# Education Services Establishment Branch Online Information Management System

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# Education Services Establishment Branch Online Information Management System

**A thesis submitted for the Degree of Master of Information Technology**

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**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.

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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

Signature: Date: 27/11/2021

# 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 object-oriented 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.

# Acknowledgements

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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.

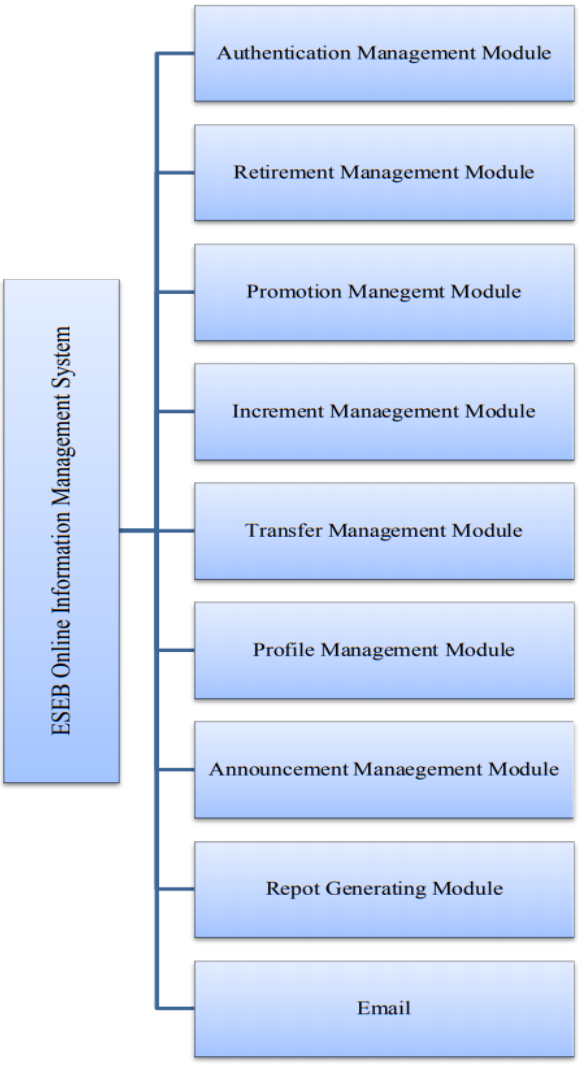


**Figure 1.1 Module Structure**

### 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

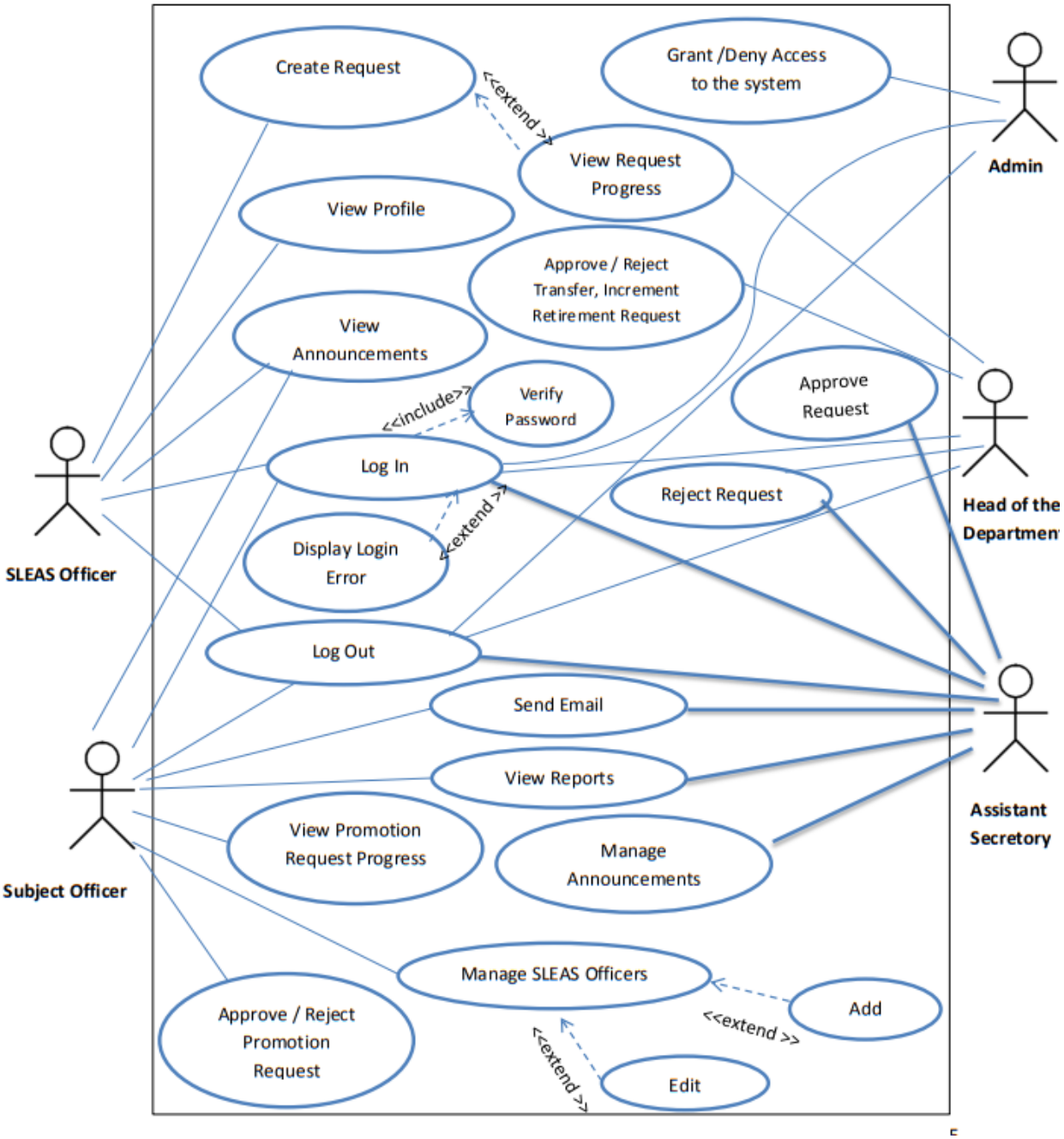


**Figure 2.1 Use case Diagram**

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<br>2. Validate User Name and password<br>3. Allow access to system |
| Post Condition | After a successful login user navigate the home page |
| Extensions | 1. a. Invalid Username<br>System shows an error message |
| | 2.b. Invalid Password<br>System shows an error message |

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.

**Table 2.2 Add SLEAS officer**

| | |
|---|---|
| Use Case | Add SLEAS officer |
| Actor | Subject Officer |
| Pre- Condition | • User should Login to the system<br>• 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.

**Table 2.3 Update SLEAS officer**

| | |
|---|---|
| Use Case | Update SLEAS officer |
| Actor | Subject Officer |
| Pre- Condition | • User should Login to the system<br>• Stable internet connection |
| Description | When updating the employee details |
| Post Condition | Register 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 | Head of the department ,Assistant Secretory |
| Pre- Condition | • User should Login to the system<br>• Stable internet connection |
| Description | When received to request, Head of the department / Assistant secretary can accept the 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 system<br>• Stable 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 2.6 View Reports**

| | |
|---|---|
| Use Case | View Reports |
| Actor | Assistant Secretory |
| Pre- Condition | • User should Login to the system<br>• Stable internet connection |
| Description | Assistant Secretory can 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.

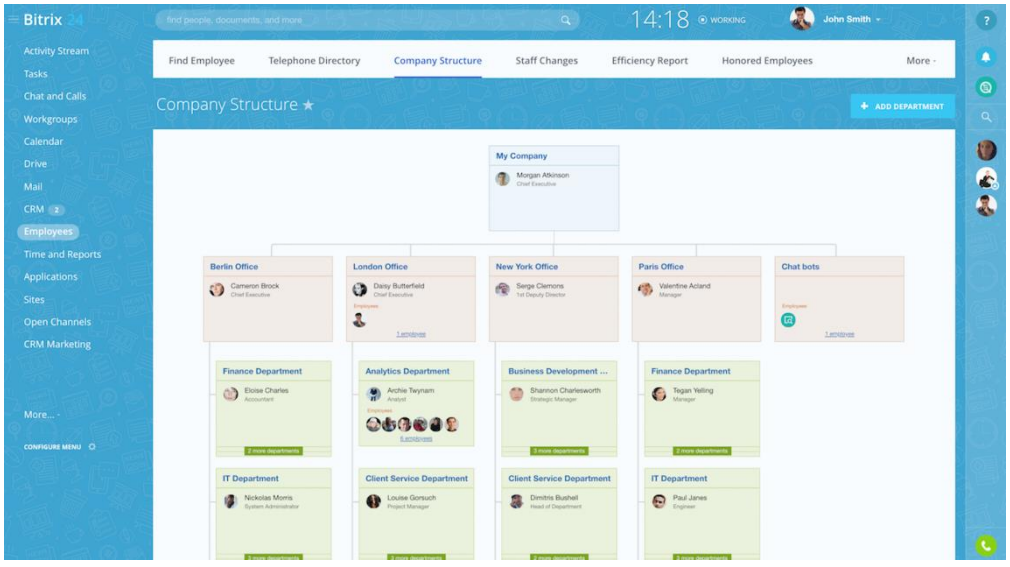


**Figure 2.2 Bitrix24**

### 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.

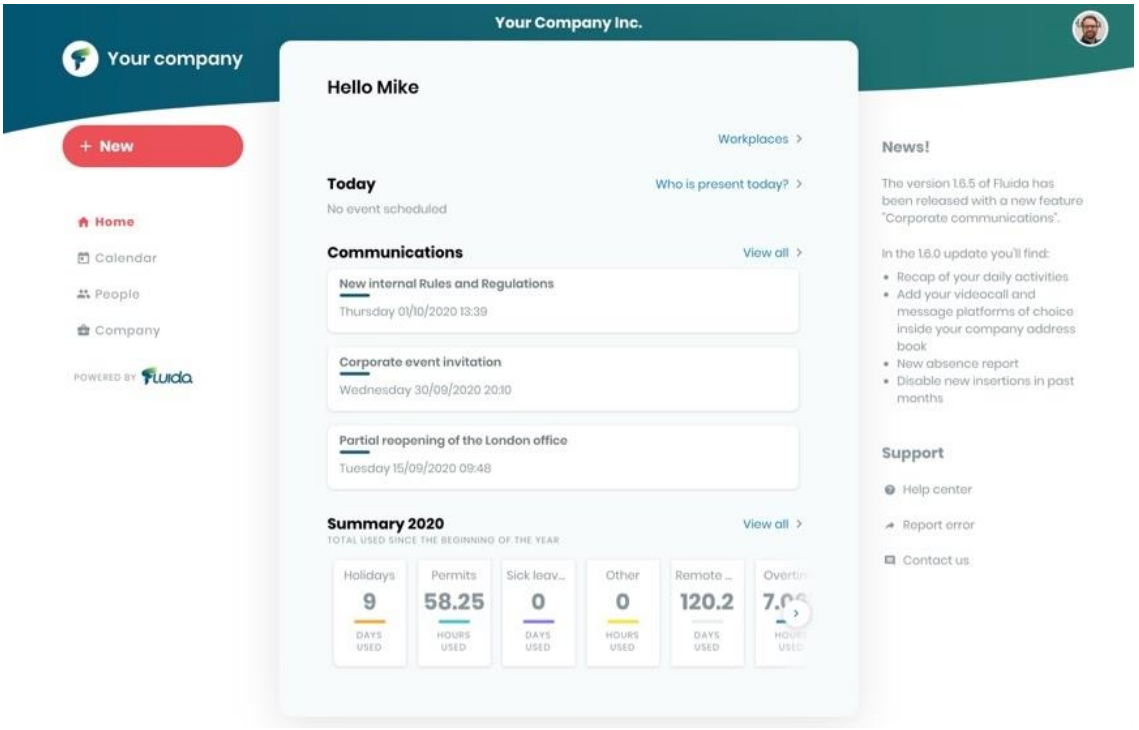


**Figure 2.3 Fluida**

**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.

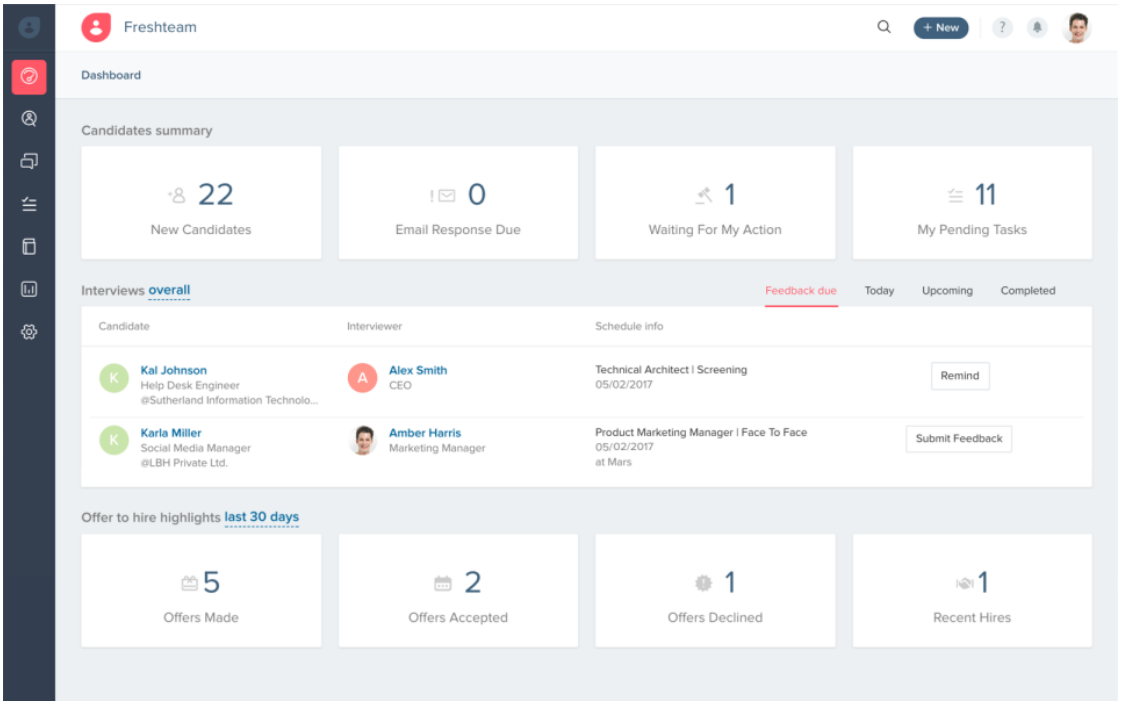


**Figure 2.4 Freshteam**

**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

### 2.2.4. HRLocker

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.

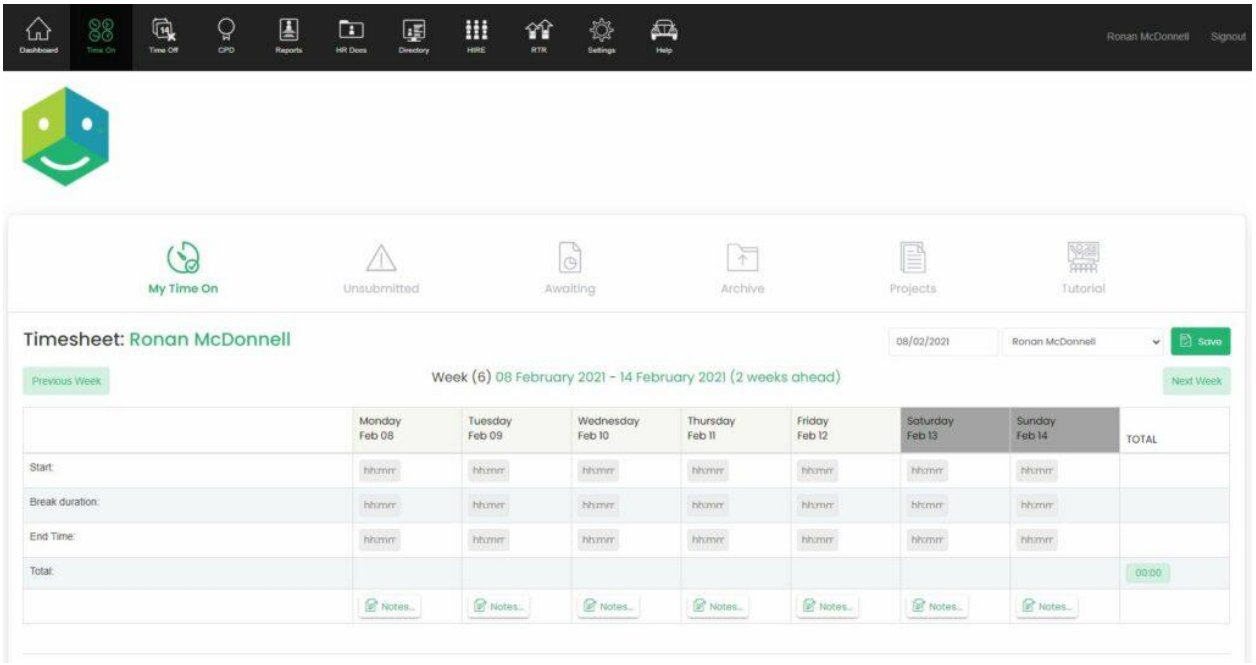


**Figure 2.5 HRLocker**

**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.

**Table 2.7 Similar system features evaluations against requirements**

| | ESEB Requirements | Bitrix24 | Fluida | Freshteam | HRLocker |
|---|---|---|---|---|---|
| | | | | | Overall 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 | N | N | Y |
| 5 | Comprehensibility of language | Y | N | N | N |
| 6 | Maintain employee's records | Y | Y | Y | Y |
| 7 | Detail Reports | Y | Y | N | N |
| 8 | Communication using Emails | N | N | N | N |
| 9 | Announcement Management | N | N | N | N |

## 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, functionality-oriented 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.

