Education Services Establishment Branch Online Information Management System

R.A. Uththara Anjalee 2021



Education Services Establishment Branch Online Information Management System

A thesis submitted for the Degree of Master of Information Technology

R.A. Uththara Anjalee University of Colombo School of Computing 2021



Declaration

The thesis is my original work and has not been submitted previously for a degree at this or any other university/institute.

To the best of my knowledge it does not contain any material published or written by another person, except as acknowledged in the text.

Student Name: R.A.U. Anjalee Registration Number: 2018/MIT/001 Index Number: 18550012

Signature:

27/11/2021 Date:

This is to certify that this thesis is based on the work of

Ms. R.A.U. Anjalee

under my supervision. The thesis has been prepared according to the format stipulated and is of acceptable standard.

Certified by: Supervisor Name: Dr. L.N.C. De Silva

alestro,

27/11/2021 Date:

Signature:

Abstract

The Education Services Establishment Branch (ESEB) is one such government organization that involves many stakeholders, information, and resources. Hence developing an Online Information Management System for ESEB is essential to save time and resources in handling the daily activities.

The Education Services Establishment Branch (ESEB) is a branch of the Ministry of Education. This unit deals with the personal files of the officers of the Sri Lanka Education Administrative Services. The Education Services Establishment Branch does not have an online information system currently, and thus all work and details are handled manually. The work related to recruiting, allocating, request handling, and decision-making are few examples of such manual operations conducted by the ESEB. Moreover, ESEB coordinators manage a lot of hard copies and forms. This has become a tedious task over the past few years mainly due to working from home in the current pandemic. The current manual approach is time consuming and requires more human resources to manage the manual protocols; hence it is less efficient and time-consuming. Furthermore, retrieving the past data is complicated and challenging due to the storage of data in papers. The most crucial information stored in such paper formats is destroyed after some time due to storage limitations. Hence demonstrating numerous drawbacks.

The proposed ESEB Online Information Management System will overcome the above-stated limitations and disadvantages while streamlining the entire process in the best optimal way. Furthermore, this web-based software solution connects all potential stakeholders to enhance the current process and manage routine activities more efficiently.

The Education Services Establishment Branch (ESEB) system was designed using objectoriented concepts to ease the requirements gathering process. The system is deployed in an Apache web server, and MYSQL is used as the database management system. Font-end was done using a Bootstrap framework. Implementation technology stack includes PHP, CSS, JQuery, and Ajax. This web-based system can be accessed using Internet Explorer, Mozilla Firefox, and Google Chrome.

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List of Acronyms

Information management system (IMS) Education Services Establishment Branch (ESEB) Ministry Of Education (MOE) Head of the department (HOD)

Chapter 1 - Introduction

With the advancement of technology in today's world, access to information has also improved. Therefore, the need to create online information management systems has increased. Advantages of the technology for an organization, such as reducing the use of hard copies, the need for physical storage spaces, lack of protocols, and reducing the time wastage, are to name a few for the increased use of Information Management System. In addition, it connects the users efficiently and reduces the time delays in getting the job done.

Currently, the system is built on Excel datasheets. Manual data collection takes more time and is less accurate. This makes data analysis difficult and can lead to plenty of problems with planning. In general, data security in Excel spreadsheets is low. It also takes a long time because some of the current operations are done manually without using a database. Receiving information via the ordinary mail system also takes a long time.

As a result of the above, the Education Services Establishment Branch's management team has chosen to implement an Information Management System to track accurate client data and increase the efficiency and productivity of their operations.

1.1. Motivation

The current manual process needs more human effort and requires more physical storage to store, retrieve, and secure information generated daily. In addition, the error correction when and there when it occurs is complicated, and at present, all the updates are done manually. Furthermore, in the manual system, information is written, copied, or entered more than once, and currently, the data is stored in various locations. Hence, it is challenging to respond to the inquiries made by the officers at the Education Administrative Services (SLEAS), and it is also necessary to find the right person (subject officer) before responding. Reporting and checking that data is time-consuming and expensive.

The current limitations and drawbacks of the manual process motivated us to propose an automated web-based solution for the ESEB. Hence, the proposed system will overcome the

issues faced by the officers at ESEB and will be a cost-effective solution to manage the entire process efficiently.

1.2. Objectives

The main objective of this project is to automate the current manual process of the Education Services Establishment Branch by proposing an information management system to carry out their routine activities and assist the decision-making process. Thereby, it aims to increase the efficiency of the current manual system by reducing the time in handling the activities. The main objective is derived through fulfilling the sub-objectives stated below.

- Manage details relevant to the SLEAS Officers to reduce manual intervention and increase accuracy.
- Manage the retirement process to increase efficiency while reducing time delays.
- Manage the increment, the promotion, and the transfer processes while reducing the need for manuals and paperwork.

1.3. Scope of the study

Module Structure of the proposed system is illustrated in Figure 1.1. It is used to identify the functionality of the proposed system.



Figure 1.1 Module Structure

1. Authentication Management Module

The authentication management module provides authentication privileges to all users, including the Sri Lanka Education Administrative Service(SLEAS) Officers Subject Officers, Head of the Departments, Database Admins, and Assistant Secretaries. Database administrators grant access to the users at each user level.

2. Retirement Management Module

This module contains activities related to handling the retirement process of Sri Lanka Education Administrative Service (SLEAS) officers. The SLEAS officers can request retirement through the proposed system and track the status of their requests. When a SLEAS officer requests retirement, that request is forwarded to the Head of the Department (HOD) for approval. When the HOD accepts the application, it is forwarded to the Assistant Secretary for review. The SLEAS Officer, HOD, and Assistant Secretory can track the progress of each step through the system. After clearance from the assistant secretary, the Employee's status is changed to Retired.

3. Promotion Management Module

This module contains activities related to handling the promotions of SLEAS officers. At the right time, Sri Lanka Education Administrative Service officers should request to be considered for a promotion. They may also track the progress of their request. When a SLEAS officer requests promotion, the request is forwarded to the Subject officer for approval. When the subject officer accepted the application, it is forwarded to the Assistant Secretary for review. After clearance from the assistant secretary, the "class" is changed to next level promotion. The SLEAS Officer, Subject officer and Assistant Secretory can track the progress of each step through the system.

4. Increment Management Module

This module contains actions related to annual increment. Sri Lanka Education Administrative Service (SLEAS) officers should request annual increment. They may also track the status of their request. When a SLEAS officer requests annual increment, the request is forwarded to the head of the department (HOD) for approval. When the HOD accepted the application, it is forwarded to the Assistant Secretary for review. The SLEAS Officer, HOD and Assistant Secretory can track the progress of each step through the system.

5. Transfer Management Module

This module contains actions related to transfer. Sri Lanka Education Administrative Service (SLEAS) officers should request transfer. They may also track the status of their request. When a SLEAS officer requests transfer, the request is forwarded to the head of the department

(HOD) for approval. When the HOD accepted the application, it is forwarded to the Assistant Secretary for review. After obtaining approvals from the assistant secretary, the current working place is switched to the request transfer location. The SLEAS Officer, HOD and Assistant Secretory can track the progress of each step through the system.

6. Profile Management Module

The Subject Officer/Assistant Secretory creates a new SLEAS officer profile using General Details, cadre details, Current employment details, Contact details, Education qualifications and professional qualification. The SLEAS officer can update contact details the fields of their profile. Assistant Secretary can access the SLEAS officer profile to obtain their details also.

7. Announcement Management Module

The Announcement Management Module handles the activities related to announcements. Assistant Secretary can create, view, update, and remove announcements, and the relevant staff members can view these, including the SLEAS officer and the Subject officer.

8. Report Generating Module

This system enables users to download and view the generated summary and detailed reports.

9. Email

This system has the facility to provide feedback via email.

1.4. Feasibility Study

The feasibility study is a technique to understand the practical aspects of implementing the proposed system using available resources and constraints. The primary purpose of this study is to identify the strengths and weaknesses of the proposed system. (Weltermann and Kersting, 2016)

Financial Feasibility

This is a web-based application; it should be necessary to hosting charges. This application needs comparatively less bandwidth. The system does not manage any multimedia data transmission. So the system doesn't have extra costs for hosting.

The technologies and tools listed below were used to implement the system.

- PHP
- HTML
- JQuery
- Ajax
- Boostrap
- MySQL
- Sublime Text

All these technologies are free and open source; there is no expense for the software. As a result, there is no extra payment for the software. There will be fewer expenses for troubleshooting and maintenance.

In this evaluation, paper wastage was regarded as weak areas as the manual system wasting time on each step, number of employees and their salaries and liabilities. However, the most of the disadvantages indicated in the manual method may be minimized by the system being offered in comparison to the suggested system. Consequently, the solution presented would be cost-effective.

Technical Feasibility

The proposed Information Management System for ESEB is a fully web-based solution. The system updates can be done in a short period, quickly utilizing the technique described above.

Only a relatively small number of people can manage computers well. As a result, staff demands simple, easy-to-use software. According to the investigation, there are sufficient people that have no problem with this program. (Editorial: Sofware survey section, 1992)

Schedule feasibility

The timeframe for implement of the system is approximated with the schedule feasibility and deadline has been met. After thorough testing, ESEB Information System has been able to provide its required capabilities within a specified period.

