Reform and Process Optimization

Understanding that technology plays a key role in modern business success, Dallol Tech provides digital transformation services aimed at improving efficiency and driving innovation. Key focus areas include:

- ✧ Business Process Re-engineering
- ✧ Workflow Automation
- ✧ Digital Solution Deployment
- ✧ Operational Efficiency Enhancement

4. Infrastructure Management

Ensuring robust and efficient IT infrastructure is at the heart of Dallol Tech's service offering. They provide end-to-end infrastructure management including:

- ✧ Hardware and Software Configuration
- ✧ Network Management and Monitoring
- ✧ Server and Storage Optimization
- ✧ Data Center and Cloud Infrastructure Services

5. Data Analytics

Dallol Tech helps businesses unlock the power of data through comprehensive analytics services. Their offerings include:

- ✧ Data Collection and Preparation
- ✧ Data Warehousing
- ✧ Business Intelligence and Visualization
- ✧ Predictive and Prescriptive Analytics

6. Cybersecurity Solutions

In an era of increasing digital threats, Dallol Tech provides robust cybersecurity services designed to protect critical IT assets and data. These services include:

- ✧ Network and Endpoint Security
- ✧ Cloud and On-Premise Security Solutions
- ✧ Vulnerability Assessment and Penetration Testing
- ✧ Compliance and Risk Management

8. Emerging Technologies

Dallol Tech stays at the forefront of innovation by incorporating cutting-edge technologies into their solutions. They actively explore and implement:

- ✧ Artificial Intelligence (AI)
- ✧ Machine Learning (ML)
- ✧ Internet of Things (IoT)
- ✧ Blockchain Technology
- ✧ Augmented and Virtual Reality (AR/VR)

1.3 Main Customers

Over the years, **Dallol Tech** has built a diverse and impressive portfolio of clients across various sectors. The company's ability to deliver tailored and impactful technology solutions has earned it the trust of government institutions, financial organizations, humanitarian entities, manufacturers, service providers, and SMEs. Their clientele spans industries such as logistics, mining, finance, hospitality, education, fashion, and entertainment.

1. Government and Public Sector

Dallol Tech has partnered with key government ministries and regulatory bodies, providing them with digital solutions for improved service delivery and operational efficiency.

- ✧ FDRE Ministry of Mines and Petroleum
- ✧ FDRE Ministry of Transport and Logistics

2. Financial Institutions

The company supports banks and financial service providers in digitizing operations, enhancing security, and improving customer experiences.

- ✧ Enat Bank

3. Humanitarian and Nonprofit Organizations

Dallol Tech has a long-standing commitment to social impact and has collaborated with nonprofits to deliver free or subsidized tech services.

- ✧ Mekedonia Humanitarian Organization

4. Manufacturing and Industry

Dallol Tech delivers enterprise software, automation, and IT support to companies in manufacturing and industrial sectors.

- ✧ Maru Metal Industry
- ✧ Dalga Leathers
- ✧ Kerezhi Ethiopia Leather
- ✧ Yetebaberut Food Complex

5. Logistics and Transportation

The company offers digital transformation solutions for logistics providers and driver training centers, enhancing operational management and compliance.

- ✧ Abay Logistics
- ✧ International Courier & Cargo Service
- ✧ KB International Drivers Training Center
- ✧ Rehoboth Driver Training Center
- ✧ Harar International Drivers Training Institute
- ✧ Wedeni Drivers and Mechanic Training Center
- ✧ Butajira Best Driving School
- ✧ Solomon Driving School

6. Retail, Fashion, and E-Commerce

Dallol Tech supports growing businesses with e-commerce platforms, POS systems, and digital branding tools.

- ✧ Esky Fashion
- ✧ Brilliant Technology Importer
- ✧ Homaso Ethio Trading

7. Hospitality and Food & Beverage

The company has provided IT infrastructure, management systems, and web solutions to businesses in hospitality and the food industry.

- ✧ Nusra Hotel
- ✧ Ok Bottling and Beverage S.C
- ✧ Kategna Restaurant
- ✧ Moca Plantation Coffee
- ✧ Leef Arabic Coffee

8. Education and Training

By equipping training institutions with modern technology, Dallol Tech contributes to improving education delivery and administration.

- ✧ Kerezhi USA
- ✧ Truth VAS Provider
- ✧ Twins VAS Provider
- ✧ Betelehem Yosef VAS Service
- ✧ Mesob Band (Entertainment education)

9. Tourism and Entertainment

The company has also extended its digital services to clients in tourism and media industries, helping them build stronger digital footprints.

- ✧ Zelalem Tour and Travel
- ✧ Quick Rent
- ✧ Ensera Achu
- ✧ Africa Me Event Organize

10. Automotive and Repair

Dallol Tech supports automotive businesses through management systems, client databases, and digital solutions.

- ✧ Berhanu Al-Adem Autoshop

1.4 Over all Organization & Workflow

Dallol Tech follows a well-defined, professional, and client-centric workflow that ensures the delivery of high-quality, secure, and scalable technological solutions. The company's operations are guided by industry best practices, a strong internal team structure, and a commitment to client satisfaction. From initial consultation to post-deployment support, every stage is meticulously planned and executed to meet clients' unique needs and expectations.