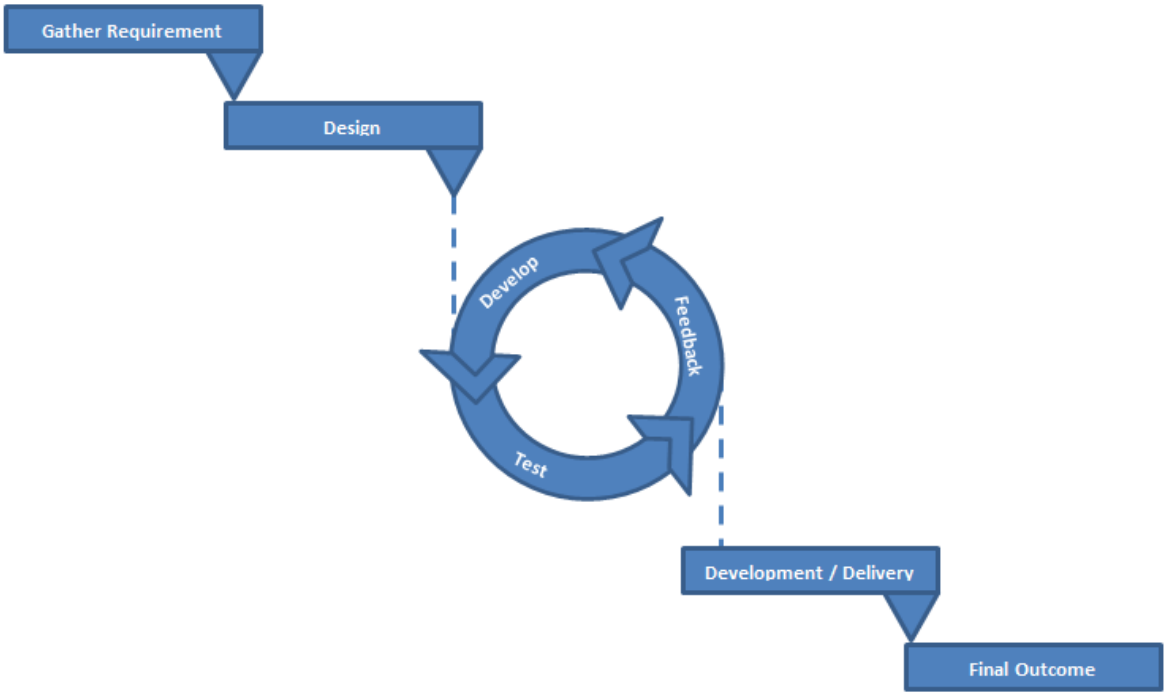


**Figure 2.6 Hybrid development methodology**

### 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.

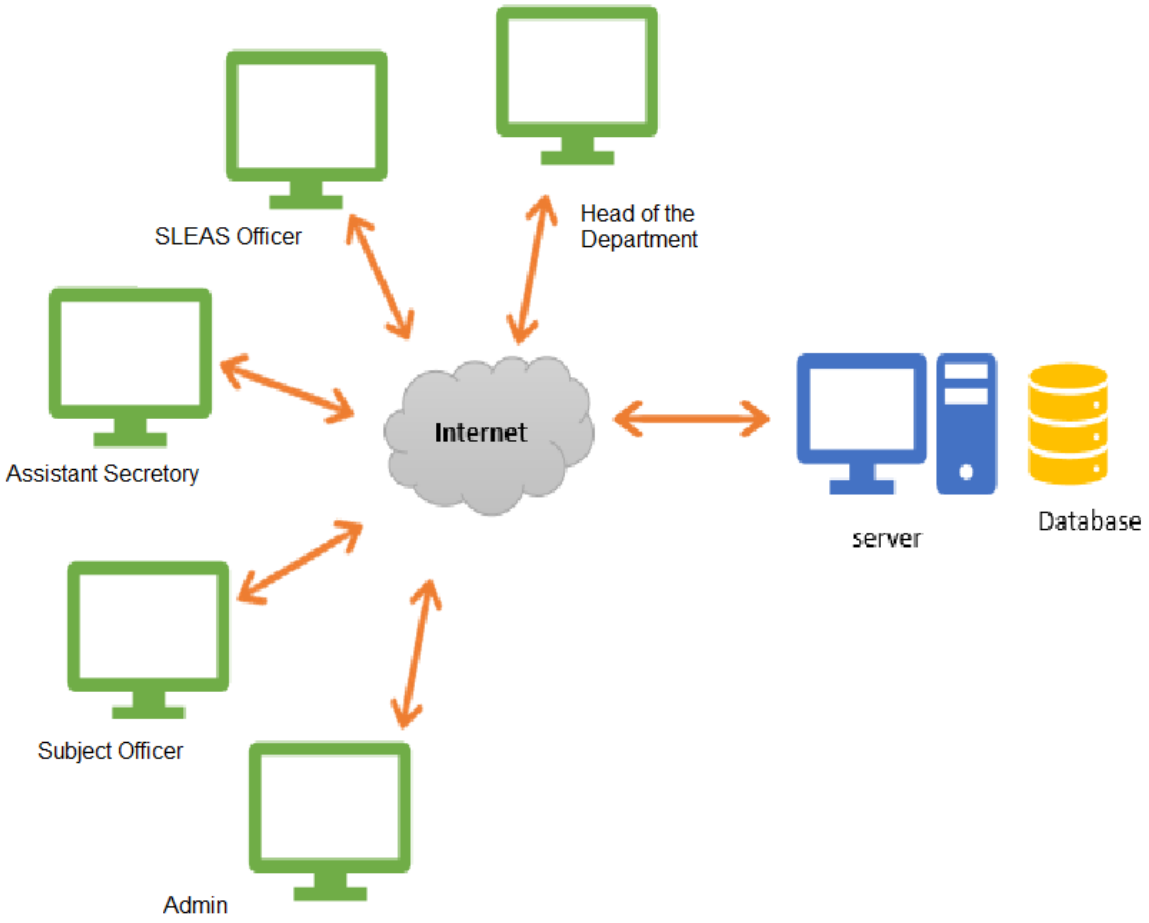


Figure 3.1 System Architecture

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 you to get an HTML page or activate a PHP 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

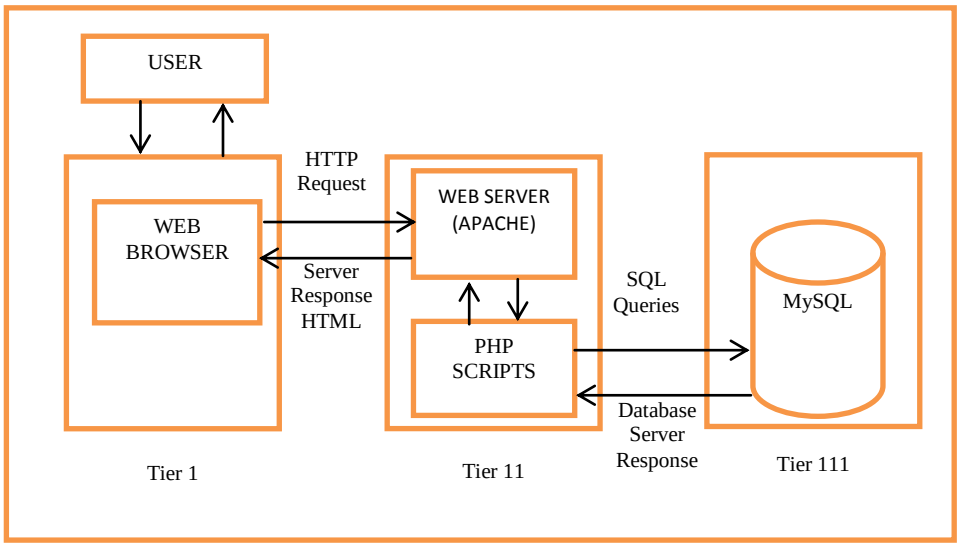


**Figure 3.2 Three Tire Client/Server Architecture**

## 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.

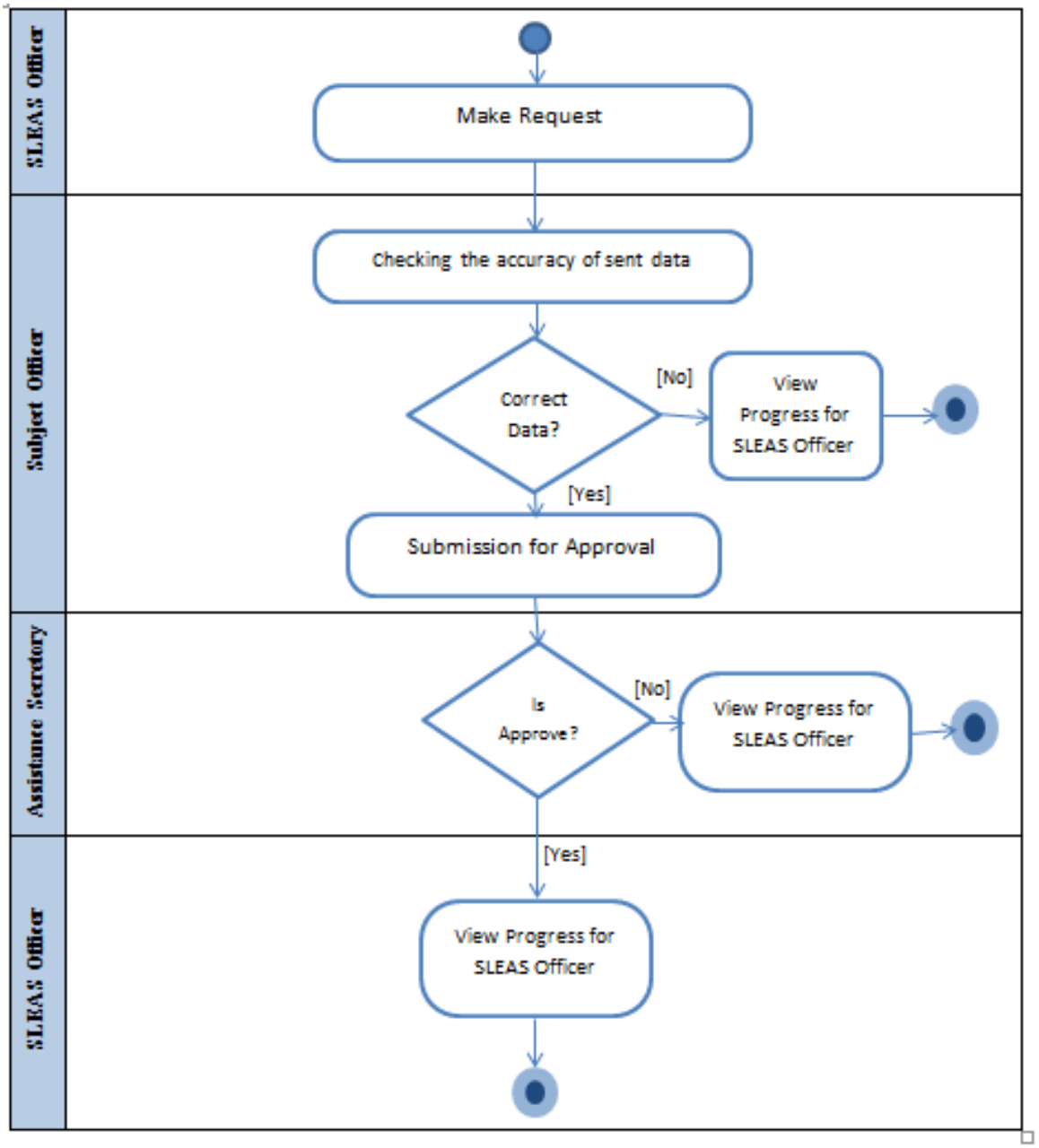


**Figure 3.3 Activity Diagram- Promotion request**

### 3.2.2 Sequence Diagram

Figure 3.4 shows the sequence diagram for user Login.