1.5. Structure of the dissertation

The rest of the chapters of this dissertation are as follows.

Chapter 2. Background

This chapter addresses the description of the system analysis requirements and the comparison of alternative design techniques. The analysis of literature review similar systems in that category accessible. The factors mentioned above are also explored for limitations of comparable systems. The chapter also discusses the overview of the Functional and Non Functional requirements of the project.

Chapter 3. Design

This chapter discusses the system architecture used in the proposed system. In addition to that, it elaborates on UML diagrams of the proposed system and the quality of the solution.

Chapter 4. Implementation

The fourth chapter includes information on the project's technical background and implementation.

Chapter 5. Testing and Evaluation

The chapter on Evaluation and Testing focuses on the project's quality attributes and evaluation methodologies. Sample test scenarios and evaluation results are presented below.

Chapter 6. Conclusion

This chapter covered the future work combined with Results concerning the Objectives and Critical Appraisal.

Chapter 2 - Background

The review of existing systems and literature reviews performed on the project area will be discussed in this chapter. In order to fully comprehend the splitting technologies and various competitive system design methods, similar systems and capabilities are also presented. This chapter also contains a comparison of different organizational structures. Then discuss overview of Functional and Non Functional requirements of the project.

2.1. Requirement Analysis

The analysis focuses on the collection of needs, collecting facts and determining the system's functional and non-functional requirements. Gathering information was easy because I was also a member of Education services establishment branch. However, the work of the system is constantly observed. Throughout order to collect requirements, the following approaches were used. (Lyu, 1996)

Interviews

Interviews offer rapid information by allowing quick clarification of any issues. An implicit remark can also be made during an interview.

Observation

Another most productive approach to collect system demands is to observe users in the working environment. In addition to their explanation and objections, however, some things had to be observed. What they explained was not clear and correct throughout the interview process. They were cleared by observation.

2.1.1. Functional Requirements

Use case diagram of the proposed system is illustrated in Figure 2.1. It is used to identify actors and the functional requirements of the proposed system



Figure 2.1 Use case Diagram

Test case of the Login to the system is illustrated in Table 2.1. It is used to test Login function of the system.

Table 2.1 Login to the system				
Use Case	Login to the system			
Actor	Subject Officer, SLEAS Officer, Head of the department, Assistance Secretory			
Pre- Condition	The system network connection should be stable.			
Description	1. Enter User Name and Password			
	2. Validate User Name and password			
	3. Allow access to system			
Post Condition	After a successful login user payigate the home page			
	After a successful logili user havigate the home page			
	1. a. Invand Username			
Extensions	System shows an error message			
	2.b. Invalid Password			
	System shows an error message			

Table 2.1 Login to the grat

Test case of the Add SLEAS officer to the system is illustrated in Table 2.2. It is used to test Add new SLEAS officer function of the system.

Т	able	2.2	Add	SLEAS	5	officer	
۲	CC.						

Use Case	Add SLEAS officer		
Actor	Subject Officer		
Pre- Condition	User should Login to the system		
	• Stable internet connection		
Description	When Recruiting employee to the company		
Post Condition	Register SLEAS officer		

Test case of the Update SLEAS officer is illustrated in Table 2.3. It is used to test Update SLEAS officer function of the system.

Tuble 20 Opulle BLEAD officer			
Use Case	Update SLEAS officer		
Actor	Subject Officer		
Pre- Condition	User should Login to the system		
	Stable internet connection		
Description	When updating the employee details		
Post Condition	Register SLEAS officer		

Table 2.3 Undate SLEAS officer

Test case of the Accept Request is illustrated in Table 2.4. It is used to test the Accept Request function of the system.

Table 2.4 Approve Transfer Request				
Use Case	Accept Request			
Actor	lead of the department, Assistant Secretory			
Pre- Condition	User should Login to the system			
	• Stable internet connection			
Description	When received to request, Head of the department / Assistant secretary can accept the request.			

Table 2.4 Approve Transfer Request

Test case of the Request Transfer is illustrated in Table 2.5. It is used to test the Request Transfer function of the system.

Table 2.5 Request Transfer	
Use Case	Request Transfer
Actor	SLEAS Officer
Pre- Condition	User should Login to the systemStable internet connection
Description	Employee can request transfer through the system

Test case of the View Reports is illustrated in Table 2.6. It is used to test the View Reports function of the system.

Table 2.0 View Reports						
Use Case	View Reports					
Actor	Assistant Secretory					
Pre- Condition	User should Login to the systemStable internet connection					
Description	Assistant Secretory can view reports					

Table 2.6 View Reports

2.1.2. Non Functional Requirements

The proposed system includes the following non-functional requirements

• Security

This system has role base authorization. Password can change theme self. Data administrator can only grant access to new user and deny assessing for people who have left the service.

• Availability

System should available 24*7. Server outages and network downtimes are stopped until servers are restored.

• Usability

This system can be used without any training and knowledge of English language. The interface of the system should be easy and simple for the user to use. Support commonly used resolution sizes Min 1024 x 768. It should not take more than a minute for one user to log into the system.

• Interoperability

This system can be used in any HTML (Hyper Text Markup Language) based browser. Therefore system can use any platform and any browser.

2.2. Review of Similar Systems

2.2.1. Bitrix24

Bitrix24 includes functionalities relevant to customer relationship management and support business needs such as customer support, video conferencing, documents storage, and project management. The system users can use it to plan routine tasks and distribute the workload among team members. In addition, the user can create charts to leaves summary and maintain every employee record. (Anon., 2021)

KeyFeture of Bitrix24 (comparecamp.com, n.d.)

- Instant messages
- Calendar sharing
- Activity Stream intranet center
- Company structure
- Bulk email
- Daily planner
- Extranet

Bitrix24 is cloud-based and has mobile apps for iOS and Android devices.

Below Figure 2.2 is illustrated main interface of the Bitrix24 system.

Bitrix 24	find people, documents, and more			14:18 • WORKING	John Smith -
	Find Employee Telephone Dire	ctory Company Structure	Staff Changes	Efficiency Report Honored	Employees More -
	Company Structure ★				+ ADD DEPARTMENT
			My Company Morgan Atkinson Crief Executive		
M 2 nployees					
	Berlin Office	Dasy Butterfield	New York Office	Paris Office	Chat bots
		Larritorea			Engineer Co Lativities
	Finance Department	Analytics Department	Business Development	Finance Department	
	2 incre departments		3 more departments	2 Prove departments	
	IT Department	Client Service Department	Client Service Department	IT Department Paul Janes Engineer	
	A server production of a	Transformation	2 ann and and	- International	

Figure 2.2 Bitrix24

2.2.2. Fluida

Fluida is an implement utilized by customers to track rudimentary human resource solutions and attendance. These include employee management, internal human resources, self-accommodation portal, schedule management and employee schedule. It is additionally possible to orchestrate working days for employees and ascertain who is working through the shared calendar. (Anon., n.d.)

It is a cloud-based human resource tool and can be accessed through a web browser from any device with Internet capabilities.

Below Figure 2.3 is illustrated main interface of the Fluida system.

-						
Hello Mike	9					
				Worl	(places >	News!
Today No event sche	duled			Who is present	today? >	The version 1.6.5 of Fluida has been released with a new feature
Communic	ations				View all >	In the 1.6.0 update you'll find:
New interna Thursday 01/	I Rules and R 10/2020 13:39		Recap of your daily activities Add your videocall and message platforms of choice			
Corporate e Wednesday	vent invitatio 30/09/2020 2	inside your company address book • New absence report • Disable new insertions in past months				
Partial reopening of the London office Tuesday 15/a9/2020 09:48						Support
Summary 2020 View all >						Help center Report error
Holidays 9	Permits 58.25	Sick leav	Other O	Remote	Overtin	Contact us
	Hello Mike Today No event sche Communic New interne Thursday 01/ Corporate e Wednesday Partial roop Tuesday 15/4 Summary 2 Total useb sec	Hello Mike Today No event scheduled Communications New internal Rules and R Thursday 01/0/2020 13:39 Corporate event invitation Wadnesday 30/09/2020 2 Partial recopening of the L Tuesday 15/09/2020 09:48 Commany 2020 Partial recopening of the L Tuesday 15/09/2020 09:48 Commany 2020 Partial recopening of the L Tuesday 15/09/2020 09:48 Commany 2020 Partial recopening of the L Tuesday 15/09/2020 09:48 Commany 2020 Partial recopening of the L Tuesday 15/09/2020 09:48 Commany 2020 Partial recopening of the L Tuesday 15/09/2020 09:48 Commany 2020 Partial recopening of the L Tuesday 15/09/2020 09:48 Commany 2020 Partial recopening of the L Tuesday 15/09/2020 09:48 Commany 2020 Partial recopening of the L Tuesday 15/09/2020 09:48 Commany 2020 Partial recopening of the L Tuesday 15/09/2020 09:48 Partial recopening 00 Partial recopening 01 Par	Hello Mike Today	Hello Mike Today	Hello Mike Vor Today Who is present No event schoduled Communications New internal Rules and Regulations Thunkday 01/10/2020 13:39 Corporate event invitation Wadnesiday 30/09/2020 20:30 Partial recopening of the London office Tuesday 15/09/2020 00:48 Summary 2020 Partial Scie Under Het attaneand of THE YEAR Partial Scie Under Het attaneand of the London office Tuesday 15/09/2020 00:48	<section-header> Hello Mike Variplaces Totage Variplaces Totage Commentations Now internal Rules and Regulations Turnsday 01/0/2020 13:39 Corporate event invitation Wardinside 30/09/2020 20:00 Partial reopening of the London office Tassday 11/6/02020 09:48 Stores Tet State State Elementor of tet Elementor of tet Elementor View of 1 Partial Records Tet Elementor of tet Elementor State State State Elementor of tet Elementor Partial State State</section-header>

Figure 2.3 Fluida

KeyFeture of Fluida (GetApp, n.d.)

