ADDIS ABABA INSTITUTE OF TECHNOLOGY

SCHOOL OF INFORMATION TECHNOLOGY AND ENGINEERING(IT STREAM)

SOFTWARE PROJECT MANAGEMENT(2023)

Assignment Description

Group Member *ID*

1. Ayan Abas……UGR/0999/13

2. Birhan Aschalew……..UGR/9050/13

3. Kena Tekalign……UGR/6147/13

4. Yeabsra Aemro……..UGR/5733/12

5. Yonas Sisay……..UGR/3279/13

ASSIGNMENT DESCRIPTION

Project Data	Information
Client	Commercial Bank Of Ethiopia Contact- info@cbe.com.et
Project Name	Linxify
Project Participants	Ayan Abas - Project Manager - ayanabas380@gmail.com
	Birhan Aschalew - Development Team - birhanaschalewsoftware@gmail.com
	Yeabsra Aemro - Linux System Administrator - Yeabsraaemro12@gmail.com
	Kena Tekalign - UI/UX Design - natiyonatiyosynth@gmail.com
	Yonas Sisay - Testing Team - Yonassissay56@gmail.com
Planned Work	The workload Planned will be according to the teams task type and priorities of the tasks. Estimation: 2hours/Day

Introduction:

Welcome to Linxfy, the innovative web-based Linux user management project specifically designed for the Commercial Bank of Ethiopia (CBE). In this comprehensive guide, we will explore the capabilities, installation process, and practical usage of Linxfy is a powerful system built to simplify user administration and enhance access control within the CBE's Linux-based infrastructure. With Linxfy, managing user accounts, enforcing security measures, and ensuring appropriate permissions and access levels becomes a seamless and efficient process through an intuitive web interface.

Background History:

The Commercial Bank of Ethiopia (CBE) has a rich history that spans several decades, establishing itself as one of the leading financial institutions in the country. Since its inception, the CBE has been committed to providing exceptional banking services and fostering economic growth in Ethiopia.

As technology continues to shape the banking industry, the CBE recognizes the importance of leveraging advanced solutions to optimize its operations. With a focus on efficiency, security, and customer satisfaction, the CBE has embraced Linux-based infrastructures to power its computing systems. Linux, renowned for its stability and flexibility, aligns perfectly with the CBE's mission-critical operations.

To further enhance the management of user accounts, access control, and security measures within its Linux environment, the CBE has embarked on the Linxfy project—a web-based Linux user management system tailored to its precise needs.

Linxfy revolutionizes user administration by providing an intuitive web interface accessible through standard web browsers. This user-friendly interface equips administrators at the CBE with the tools they need to efficiently create, modify, and remove user accounts, assign appropriate access levels and permissions, and enforce robust security measures.

The Linxfy project aims to streamline user onboarding and offboarding processes, enhance security through strong password policies and role-based access control (RBAC), and provide comprehensive auditing and logging capabilities. By implementing Linxfy, the CBE ensures compliance with regulatory requirements, monitors user activities for security purposes, and safeguards sensitive financial data.

With Linxfy, the Commercial Bank of Ethiopia strengthens its operational efficiency, elevates its security standards, and continues to deliver exceptional banking services to its valued customers. Throughout this documentation, we will explore the features, installation procedures, configuration options, and best practices associated with Linxfy, empowering administrators at the CBE to effectively manage user accounts, enhance security, and optimize user access within their Linux environment. Let's embark on this journey to elevate user management practices and security standards at the CBE.

Problem Definition:

The Commercial Bank of Ethiopia (CBE) recognizes the critical importance of efficient user administration and robust access control within its Linux-based infrastructure. However, the existing user management processes and

tools are proving to be cumbersome, time-consuming, and prone to security vulnerabilities. These challenges have prompted the need for a comprehensive solution to address the following key problems:

1. Manual User Administration: The current user administration process at the CBE involves manual tasks such as creating, modifying, and removing user accounts. This manual approach is not only labor-intensive but also prone to human errors, leading to inconsistencies and delays in user provisioning and de provisioning. The CBE requires an automated solution that streamlines these processes and reduces the risk of errors.