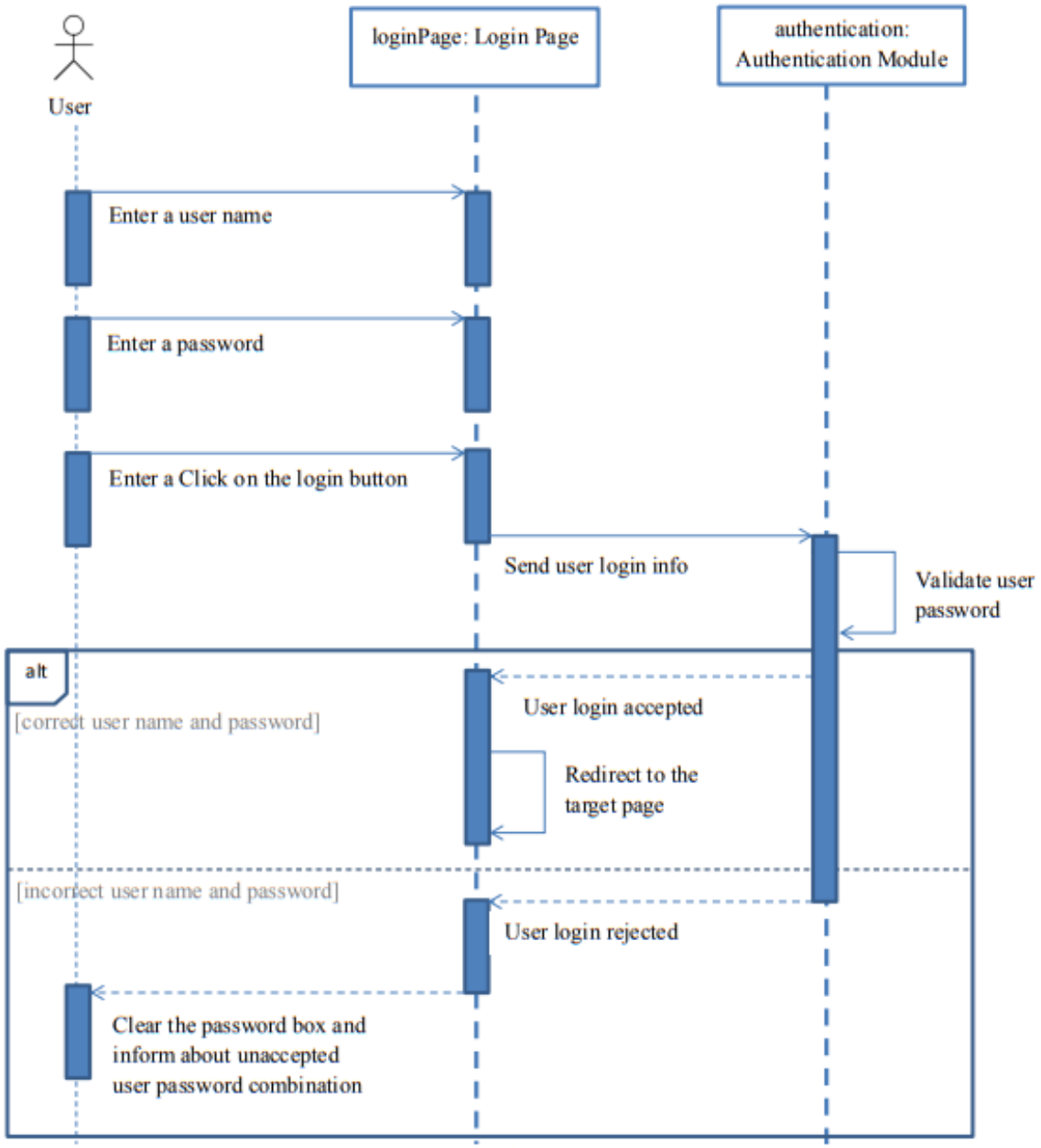


**Figure 3.4 Sequence Diagram for User Login Module**

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

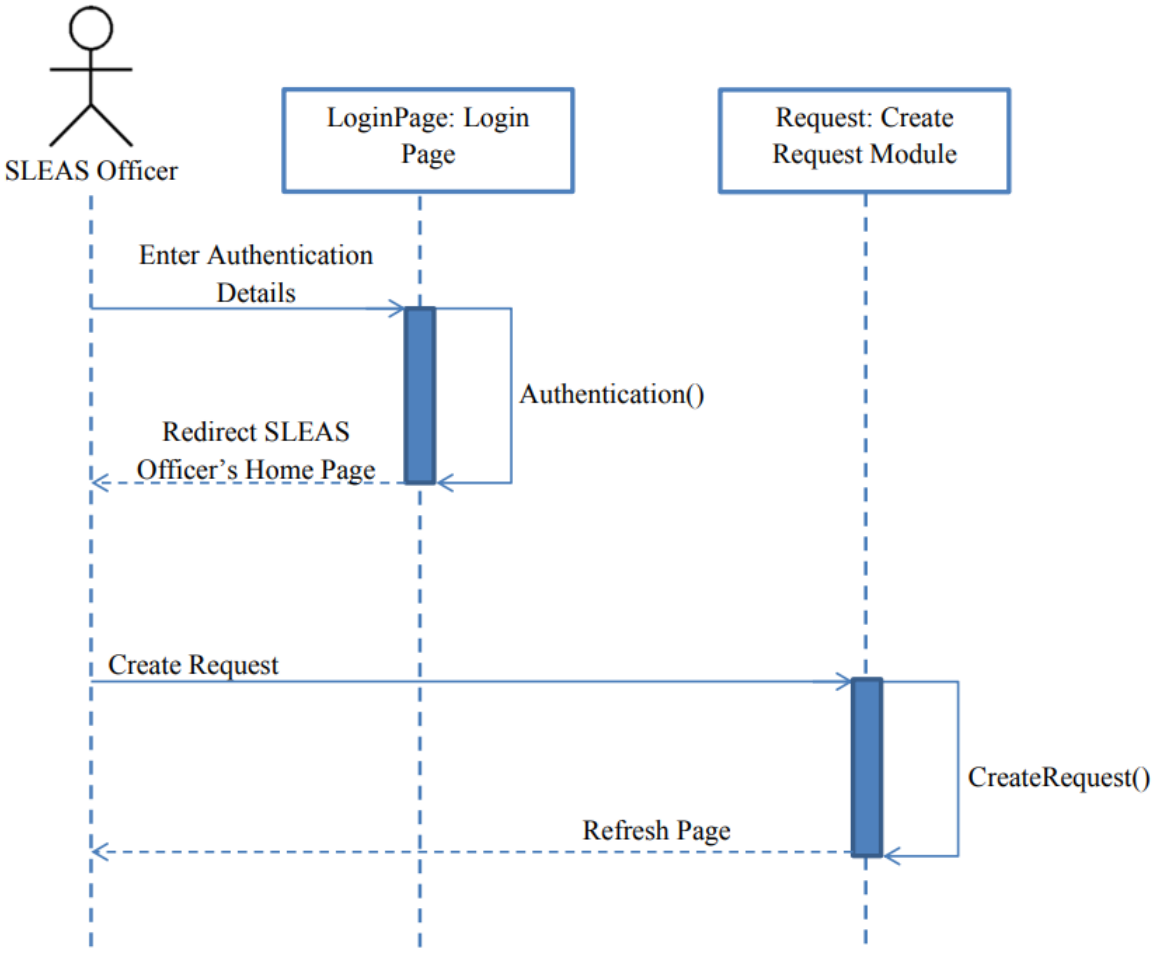


**Figure 3.5 Sequence Diagram for Create Request Module**

## 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.

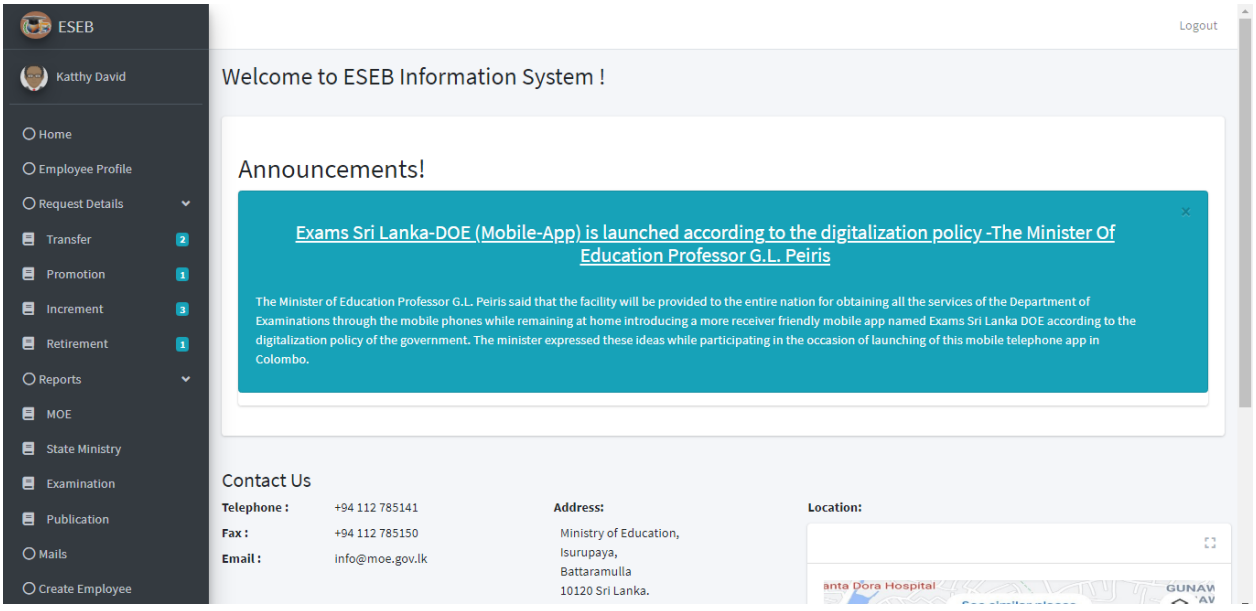


**Figure 4.1 Assistant Secretory Main UI**

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.

```
database.php
<?php
class Database{

        public $isConn;
        protected $datab;

    //connect to db
    //connect to db
    public function __construct($username = "root" , $password = "" , $host = "localhost" , $dbname = "
        eseb_ims" , $options =[ ]){
        $this->isConn = TRUE;
        try{

            $this->datab = new PDO("mysql:host={$host};dbname={$dbname};charset=utf8",$username , $password ,
                $options);
            $this->datab->setAttribute(PDO::ATTR_ERRMODE,PDO::ERRMODE_EXCEPTION);
            $this->datab->setAttribute(PDO::ATTR_DEFAULT_FETCH_MODE, PDO::FETCH_ASSOC);

        } catch ( PDOException $e ){

            throw new Exception($e->getMessage());
        }
    }


    //disconnect from db
    public function Disconnect(){

        $this->datab = NULL;
        $this->isConn = FALSE;


    }
```

**Figure 4.3 Database Connectivity**

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

```
</html>
<script>
   $(document).ready(function() {
       $("#btn_sub").click(function(){
       var Username = $('#Signin_Username_txt').val();
       var Password = $('#Signin_Password_txt').val();

       $.ajax({
       type: 'POST',
       url: "process/LoginProcess.php",
       data:{Signin_Username_txt:Username,Signin_Password_txt:Password},
       beforeSend: function(){

       },
       success: function(data){
         var jsonobj = JSON.parse(data);
         if(jsonobj.status == true){

           if(jsonobj.user_type == '1'){
             window.location.href="index.php";
           }
           else if(jsonobj.user_type == '4'){
             window.location.href="hod-viewTransfer.php";
           }
           else if(jsonobj.user_type == '5'){
             window.location.href="indexAdmin.php";
           }
           else{
             window.location.href="index2.php";
           }

         }else{

           alert(jsonobj.message);
         }
```

**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
            $this->Image('logo.png',15,-1,40);
            $this->SetFont('Arial','B',13);
            // Move to the right
            $this->Cell(80);
            // Title

            date_default_timezone_set('US/Eastern');
            $currentdate = date("d-m-Y");

            $this->SetFont('Arial','B',12);
            $this->Cell(195,5,'Welcome to ESEB Information System!',0,0,"R");
            // Line break
            $this->Ln(5);
            $this->Cell(275,5,'Ministry of Education',0,0,"R");

            // Line break
            $this->Ln(5);

            $this->Cell(275,5,$currentdate,0,1,"R");
                        // Line break
            $this->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 entered a user name and password is Valid. | | | |
|---|---|---|---|
| **No** | **Step** | **Expected Results** | **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 | 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 Verify on entering invalid UserName and password, the user can login**

| Check entered a user name and password are Invalid. | | | |
|---|---|---|---|
| **No** | **Step** | **Expected Results** | **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**

| Verify SLEAS officer Navigate to Dashboard page | | | |
|---|---|---|---|
| **No** | **Step** | **Expected Results** | **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 | User should Login to the system | Pass |
| 4 | Verify SLEAS Officer Dashboard page | View "Create Request" label | Pass |

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

**Table 5.4 Verify SLEAS officer Profile page**

| Verify SLEAS officer Profile Page | | | |
|---|---|---|---|
| **No** | **Step** | **Expected Results** | **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 | User should Login to the system | Pass |
| 4 | Verify SLEAS Officer Dashboard page | View "Create Request" label | Pass |
| 5 | Click "Profile " label inside menu | View "Profile" header | Pass |

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

**Table 5.5 Verify NIC Field disable**

| Verify SLEAS officer Profile Page | | | |
|---|---|---|---|
| **No** | **Step** | **Expected Results** | **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 | User should Login to the system | Pass |
| 4 | Verify SLEAS Officer Dashboard page | View "Create Request" label | Pass |
| 5 | Click "Profile " label inside menu | View "Profile" header | Pass |
| 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.

VerifyProfile.java

```
1  package testDemo;
2
3  import org.openqa.selenium.By;
4  import org.openqa.selenium.WebDriver;
5  import org.openqa.selenium.chrome.ChromeDriver;
6  import org.testng.annotations.Test;
7
8  public class VerifyProfile {
9
10     public static String baseUrl = "http://localhost/EIMS/index.php";
11     static String driverPath = "E:\\BrowserDriversAutomation\\chromedriver.exe";
12     public WebDriver driver ;
13
14
15      @Test
16     public void verifyHomepageTitle() {
17
18         System.setProperty("webdriver.chrome.driver",driverPath);
19
20         WebDriver driver = new ChromeDriver();
21
22         driver.get(baseUrl);
23
24         if(driver.findElements(By.xpath("//html/body/div[1]/aside/div/div[4]/div/div/nav/ul/li[3]/a/p")).size() != 0){
25             System.out.println("This is SLEAS Officer's Dashboard");
26         }else{
27             System.out.println("This is not SLEAS Officer's Dashboard");
28         }
29
30
31
32         driver.close();
33     }
34
35 }
```

**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.

VerifyProfile.java

```
1  package testDemo;
2
3  import org.openqa.selenium.By;
4  import org.openqa.selenium.WebDriver;
5  import org.openqa.selenium.chrome.ChromeDriver;
6  import org.testng.annotations.Test;
7
8  public class VerifyProfile {
```

Problems | Javadoc | Declaration | Console | Progress | Coverage | Results of running class VerifyProfile

```
<terminated> VerifyProfile [TestNG] C:\Users\Inspiron 15r\.p2\pool\plugins\org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_15.0.2.v20210201-0955\jre\bin\javaw.exe (Jun 14,
[RemoteTestNG] detected TestNG version 6.14.3
Starting ChromeDriver 91.0.4472.19 (1bf021f248676a0b2ab3ee0561d83a59e424c23e-refs/branch-heads/4472@{#288}) on port 19201
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 4:48:04 PM org.openqa.selenium.remote.ProtocolHandshake createSession
INFO: Detected dialect: W3C
This is SLEAS Officer's Dashboard
PASSED: verifyHomepageTitle

===============================================
    Default test
    Tests run: 1, Failures: 0, Skips: 0
===============================================


===============================================
Default suite
Total tests run: 1, Failures: 0, Skips: 0
===============================================
```

**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.

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

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

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

**Table 5.7 Evaluation's parameters and weights**

| Information Management System for<br>Education Services Establishment Branch (ESEB)<br>of MOE | | |
|---|---|---|
| | **Parameter** | Weights |
| **Appearance** | | **10** |
| | User Interfaces are attractive | 4 |
| | Background colors and color combination matched | 2 |
| | Font face and size are compatible and readable | 2 |
| | | |
| **Usability** | | **25** |
| | Screen are easy to navigate | 5 |
| | Tab menus are easy to understand | 5 |
| | Data validation are satisfied | 5 |
| | The requested output results are successful | 10 |
| | | |
| **Functionality** | | **25** |
| | Accuracy of online report calculation | 10 |
| | Displaying progress of request | 5 |
| | Displaying cadre detail | 5 |
| | Submission of online request applications | 5 |
| | | |
| **Performance** | | **20** |
| | Time taken to documents download/upload | 10 |
| | Response time for request's events | 10 |
| | | |
| **Security** | | **20** |
| | 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.

**Table 5.8 Evaluation Results for Appearance**

| Rating choice | Result | Percentage |
|---|---|---|
| Poor | 0 | 0.0% |
| Fair | 2 | 6.7% |
| Satisfactory | 5 | 16.7% |
| Good | 14 | 46.7% |
| Excellent | 9 | 30.0% |

The analysis results for Appearance are shown in Figure 5.3.

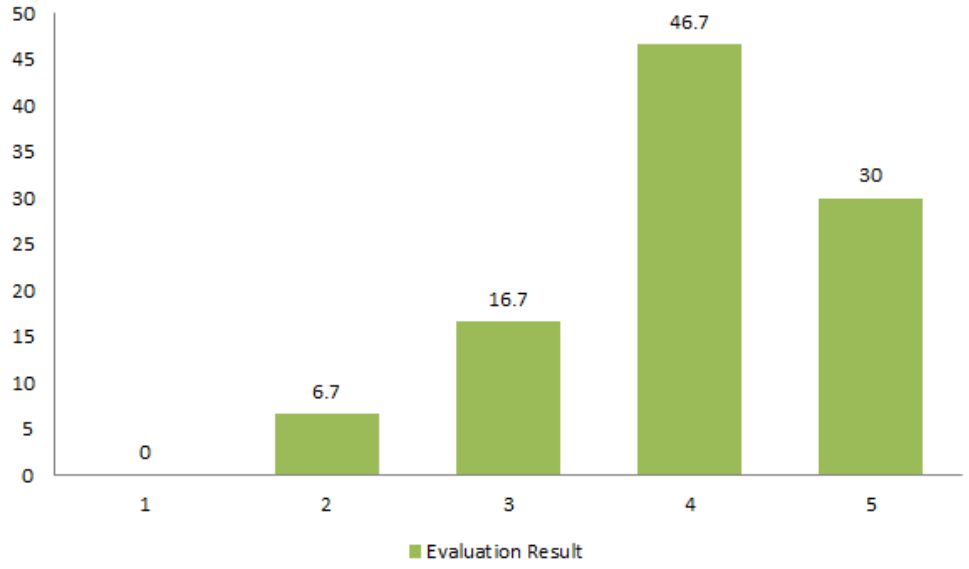


**Figure 5.3 Evaluation Results for Appearance**

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 Usability**

| Rating choice | Result | Percentage |
|---|---|---|
| Poor | 0 | 0.0% |
| Fair | 1 | 3.3% |
| Satisfactory | 6 | 20.0% |
| Good | 15 | 50.0% |
| Excellent | 8 | 26.7% |

The analysis results for Usability are shown in Figure 5.4.

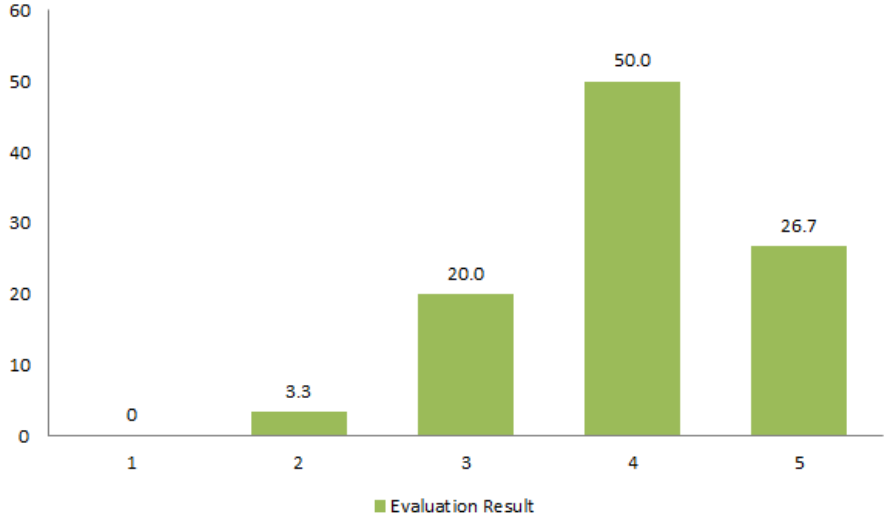


**Figure 5.4 Evaluation Results for Usability**

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**

Evaluation Results for Functionality is illustrated in Table 5.10.