- Company directory
- Shift management
- Customizable reporting
- Payroll integration

2.2.3. Freshteam

FreshSteam is a human useful resource information device that contains a database of employees of a business enterprise. It may encompass records on current employees, facts on former employees and candidates statistics, their payroll and their overall performance. (www.freshworks.com, n.d.)

Cloud-based FreshSteam also has mobile apps dedicated to iOS and Android devices.

Below Figure 2.4 is illustrated main interface of the FreshSteam system.



Figure 2.4 Freshteam

KeyFeture of FreshSteam (comparecamp.com, n.d.)

- Applicant tracking
- Dashboard & 360-degree profiles
- Recruitment CRM
- Interview feedback
- Contextual conversations
- Personalized engagement
- Collaborative hiring
- Employment referrals

HRLocker is free human useful resource control software. Employee database, document control and absentee control features can also highlight vital employee statistics through the HR dashboard. (HRLocker, n.d.)

HRLocker is cloud-based and provides mobile applications for iOS and Android devices.

Below Figure 2.5 is illustrated main interface of the HRLocker system.

л) мана 1000	Tree Of	Qr 8	Reports	HR Dees	Dreckery	HIRE R	😭 🏠 IR Setings	₽				Ronan McDonnell
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	6			Δ	2		٩	Ť]
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Figure 2.5 HRLocker

KeyFeture of HRLocker (Opal People Solutions, n.d.)

- Clocking In features
- Leave & Absence Management
- Real Time Reviews
- Training Records
- Recruitment Module
- Digital HR Documentation & Full Reporting Functionality

2.3. Similar system feature evaluations against requirements

Table 2.7 illustrates similar system feature evaluations against requirements. It is used to compare similar system feature and proposed system requirements.

	ESEB Requirements	Bitrix24	Fluida	Freshteam	HRLocker
			Over	call System Y	=Yes, N=No
1	Should not be commercial product	Y	Y	Y	Y
2	Simple user interface	Y	Y	Y	Y
3	Professional UI	Y	Y	Y	Y
4	Easy to Navigate	Y	Ν	Ν	Y
5	Comprehensibility of language	Y	Ν	Ν	Ν
6	Maintain employee's records	Y	Y	Y	Y
7	Detail Reports	Y	Y	Ν	Ν
8	Communication using Emails	N	Ν	Ν	Ν
9	Announcement Management	N	N	N	N

Table 2.7 Similar system features evaluations against requirements

2.4. Related Design Strategies

A wide range of users were used in this system at several places. This system is hence suitable for web applications. As far as the ESEB Information Management system is concerned, several similar solutions are available on the market. In view of the characteristics of the new system, the security and privacy of client data are indeed more necessary. The approach presented therefore differentiates considerably from the other systems already in place. A web information system usually consists of one or many web-based applications, functionalityoriented components and components for information and non-web components.

Deployment strategy

The web app processes on the web application server and has a database as its backend. In this case, the back end is seen as a critical component since it takes better security into account.

Database Connection Strategy

This system uses the PDO method to connect to the database. It does really secure than the alternative. Then it supports any database type. As a result, the PDO is picked as a solution for database connectivity option for the implementation.

Development approach

The proposed system will be designed and developed using a hybrid development methodology. In this approach, Waterfall and Incremental development methods are combined so that a solution may improve the customer satisfaction. Figure 2.6 illustrate Hybrid Development methodology.



Figure 2.6 Hybrid development methodology

System Architecture – Client/Server Architecture

For proposed system is used to Client /Server Architecture. When used above architecture the data is consolidated in a centralized location in the system, the approach is cost-effective and efficient to supply resources for the customer, it is simple to administer and the data can be sent to the customer quickly and etc. For further reference refer 3.1 System Architecture section in Chapter 3.

Chapter 3 - Design

The implementing system will be designed to be used in several actors within the country where user recognition or authentication is required. Actors such as SLEAS Officer, Subject officer, Head Of the department, Assistance Secretory and Admin will use this system with different access permissions. And the user will be provided with capabilities to use the system through the internet.

3.1 System Architecture

The system using the Client-Server Architecture is illustrated below Figure 3.1.



Figure 3.1 System Architecture

A Figure 2.1 and Figure 3.1 show how the system works. The clients interacting with the system are demonstrated in Figure 2.1. The architecture of the Three-Tier Client/Server utilized to create this site is represented in Figure 3.1 and utilized to create this site is represented in Figure 3.2.

When a user signs in to a URL to use the ESB Online Information Management System, the browser invites HTML page or activate a PHP you to get an function. PHP scripts access database tables using SQL queries and transmit dynamically produced HTML pages to the client's browser.

The system should include the four components listed below:

- 1. Client-side
- 2. Server-side
- 3. A background database and a web-based management tool
- 4. Front graphic edge



Figure 3.2 Three Tire Client/Server Architecture

3.2 UML diagrams

3.2.1 Activity Diagram

Activity diagram of the proposed system's Promotion request module is illustrated in Figure 3.3.



Figure 3.3 Activity Diagram- Promotion request

3.2.2 Sequence Diagram

Figure 3.4 shows the sequence diagram for user Login.



Figure 3.4 Sequence Diagram for User Login Module

Figure 3.5 shows the sequence diagram for the use case communication between SLEAS Officer and Create Request (Transfer/Promotion/Increment/Retirement)



Figure 3.5 Sequence Diagram for Create Request Module
3.3 Quality of the solution

• Higher Efficiency and Productivity Human errors are inevitable.

Implementing the system reduces mistakes and redundancies to a minimum and makes work more efficient. Managers usually use manual data entry activities for at least eight hours a week this is one full workday per week. It reduces everyday tasks and enables employees to concentrate on high value activities.

• Improving Accuracy

Many existing systems have a large amount of data in different interfaces that is, employees use different processes. But this system simply contains only the essentials. The accuracy of the information will be lessened in this organization's existing manual procedure if an employee is any information is not taken into consideration. This system updates the information continually in order to obtain accurate information.

• Removal of paper document handling

Money can be saved as information can be stored through this system. Also, there is no need to print and store paper documents as before. Information will be stored much safely (E.g.:- the damages that can be occurred by natural disasters and fire will affect minimal and copies of the information can be obtained easily in case of such a situation).

• Happy Clients

This system can also make clients happy (SLEAS Officers). Always up to date - If the records are computerized, Users may enter data from any location and retrieve it at any time. Progress can also be monitored when needed. This increases their reliability.

Chapter 4 - Implementation

4.1. Implementation of the system

• Implementation

Implementation environment, Tools and Platform is illustrated in Table 4.1.

Table 4.1 Implementation Details					
Implementation environment	Hardware	Laptop, Router			
	Software	WAMP Server, SQL , Sublime Text			
Development tools		PHP, HTML, Bootstrap, JQuery, Ajax			
Implement Platform	OS	Windows			
	Brower	Chrome			

4.2. Illustration of Education Services Establishment Branch Online Information Management System

Bellow Figure 4.1 describes one main interface of the system. For further reference refer Appendix C.

🔂 ESEB				Logout
Katthy David	Welcome	to ESEB Informati	on System !	
O Home				
O Employee Profile	Annour	ncements!		
O Request Details 🔹 🗸				×
🗐 Transfer 🛛 🙎	<u>Exa</u>	<u>ams Sri Lanka-DOE (N</u>	<u>10bile-App) is launched accordin</u>	ng to the digitalization policy -The Minister Of
Promotion 1			Education Professor	<u>G.L. Peiris</u>
E Increment 3	The Ministe Examinatio	er of Education Professor G.L. Pe Ins through the mobile phones v	iris said that the facility will be provided to the e vhile remaining at home introducing a more rec	entire nation for obtaining all the services of the Department of eiver friendly mobile app named Exams Sri Lanka DOE according to the
E Retirement 1	digitalizatio Colombo	on policy of the government. The	e minister expressed these ideas while participa	iting in the occasion of launching of this mobile telephone app in
O Reports 🗸 🗸				
🗐 мое				
📒 State Ministry				
Examination	Contact Us			
Publication	Telephone :	+94 112 785141	Address:	Location:
- Onesile	Fax :	+94 112 785150	Ministry of Education,	п
O mans	Email:	info@moe.gov.lk	Battaramulla	
O Create Employee			10120 Sri Lanka.	anta Dora Hospital GUNAM

Figure 4.1 Assistant Secretory Main UI

The data base scripts shown below Figure 4.2 are utilized for the creation of the "requestpromotion" table.

```
CREATE TABLE IF NOT EXISTS `requestpromotion` (
   'Id' int(11) NOT NULL AUTO_INCREMENT,
  `EmployeeName` varchar(100) NOT NULL,
   `Class` varchar(50) NOT NULL,
  `Designation` varchar(200) NOT NULL,
`DOB` date NOT NULL,
   NIC varchar(20) NOT NULL,
  'Gender' varchar(20) NOT NULL,
'Address' varchar(200) NOT NULL,
  `ContactMobile` varchar(25) NOT NULL,
`MasterDegrees` varchar(500) NOT NULL,
   SLEASOfficerId` varchar(20) NOT NULL,
   'CreateDate' date NOT NULL,
   `SalaryRecievedStatus` varchar(20) NOT NULL,
   `InquiryStatus` varchar(20) NOT NULL,
   'Comment' varchar(500) NOT NULL,
   SOApprovalStatus' varchar(50) NOT NULL,
   `SODId` varchar(20) NOT NULL,
`SODate` date NOT NULL,
  `Progress` varchar(50) NOT NULL,
   `ASApprovalStatus` varchar(50) DEFAULT NULL,
   'ASDate' date DEFAULT NULL,
  PRIMARY KEY ('Id')
-)
  ENGINE=InnoDB DEFAULT CHARSET=utf8mb4 AUTO_INCREMENT=8 ;
```

Figure 4.2 Request Promotion table script

Figure 4.3 code segment was used to connect Database. For further reference refer Appendix B.