1. Planning and Design Phase

This is the foundational stage of every project, where understanding and collaboration are prioritized to ensure alignment with client goals.

- ✓ **Client Engagement and Requirement Gathering:**

The process begins with in-depth consultations with clients to thoroughly understand their business objectives, operational challenges, and technological needs. This may include site visits, interviews, and stakeholder workshops.

- ✓ **Feasibility Study and Solution Mapping:**

Dallol Tech's team conducts technical and business feasibility analyses to determine the most appropriate solution architecture and development approach.

- ✓ **Customized Design and Road-map Creation:**

Detailed system designs, wireframes, and architectural blueprints are created. These are aligned with the client's workflow, budget, and timeline, and are approved before development begins.

- ✓ **Collaborative Feedback Loop:**

The client is kept involved through regular review sessions, ensuring their feedback is integrated into the final design.

2. Development Using Advanced Technologies

In this phase, Dallol Tech applies its technical expertise to build robust, secure, and scalable systems.

- ✓ **Modern Tech Stack Implementation:**

The development team uses the latest frameworks and programming languages tailored to the project's needs, including tools for mobile, cloud, enterprise, and hardware solutions.

- ✓ **Agile Development Practices:**

Projects are typically managed using Agile or hybrid methodologies, enabling incremental delivery, continuous testing, and responsiveness to change.

✓ **Cross-Department Collaboration:**

Developers, UI/UX designers, system analysts, and project managers work closely to ensure the product not only functions well but also offers an excellent user experience.

✓ **Customization & Localization:**

Solutions are often multilingual and culturally sensitive, especially tailored for Ethiopia's diverse population (Amharic, Oromo, Tigrigna, Somali, Afar, English, etc.).

3. Quality Assurance and Security Testing

Quality and security are embedded in Dallol Tech's workflow to ensure that solutions are reliable, efficient, and safe.

✓ **Automated and Manual Testing:**

Comprehensive testing protocols are employed, including unit testing, integration testing, system testing, and user acceptance testing (UAT).

✓ **User Interface and Experience Testing:**

Applications are tested for responsiveness, performance, and ease of navigation to ensure a seamless user experience for all users, including non-technical individuals.

✓ **Security Protocols:**

Advanced security mechanisms such as encryption, authentication, and role-based access control are implemented. Vulnerability scanning and penetration testing are also performed to safeguard against cyber threats.

✓ **Regulatory and Compliance Checks:**

Solutions are checked for compliance with industry standards, legal regulations, and any specific data privacy or governance policies.

4. Deployment and Handover

The final stage ensures the solution is successfully launched and integrated into the client's operational environment.

✓ **Seamless Deployment:**

Deployment is planned to minimize downtime and disruption. This includes installation, configuration, and transition support, whether on-premises or cloud-based.

✓ **Training and Documentation:**

Dallol Tech places a strong emphasis on knowledge transfer. Clients are provided with comprehensive user manuals, technical documentation, and hands-on training sessions.

✓ **Post-Deployment Support:**

Dedicated support teams are available for troubleshooting, maintenance, updates, and ongoing consultation. Support may be delivered remotely or on-site, depending on client needs.

5. Focus on Usability and Accessibility

Understanding that technology adoption often hinges on user-friendliness, Dallol Tech ensures that its systems are designed with accessibility in mind.

✓ **Intuitive User Interfaces:**

Applications are designed with clear layouts, icons, and navigation patterns that accommodate users with limited computer literacy.

✓ **Multilingual Interfaces:**

Systems are available in several local languages to ensure accessibility for all user groups.

✓ **Inclusive Training Programs:**

Step-by-step guidance is provided to ensure that end-users can confidently use the software. Special attention is given to ensuring inclusivity, regardless of age, background, or technical proficiency.

6. Continuous Improvement and Client Feedback

Even after deployment, Dallol Tech maintains a feedback loop with clients to ensure ongoing satisfaction and system optimization.

✓ **Performance Monitoring and Reporting:**

System usage, performance metrics, and user behavior are monitored to identify areas for improvement.

✓ **Client Feedback Mechanism:**

Clients are encouraged to share feedback regularly, which is used to inform system updates and future development cycles.

Chapter 2 - Internship Experience

2.1 How We Got Into the Company

We were two interns seeking meaningful industry experience in the field of technology. After researching potential companies, we identified Dallol Tech as a leading and innovative tech company that aligned well with our interests and career goals.

To explore internship opportunities, we first contacted the company by phone. During the call, we introduced ourselves, explained our interest in gaining practical experience, and inquired about any available internship programs. The company was responsive and welcomed our initiative.

Following the phone conversation, we visited Dallol Tech's office in person. There, we had the opportunity to speak directly with the team, where we expressed our eagerness to learn and contribute. After discussing our background and interests, the company gave us the opportunity to join as interns.