**Table 5.10 Evaluation Results for Functionality**

| Rating choice | Result | Percentage |
|---|---|---|
| Poor | 0 | 0.0% |
| Fair | 1 | 3.3% |
| Satisfactory | 2 | 6.7% |
| Good | 11 | 36.7% |
| Excellent | 16 | 53.3% |

The analysis results for Functionality are shown in Figure 5.5.

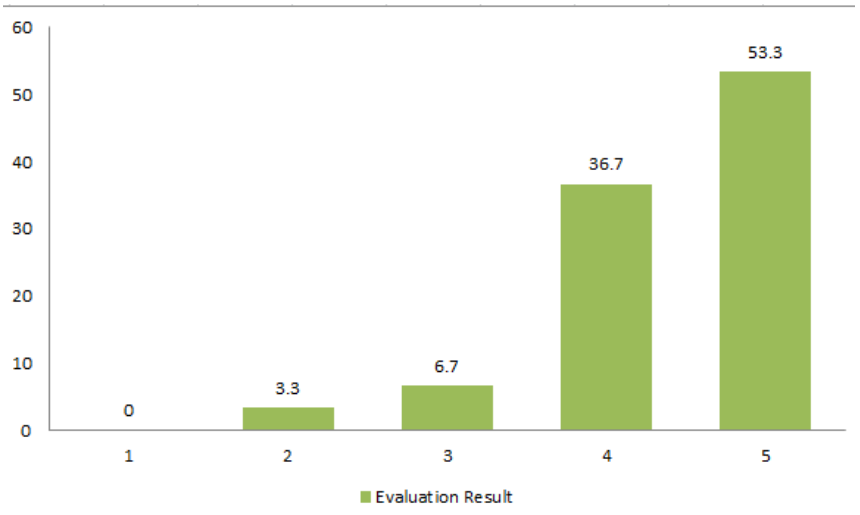


**Figure 5.5 Evaluation Results for Functionality**

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.

**Table 5.11 Evaluation Results for** Performance

| Rating choice | Result | Percentage |
|---|---|---|
| Poor | 0 | 0.0% |
| Fair | 1 | 3.3% |
| Satisfactory | 2 | 6.7% |
| Good | 11 | 50.0% |
| Excellent | 16 | 40.0% |

The analysis results for Performance are shown in Figure 5.6.

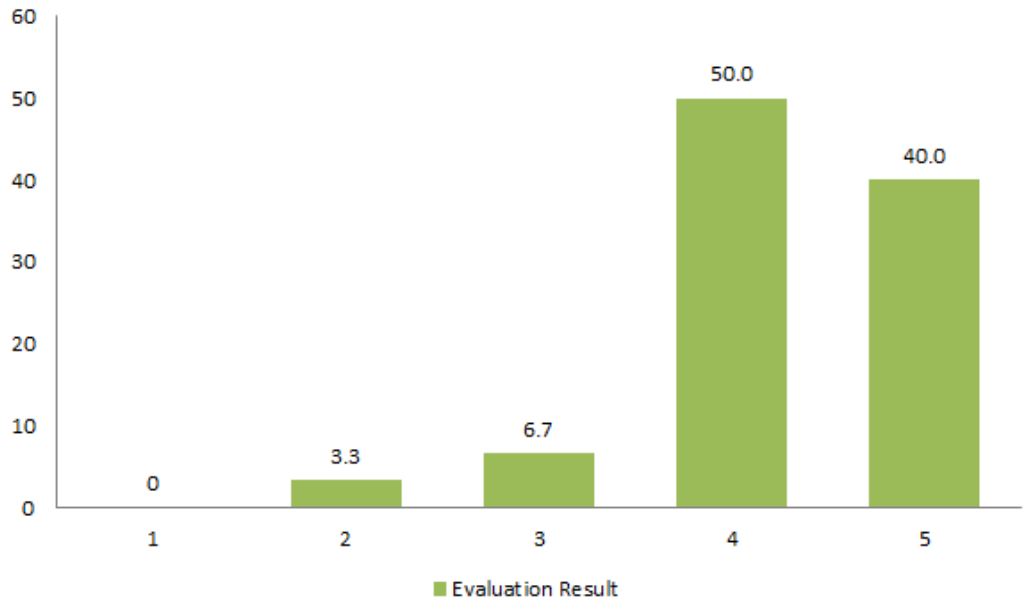


**Figure 5.6 Evaluation Results for Performance**

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 Security**

| 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.

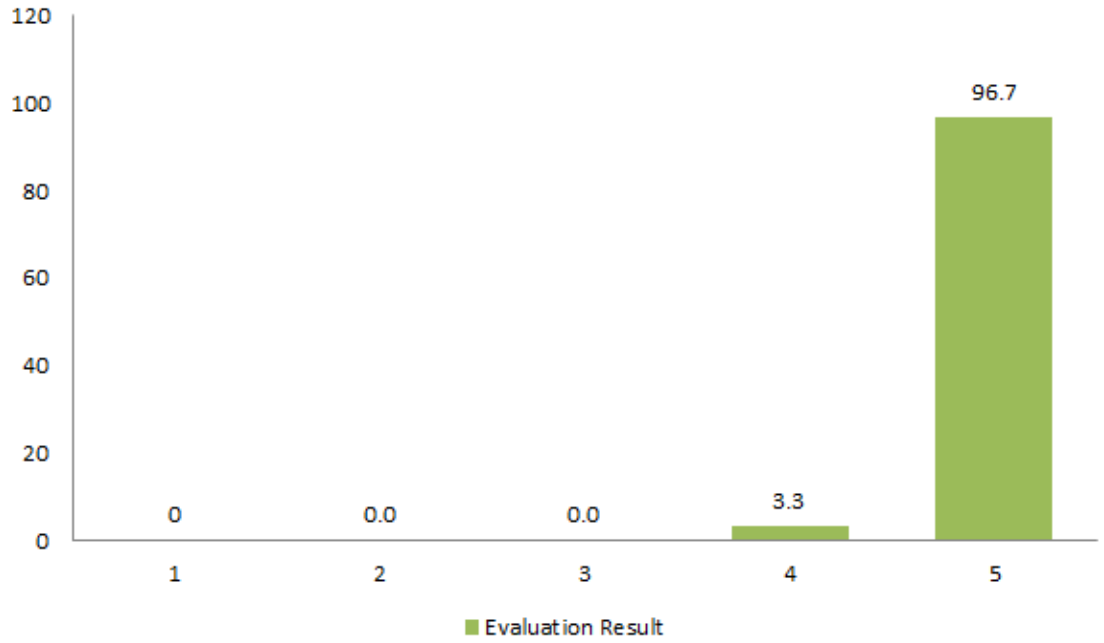


**Figure 5.7 Evaluation Results for Security**

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.

VerifyProfile.java | VerifyAnnousementPage.java

```
19          System.setProperty("webdriver.chrome.driver",driverPath);
20
21          WebDriver driver = new ChromeDriver();
22
23          driver.get(baseUrl);
24          WebElement lbl_createAnnouncement  = driver.findElement(By.xpath("//*[contains(text(),'Create Announcement
25
26          if(driver.findElements(By.xpath("//*[contains(text(),'Create Announcement')]")).size() != 0){
27
28              //Verify Dashboard
29              System.out.println("This is Assistant Secretory Dashboard");
30
31              lbl_createAnnouncement.click();
32
33              //Verify  Announcement Page
34              if(driver.findElements(By.xpath("/html/body/div[1]/div/div/div/div[1]/div/h1")).size() != 0){
35
36                  System.out.println("Create Announcement Page is available");
37
38              }else {
39
40                  System.out.println("Create Announcement Page is not available");
41
42              }
43
44
45          }else{
46              System.out.println("This is not SLEAS Officer's Dashboard");
47          }
48
49
50
51          driver.close();
52      }
53
```

**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.

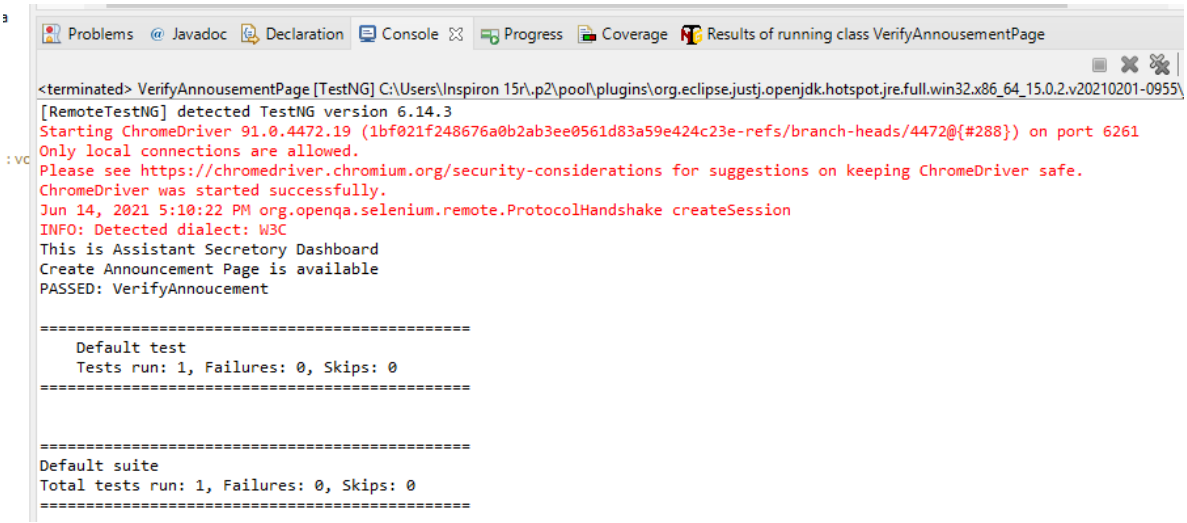



**Figure A.2 Test Report: Verify Announcement Page**

# 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.

```php
<?php
class Database{

        public $isConn;
        protected $datab;

    //connect to db
    public function __construct($username = "root" , $password = "" , $host = "localhost" ,
    $dbname = "eseb_ims" , $options =[ ]){
        $this->isConn = TRUE;
        try{

            $this->datab = new PDO("mysql:host={$host};dbname={$dbname};charset=utf8",$username
            , $password ,$options);
            $this->datab->setAttribute(PDO::ATTR_ERRMODE,PDO::ERRMODE_EXCEPTION);
            $this->datab->setAttribute(PDO::ATTR_DEFAULT_FETCH_MODE, PDO::FETCH_ASSOC);

        } catch ( PDOException $e ){

            throw new Exception($e->getMessage());
        }
    }
```

**Figure B.1 Database Connection**

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

```php
    //disconnect from db
    public function Disconnect(){

        $this->datab = NULL;
        $this->isConn = FALSE;
    }

    //get row
    public function getRow($query , $params = []){

        try{

            $stmt = $this->datab->prepare($query);
            $stmt->execute($params);
            return $stmt->fetch();

        } catch(PDOException $e){

            throw new Exception ($e->getMessage());

        }
```

**Figure B.2 View Table Data**

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

```
65
66      //insert row
67      public function insertRow($query , $params = []){
68
69
70          try{
71
72              $stmt = $this->datab->prepare($query);
73              $stmt->execute($params);
74              return TRUE;
75
76          } catch(PDOException $e){
77
78              throw new Exception ($e->getMessage());
79
80          }
81
82
83      }
```

**Figure B.3 Insert Row**

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

```
104     //update row
105     public function updateRow($query , $params = []){
106         $this->insertRow($query,$params);
107
108     }
109
110     //Delete row
111     public function deleteRow($query , $params = []){
112         $this->insertRow($query,$params);
113
114     }
115
116 }
117
118 ?>
```