Figure 4.3 Database Connectivity

Figure 4.3 code segment was used to different Level of Users Navigation



Figure 4.4 Sing In - Different Level of Users Navigation

Given below is code segment which was used to generate reports to system.

	}
	class PDF extends FPDF
	{
	// Page header
	function Header()
	// Logo
	<pre>\$this->Image('logo.png',15,-1,40);</pre>
	<pre>\$this->SetFont('Arial','B',13);</pre>
	// Move to the right
	<i>\$this->Cell(80);</i>
	// Title
	<pre>date_default_timezone_set('US/Eastern');</pre>
	<pre>\$currentdate = date("d-m-Y");</pre>
	<pre>\$this->SetFont('Arial','B',12);</pre>
	<pre>\$this->Cell(195,5,'Welcome to ESEB Information System!',0,0,"R");</pre>
	// Line break
	<i>\$this-></i> Ln(5);
	<pre>\$this->Cell(275,5,'Ministry of Education',0,0,"R");</pre>
	// Line break
	<pre>\$this->Ln(5);</pre>
	<pre>\$this->Cell(275,5,\$currentdate,0,1,"R");</pre>
	// Line break
	<i>\$this-></i> Ln(15);
	}
	// Page footer
	function Footer()
	{

Figure 4.5 Generate Reports

4.3. Related Technologies

• Recommended hardware specifications of the central server:

Processor Type:	Intel Core i5 processor or later
Processor speed:	2.4 GHz or higher
Memory (RAM):	4GB or more
VGA:	1024MB or more
Display Resolution:	1280 x 1024
Hard Disc Space:	500GB or more
Hard Disk Speed:	7200 RPM or higher

• Recommended hardware specifications of client machines:

Establishment of a client machines with general browser runtime requirements is required.

Processor Type:	Intel Dual Core processor or later
Processor speed:	2.0 GHz or higher
Memory (RAM):	1GB or more
VGA:	256MB or more
Display Resolution:	1280 x 1024
Hard Disc Space:	40GB or more
Hard Disk Speed:	5400 RPM or higher

• Wired Routers with VPN(Virtual Private Networking) Capabilities

A wired router needs to be configured at each branch location.

• DSL Broadband connectivity

DSL broadband connectivity is required to facilitate interconnectivity between subsystems and the central server. A stable 512kbps DSL uplink and downlink is recommended as the minimum.

Chapter 5 - Testing and Evaluation

5.1. System Testing Strategies

Both white and black box testing strategies were used to test the system at various system development stages.

White box testing

Here the code is checked to see if it is working properly. Here you can identify possible running errors during program execution. Based on the understanding of the internal logic of the code, the white box test was performed. (White Box Testing with Object Oriented programming, 2017)

The goal of the white box testing according do this project is verify loops, if- else statement, while loops, Data base query in the code. When doing this testing can find logical errors, design errors due to deferent between logical flow of the programming and actual expected and etc.

Black box Testing

The black box test analyzes performance without requiring knowledge of the application source code. The examiner knows the system's aim but has no idea how it will be performed through. Black box testing examines an application's functioning from the outside.

Black box testing was performed in this project for all functions and requirements of digital services. This approach was used to generate test cases based on the system specification.

5.1.1. Levels of testing

Various levels of testing methodologies were applied during the implementation of the suggested solution to guarantee that each module functions properly. The levels that have been used are as follows:

1. Unit testing

Unit testing should demonstrate the code's resilience, functional correctness, and correct interface.

Following the completion of each Module, unit testing was performed to ensure that each unit satisfied the specified criteria.

2. Integration testing

After the individual software components have been unit tested, integration testing is performed. Integration testing is based on the software's functional specifications and should demonstrate the software's integration and functional correctness.

The separate, related units were integrated to form modules, and integration testing was performed to make sure due to the integration of modules, no errors were associated with them, and it works properly.

3. System testing

System testing aims to show that the program meets the agreed-upon user requirements and works correctly with the intended environment. System testing checks both functional and non-functional requirements.

5.1.2. Testing Strategies

The following testing strategies were carried out to improve the testing process.

- Test Plan Generation
- Test case designing & prioritization
- Test reports generation

5.2. Test Results

The sample test cases used to run the unit and integration tests are listed below.

Test case Result of the Verify on entering valid User Name and password, the user can login is illustrated in Table 5.1. It is used to Check entered a user name and password is Valid.

Table 5.1 Verify on entering valid User Name and password, the user can login

Check				
No	No Step Expected Results			
1	Navigate to Login.php	View Login Page	Pass	
2	Enter the Username and	It is possible to input credentials.	Pass	
2	Password			
3	Click Submit	The user has logged in.	Pass	

Test case Result of the Verify on entering invalid UserName and password, the user can login is illustrated in Table 5.2. It is used Check entered a user name and password are Invalid.

Table 5 2	Vanifus on	antoning	involid	Lanniama	and y	nogaryond	the mean	oon l	login
1 able 5.2	vernv on	i entering	пуяна	Username	ana	Dasswora.	lne user	сяп і	ini goi
	, erny on	enter mg		C Del 1 (unite		pass i or a,			

Chec			
No	Step	Result	
1	Navigate to Login.php	View Login Page	Pass
2	Enter the Username and Password	It is possible to input credentials.	Pass
3	Click Submit	View error message "Invalid User Name or password"	Pass

Test case Result of the Verify SLEAS officer Navigate to Dashboard page is illustrated in Table 5.3. It is used Verify SLEAS officer Navigate to Dashboard page.

Table 5.3 Verify SLEAS officer Navigate to Dashboard page

Verif			
No	o Step Expected Results		Result
1	Navigate to Login.php	View Login Page	Pass
n	Enter the Username and	It is possible to input credentials.	Pass
	Password		
3	Click Submit	User should Login to the system	Pass
1	Verify SLEAS Officer	View "Create Request" label	Pass
4	Dashboard page		

Test case Result of the Verify SLEAS officer Profile page is illustrated in Table 5.4. It is used Verify SLEAS officer Profile Page.

Verif	y SLEAS officer Profile Page		
No	Step	Expected Results	Result
1	Navigate to Login.php	View Login Page	Pass
2	Enter the Username and	It is possible to input credentials.	Pass
_	Password		
3	Click Submit	User should Login to the system	Pass
Λ	Verify SLEAS Officer	View "Create Request" label	Dass
4	Dashboard page		1 455
5	Click "Profile " label inside	View "Profile" header	Daga
5	menu		Г абб

Table 5.4 Verify SLEAS officer Profile page

Test case Result of the Verify NIC Field disable is illustrated in Table 5.5. It is used Verify SLEAS officer Profile Page.

Verif	y SLEAS officer Profile Page		
No	Step	Expected Results	Result
1	Navigate to Login.php	View Login Page	Pass
2	Enter the Username and	It is possible to input credentials.	Dass
2	Password		1 455
3	Click Submit	User should Login to the system	Pass
Λ	Verify SLEAS Officer	View "Create Request" label	Doco
4	Dashboard page		r ass
5	Click "Profile " label inside	View "Profile" header	Dass
5	menu		1 455
6	Click NIC text area	User unable to edit NIC field	Pass

5.3. Test Data

The test data were chosen based on potential user inputs and prior production line facts. The information gathered may be classified into the following categories:

- 1. Correct Data
- 2. Incorrect Data
- 3. Data that is only partially correct
- 4. Incorrect data types
- 5. Incomplete data

The following is an example of how the above categories are combined with the login scenario.

- 1. Correct Data Enter all of the information accurately.
- 2. Incorrect data Entering the incorrect email address and password
- 3. Data that is only partially correct Entering the right email address but the incorrect password
- 4. Incorrect data types Entering a mail id into the password field
- 5. Incomplete data Entering a mail id without a domain name (for example, @moe.com).

5.4. Automation Testing and Screenshots of the reports

Manual testing is regularly outperformed by automation testing. Even though it is quicker, needs minimal human resource contribution, becomes less vulnerable to mistakes, and provides for numerous test runs and functional testing. Selenium is used to automate the test in this application. Selenium is an open source with no license fees. As a result, there is no expence. Following technologies are used for writing the test scrip.