2. Inconsistent Access Control: Ensuring appropriate access levels and permissions for different user roles is crucial to maintaining the security and integrity of the CBE's sensitive financial data. However, the existing access control mechanisms lack consistency and are difficult to manage effectively. This inconsistency increases the risk of unauthorized access and data breaches. The CBE needs a solution that provides centralized and standardized access control mechanisms.

3. Weak Security Measures: Protecting sensitive financial information is paramount for the CBE. However, the current user management system lacks robust security measures. Weak password policies, insufficient authentication mechanisms, and limited user activity monitoring expose the CBE to potential security threats. To mitigate these risks, the CBE requires an enhanced user management system with strong password enforcement, multi-factor authentication, and comprehensive auditing capabilities.

4. Compliance Challenges: The CBE operates in a highly regulated environment and must adhere to various industry-specific regulations and compliance standards. The current user management system lacks the necessary features to adequately address these compliance requirements, making it difficult for the bank to demonstrate adherence. The CBE needs a solution that enables seamless compliance monitoring, auditing, and reporting.

5. Lack of User-Friendly Interface: The existing user management tools at the CBE are complex and require technical expertise, making it challenging for administrators to perform day-to-day tasks efficiently. The bank seeks a solution with an intuitive and user-friendly interface that simplifies user administration and reduces the learning curve for administrators.

To address these challenges, the CBE has initiated the Linxfy project—a web-based Linux user management system. Linxfy aims to automate user administration processes, enforce consistent access control, strengthen security measures, ensure compliance, and provide a user-friendly interface for efficient management of user accounts within the CBE's Linux-based infrastructure. By implementing Linxfy, the CBE aims to overcome the existing limitations and enhance its user management capabilities to meet the evolving needs of the bank and its customers.

Objectives:

The Linxfy project for the Commercial Bank of Ethiopia (CBE) is driven by specific objectives aimed at addressing the identified problems and improving the user management processes within the Linux-based infrastructure. The objectives of the Linxfy project are as follows:

- Automation of User Administration: Develop an automated system within Linxfy that allows for streamlined user administration processes, including user creation, modification, and removal. This

objective aims to eliminate manual tasks, reduce human errors, and expedite the provisioning and deprovisioning of user accounts.

- Enhanced Access Control: Implement robust access control mechanisms in Linxfy to ensure consistent and standardized user access levels and permissions. This objective aims to provide granular control over user privileges, minimizing the risk of unauthorized access and maintaining the security and integrity of the CBE's financial data.

- Strengthened Security Measures: Integrate advanced security features into Linxfy, including strong password policies, multi-factor authentication, and user activity monitoring. This objective aims to enhance the overall security posture of the CBE's Linux-based infrastructure, safeguarding sensitive financial information and mitigating the risk of data breaches.

- Compliance Adherence: Incorporate compliance monitoring, auditing, and reporting functionalities into Linxfy to facilitate adherence to industry-specific regulations and compliance standards. This objective aims to provide the necessary tools and capabilities for the CBE to demonstrate compliance and meet regulatory requirements effectively.

- User-Friendly Interface: Design an intuitive and user-friendly web interface for Linxfy that simplifies user administration tasks and reduces the learning curve for administrators. This objective aims to improve the user experience and increase the efficiency of day-to-day user management operations at the CBE.

- Scalability and Flexibility: Develop Linxfy as a scalable and flexible solution that can accommodate the growing needs of the CBE's Linux-based infrastructure. This objective aims to ensure that Linxfy can adapt to future changes in the bank's user management requirements, supporting its long-term strategic goals.