**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.

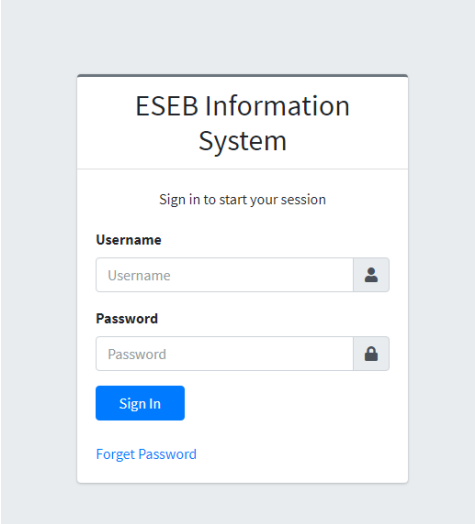



**Figure C.1 Sign-in Module**

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

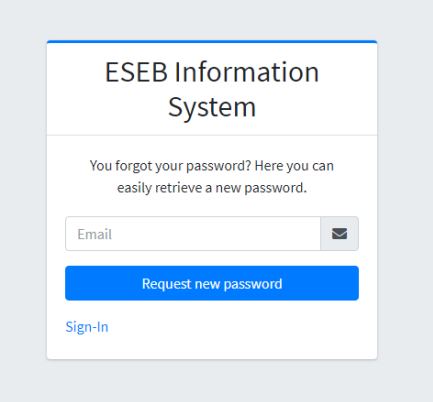



**Figure C.2 Forget password**

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

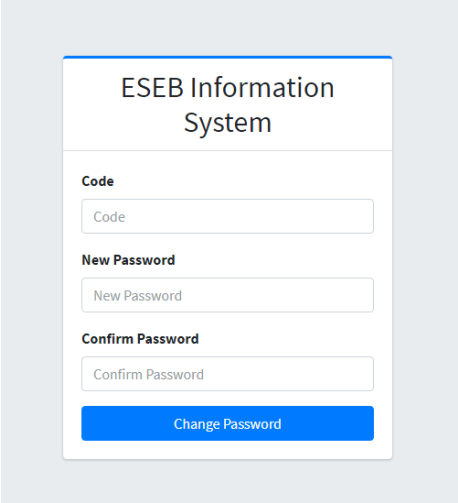



**Figure C.3 Reset Password**

## 2. SLEAS Officer Services UI

### *i. Home*

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

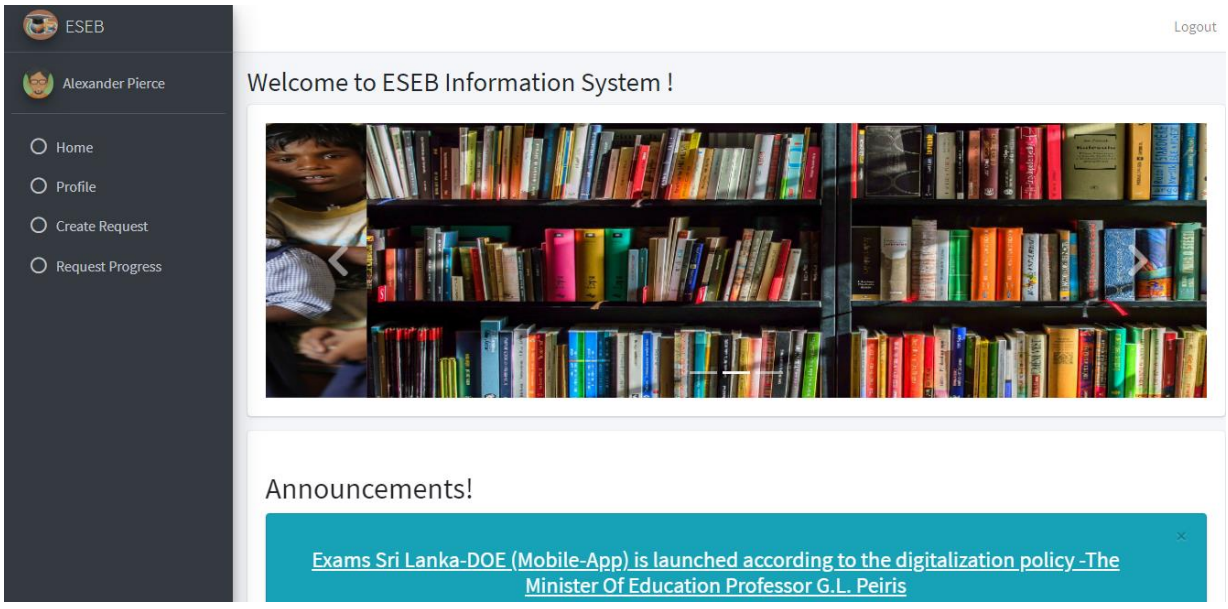



**Figure C.4 SLEAS Officer Home Page**

***- Show Announcements***

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

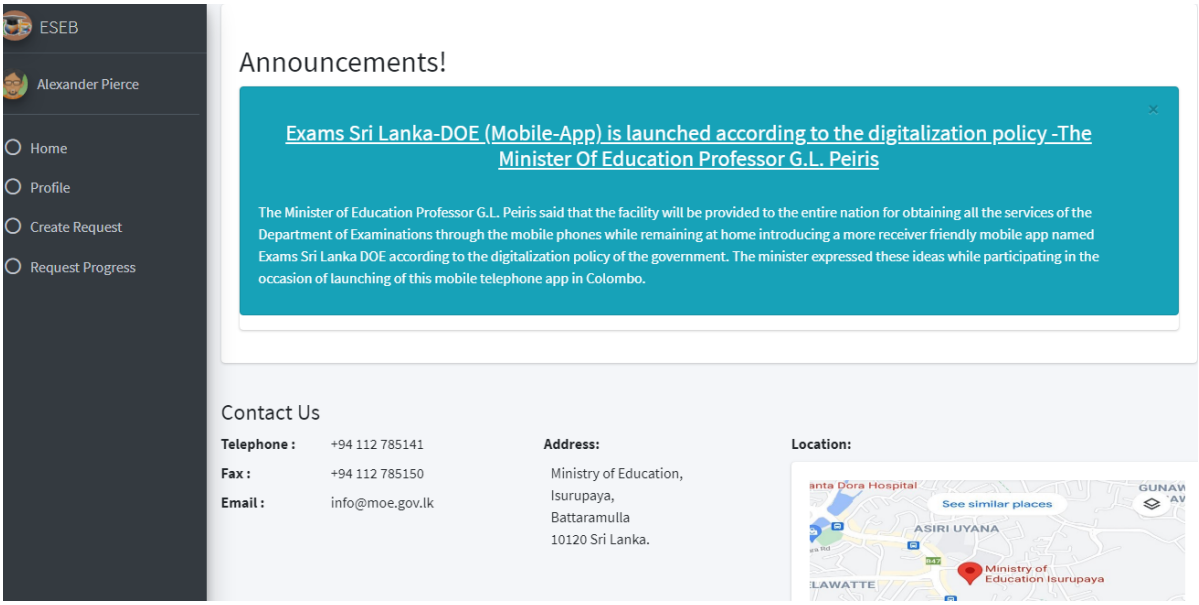



**Figure C.5 Show Announcements**

***ii. Profile***

***- Show logged user profile details***

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

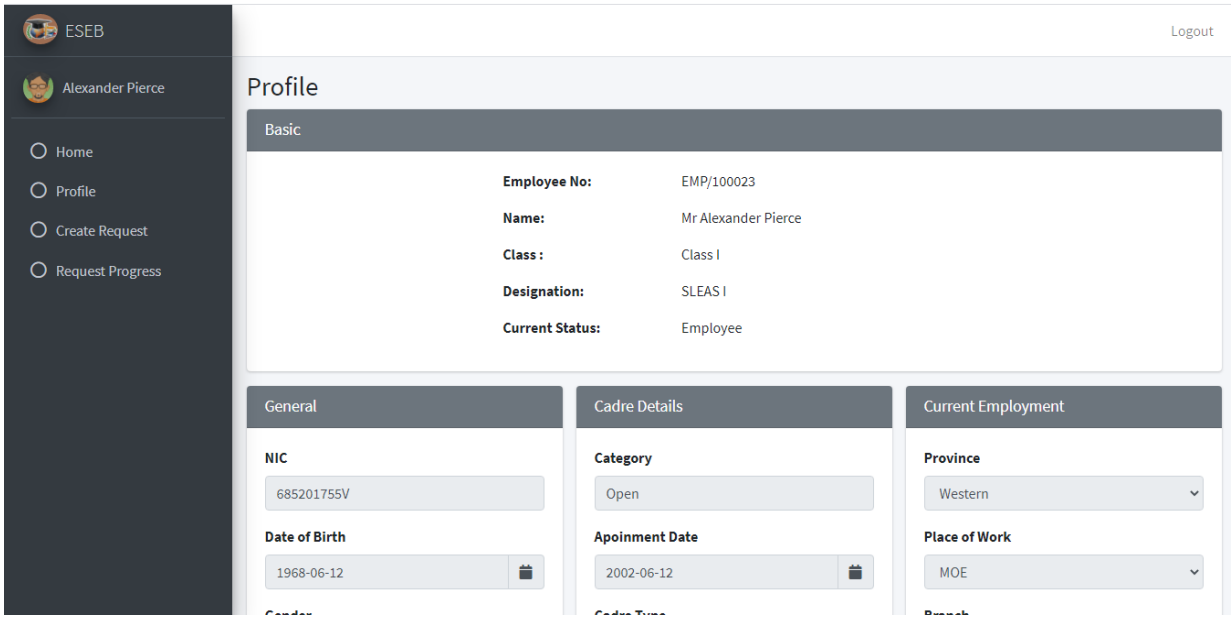



**Figure C.6 Show logged user profile details**

***- Update Contact details***

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

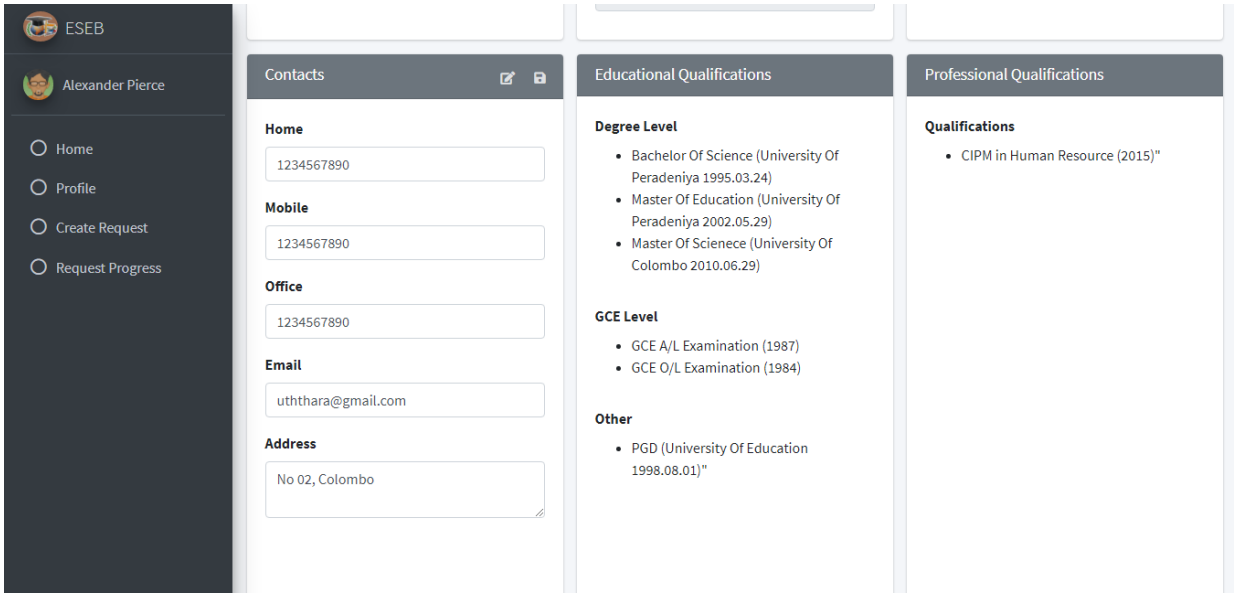



**Figure C.7 Update Contact details**

***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.

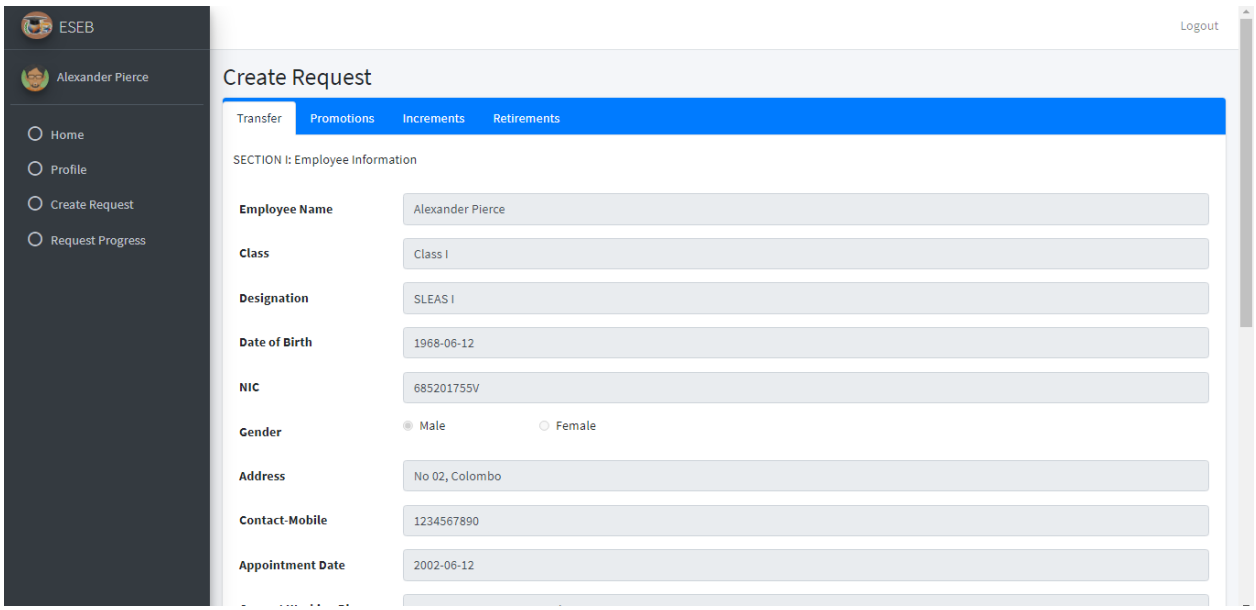



**Figure C.8 Load logged user data**

*** Create request**

Figure C.9 is used to Create Transfer request for SLEAS Officers.