The entire process was smooth and encouraging. It highlighted Dallol Tech's openness to supporting young talent and its commitment to fostering learning and professional development.

2.2 Section of the Company We have been Working

During our internship at **Dallol Tech**, we were assigned to the **IT Design and Development** department, one of the core divisions driving the company's technological innovation. This department is responsible for planning, building, and delivering a wide array of digital products, including web and mobile applications, enterprise-level systems, and custom software solutions for clients across various industries.

Our primary focus during the internship was contributing to the **front-end development** of one of the department's major projects: **EFOY**, an online **bus ticket booking system** designed to improve the transportation experience by enabling users to browse schedules, reserve seats, and purchase tickets digitally. The platform is intended to modernize the public transportation booking process and improve overall user convenience.

As front-end contributors to the EFOY project, we were actively involved in designing and implementing user-facing components of the system. Our tasks included:

- Developing and refining **UI components** such as booking forms, page layouts, and seat selection interfaces.
- Ensuring **responsiveness** across devices by using modern styling tools like **Tailwind CSS**.

- Assisting in improving **user interaction flows** and making the interface more intuitive and visually consistent.
- Identifying layout inconsistencies or usability issues and working to resolve them under the guidance of the development team.

We gained hands-on experience working with **HTML, CSS, JavaScript, Tailwind CSS** and UI/UX principles, which allowed us to transform design ideas into functional and interactive elements. Although we didn't participate in aspects such as version control or back end integration, we had opportunities to **observe** how our work fit into the broader development process and how different teams collaborated to bring the product to life.

This experience helped us build confidence in applying our front-end knowledge in a real-world project and strengthened our understanding of practical interface design, usability considerations, and how technology is used to solve real problems in a structured work environment. Our time in the department not only deepened our technical skill set but also provided us with valuable insights into how front-end development contributes to the overall success of software solutions.

2.3 Workflow in the Section

The **IT Design and Development** department at Dallol Tech follows a structured and collaborative workflow to ensure that digital solutions are developed efficiently, meet user requirements, and maintain a high standard of quality. Throughout our internship, we had the opportunity to observe and participate in this workflow, particularly as it applied to the **EFOY Bus Booking Project**. The workflow is generally divided into several key stages:

1. Requirement Gathering and Planning

At the beginning of any project, the team holds planning sessions with the client or internal stakeholders to gather functional and non-functional requirements. In this stage:

- The client's business needs and user expectations are clearly identified.
- Project objectives, timelines, and priorities are established.
- Responsibilities are allocated to relevant team members.

2. Design and Prototyping

Following the planning phase, UI/UX designers and developers work together to:

- Create **wireframes and prototypes** using design tools like Figma.
- Determine layout structures, color schemes, typography, and component behavior.

Ensure the design is user-friendly, responsive, and aligned with the client's branding.

3. Front-End Development

In this phase, front-end developers (including us as interns) implement the designs into actual code. This involves:

- Writing semantic **HTML** for structure.
- Styling components with **CSS** and **Tailwind CSS**.
- Adding interactivity using **JavaScript**.
- Ensuring **responsiveness** across screen sizes and devices.
- Testing components for usability and visual consistency.

Our main contribution focused on this stage, where we developed and refined key user interface elements of the EFOY platform.

4. Internal Review and Feedback

Before integration with the back-end or deployment:

- The front-end work is reviewed by senior developers or team leads.
- Feedback is provided on layout, consistency, performance, and usability.
- Necessary revisions are made based on this feedback.

We received guidance and constructive suggestions from experienced developers, which helped us improve both the visual quality and maintainability of our code.

5. Integration and Final Testing

Once front-end elements are approved:

- They are integrated with backend functionalities (usually handled by the backend team).
- The integrated system is tested for bugs, inconsistencies, or user experience issues.
- Any problems found are reported and fixed iteratively.

While we did not directly participate in this stage, we were able to observe how our work as front-end interns fit into the broader product development lifestyle.

2.4 Work we have been executing

During our internship at **Dallol Tech**, we were primarily assigned to work on the **front-end development** of the **EFOY Bus Booking System**, a web-based platform designed to streamline the process of public bus transportation by offering online booking services. Our responsibilities were focused on implementing and refining various user interface components of the system, under the supervision of experienced developers in the IT Design and Development department.

The specific work-pieces and tasks we were involved in included:

1. Page Structure and Layout Implementation

- We developed the basic structural layout of several web pages using **HTML**, organizing the content into clean, semantic sections such as headers, footers, content blocks, and booking forms.
- We applied **Tailwind CSS utility classes** to create a responsive and consistent layout, ensuring the UI aligned with the platform's design specifications.

2. Styling and UI Consistency

- We were tasked with ensuring that fonts, colors, buttons, and icons were consistent across different pages.
- Adjustments were made to padding, spacing, and alignment to improve overall visual balance and user readability.

3. Responsive Design Adjustments

- A significant portion of our task was making sure the platform displayed correctly on **mobile phones, tablets, and desktop devices**.
- We tested and optimized several components (e.g., booking form, navigation bar) to ensure they adjusted fluidly to various screen sizes.