By achieving these objectives, the Linxfy project aims to revolutionize user administration, access control, and security measures within the CBE's Linux-based infrastructure. It seeks to enhance operational efficiency, strengthen security, ensure compliance, and provide a seamless user experience for administrators, ultimately enabling the CBE to deliver exceptional banking services to its customers.

Vision to problem definition and objectives:

Our vision is to develop a state-of-the-art web-based tool that transforms performance monitoring for Linux systems. We are committed to providing a comprehensive and user-friendly solution that simplifies monitoring, enhances system visibility, and enables proactive management. Through a strategic and well-justified development approach, we aim to exceed client expectations and deliver a high-quality tool that drives innovation in Linux performance monitoring.

Planning:

Deliverables:

1. Web-based performance monitoring tool:
    - User interface for real-time monitoring and visualization of performance metrics.

- Data collection and processing modules to gather relevant system metrics.
- Alerting mechanism to notify administrators of critical performance thresholds.
- Customizable dashboards and reports for performance analysis.

2. Documentation:
    - User guides explaining installation, configuration, and usage of the tool.
    - Technical specifications outlining system requirements, architecture, and API documentation.

Activities:

1. Requirements Gathering:
    - Conduct interviews and meetings with the client to understand their specific monitoring needs.
    - Document and prioritize client requirements to establish clear project objectives.
2. Design and Architecture:
    - Create a detailed system design, including the user interface, data collection mechanisms, and backend infrastructure.
    - Define the tool's architecture, considering scalability, security, and integration with Linux systems.
3. Development:
    - Implement the front-end using modern web technologies such as HTML, CSS, and JavaScript.
    - Develop the back-end components, including data collection agents, processing algorithms, and database integration.
    - Integrate visualization libraries and frameworks to display performance metrics in a user-friendly manner.
4. Testing and Quality Assurance:
    - Conduct functional testing to ensure all features and functionalities work as intended.
    - Perform performance testing to assess the tool's responsiveness and scalability under different load conditions.

- Validate the tool's accuracy and reliability through rigorous testing and bug fixing.

5. Documentation:
    - Prepare detailed installation instructions for deploying the tool in various Linux environments.
    - Create comprehensive user guides explaining how to configure and use the monitoring tool effectively.
    - Document the technical specifications, including system architecture, API documentation, and any customization options.
6. Deployment and User Training:
    - Assist the client in deploying the tool in their environment, ensuring compatibility and resolving any deployment-related issues.
    - Conduct training sessions to educate administrators and users on the tool's functionalities, features, and best practices.
    - Provide ongoing support and troubleshooting assistance to address any questions or concerns.

Milestones:

1) Requirements Gathering

Planned Date: [Nov 10]

Description: Completion of the requirements gathering phase, including meetings and discussions with stakeholders to gather detailed requirements for the Linixfy web-based Linux user management system. This milestone signifies the documentation of needs, preferences, and expectations regarding user administration, group management, permissions control, and system settings.

2) System Design and Architecture

Planned Date: [Nov 20]

Description: Completion of the system design and architecture phase. This milestone represents the creation of a detailed system design and architecture for the Linixfy system, including the overall structure, modules, components, and technologies to be used.

Deliverable: System design document, wireframes, and mockups.

3) User Interface Design and Development

Planned Date: [Nov 27]

Description: Completion of the user interface design and development phase. This milestone signifies the design and development of an intuitive and visually appealing interface for the Linixfy web-based Linux user management system, focusing on layouts, navigation menus, and interactive elements.

Deliverable: User interface design and a responsive web application.

4) Development of Core Functionality

Planned Date: [Dec 4]

Description: Completion of the development process for the core functionality of the Linixfy system. This milestone includes setting up user registration and authentication, integrating user management features, and designing the user interface for efficient administration.

Deliverable: Functional core features.

5) Development of a Log Management System

Planned Date: [Dec 11]

Description: Integration of the log management system within the Linixfy system. This milestone ensures the tracking of user activity, including logins, logouts, and actions, for security and incident response purposes.

Deliverable: Implemented log management system and user interface for administrators.