- Programming languages: Java
- OS: Windows
- Browser: Google Chrome
- Generating reports: TestNG

1. Verify SLEAS Officer's dashboard

Below test script of the Verify SLEAS Officer's Dashboard is illustrated in Figure 5.1. It is used to verify dashboard of the system.



Figure 5.1 Test Script: Verify SLEAS Officer's Dashboard

Below test script of the Verify SLEAS Officer's Dashboard is illustrated in Figure 5.2. It is used to verify dashboard of the system.



Figure 5.2 Test Report: Verify SLEAS Officer's Dashboard

5.5. User Evaluation

The goal of project evaluation is to analyze the software development process used during the framework's development, as well as the utility of the technologies and tools, the accuracy of the estimations, and the usefulness of the reviews. The solution will be analyzed and assessed to see whether it achieves the concepts given in the first overview and the product's quality.

For the purpose of user evaluation in this project, the user acceptance testing (UAT) approach was applied. User acceptability testing (UAT) was done after each module was built to ensure that the system met the user's requirements and expectations.

A software assessment allows you to assess whether the project objectives were met based on a prepared list of criteria and some practical testing. Table 5.7 was created to collect input from the system's end users. This was given to users in order to obtain anonymous feedback.

Option and weights are assigned to identify individuals based on a rating scale is illustrated in Table 5.6.

Rating choice	Rate
Poor	1
Fair	2
Satisfactory	3
Good	4
Excellent	5

Table 5.6 Option and weights are assigned to identify individuals based on a rating scale.

The following Table 5.7 is the average score assigned to the significant parameters:

Tab	le 5.7 Evaluation's parameters and weights	
I	nformation Management System for	
Educati	on Services Establishment Branch (ESEB)	
	of MOE	
	Parameter	Weights
		10
	User Interfaces are attractive	4
Appearance	Background colors and color combination	2
	matched	
	Font face and size are compatible and readable	2
	•	
		25
	Screen are easy to navigate	5
Usability	Tab menus are easy to understand	5
	Data validation are satisfied	5
	The requested output results are successful	10
		25
	Accuracy of online report calculation	10
Functionality	Displaying progress of request	5
	Displaying cadre detail	5
	Submission of online request applications	5
		20
Performance	Time taken to documents download/upload	10
	Response time for request's events	10
G		20
Security	User role base activities	20
Total		100

5.6. Evaluation Results

Based on the feedback results, the following graphs were generated and analyzed. Special situations are detailed here, along with graphical feedback outcomes.

Evaluation Results for Appearance

Evaluation Results for Appearance is illustrated in Table 5.8.

	b Evaluation Results for App	
Rating choice	Result	Percentage
Poor	0	0.0%
Fair	2	6.7%
Satisfactory	5	16.7%
Good	14	46.7%
Excellent	9	30.0%

Table 5.8 Evaluation Results for Appearance

The analysis results for Appearance are shown in Figure 5.3.



Figure 5.3 Evaluation Results for Appearance

According to above appearance evaluation 30% are excellent and 46.7% are good. Overall appearance of the web site is good according to the result of feedback.

Evaluation Results for Usability

Evaluation Results for Usability is illustrated in Table 5.9.

Table 5	.9 Evaluation Results for Us	sability
Rating choice	Result	Percentage
Poor	0	0.0%
Fair	1	3.3%
Satisfactory	6	20.0%
Good	15	50.0%
Excellent	8	26.7%

Table 5.9 Evaluation Results for Usability

The analysis results for Usability are shown in Figure 5.4.



Figure 5.4 Evaluation Results for Usability

According to above usability evaluation 26.7% are excellent and 50.0% are good. Overall usability of the web site is good according to the result of feedback.

Evaluation Results for Functionality

Table 5.10) Evaluation Results for Fun	ctionality
Rating choice	Result	Percentage
Poor	0	0.0%
Fair	1	3.3%
Satisfactory	2	6.7%
Good	11	36.7%
Excellent	16	53.3%

Evaluation Results for Functionality is illustrated in Table 5.10.

The analysis	results for	Functionality	are shown	in Figure 5.5.



Figure 5.5 Evaluation Results for Functionality

According to above Functionality evaluation 53.3% are excellent and 36.7% are good. Overall Functionality of the web site is good according to the result of feedback.

Evaluation Results for Performance

Evaluation Results for Performance is illustrated in Table 5.11.

1 able 5.11	Evaluation Results for Fell	lormance
Rating choice	Result	Percentage
Poor	0	0.0%
Fair	1	3.3%
Satisfactory	2	6.7%
Good	11	50.0%
Excellent	16	40.0%

 Table 5.11 Evaluation Results for Performance

The analysis results for Performance are shown in Figure 5.6.



Figure 5.6 Evaluation Results for Performance

According to above Performance evaluation 40.0% are excellent and 50.0% are good. Overall Performance of the web site is good according to the result of feedback.

Evaluation Results for Security

Evaluation Results for Security is illustrated in Table 5.12.

Table 5	.12 Evaluation Results for S	ecurity
Rating choice	Result	Percentage
Poor	0	0.0%
Fair	1	0.0%
Satisfactory	2	0.0%
Good	11	3.3%
Excellent	16	96.7%

- - - -

The analysis results for Security are shown in Figure 5.7.



Figure 5.7 Evaluation Results for Security

According to above Security evaluation 96.7% are excellent and 3.3% are good. Overall Security of the web site is good according to the result of feedback.

Overall Evaluation Results

System evaluation was successfully completed with the end users rating the system as being satisfactory.

Chapter 6 - Conclusion

This chapter describes the project's conclusion. Results with respect to targets will be compared, critical evaluation will be how the entire project has improved the company's operation, and eventually future development to enhance the project will be discussed in this chapter.

6.1 Results with Respect to the Objectives

The project's objectives have been addressed in earlier chapters. The project's main goal was to offer cadre management, information management, and request management. In the project, all of the scope-mentioned objectives were met.

6.2 Critical Appraisal

Manual work is difficult to monitor in any institution, and it is usually unpleasant. This technology will offer management with additional business-critical information to help them make management decisions. Additionally, using this solution, all production information can now be accessed quickly without having to wade through several excel files. Budgeted and actual information may also be readily compared hourly. And direct input will reach management far faster than it did previously, which took days.

This conclusion phase is when the project is formally completed and the overall project results are examined. This chapter describes the work done at this time. The following areas should be improved, according to the assessment. According to the results of the evaluation,

- The "Appearance" receives an overall rating of 46.7% "good." As a result, User Interfaces are attractiveness should be improved.
- Usability is rated as "good" by 50% of those polled. As a result, "Data validation is satisfied" to some extent, but the system has to be further improved.
- Functionality is rated as "excellent" by 53.3% of those polled. As a result, the accuracy of online reports computation is good.

• The performance is rated as "good" by 40% of those who have seen it. As a result, the response time for request events should be kept to a minimum.

6.3 Future Work

The ESEB Online Information Management System was created in response to client requests. Overall, the proposed ESEB information management system met the main objective set out at the start. However, still several new features could be added to make the management more reliable for users and their work more productive.

The future work includes,

- creating a mobile version of the solution,
- verification of the authenticity of documents,
- cadre management module,
- integrate it with an SMS gateway to generate SMS notifications.

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Appendix A- Automation Scripts

1. Verify Announcement Page

Test script of the announcement page verification is illustrated in Figure A.1. It is used to automate the announcement page verification test case.



Figure A.1 Test Script: Verify Announcement Page

Test Result of the announcement page verification is illustrated in Figure A.2. It is used to identify test case result.

1	🖹 Problems 🍘 Javadoc 🗓 Declaration 📮 Console 🛛 🦏 Progress 🚡 Coverage 🙀 Results of running class VerifyAnnousementPage
	III 🗙 💥
	<terminated> VerifyAnnousementPage [TestNG] C:\Users\Inspiron 15r\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_15.0.2.v20210201-0955\</terminated>
	[RemoteTestNG] detected TestNG version 6.14.3
	Starting ChromeDriver 91.0.4472.19 (1bf021f248676a0b2ab3ee0561d83a59e424c23e-refs/branch-heads/4472@{#288}) on port 6261
· vc	Only local connections are allowed.
	Please see https://chromedriver.chromium.org/security-considerations for suggestions on keeping ChromeDriver safe.
	ChromeDriver was started successfully.
	Jun 14, 2021 5:10:22 PM org.openqa.selenium.remote.ProtocolHandshake createSession
	INFO: Detected dialect: W3C
	This is Assistant Secretory Dashboard
	Create Announcement Page is available
	PASSeD: VerifyAnnoucement
	Default test
	Tests run: 1, Failures: 0, Skips: 0
	Default Suite

Figure A.2 Test Report: Verify Announcement Page

Appendix B- Code Segments

Database Connection of the proposed system is illustrated in Figure B.1. It is used to connect

SQL server and the proposed system.



Figure B.1 Database Connection

Script of the retrieving data of the proposed system is illustrated in Figure B.2.



Figure B.2 View Table Data

Script of the insert row data of the proposed system is illustrated in Figure B.3.



Figure B.3 Insert Row

Script of the update and delete row data of the proposed system is illustrated in Figure B.4.