4. Navigation and Header Design

- We contributed to the creation and styling of the **navigation bar**, ensuring it worked smoothly across devices.
- We made visual improvements to the header to make it more appealing and easy to navigate.

5. Minor Debugging and Testing

- We identified and fixed minor UI bugs, such as overlapping elements, inconsistent spacing, or layout shifts.

- We manually tested our changes and sought feedback from senior developers to make improvements based on real-time reviews.

2.5 Procedures used while performing the task

Throughout our internship at **Dallol Tech**, while working on the **EFOY Bus Booking System**, we followed a structured and methodical approach to complete our front-end development tasks effectively. These procedures helped ensure the work we delivered was consistent, maintainable, and aligned with project requirements. Below are the key steps we consistently followed:

1. Reviewing UI/UX Designs

Before beginning development on any part of the application, we:

- Carefully reviewed the **design prototypes** shared by the design team (in tools such as Figma or other mockup files).
- Took note of layout structure, color schemes, font sizes, and the behavior of interactive elements.
- Discussed unclear design areas with our mentors to ensure accuracy in implementation.

2. Planning the Structure

To organize our workflow:

- We broke down the interface into **manageable components or sections** (e.g., navbar, form, footer).
- Outlined what needed to be done for each section, including **HTML structure, CSS styling, and responsiveness goals**.
- Determined which utility classes (from **Tailwind CSS**) would be appropriate for layout and design.

3. Implementing Front-End Code

This was the core part of our daily task:

- We wrote **semantic HTML** to structure the content meaningfully.
- Applied **Tailwind CSS** classes for design, focusing on responsiveness, spacing, and visual hierarchy.
- Followed consistent naming and indentation styles to maintain code readability.

4. Previewing and Testing Responsiveness

After development:

- We tested the layout on different screen sizes using browser developer tools.
- Identified elements that required layout adjustments (e.g., breakpoints, flex/grid tweaks) to ensure **mobile-friendliness**.

5. Debugging and Refining

Whenever issues were noticed:

- We performed **manual debugging** by inspecting HTML and CSS in the browser.
- Adjusted styles, corrected alignment problems, and refined the interface for a smoother user experience.
- Referred to online documentation or sought help from senior developers for best practices.

6. Receiving Feedback

Once a section was completed:

- We presented our work to a mentor or team lead.
- Based on the feedback, we made necessary **revisions** to align with project standards and improve user experience.

7. Finalizing and Cleaning Code

Before submission:

- We removed unused code and unnecessary comments.
- Ensured all sections were visually consistent and functioning as expected.
- Saved and documented our progress clearly so others could continue from where we left off if needed.

2.6 Performance Evaluation: How Well We Performed Our Work Tasks

Throughout our internship at **Dallol Tech**, we consistently performed our assigned tasks with dedication, responsibility, and a strong desire to learn. We approached every duty with seriousness and professionalism, making sure to understand the expectations and fulfill them to the best of our abilities.

From the beginning, we took the initiative to adapt to the company environment and follow the guidance provided by our supervisors and team members. We managed our time effectively, completed tasks on schedule, and communicated

regularly with the team to ensure our work aligned with project goals. We also respected the work culture and maintained a positive attitude even when facing unfamiliar or challenging tasks.

We were highly engaged during work hours, eager to observe, ask questions, and actively participate in day-to-day activities. We accepted feedback constructively and used it to improve the quality of our work. We also maintained proper documentation of our daily activities and took responsibility for tracking our progress.

In addition to developing professional habits such as punctuality, discipline, and teamwork, we also improved our soft skills—especially in communication, problem-solving, and collaboration. Working in a team helped us understand the importance of clear coordination and mutual support to achieve shared goals.

Overall, we believe that our performance met and, in some cases, exceeded expectations. We completed our internship with greater confidence, improved workplace readiness, and a clearer understanding of professional conduct. The experience has contributed meaningfully to our academic and personal development, and we are grateful for the opportunity to grow in such a supportive and learning-focused environment.

2.7 Problems Identified

While contributing to the **front-end development** of the **EFOY Bus Booking System** at **Dallol Tech**, we closely examined the structure, appearance, and user interaction of the platform. Through hands-on development and internal review, we identified several areas where the current interface could benefit from improvements and enhancements. These issues primarily relate to outdated design patterns and the absence of features expected in modern web applications.

1. Outdated User Interface (UI) Design

- ◆ The platform's visual presentation lacked modern design principles, with minimal styling and limited visual appeal.
- ◆ Inconsistent spacing, font usage, and color themes made the interface feel less intuitive and not user-centered.
- ◆ The absence of UI micro-interactions such as hover effects and button animations made the platform appear static and old-fashioned.

2. Limited Responsiveness

- ◆ Although the system displayed adequately on desktops, it struggled with **mobile responsiveness**.

- ◆ Elements were often misaligned or cropped on smaller screens, making the platform harder to use on smartphones or tablets.
- ◆ Given that a significant number of users access online services via mobile, this represents a major usability gap.