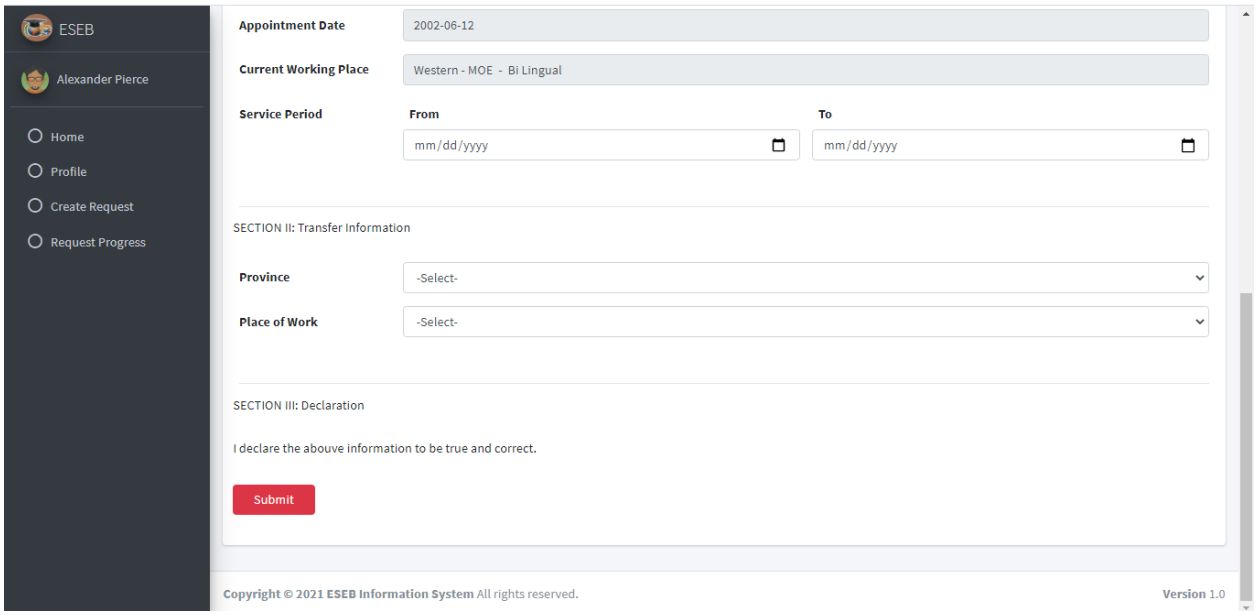



**Figure C.9 Create Transfer request**

***- Promotion request***

*** Load logged user data**

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

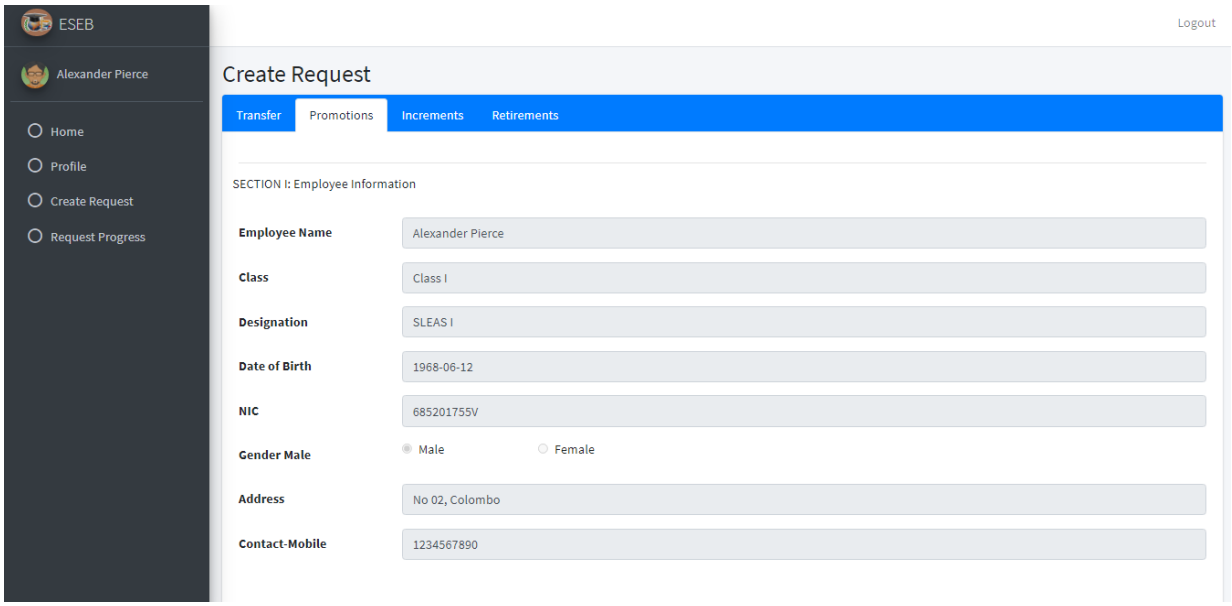



**Figure C.10 Load logged user data**

*** Create Promotion request**

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

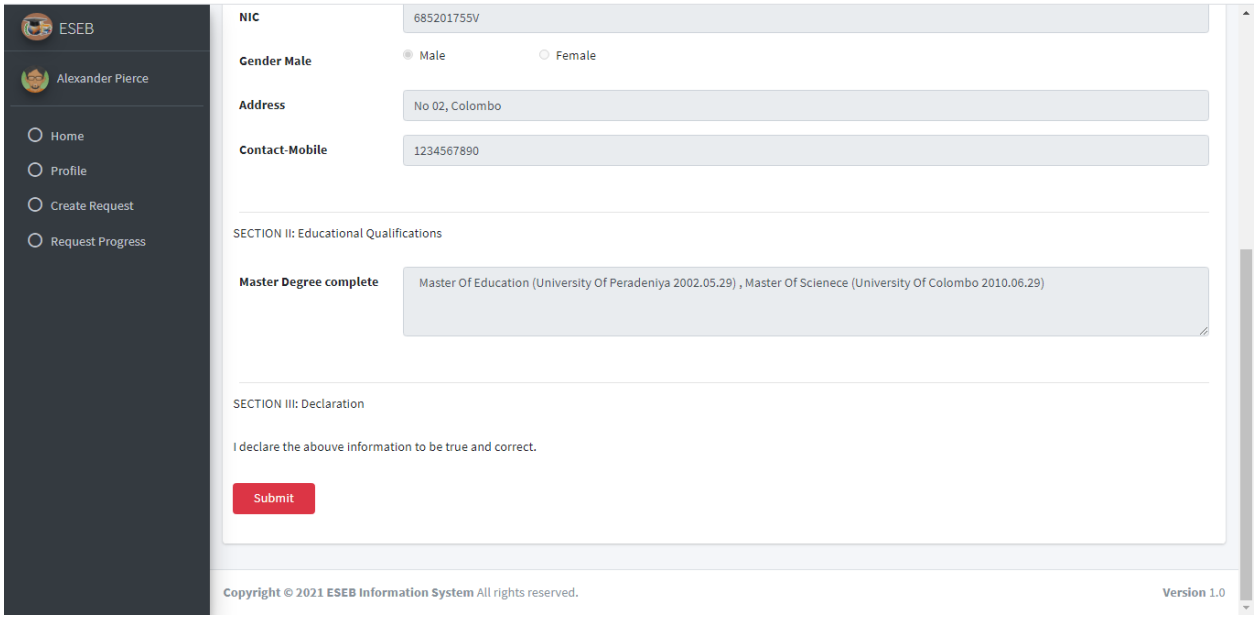



**Figure C.11Create Promotion request**

***- Increment request***

*** Load logged user data**

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

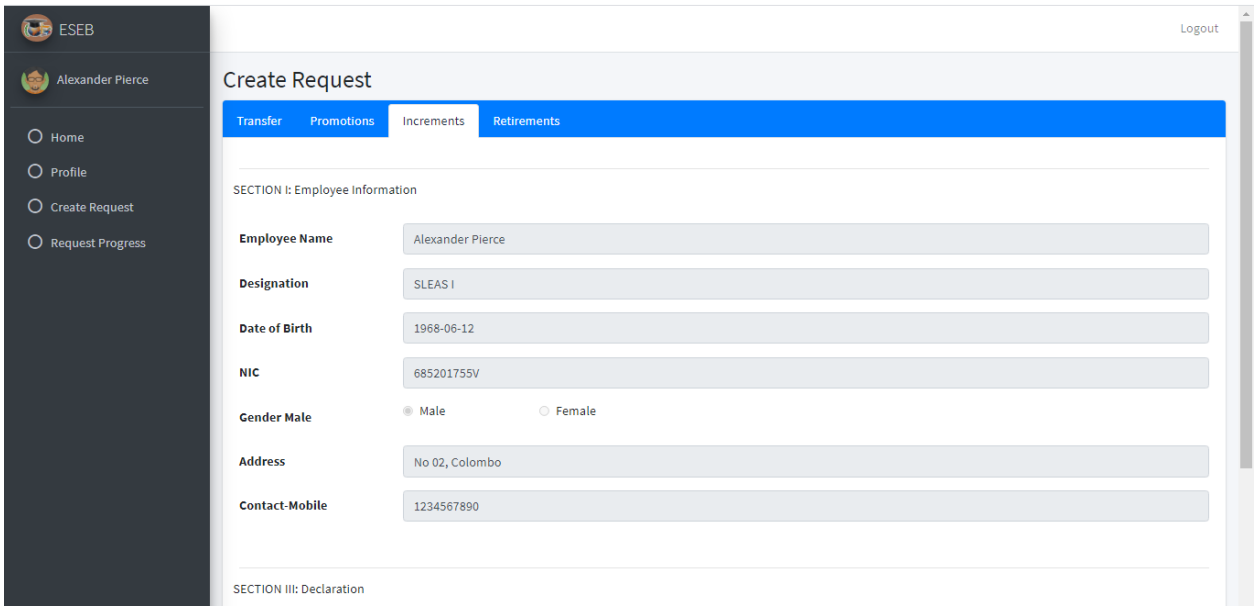



**Figure C.12 Load logged user data**

*** Create Increment request**

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

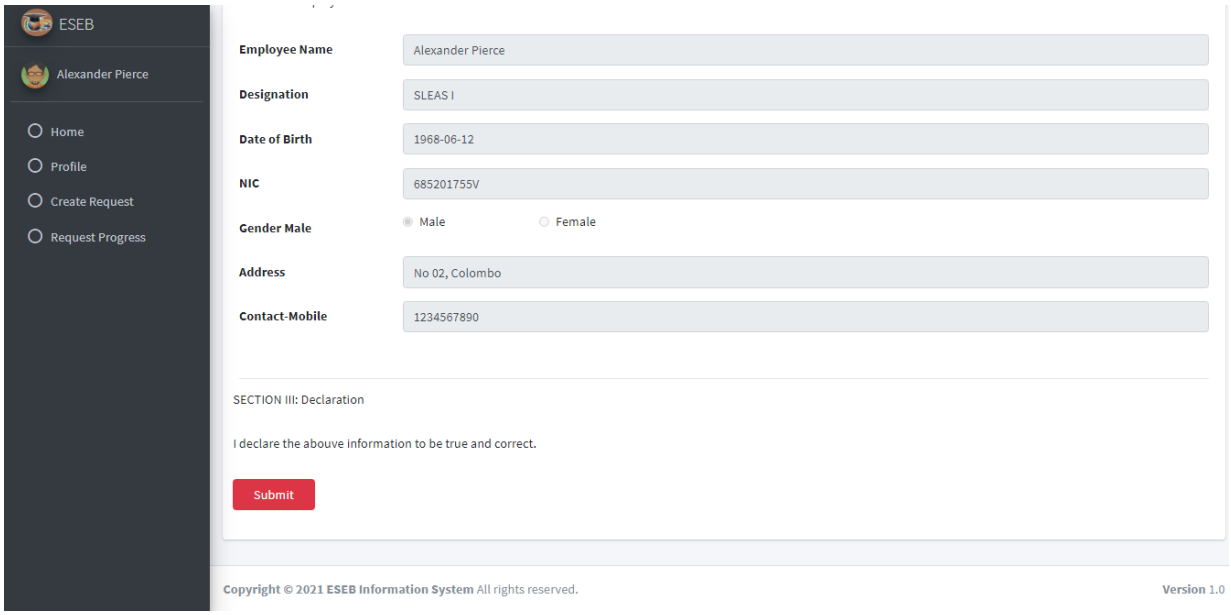



**Figure C.13 Create Increment request**

***- Retirement request***

*** Load logged user data**

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

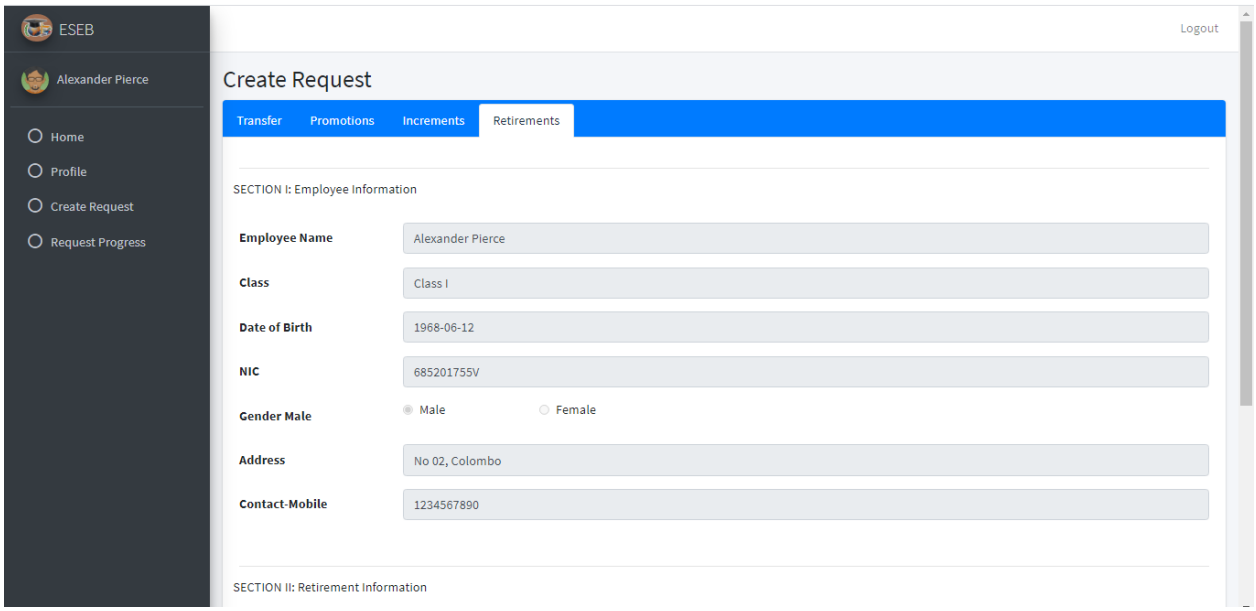



**Figure C.14 Load logged user data**

*** Create Retirement request**

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

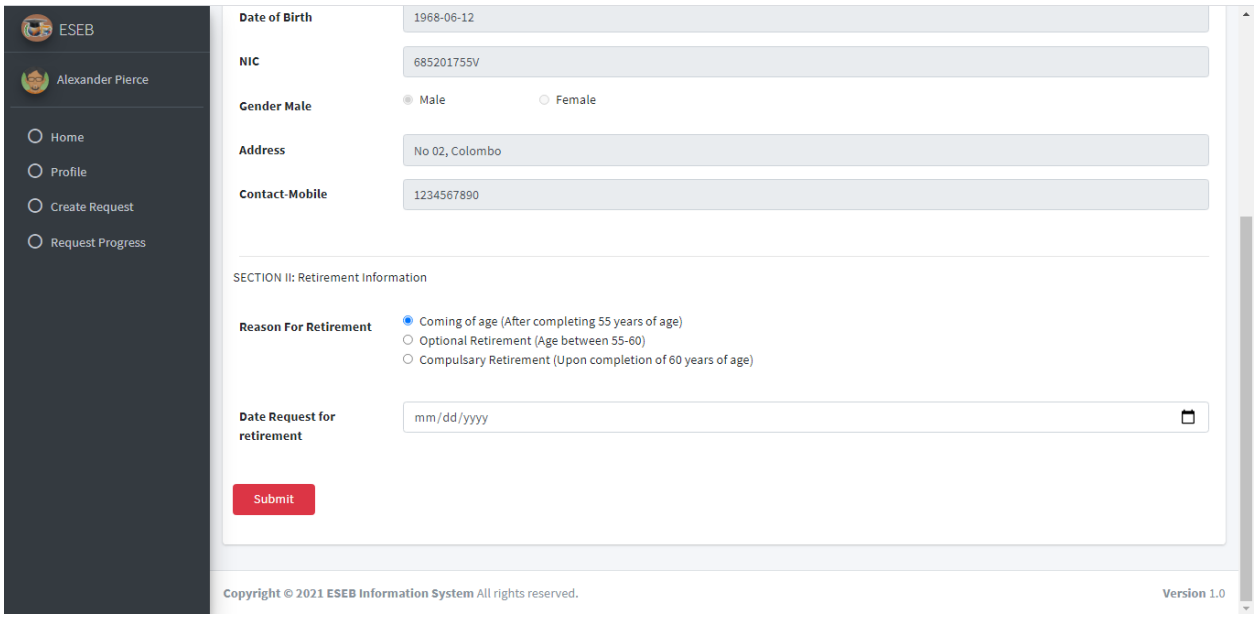