6) Post-Deployment Support and Maintenance

Planned Date: [Dec 20]

Description: Initiation of the post-deployment support and maintenance phase for the Linixfy system. This milestone represents the provision of ongoing assistance, bug fixes, and updates after the launch of the Linixfy web-based Linux user management system. Continuously monitoring user feedback and making enhancements based on user needs and emerging technologies.

Deliverable: Ongoing support and maintenance services.

Overall Planning:

1. Conduct requirements gathering and analysis, and finalize the design and architecture.
2. Implement the front-end and back-end components of the performance monitoring tool.
3. Conduct comprehensive testing and quality assurance activities.
4. Prepare detailed documentation for installation, configuration, and usage of the tool.
5. Deploy the tool in the client's environment and provide user training.
6. Review and refine the tool based on feedback from the client and end-users.
7. Complete the project by delivering the performance monitoring tool and associated documentation to the client.

Progress Reporting:

- Regular Status Updates: Provide weekly or bi-weekly progress reports to the client, highlighting the key accomplishments, ongoing activities, and any challenges encountered during the project.
- Milestone Tracking: Share milestone-specific progress reports to showcase the completion of major deliverables and milestones, along with associated timelines and any deviations from the initial plan.
- Issue and Risk Reporting: Promptly communicate any critical issues, risks, or obstacles that may impact project progress, with proposed mitigation strategies to address them effectively.
- Performance Metrics: Establish and track performance metrics to measure the progress and success of the project, such as adherence to timelines, budget utilization, and quality standards.
- Communication Channels: Maintain open and proactive communication channels to address any concerns, provide clarifications, and ensure alignment between the project group and the client.

Agreements on Cooperation:

- Roles and Responsibilities: Clearly define the roles and responsibilities of the project group and the client, outlining the areas of collaboration and expected contributions from both parties.
- Communication Protocols: Establish effective communication protocols, including frequency, preferred channels, and designated points of contact, to ensure seamless collaboration and information exchange.
- Decision-Making Process: Agree upon a decision-making process that facilitates timely and efficient resolution of any project-related issues or changes, ensuring the involvement of relevant stakeholders.
- Change Management: Define procedures for handling change requests, including evaluation criteria, impact analysis, approval mechanisms, and potential adjustments to project scope, timeline, or budget.
- Confidentiality and Data Security: Establish agreements regarding the protection of sensitive information, intellectual property, and compliance with data security and privacy regulations.

Acceptance Procedure:

- User Acceptance Testing (UAT): Collaborate with the client to define UAT criteria and test scenarios that validate the tool's functionalities against agreed-upon specifications and requirements.
- Feedback and Iterations: Incorporate client feedback and iterate on the tool based on UAT results, ensuring alignment with the client's expectations and addressing any identified gaps or issues.
- Acceptance Criteria: Define clear acceptance criteria, including performance benchmarks, usability standards, and any specific requirements outlined in the project scope, to determine when the tool meets the client's expectations for final acceptance.
- Acceptance Documentation: Prepare acceptance documentation that outlines the acceptance criteria, UAT results, and any other relevant information necessary for the formal acceptance of the performance monitoring tool.

Additional Conditions:

- Intellectual Property Rights: Define ownership and usage rights of intellectual property developed during the project, ensuring clarity on the rights and restrictions for both the project group and the client.
- Payment Terms: Establish payment terms, including milestones or deliverables linked to payment schedules, invoicing details, and any specific financial conditions agreed upon between the project group and the client.
- Termination Clause: Include a termination clause that outlines the conditions and procedures for terminating the collaboration, including any associated penalties or obligations.
- Warranty and Support: Define the duration and extent of warranty and support services provided by the project group after the project completion, including bug fixes, updates, and technical assistance.
- Legal and Regulatory Compliance: Ensure compliance with relevant legal and regulatory requirements, such as data protection, privacy, and industry-specific regulations, throughout the collaboration.