3. Lack of Dynamic and Interactive Components

- ◆ Key booking features, such as **seat selection**, **form validation**, and **loading feedback**, were static and lacked interactivity.
- ◆ There were no dynamic updates or real-time elements to guide or inform the user while filling out booking forms or navigating through pages.

4. Navigation and Usability Gaps

- ◆ The navigation bar design was basic, lacking active-state indicators or feedback on user interactions.
- ◆ Users may find it difficult to understand where they are within the platform or how to return to previous steps in the booking process.

5. Accessibility Limitations

- ◆ Several accessibility best practices were missing:
 - Low color contrast made text harder to read.
 - Some form fields were not properly labeled.
 - Keyboard navigation support was insufficient.
- ◆ These issues can create barriers for users with disabilities or limited technical skills.

2.8 Solution Proposed to to Overcome identified Problem

To address the limitations observed in the front-end of the **EFOY Bus Booking System**, we proposed several practical and modern solutions aimed at improving the platform's usability, responsiveness, visual appeal, and overall user experience. These recommendations were designed to align with current web development standards and user expectations.

1. UI/UX Modernization

We proposed a complete redesign of the user interface using modern design systems and a more intuitive layout. Key suggestions included:

- ◆ Adopting a **clean and minimalistic design** with proper spacing, consistent typography, and updated color schemes.
- ◆ Introducing **UI feedback elements** like hover effects, smooth transitions, and subtle animations to make the platform more interactive.

- ◆ Using **design components** (cards, modals, badges) to better structure content and improve readability.

2. Improved Mobile Responsiveness

To make the site accessible across all device types:

- ◆ We recommended the implementation of **mobile-first design principles** using responsive utility classes provided by Tailwind CSS.
- ◆ Added proposals to **test all layouts across multiple screen sizes** to ensure proper alignment, spacing, and usability.
- ◆ Encouraged use of media queries for finer control over layout adjustments.

3. Integration of Interactive Components

We suggested enhancing user experience by introducing dynamic features such as:

- ◆ **Real-time form validation** for faster error feedback and better user guidance.
- ◆ A **seat selection UI** where users can visually pick their seats with color-coded availability indicators.
- ◆ Adding **loading spinners** or progress bars during booking submission to indicate ongoing processing.

4. Navigation Enhancements

To address usability challenges:

- ◆ We recommended redesigning the **navbar** to make it more intuitive, with visible links and clear active states.
- ◆ Proposed the inclusion of a **breadcrumb trail** or step indicator during the booking process to help users understand their position in the workflow.

Chapter 3 - Overall benefits from Internship

3.1 Improvement in Practical Skills

Our internship experience at **Dallol Tech** played a crucial role in enhancing our practical skills and bridging the gap between theoretical knowledge and real-world application. Throughout the internship period, we were exposed to various work environments, tools, and problem-solving situations that allowed us to grow significantly in multiple practical areas.

One of the key areas of growth was our **ability to apply classroom knowledge in real work settings**. Concepts that were once abstract in academic lectures became much clearer as we encountered them in practical scenarios. This hands-on experience allowed us to understand how different roles, departments, and systems work together to deliver solutions in a professional environment.

We also improved our **workplace discipline and technical adaptability**. Being in a structured work environment helped us develop habits such as time management, task prioritization, and professional communication. We learned how to manage tasks

under supervision, follow internal guidelines, and complete assignments within deadlines. This not only increased our productivity but also prepared us for future roles in a competitive job market.

Another important skill we developed was **problem-solving through observation and practice**. By watching how experienced professionals addressed challenges, and by attempting similar tasks ourselves, we sharpened our analytical thinking and learned to approach problems with a solution-oriented mindset. When faced with unfamiliar tasks, we learned to research, ask relevant questions, and seek guidance without hesitation—an essential ability in any field.

Our internship also helped us strengthen our **teamwork and collaboration skills**. Working closely with supervisors, mentors, and fellow interns taught us how to function effectively within a team, respect different perspectives, and contribute to shared goals. We became better at sharing responsibilities, giving and receiving feedback, and maintaining a positive attitude during collaborative efforts.

Furthermore, we gained valuable experience in **documentation and reporting**, learning how to record daily activities, summarize work progress, and reflect on what we learned. This improved our ability to organize information and communicate our contributions clearly, which is essential in any professional setting.

3.2 Improvement in Theoretical Knowledge

During our internship at **Dallol Tech**, we not only gained practical experience but also significantly strengthened and upgraded our theoretical knowledge. The internship provided us with a unique opportunity to connect what we had learned in the classroom with how those concepts are applied in the real world. This direct link between theory and practice deepened our understanding of several foundational and advanced concepts.

First and foremost, by observing how professionals approached real projects, we were able to revisit and reinforce many of the topics we had previously studied. The concepts that once seemed abstract or difficult to understand became much clearer when we saw them in use within real systems and solutions. This gave us a more meaningful and lasting understanding of the subjects we had learned during our university courses.