**Figure C.15 Create Retirement request**

### iv. Request Progress Module

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

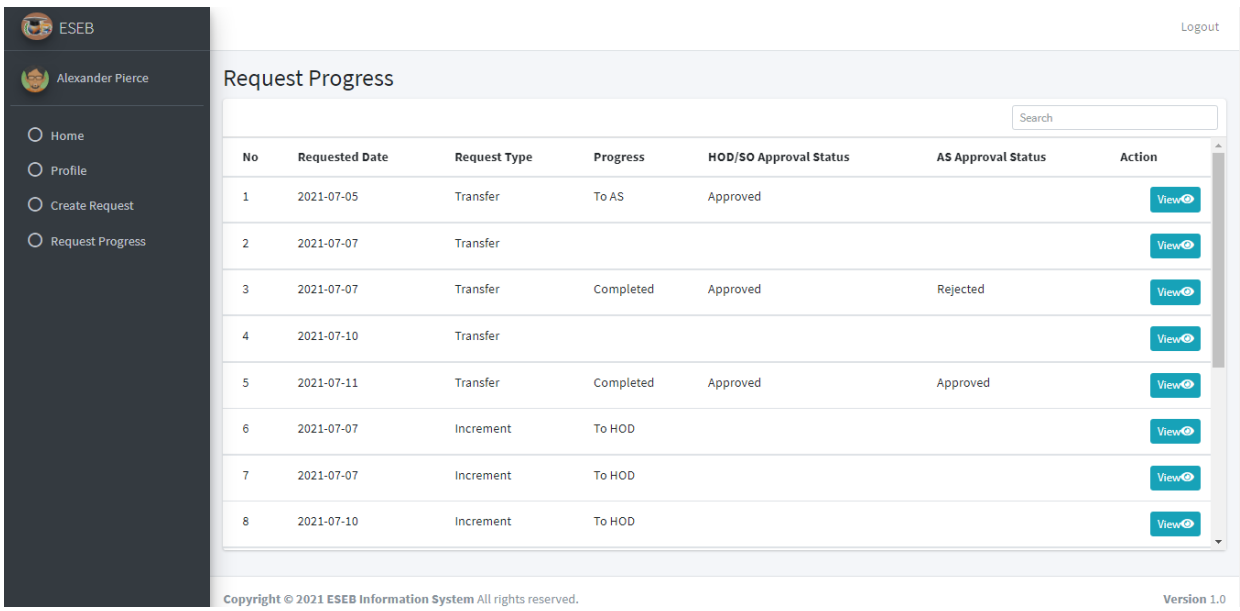



**Figure C.16 Show all made requests in table view**

**- 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**

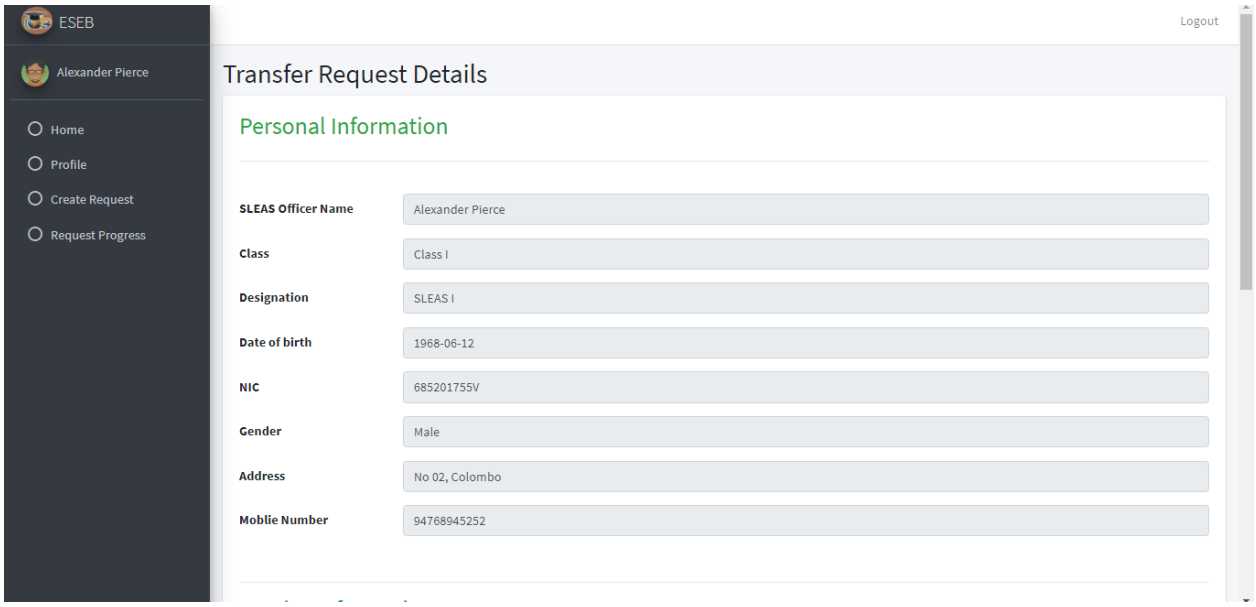



**Figure C.17 View a request details - 1**

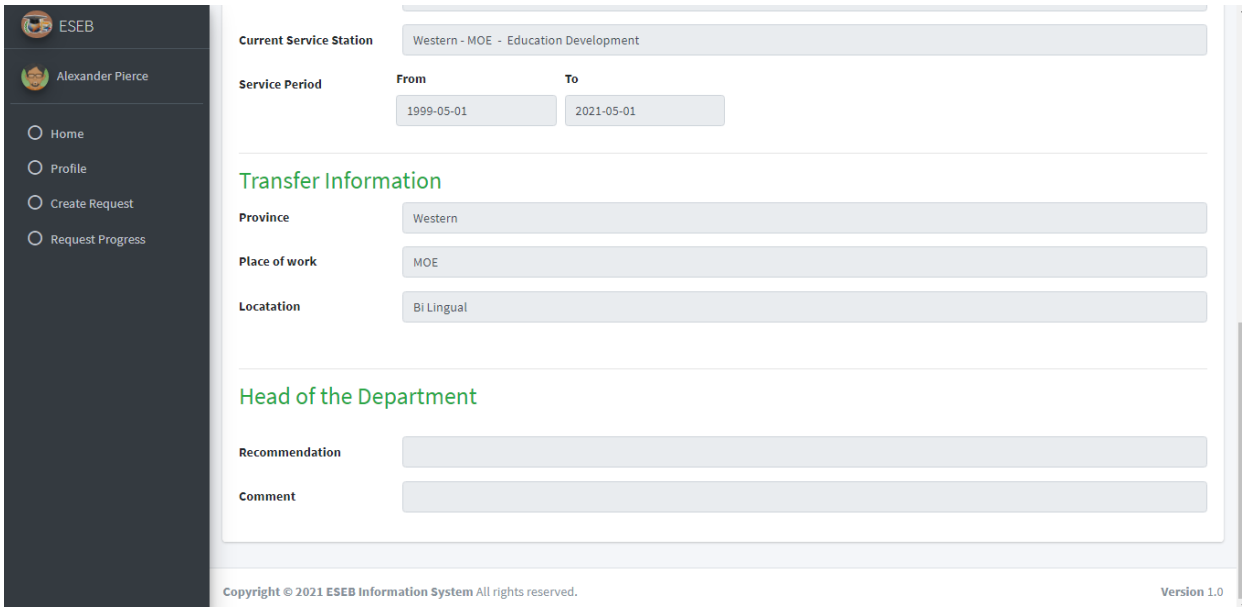



**Figure C.18 View a request details – 2**

**- Filter table data according to search**

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

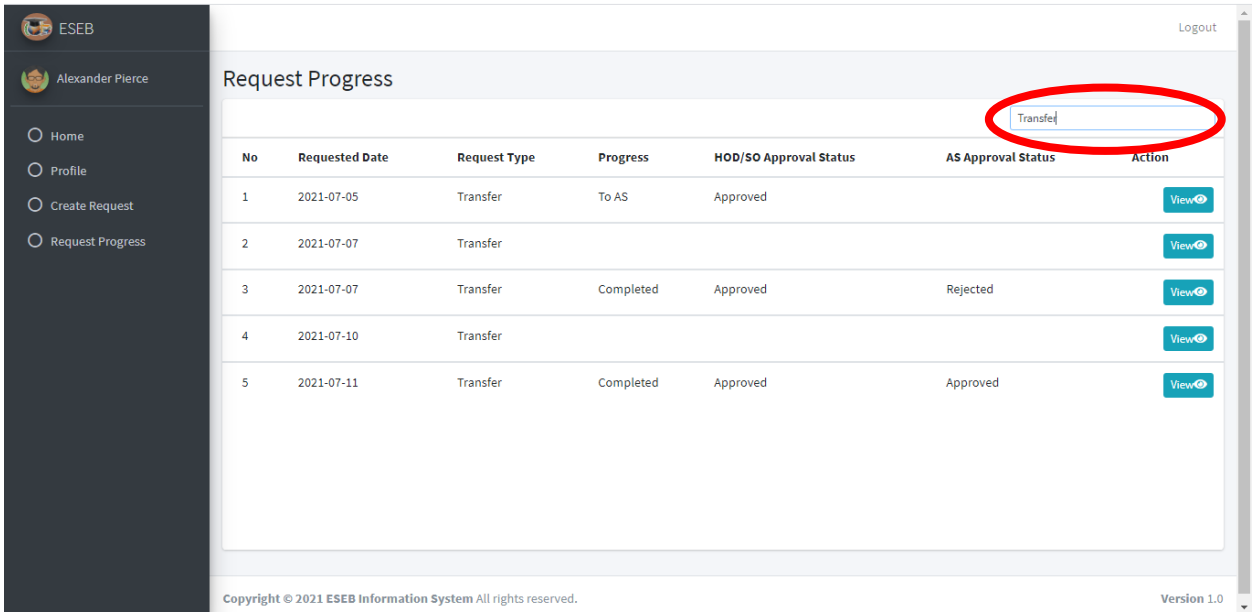



**Figure C.19 Filter table data according to search**

## 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

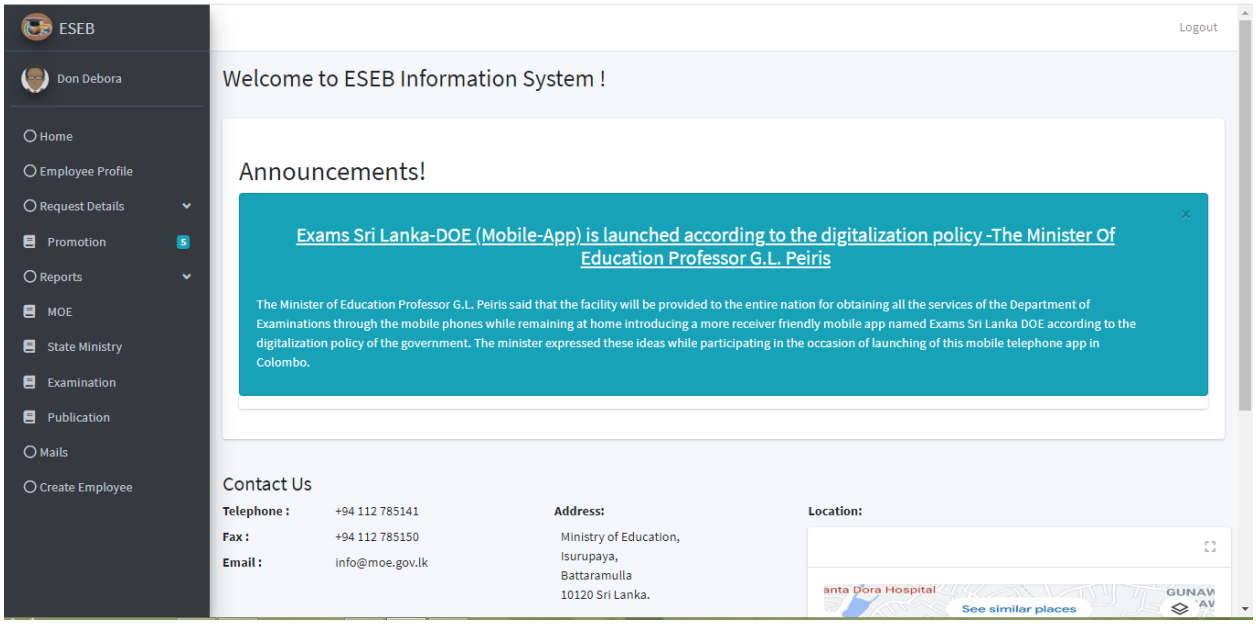
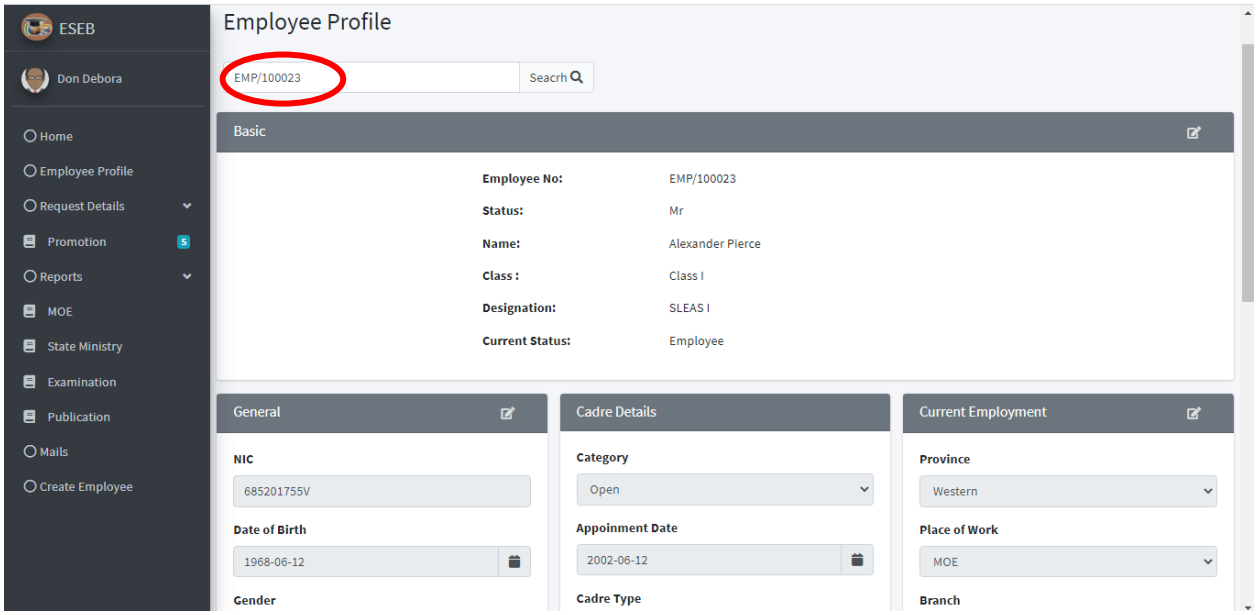



**Figure C.20 Show Announcements**

### 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.

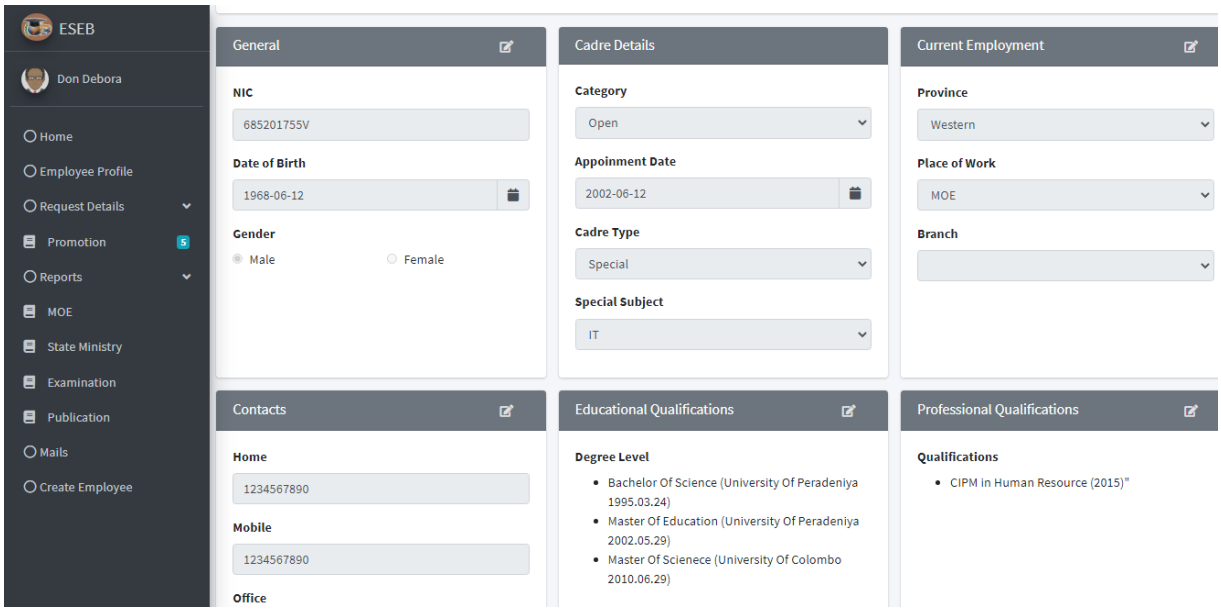



**Figure C.21 Enable edit once click edit button**

### 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

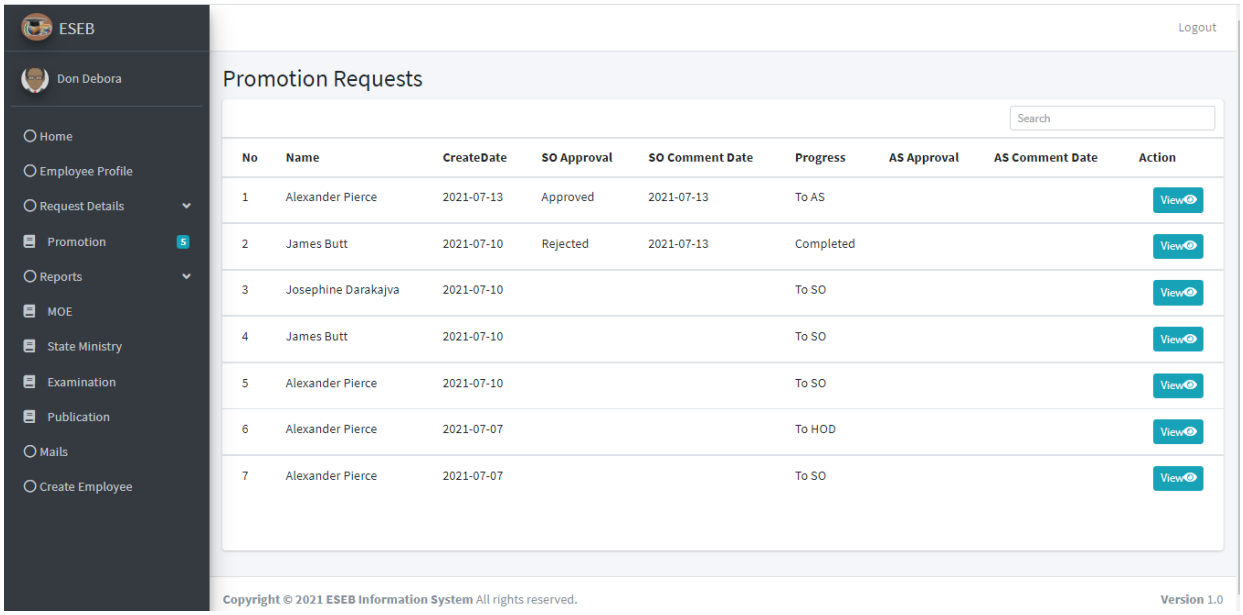



**Figure C.22 Show all received Promotion requests in a table**

#### - View a request details

Figure C.23 is used to View a request details.