Figure B.4 Update and Delete Row

Appendix C- User Manual

1. Sign-in Module

Sign-in UI of the proposed system is illustrated in Figure C.1. It is used to Sign In to proposed system for all level of users.

ESEB Inforn Systen	nation n
Sign in to start your	session
Username	
Username	
Password	
Password	A
Sign In	
Forget Password	

Figure C.1 Sign-in Module

Forget password UI of the proposed system is illustrated in Figure C.2. It is used to request code for login to the system.

ESEI	B Inforn Systen	nation n	
You forgot easily	your password retrieve a new	? Here you c password.	an
Email			
Re	equest new pas	sword	
Sign-In			

Figure C.2 Forget password

Reset password UI of the proposed system is illustrated in Figure C.3. It is used to reset the password.

ESEB Information System	
Code	
Code	
New Password	
New Password	
Confirm Password	
Confirm Password	
Change Password	

Figure C.3 Reset Password

2. SLEAS Officer Services UI

i. Home

SLEAS Officer Home Page UI of the proposed system is illustrated in Figure C.4.



Figure C.4 SLEAS Officer Home Page

- Show Announcements

Show Announcements UI of the proposed system is illustrated in Figure C.5.

🕃 ESEB 🎒 Alexander Pierce	Annou	incements!		×
O Home O Profile	<u>Exa</u>	ims Sri Lanka-DOE	(<u>Mobile-App) is launched acc</u> Minister Of Education Profe	cording to the digitalization policy -The essor G.L. Peiris
 Create Request Request Progress 	The Minis Departm Exams Sr occasion	ter of Education Professor G ent of Examinations through i Lanka DOE according to the of launching of this mobile t	L. Peiris said that the facility will be provic the mobile phones while remaining at hor : digitalization policy of the government. T elephone app in Colombo.	ded to the entire nation for obtaining all the services of the me introducing a more receiver friendly mobile app named he minister expressed these ideas while participating in the
	Contact Us	5 +94 112 785141	Addrase	location
	Fax:	+94 112 785150	Ministry of Education,	Location.
	Email: info@moe.gov.lk	Isurupaya, Battaramulla 10120 Sri Lanka.	anta Dora Hospital See similar places ASIRI UYANA a to LAWATTE Ministry of Education Isurupaya	

Figure C.5 Show Announcements

ii. Profile

- Show logged user profile details

View logged user profile details UI of the proposed system is illustrated in Figure C.6.



Figure C.6 Show logged user profile details

- Update Contact details

Update logged user Contact details UI of the proposed system is illustrated in Figure C.7.

ESEB			
Ilexander Pierce	ntacts 🛛 🖉	Educational Qualifications	Professional Qualifications
Alexander Pierce	me 1234567890 2234567890 fice 1234567890 nail	Degree Level • Bachelor Of Science (University Of Peradeniya 1995.03.24) • Master Of Education (University Of Peradeniya 2002.05.29) • Master Of Science (University Of Colombo 2010.06.29) GCE Level • GCE A/L Examination (1987) • GCE 0/L Examination (1984)	Qualifications • CIPM in Human Resource (2015)"
u Ad	iththara@gmail.com dress √o 02, Colombo	Other • PGD (University Of Education 1998.08.01)"	

Figure C.7 Update Contact details

iii. Create Request Module

- Transfer request

* Load logged user data

Load logged user details - create transfer UI of the *create request module* is illustrated in Figure C.8.

🕃 ESEB			Logout				
e Alexander Pierce	Create Request						
O Home	Transfer Promotions Increments Retirements						
O Profile	SECTION I: Employee Information						
O Create Request	Employee Name	Alexander Pierce					
O Request Progress	Class	Class I					
	Designation	SLEASI					
	Date of Birth	1968-06-12					
	NIC	685201755V					
	Gender	Male Female					
	Address	No 02, Colombo					
	Contact-Mobile	1234567890					
	Appointment Date	2002-06-12					

Figure C.8 Load logged user data

* Create request

Figure (С.9	is	used to	o C	reate	Transf	fer 1	reques	t for	SLEAS	Officers.
0											

🕃 ESEB	Appointment Date	2002-06-12					
i Alexander Pierce	Current Working Place	Western - MOE - Bi Lingual					
	Service Period	From		То			
O Home		mm/dd/yyyy		mm/dd/yyyy			
O Profile							
O Create Request							
O Request Progress	SECTION II: Transfer Informa	tion					
	Province	-Select-			~		
	Place of Work	-Select-			~		
	SECTION III: Declaration						
	I declare the abouve informa	tion to be true and correct.					
	Submit						
	Copyright © 2021 ESEB Information System All rights reserved.						

Figure C.9 Create Transfer request

- Promotion request

* Load logged user data

Load logged user details - create Promotion UI of the *create request module* is illustrated in Figure C.10.

😺 ESEB			Logout			
llexander Pierce	Create Request					
O Home	Transfer Promotions	Increments Retirements				
O Profile						
O Create Request	SECTION I: Employee Inform	ation				
O Request Progress	Employee Name	Alexander Pierce				
	Class	Class I				
	Designation	SLEASI				
	Date of Birth	1968-06-12				
	NIC	685201755V				
	Gender Male	Male Female				
	Address	No 02, Colombo				
	Contact-Mobile	1234567890				

Figure C.10 Load logged user data

* Create Promotion request

Figure C.11 is used to Create Promotion request for SLEAS Officers.

	NIC	685201755V			*
Alexander Pierce	Gender Male	Male	Female		
	Address	No 02, Colombo			
O Home O Profile	Contact-Mobile	1234567890			
O Create Request					
O Request Progress	SECTION II: Educational Quali	ications			
	Master Degree complete	versity Of Peradeniya 2002.05.29) , Master Of Scienece (University Of Colombo 2010.06.29)	4		
	SECTION III: Declaration I declare the abouve informati Submit	on to be true and correct.			
	Copyright © 2021 ESEB Inform	ation System All rights rese	ved.	Version 1.0	Ţ

Figure C.11Create Promotion request

- Increment request

* Load logged user data

Load logged user details - create increment UI of the *create request module* is illustrated in Figure C.12.

😝 eseb			Logout			
lexander Pierce	Create Request					
O Home	Transfer Promotions	Increments Retirements				
 Profile Create Request 	SECTION I: Employee Inform	ation				
O Request Progress	Employee Name	Alexander Pierce				
	Designation	SLEAS I				
	Date of Birth	1968-06-12				
	NIC	685201755V				
	Gender Male	Male O Female				
	Address	No 02, Colombo				
	Contact-Mobile	1234567890				
	SECTION III: Declaration					

Figure C.12 Load logged user data

* Create Increment request

Figure C.13 is used to Create Increment request for SLEAS Officers.

🐻 ESEB						
	Employee Name	Alexander Pierce				
Alexander Pierce	Designation	SLEAS I				
O Home	Date of Birth	1968-06-12				
O Profile	NIC	685201755V				
O Request Progress	Gender Male	Male O Female				
	Address	No 02, Colombo				
	Contact-Mobile	1234567890				
	SECTION III: Declaration					
	I declare the abouve information to be true and correct.					
	Submit					
	Copyright © 2021 ESEB Info	rmation System All rights reserved.	ersion 1.0			

Figure C.13 Create Increment request

- Retirement request

* Load logged user data

Load logged user details - create retirement UI of the *create request module* is illustrated in Figure C.14.

😝 eseb			Logout			
lexander Pierce	Create Request					
O Home	Transfer Promotions	Increments Retirements				
 Profile Create Request 	SECTION I: Employee Information					
O Request Progress	Employee Name	Alexander Pierce				
	Class	Class I				
	Date of Birth	1968-06-12				
		685201755V				
	Gender Male	Male Female				
	Address	No 02, Colombo				
	Contact-Mobile	1234567890				
	SECTION II: Retirement Info	rmation				

Figure C.14 Load logged user data

* Create Retirement request

Figure C.15 is used to Create Retirement request for SLEAS Officers.

🕞 ESEB	Date of Birth	1968-06-12						
lexander Pierce	NIC	685201755V						
	Gender Male	Male Female						
O Home	Address	No 02, Colombo						
O Profile	Contact-Mobile	1234567890						
O Request Progress								
	SECTION II: Retirement Infor	SECTION II: Retirement Information						
	Reason For Retirement	 Coming of age (After completing 55 years of age) Optional Retirement (Age between 55-60) Compulsary Retirement (Upon completion of 60 years of age) 						
	Date Request for retirement	mm/dd/yyyy						
	Submit							
	Copyright © 2021 ESEB Infor	mation System All rights reserved.	Version 1.0					

Figure C.15 Create Retirement request

iv. Request Progress Module

Figure C.16 is used to View all made requests in table view.