We also encountered new ideas and methods that extended beyond our formal curriculum. Through guidance from mentors and exposure to company workflows, we came to understand **how theories are selected, adapted, and applied** in actual projects. This helped us realize that theoretical knowledge is not just about memorizing facts, but about understanding how to **analyze situations, make informed decisions**, and adapt solutions to different needs and constraints.

In addition, our theoretical knowledge improved through participation in **discussions, code reviews, and internal knowledge-sharing sessions**. These interactions helped us learn about standards, design principles, and best practices that are grounded in theoretical foundations but are often not fully explored in academic settings.

Moreover, having the chance to apply theoretical principles in a hands-on environment allowed us to evaluate our own knowledge. We identified areas where our understanding was strong and others where we needed improvement. This awareness motivated us to review previous lessons, read additional resources, and ask more focused questions, leading to deeper learning.

Overall, the internship helped us transition from a **basic academic understanding** to a **more applied and analytical grasp of theory**. It strengthened our critical thinking, expanded our intellectual curiosity, and made us more confident in approaching both academic projects and real-world technical problems with a solid theoretical foundation.

3.3 Improvement in Interpersonal Communication Skills

Throughout our internship at **Dallol Tech**, one of the most valuable areas of growth was the improvement of our **interpersonal communication skills**. Being in a professional environment required us to interact regularly with supervisors, colleagues, and fellow interns, which helped us enhance both our verbal and non-verbal communication abilities.

We learned how to **communicate clearly and respectfully** in a workplace setting. This included asking relevant questions, reporting our progress, participating in team discussions, and giving or receiving feedback in a professional manner. Over time, we became more confident in expressing our ideas, opinions, and concerns without hesitation, which is an essential skill in any career path.

Working as part of a team taught us how to **listen actively and respectfully to others**, even when ideas differed. We developed the ability to understand different perspectives, respond thoughtfully, and contribute to group decisions in a collaborative way. These experiences improved our teamwork and helped us become more open-minded and cooperative individuals.

In addition, being in a diverse and fast-paced environment taught us how to adapt our communication style depending on the situation—whether we were speaking with senior developers, asking for guidance, or working alongside peers. We became more aware of our tone, body language, and timing, which helped us communicate more effectively and build stronger working relationships.

Overall, the internship greatly enhanced our interpersonal communication skills by giving us real-life opportunities to engage with others in meaningful, productive ways. These skills will be valuable not only in our future careers but also in academic teamwork, project collaboration, and leadership roles.

3.4 Improvement in Team-Playing Skills

During our internship at **Dallol Tech**, one of the most important areas in which we experienced significant growth was our **team-playing skills**. Being part of a

professional environment where collaboration is essential allowed us to understand and practice what it truly means to be an effective team member.

From the beginning, we were involved in group tasks, joint problem-solving activities, and discussions that required active participation and cooperation. This helped us realize that contributing to a team goes beyond simply doing our part—it involves **supporting others, sharing ideas, respecting different viewpoints**, and working together toward a shared goal.

We learned how to **balance our own responsibilities with the needs of the group**, knowing when to take the lead and when to listen and follow. This flexibility made us more adaptable and responsive to the dynamics of teamwork. We also became more patient and understanding, especially when working with teammates who had different working styles or perspectives.

Through collaboration, we gained experience in **dividing tasks, setting group priorities, meeting shared deadlines**, and resolving conflicts constructively when disagreements arose. These experiences taught us the value of communication, coordination, and compromise in achieving team success.

Being part of a team also boosted our sense of accountability. Knowing that others depended on our contributions encouraged us to stay focused, reliable, and consistent in our work. At the same time, we also became more comfortable seeking help when needed and offering support when teammates faced challenges.

3.5 Improvement in Leadership Skills

Our internship at **Dallol Tech** provided us with several opportunities to improve our **leadership skills**, even as interns. While we were not in formal leadership positions, the environment allowed us to practice and develop essential leadership qualities that are crucial for future professional roles.

One of the most valuable lessons we learned was the importance of **taking initiative**. During team assignments or individual tasks, we learned to step up, take ownership, and guide certain aspects of the work without waiting to be told what to do. This proactive attitude helped build our confidence and showed us that leadership often begins with responsibility and self-motivation.

We also improved our ability to **make decisions under guidance**. Whenever we were faced with challenges or unclear situations, we learned to assess options, ask the right questions, and make informed choices. This developed our decision-making skills—an essential part of effective leadership.

In group settings, we had the chance to **motivate and support our teammates**, share helpful information, and encourage collaboration. These small but meaningful contributions helped us practice being a positive influence on others, which is at the heart of good leadership. We discovered that leadership is not always about directing others, but often about **helping the team succeed together**.

Additionally, by observing how senior professionals and mentors handled their roles, we gained insight into what **strong, respectful, and ethical leadership** looks like in a real work environment. Their guidance helped shape our understanding of

leadership as a skill that combines communication, decision-making, accountability, and empathy.

We also learned the value of **setting a good example**, such as meeting deadlines, being punctual, and staying organized—behaviors that inspired others to stay on track and focused. These experiences laid the foundation for us to become more confident, responsible, and thoughtful future leaders.

3.6 Understanding of Work Ethics and Related Issues

Our internship at **Dallol Tech** significantly deepened our understanding of **work ethics and professional conduct**, which are essential qualities in any career. Through real-world exposure and interaction with professionals, we learned not just how to perform tasks, but how to conduct ourselves responsibly and respectfully in a workplace environment.

One of the most important lessons we gained was the value of **punctuality and time management**. We observed that being on time, meeting deadlines, and using work hours productively are basic expectations in any professional setting. Practicing this during the internship helped us build discipline and reliability—qualities that are at the core of strong work ethics.

We also gained a clearer understanding of **responsibility and accountability**. We were expected to take ownership of our tasks, follow through with our duties, and report our progress honestly. This taught us that in the workplace, being responsible is not just about completing tasks, but also about being trustworthy and dependable.

Respect for **rules, procedures, and authority** was another key area where our awareness improved. We learned to follow company policies, respect the guidance of supervisors, and adapt to the organization's standards. We realized that maintaining professionalism means aligning personal behavior with the values and expectations of the workplace.

Additionally, we became more aware of the importance of **integrity and honesty**. Whether it was about reporting progress, asking for help, or admitting mistakes, we learned that being truthful and transparent is vital for building trust with colleagues and supervisors.

Through our daily interactions, we also understood the role of **respect and teamwork** in maintaining a healthy work environment. Treating others with respect, listening to different opinions, and helping one another created a collaborative and positive atmosphere, which we now recognize as an important part of ethical work behavior.

3.7 Improvement in Entrepreneurship Skills

Our internship at **Dallol Tech** not only enhanced our technical and communication skills, but also helped us gain important insights into **entrepreneurship**—the mindset and capabilities required to turn ideas into real solutions and potential businesses.

One of the major lessons we learned was the importance of **problem-solving with purpose**. We observed how the company approached real-world challenges by designing and implementing technology solutions that address specific needs. This taught us how innovation is often driven by the desire to solve problems effectively—one of the core principles of entrepreneurship.

We also gained a better understanding of **how tech ideas are developed, tested, and refined** before reaching users. By seeing how projects move from initial planning to real implementation, we learned how to assess feasibility, plan resources, and think critically about functionality and user needs—skills that are essential for anyone interested in launching a product or service.

Working in a fast-paced and dynamic environment also taught us the value of **adaptability and continuous learning**. We saw that successful tech teams and entrepreneurs are those who stay open to new tools, feedback, and evolving market needs. This helped us appreciate that entrepreneurship is not a one-time act, but an ongoing process of learning and improving.

In addition, our exposure to how the company interacts with clients and delivers value gave us insight into the **business side of technology**—including customer service, client communication, and understanding user expectations. These experiences showed us the importance of balancing technical development with business thinking.

We also learned about the importance of **Self-initiative and Ownership**, two qualities that define entrepreneurial behavior. Even as interns, we were encouraged to be proactive, think independently, and bring ideas to the table. This helped us build confidence in our ability to contribute meaningfully—an essential mindset for future entrepreneurs.

Conclusion

The internship program at **Dallol Tech** has been an incredibly valuable and transformative experience that bridged the gap between academic learning and real-world application. Over the course of the program, we were given the opportunity to immerse ourselves in a professional work environment where we could observe, participate, and contribute meaningfully to the activities of a functioning technology company.

Throughout the internship, we engaged in various work tasks, especially those related to software development, and gradually adapted to the company's workflow, standards, and expectations. Even though we came into the program with theoretical knowledge from our university studies, the internship allowed us to apply that knowledge in practical scenarios, sharpening our skills in problem-solving, time management, and professional communication.

Beyond technical exposure, we also made significant progress in developing critical **soft skills** such as teamwork, interpersonal communication, leadership, and adaptability. We learned how to work effectively in a group, exchange ideas constructively, and support one another to achieve common goals. These experiences helped us grow not only as students and interns but as future professionals ready to contribute to the ever-evolving tech industry.

Equally important, our understanding of **professional ethics**, workplace discipline, and organizational culture was greatly enhanced. We became more aware of how responsibility, honesty, punctuality, and respect for procedures form the foundation of a healthy and efficient work environment. These values are now firmly rooted in our approach to both academic and professional responsibilities.

The internship also sparked a deeper interest in **entrepreneurial thinking**, as we witnessed how ideas are transformed into real-world solutions. By observing the company's approach to innovation, client interaction, and service delivery, we developed a better understanding of how businesses operate, grow, and sustain in a competitive market. It motivated us to think not just as workers, but as potential creators and problem-solvers.

In conclusion, this internship was more than a requirement—it was a milestone in our personal and professional journey. It gave us direction, confidence, and real-world insight into the technology field, preparing us for the challenges and opportunities that lie ahead. We are truly grateful to **Dallol Tech** for the mentorship, exposure, and support provided, and to **Debre Berhan University** for facilitating this opportunity. The skills, knowledge, and experiences gained will remain with us as we continue to pursue excellence in our future careers.