ESEB							Logout
lexander Pierce	Requ	est Progress					
						Search	
O Profile	No	Requested Date	Request Type	Progress	HOD/SO Approval Status	AS Approval Status	Action
O Create Request	1	2021-07-05	Transfer	To AS	Approved		View
O Request Progress	2	2021-07-07	Transfer				View
	3	2021-07-07	Transfer	Completed	Approved	Rejected	View
	4	2021-07-10	Transfer				View
	5	2021-07-11	Transfer	Completed	Approved	Approved	View
	6	2021-07-07	Increment	To HOD			View
	7	2021-07-07	Increment	To HOD			View
	8	2021-07-10	Increment	To HOD			View
	Copyrigh	t © 2021 ESEB Informatio	on System All rights reserve	ed.			Version 1.0

Figure C.16 Show all made requests in table view

- Figure C.17 and Figure C.18 are used to View a request details

- * Transfer request details
- * Promotion request details
- * Increment request details
- * Retirement request details

ESEB			Logout				
llexander Pierce	Transfer Request Details						
O Home	Personal Information						
O Profile							
O Create Request	SLEAS Officer Name	Alexander Pierce					
O Request Progress	Class	Class I					
	Designation	SLEAS I					
	Date of birth	1968-06-12					
	NIC	685201755V					
	Gender	Male					
	Address	No 02, Colombo					
	Moblie Number	94768945252					

Figure C.17 View a request details - 1

🐻 ESEB								
	Current Service Station	Western - MOE - Education Development						
llexander Pierce	Service Period	From	То					
		1999-05-01	2021-05-01					
O Home								
O Profile	Transfer Information							
O Create Request	Province	Western						
O Request Progress								
	Place of work	MOE						
	Locatation	Bi Lingual						
	Head of the Department							
	Recommendation							
	Comment							
	Copyright © 2021 ESEB Info	mation System All rights reser	rved.	Version 1.0				

Figure C.18 View a request details – 2

- Filter table data according to search

Figure C.19 is used to Filter table data according to search.

ESEB							Logout
lexander Pierce	Requ	est Progress					
						Transfer	
O Profile	No	Requested Date	Request Type	Progress	HOD/SO Approval Status	AS Approval Status	Action
O Create Request	1	2021-07-05	Transfer	To AS	Approved		View
O Request Progress	2	2021-07-07	Transfer				View
	3	2021-07-07	Transfer	Completed	Approved	Rejected	View
	4	2021-07-10	Transfer				View
	5	2021-07-11	Transfer	Completed	Approved	Approved	View
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Figure C.19 Filter table data according to search

3. Subject Officer and Assistant Secretory Common UI

i. Home

- Show Announcements

Figure C.20 is used to Show Announcements for Subject Officer or Assistant Secretory



Figure C.20 Show Announcements

ii. Employee Profile

.

- Search employee details by Employee Number

Figure C.16 is used to Search employee details by Employee Number for Subject Officer or Assistant Secretory


- Enable edit once click edit button

Section wise update

- * Basic
- * General
- * Current Employment
- * Contacts
- * Educational Qualifications
- * Professional Qualifications

Figure C.21 is used to Enable edit icon once click edit button.

LSED	General	ľ	Cadre Details		Current Employment	ľ
Don Debora	NIC		Category		Province	
O Home	685201755V		Open	~	Western	~
O Employee Profile	Date of Birth		Appoinment Date		Place of Work	
O Request Details ✓	1968-06-12	=	2002-06-12		MOE	~
Promotion 5	Gender		Cadre Type		Branch	
🔿 Reports 🔹 🗸	Male		Special	~		~
🗐 мое			Special Subject			
State Ministry			IT	~		
Examination						
Publication	Contacts	ď	Educational Qualifications	2	Professional Qualifications	ď
O Mails	Home		Degree Level		Qualifications	
O Create Employee	1234567890		Bachelor Of Science (University Of Peradeni	iya	CIPM in Human Resource (2015)"	
	Mobile		Master Of Education (University Of Peradeni 2002.05.20)	iya		
	1234567890		Master Of Scienece (University Of Colombo			
	Office		2010.06.29)			

Figure C.21 Enable edit once click edit button

iii. Request Details

- Show all received Promotion requests in a table

Figure C.22 is used to Show all received Promotion requests in a table

🕃 ESEB										Logout
Don Debora		Prom	notion Requests							
									Search	
O Employee Profile		No	Name	CreateDate	SO Approval	SO Comment Date	Progress	AS Approval	AS Comment Date	Action
O Request Details	•	1	Alexander Pierce	2021-07-13	Approved	2021-07-13	To AS			View
E Promotion	5	2	James Butt	2021-07-10	Rejected	2021-07-13	Completed			View
O Reports	~	3	Josephine Darakajva	2021-07-10			To SO			View
MOE State Ministry		4	James Butt	2021-07-10			To SO			View
E Examination		5	Alexander Pierce	2021-07-10			To SO			View
Publication		6	Alexander Pierce	2021-07-07			To HOD			View
○ Mails ○ Create Employee		7	Alexander Pierce	2021-07-07			To SO			View
		Copyrigi	nt © 2021 ESEB Information	n System All rights	reserved.					Version 1.0

Figure C.22 Show all received Promotion requests in a table - View a request details

🕞 ESEB		002771324	
-	Gender	Male	
Don Debora	Address	No 02, Colombo	
O Home	Moblie Number	94768945252	
O Employee Profile	Master Degree	Master Of Education (University Of Peradeniya 2002.05.29) , Master Of Scienece (University Of Colombo 2010.06.29)	
O Request Details 🔹 🗸			
E Promotion S			
O Reports 🗸	Head of the De	partment	
🗐 мое	Use the officer results do		
📒 State Ministry	has the officer received t	npaiu / partial salary:	
Examination	Are there any disciplinar	y inquiries or audit inquiries against the officer?	
Publication	Comment	Enter Commnent	
() Mails			//
O Create Employee		Next Level Approval Reject	
	Copyright © 2021 ESEB Info	rmation System All rights reserved.	Version 1.0

Figure C.23 View a request details

- Filter table data according to search

Figure C.24 is used to Filter table data according to search

🐯 ESEB										Logout
Don Debora		Prom	otion Reques	ts						
O Home								C	approved	>
O Employee Profile		No	Name	CreateDate	SO Approval	SO Comment Date	Progress	AS Approval	AS Comment Date	Action
O Request Details	~	1	Alexander Pierce	2021-07-13	Approved	2021-07-13	To AS			View
Promotion	5									
O Reports	~									
🗐 мое										
State Ministry										
E Examination										
Publication										
O Mails										
O Create Employee										
		Copyrigh	it © 2021 ESEB Informa	tion System All rig	hts reserved.					Version 1.0

Figure C.24 Filter table data according to search

iv. Reports

- MOE / State Ministry / Examination / Publication

-Show Class wise Cadre count

Figure C.25 is used to Show Class wise Cadre count, Number of vacancy and Number of

Excess employee count.

😺 ESEB									Logout
Don Debora		Report	s - MOE						
O Home		Summar	y of Ministry of Ed	ucation					
O Employee Profile		Sun	nmary						
O Request Details	~			Approved	Cadre		Current Cadre	Vacancy	Excess
Promotion	5							,	
O Reports	~		Special	4			3	1	0
🖪 мое			Class I	39			49	0	10
State Ministry			Class II/ III	99			102	0	3
Examination									
Publication									
O Mails		Spread o	f SLEAS Officers in	Ministry Of Education					
O Create Employee		FL	ıll Details			Sea	rch		Print
			Emp. No	Name	Class	Designation	Branch		
		1	EMP/100023	Alexander Pierce	Class I	SLEAS I	Bi Lingual		

Figure C.25 Show Class wise Cadre count

-Show all employee details in a table

Figure C.26 is used to Show all employee details in a table

🔂 ESEB		Spread o	f SLEAS Officers	n Ministry Of Education			
Don Debora		Spread o		in ministry of Education			
O Home		Fi	ull Details			Search	Print
O Employee Profile			Emp. No	Name	Class	Designation	Branch
O Request Details	~	1	EMP/100023	Alexander Pierce	Class I	SLEAS I	Bi Lingual
Promotion	5	2	EMP/100024	James Butte	Class II	Deputy Commissioner	Aesthetic Education Branch
O Reports	*	3	EMP/100123	Arlene Klusman	Class I	Director	School Activities Branch
MOE State Ministry		4	EMP/100124	Alease Buemi	Class II	Deputy Director	Religious & Value Education Branch
E Examination		5	EMP/100125	Louisa Cronauer	Class II	Deputy Director	Sports & Physical Education Branch
Publication		6	EMP/100126	Angella Cetta	Class II	Deputy Director	Aesthetic Education Branch
O Mails		7	EMP/100127	Cyndy Goldammer	Class II	Assistant Director	National Book Development Board
O Create Employee		8	EMP/100128	Rosio Cork	Class III	Assistant Director	Data Management Branch
		9	EMP/100129	Celeste Korando	Class III	Assistant Director	English & Foreign Language Branch
		10	EMP/100130	Twana Felger	Class I	Director	Agriculture and Environmental Education Branch

Figure C.26 Show all employee details in a table

- Filter data according to the search value

Figure C.27 is used to illustrate Filter data according to the search value

🚱 ESEB		Sproad c					
Don Debora		Spread C	JI SLEAS Officers in	I MINISTRY OF Education			
O Home		F	ull Details			assistant	Director
O Employee Profile			Emp. No	Name	Class	Designation	Branch
O Request Details	~	7	EMP/100127	Cyndy Goldammer	Class II	Assistant Director	National Book Development Board
Promotion	5	8	EMP/100128	Rosio Cork	Class III	Assistant Director	Data Management Branch
O Reports	ř	9	EMP/100129	Celeste Korando	Class III	Assistant Director	English & Foreign Language Branch
MOE Shake Minister		15	EMP/100135	Sue Kownacki	Class III	Assistant Director	Plantation School Development Branch
Examination		21	EMP/100141	Brandon Callaro	Class III	Assistant Director	Management & Quality Assurance Branch
Publication		22	EMP/100142	Scarlet Cartan	Class III	Assistant Director	Information & Communication Technology Branch
🔿 Mails		28	EMP/100148	Herman Demesa	Class III	Assistant Director	Management & Quality Assurance Branch
O Create Employee		29	EMP/100149	Rory Papasergi	Class III	Assistant Director	Information & Communication Technology Branch
		33	EMP/100153	Bok Isaacs	Class III	Assistant Director	School Activities Branch
		36	EMP/100156	Kimbery Madarang	Class III	Assistant Director	National School Branch

Figure C.27 Filter data according to the search value

- PDF generate both tables

Figure C.28 is used to illustrate PDF Summary Reports

≡	ReportS	ummaryMOE.php	1 / 1	- 100% + 🕃	\$)		Ŧ	ē	:
	Summary of Ministry of Education		on Cadre		Welcome to	ESEB Information System! Ministry of Education 10-09-2021			
			Approved Cadre	Current Cadre	Status	Variance			
		Special	4	3	Excess	1			
		Class I	39	49	Vacancy	-10			
		Class II / III	99	102	Vacancy	-3			

Figure C.28 Summary

Figure C.29 is used to illustrate PDF Full Details Reports

≡	ReportMOE.php			1 / 11	- 80% -	+ E 🛇		Ŧ	ē	
		ID	NAME	CLASS	DESIGNATION	BRANCH				
		EMP/100023	Alexander Pierce	Class I	SLEAS I	Bi Lingual	- 1			
		EMP/100024	James Butte	Class II	Deputy Commissioner	Aesthetic Education Branch	- 1			
		EMP/100123	Arlene Klusman	Class I	Director	School Activities Branch	- 1			
		EMP/100124	Alease Buemi	Class II	Deputy Director	Religious & Value Education Branch	- 1			
		EMP/100125	Louisa Cronauer	Class II	Deputy Director	Sports & Physical Education Branch	- 1			
		EMP/100126	Angella Cetta	Class II	Deputy Director	Aesthetic Education Branch	- 1			
		EMP/100127	Cyndy Goldammer	Class II	Assistant Director	National Book Development Board	- 1			
		EMP/100128	Rosio Cork	Class III	Assistant Director	Data Management Branch	- 1			
		EMP/100129	Celeste Korando	Class III	Assistant Director	English & Foreign Language Branch	- 1			
		EMP/100130	Twana Felger	Class I	Director	Agriculture and Environmental Education Branch	- 1			
		EMP/100131	Estrella Samu	Class I	Director	Sports & Physical Education Branch	- 1			
		EMP/100132	Donte Kines	Class I	Director	Bi Lingual & Tri Language Unit	- 1			
		EMP/100133	Tiffiny Steffensmeier	Class I	Director	Policy & Planning Branch	- 1			
		EMP/100134	Edna Miceli	Class II	Deputy Director	Primary Education and Early Childhood Development Unit	- 1			
		_								

Figure C.29 Full Details

v. Create Employee

Figure C.30	is used to illustrate	Create SLEAS	officer profile UI.
-------------	-----------------------	--------------	---------------------

😺 ESEB	Basic					
Don Debora	Name:	Enter name				
O Home	Status:	-Select-		~		
O Employee Profile O Request Details ✓	Class :	-Select-		~		
Promotion 5	Designation:	-Select-		~		
O Reports ✓	Current Status:	-Select-		~		
E State Ministry	Image:	Choose File No file cho	isen			
Examination	_					_
Publication	General		Cadre Details		Current Employment	
() Mails	NIC		Category		Province	
O Create Employee	Enter NIC		-Select-	~	-Select-	~
	Date of Birth		Apoinment Date		Place of Work	
	mm/dd/yyyy		mm/dd/yyyy		-Select-	~
	Gender		Cadre Type			

Figure C.30 Create Employee

Vi. Mail

Figure C.31 is used to illustrate E Mail Sending UI.

🚱 ESEB		Logout
Don Debora	ESEAS Mail	
 Home Employee Profile Request Details Promotion Reports MOE State Ministry Examination Publication Mails Create Employee 	Full Name * Example input Email address * name@example.com Subject * Another input Message *	
	Copyright © 2021 ESEB Information System All rights reserved.	Version 1.0

Figure C.31 Mail

4. Assistant Secretory Unique UI

i. Home

Assistant Secretory Home Page UI of the proposed system is illustrated in Figure C.32.



Figure C.32 Assistant Secretory Home

- Show Announcements

Figure C.33 is used to Show Announcements UI.

😼 ESEB						Logout
Katthy David		Create	Announcement			
O Home		Add				
O Employee Profile		_				
O Request Details		#	Header	Body	Action	
📒 Transfer	2	1	Exams Sri Lanka-DOE (Mobile-App) is launched according to the	The Minister of Education Professor G.L. Peiris said that the facility will be provided to the entire nation for obtaining all the services of the Department of	Edit Delete	
Promotion	1		digitalization policy -The Minister Of	Examinations through the mobile phones while remaining at home introducing a		
🗐 Increment	3		Education Professor G.L. Perns	digitalization policy of the government. The minister expressed these ideas while		
Retirement				participating in the occasion of launching of this mobile telephone app in Colombo.		
O Reports						
🗐 мое						
State Ministry						
Examination						
Publication						
O Mails						
O Create Employee		Copyright © 2021	ESEB Information System All rights reserved	d.		Version 1.0

Figure C.33 Show Announcements

- Edit Announcements

Figure C.34 is used to Edit Announcements UI.



Figure C.34 Edit Announcements

- Delete Announcements



Figure C.35 is used to Delete Announcements UI.

Figure C.35 Delete Announcements

5. Admin

Figure C.36 is used illustrate Gant / Deny Access to user for login to the system

Enter name		
Enter Userna	ame	
Catao Daaree	ord	
Enter Passwo		
Choose File	No file chosen	
Choose File	No file chosen	
Choose File Enter UserTy	No file chosen /peld	

Figure C.36 Gant Access to new user

Figure C.37 issued illustrate Deny / Edit Access to system

Records Present In The Database Admin Panel							
#	Image	Name	Username	Password	UserTypeld	Email	Action
1		Alexander Pierce	sleas	sleas	1	uththaraaa@gmail.com	Delete
2		Don Debora	so	so	2	padmakmudalige@gmail.com	Delete
3		Katthy David	as	as	3	euththaraaa@gmail.com	Delete
4	Ē	Mark Tomson	hod	hod	4	admin@gmail.com	Delete
5		James Butt	James Butt	123	1	abc@gmail.com	Delete
6		Josephine Darakjy	Josephine Darakjy	123	1		Delete

Figure C.37 Deny / Edit Access to system

6. HOD Officer Module

Figure C.38 is used to Illustrate Show all received requests (Transfer / Increment/Retirement) in one table

🔂 ESEB									Logout
Mark Tomson	Tran	sfer Requests							
								Search	
O Increment 3	No	Name	CreateDate	HOD Approval	HOD CommentDate	Progress	AS Approval	AS Comment Date	Action
O Retirement	1	Alexander Pierce	2021-07-11	Approved	2021-07-13	Completed	Approved	2021-07-13	View
	2	Art Venere	2021-07-11						View
	3	James Butt	2021-07-10	Approved	2021-07-10	To AS			View
	4	Josephine Darakajva	2021-07-10	Approved	2021-07-10	Completed	Approved	2021-08-28	View
	5	Alexander Pierce	2021-07-10						View
	6	Alexander Pierce	2021-07-07						View
	7	Alexander Pierce	2021-07-07	Approved	2021-08-28	Completed	Rejected	2021-08-28	View
	8	Alexander Pierce	2021-07-05	Approved	2021-08-28	To AS			View
	Conveig	ht @ 2021 ESEB Informatio	n Syctom All right	te recentred					Version 1.0

Figure C.38 Show all received requests in a table



Figure C.39 is used to View a request details and Approve / Reject Request

🚱 ESEB		NIC	685201755V						
Mark Tomson		Gender	Male						
O Transfer	3	Address	No 02, Colombo						
O Increment	3	Moblie Number	94768945252						
O Retirement	2								
		Head of the De	epartment						
		Has the officer received	paid / partial salary? No Yes						
		Are there any disciplina	ry inquiries or audit inquiries against the officer?						
		Comment	Enter Commnent						
			Next Level Approval Reject						
		Copyright © 2021 ESEB Info	ormation System All rights reserved.	Version 1.0					

Figure C.39 View a request details and Approve / Reject Request

- Filter table data according to search

Figure C.39 is used to Filter table data according to search

😼 ESEB										Logout
Mark Tomson		ncre	ment Requests							
O Transfer	3								To As	
O Increment	3	No	Name	CreateDate	HOD Approval	HOD CommentDate	Progress	AS Approval	AS Comment Date	Action
O Retirement	2	1	James Butt	2021-07-10	Approved	2021-08-28	To AS			View
		2	James Butt	2021-07-10	Approved	2021-07-11	To AS			View
		4	Josephine Darakajva	2021-07-10	Approved	2021-08-28	To AS			View
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Figure C.40 Filter table data according to search