Recommendations

The internship experience at Dallol Tech has been both transformative and insightful. As we conclude this chapter of practical engagement, we would like to offer a series of comprehensive recommendations. These suggestions are based on our direct involvement with the company's workflow, our participation in front-end development, and our observations of the internship process as a whole. The aim is to support future improvement in both the internship program and the broader company operation. These recommendations are grouped into categories for clarity.

1. Improve the Internship Orientation Process

A well-structured onboarding process is essential to help new interns settle in quickly and productively. When we first joined, we spent some time trying to understand the company's environment, technologies in use, and project structure. While the staff was very helpful, having a **formal orientation session** would have saved time and clarified expectations earlier.

Suggested Actions:

- ◆ Develop an intern onboarding guide/manual that outlines the company's background, mission, departments, and work culture.
- ◆ Offer short intro sessions on project workflows, front-end/back-end stack, and general communication channels.
- ◆ Assign a specific mentor or supervisor to each intern group from the first day.

2. Introduce Role-Specific Training at the Start

While the internship was rich in learning opportunities, a **role-specific introductory session** would have helped us contribute more effectively from the beginning. Since we focused on front-end development, having dedicated sessions on the frameworks, tools, and standards used in Dallol Tech's front-end environment (e.g., Vue.js, Tailwind CSS, responsive design) would have given us a stronger foundation.

Suggested Actions:

- ◆ Offer hands-on workshops or recorded tutorials on technologies specific to the section where interns will work.
- ◆ Provide sample projects or walkthroughs for new interns to experiment before contributing to the live codebase.

3. Establish a Well-Defined Task Allocation System

A challenge interns often face is uncertainty regarding what exactly they should be working on at any given time. A **well-organized task board or ticketing system** would make responsibilities clearer and help track progress.

Suggested Actions:

- ◆ Use project management tools to assign and monitor intern tasks.
- ◆ Break large development goals into smaller subtasks that interns can complete and learn from.
- ◆ Ensure task descriptions are accompanied by resources, links, or documentation.

4. Create Dedicated Intern Projects or Sub-Modules

Giving interns ownership of a specific component or module—especially something relevant and client-facing—can boost confidence and motivation. For example, in our case, we contributed to the front end of the EFOY Bus Booking platform. Having a clearly scoped module (like a booking calendar or responsive nav bar) designed specifically for interns could foster creativity and measurable progress.

Suggested Actions:

- ◆ Assign specific UI components or micro-features for interns to design and implement.
- ◆ Let interns collaborate on a simplified version of a real product that could be used as a testing environment.
- ◆ Host an internal "intern showcase" day at the end of each internship cycle to present projects and solutions.

5. Introduce Interns to Basic Version Control

While we didn't engage deeply in version control during our internship, it is a **crucial industry skill** that many students lack when they enter the workforce. Understanding Git workflows such as branching, merging, pull requests, and commit messages helps build professionalism and teamwork.

Suggested Actions:

- ◆ Conduct a workshop on Git basics and company-specific Git workflow (e.g., GitHub Flow).

6. Improve Visual and Functional Quality of Existing Systems

From a front-end perspective, we noticed that some company products—like the EFOY platform—could benefit from more **modern UI improvements**, including better color balance, improved responsiveness, and enhanced accessibility.

Suggested Actions:

- ◆ Refresh old interfaces using contemporary UI kits or Tailwind CSS standards.
- ◆ Perform regular UX audits, gathering feedback from real users and interns alike.
- ◆ Prioritize responsiveness across all device sizes (especially tablets and mobile screens).

7. Encourage Innovation and Personal Contributions

Dallol Tech could benefit from empowering interns to propose solutions or design features, rather than strictly assigning tasks. We felt more engaged when we could **suggest design enhancements** or provide feedback on UI flows.

Suggested Actions:

- ◆ Include weekly brainstorming sessions for interns to share improvement ideas.
- ◆ Allow interns to design and prototype new features, then review with mentors.
- ◆ Establish a reward or recognition system for impactful contributions.

8. Foster Closer University-Company Collaboration

The partnership between Debre Berhan University and Dallol Tech is valuable and should be deepened. Interns often feel a disconnect between classroom knowledge and job requirements. Closer ties can help align academic content with market demands.

Suggested Actions:

- ◆ Organize joint workshops, seminars, or hackathons involving university staff and Dallol Tech professionals.
- ◆ Offer curriculum feedback sessions from Dallol Tech to university departments.
- ◆ Initiate early exposure programs for students (e.g., 1st-year tech field visits).

9. Emphasize Soft Skills Development

Technical knowledge is critical, but **soft skills are what shape successful professionals**. Through team collaboration, client meetings, and presentations, interns can develop vital traits like communication, critical thinking, and self-management.

Suggested Actions:

- ◆ Assign short group presentations or retrospectives to reflect on weekly progress
- ◆ Include communication and teamwork training in intern onboarding.
- ◆ Simulate client interaction scenarios to teach professionalism.

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