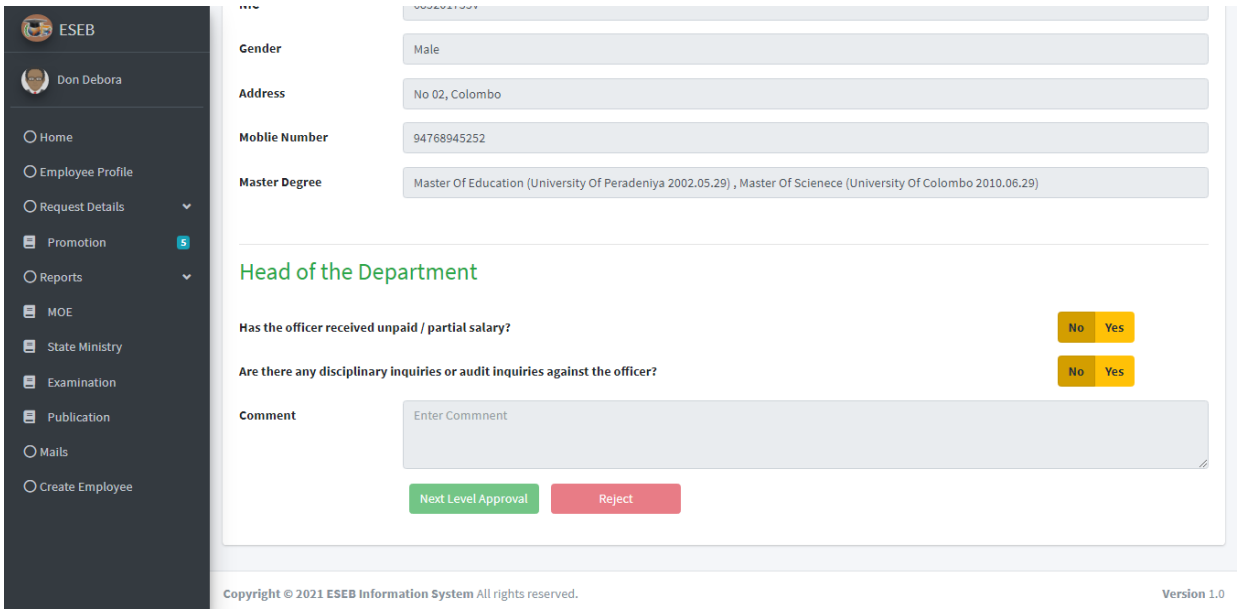



**Figure C.23 View a request details**

**- Filter table data according to search**

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

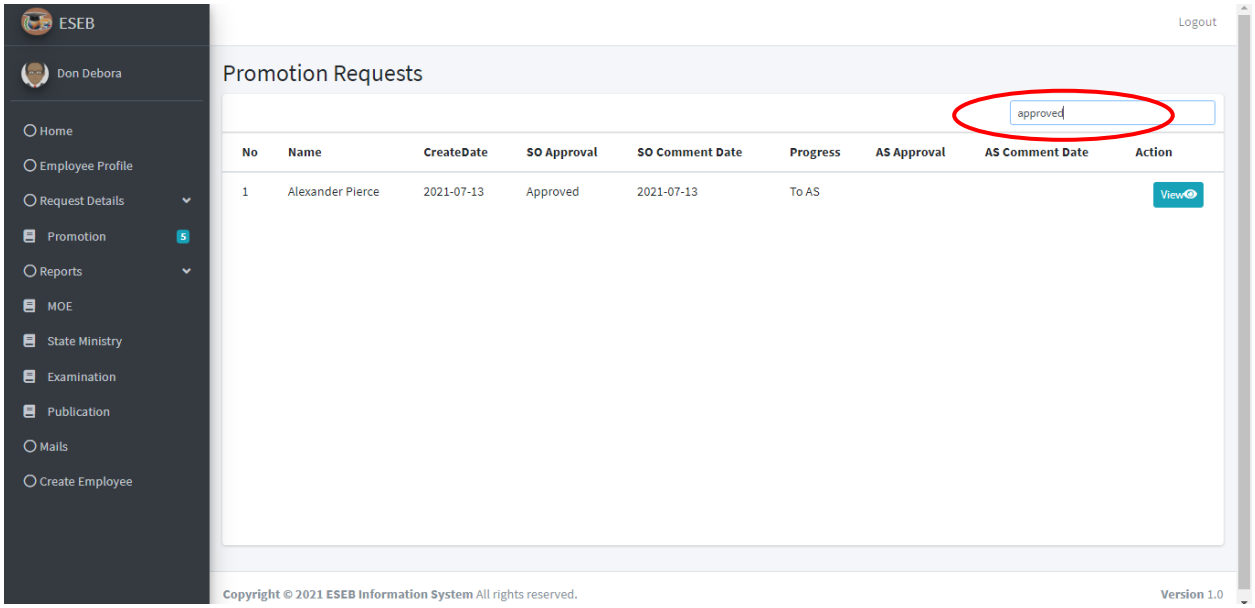



**Figure C.24 Filter table data according to search**

**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.

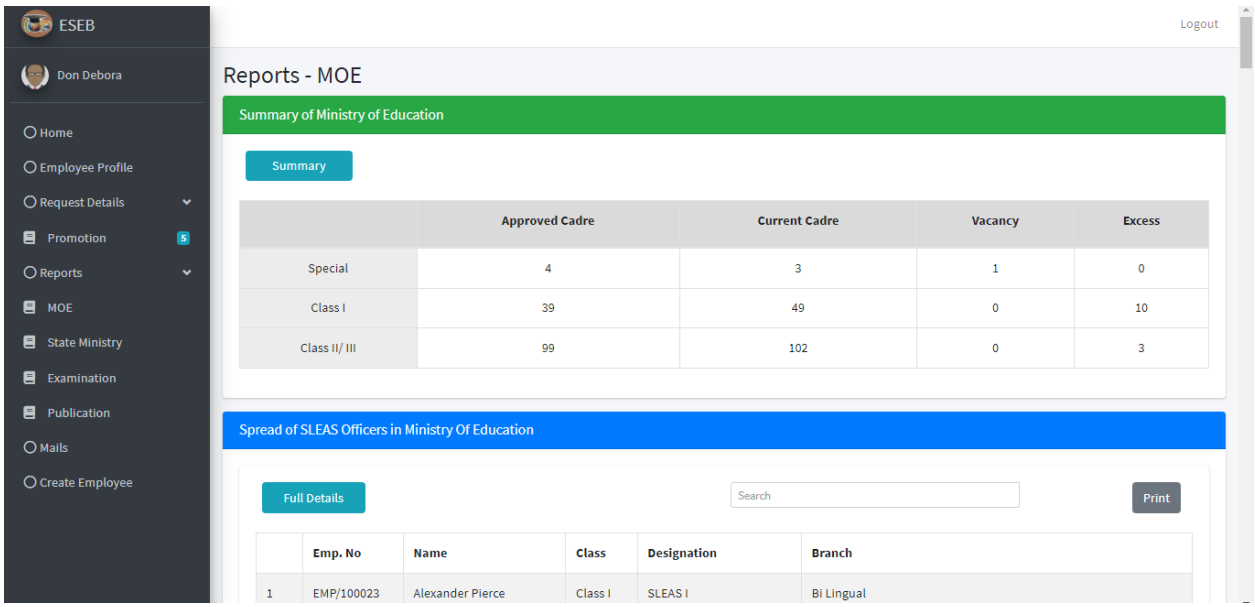



**Figure C.25 Show Class wise Cadre count**

**-Show all employee details in a table**

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

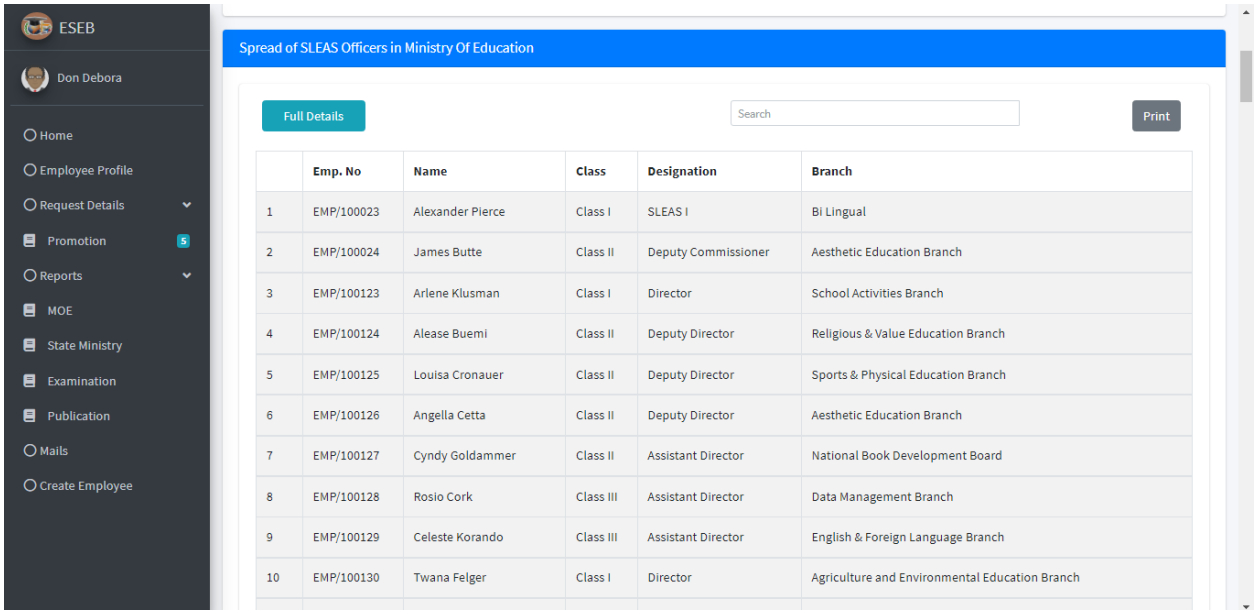



**Figure C.26 Show all employee details in a table**

**- Filter data according to the search value**

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

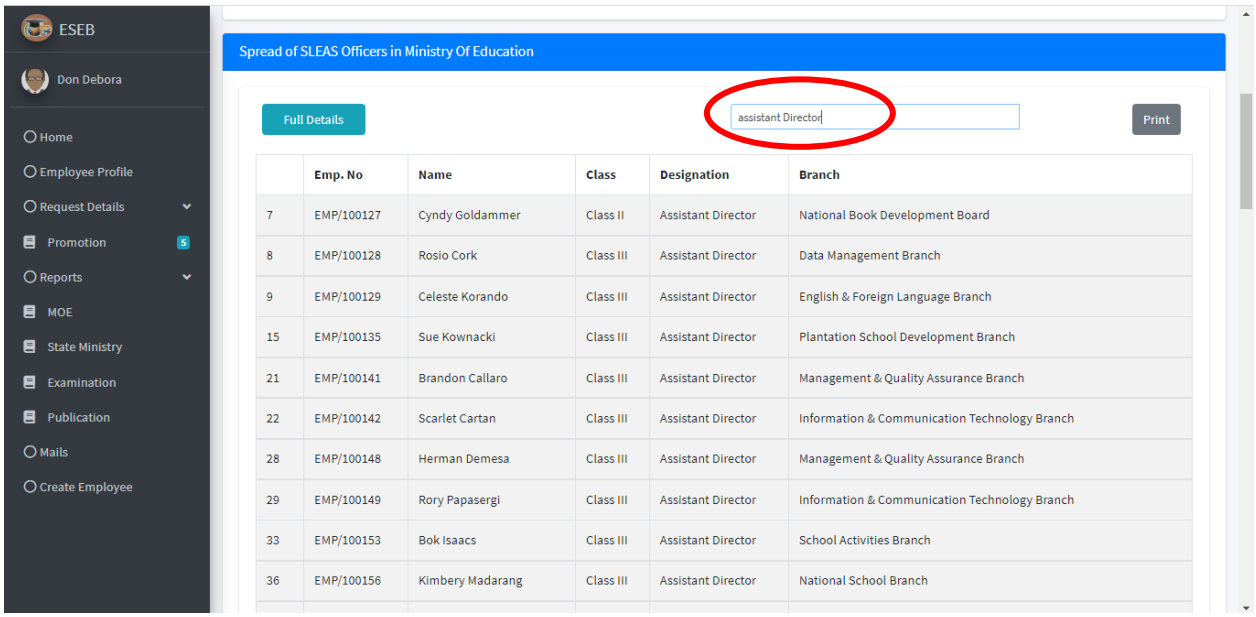



**Figure C.27 Filter data according to the search value**

**- PDF generate both tables**

Figure C.28 is used to illustrate PDF Summary Reports

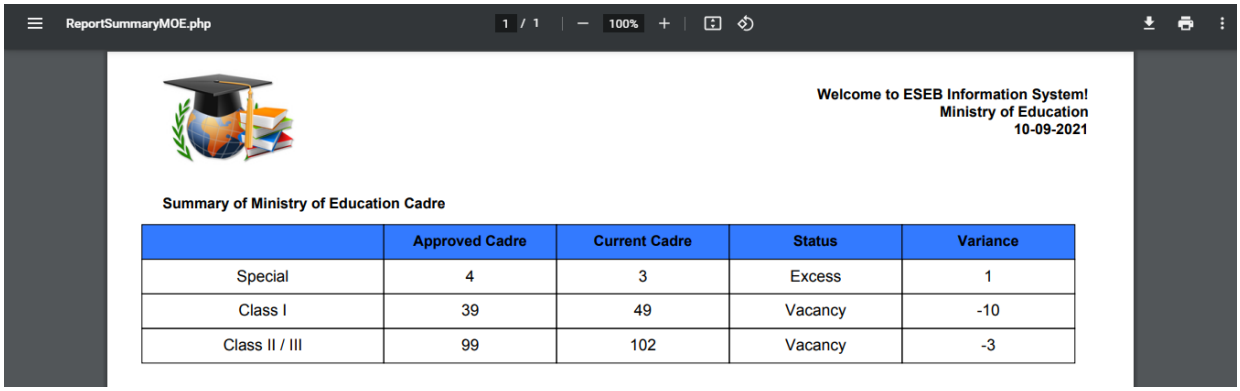



**Figure C.28 Summary**

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

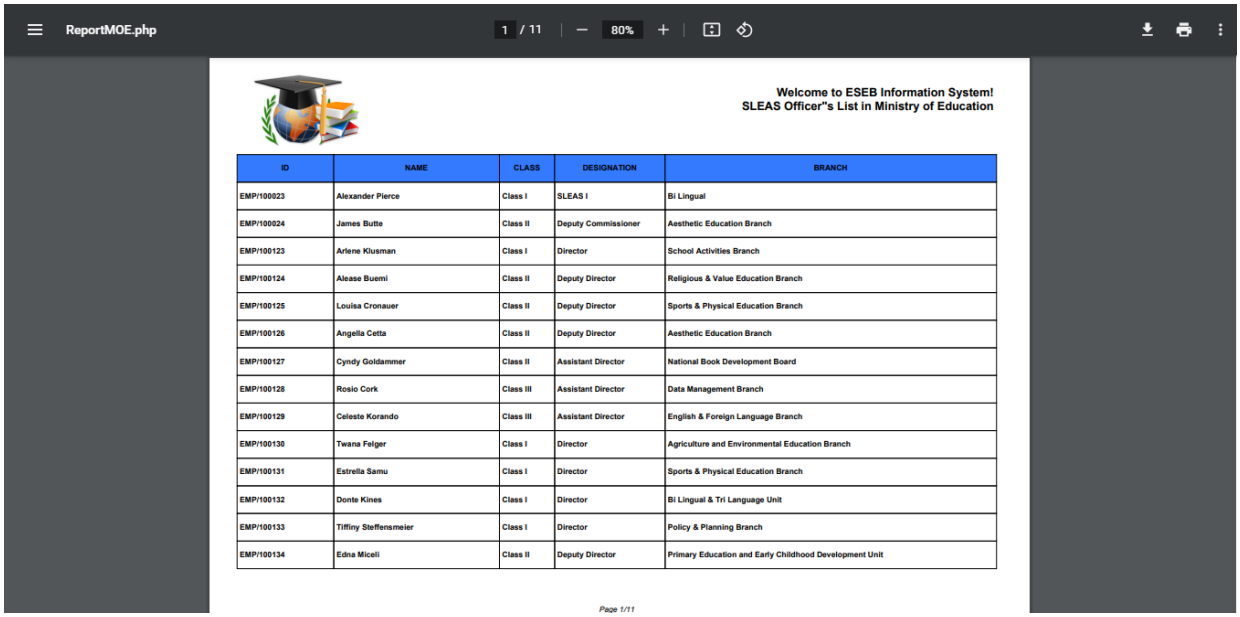



**Figure C.29 Full Details**

### v. Create Employee

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

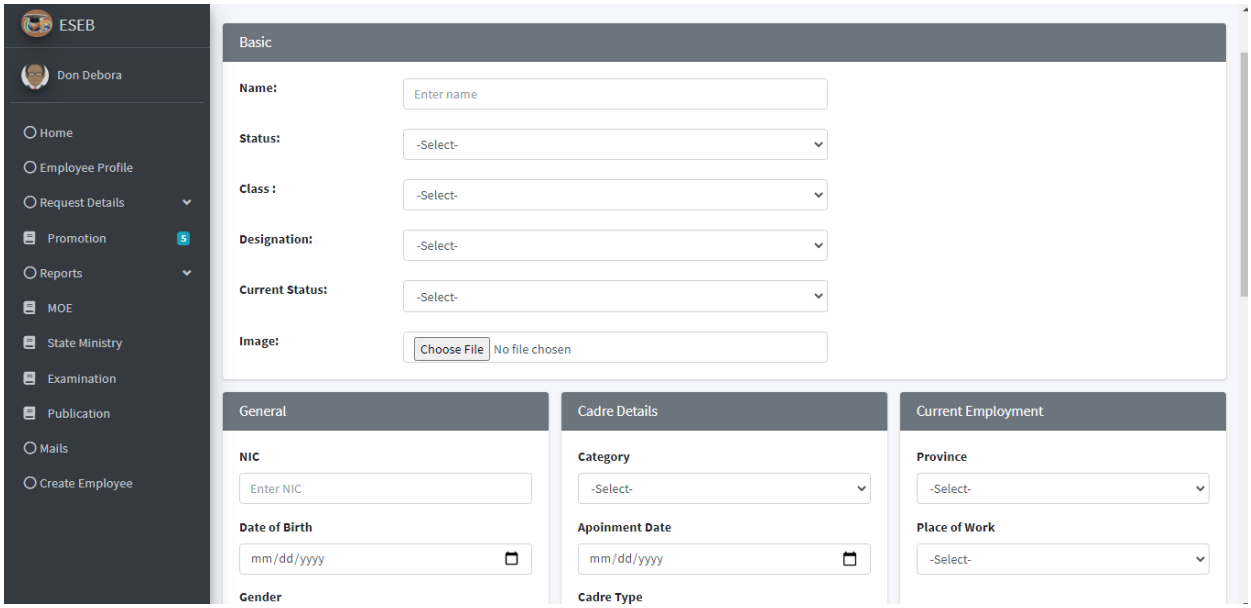



**Figure C.30 Create Employee**

### Vi. Mail

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

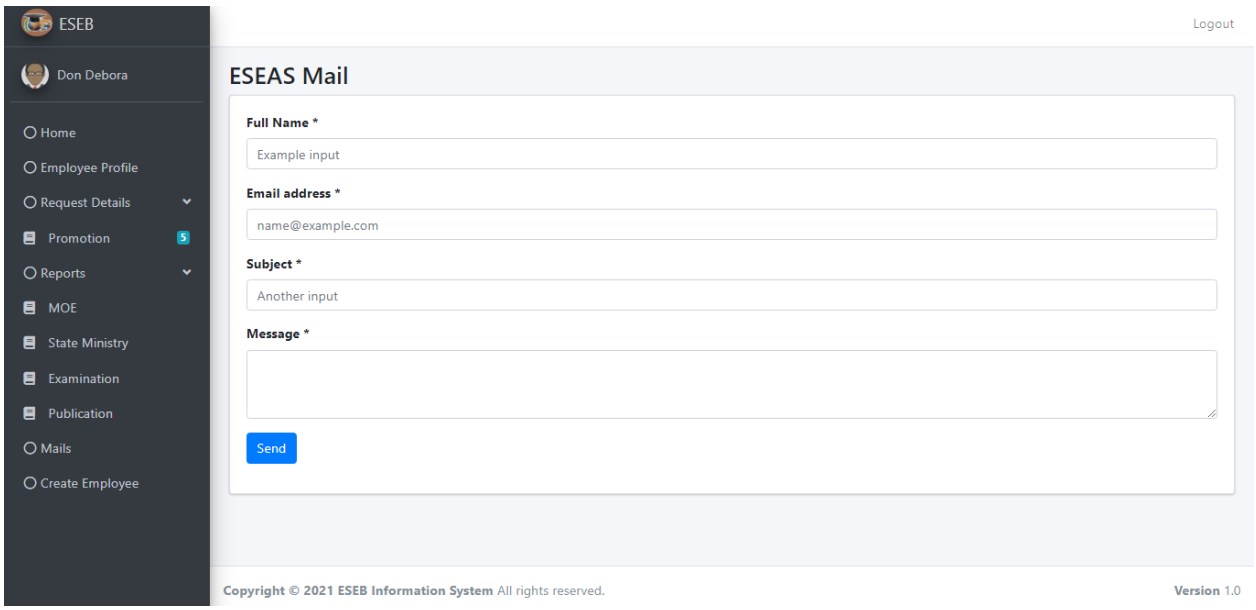



**Figure C.31 Mail**

## 4. Assistant Secretory Unique UI

i. Home

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

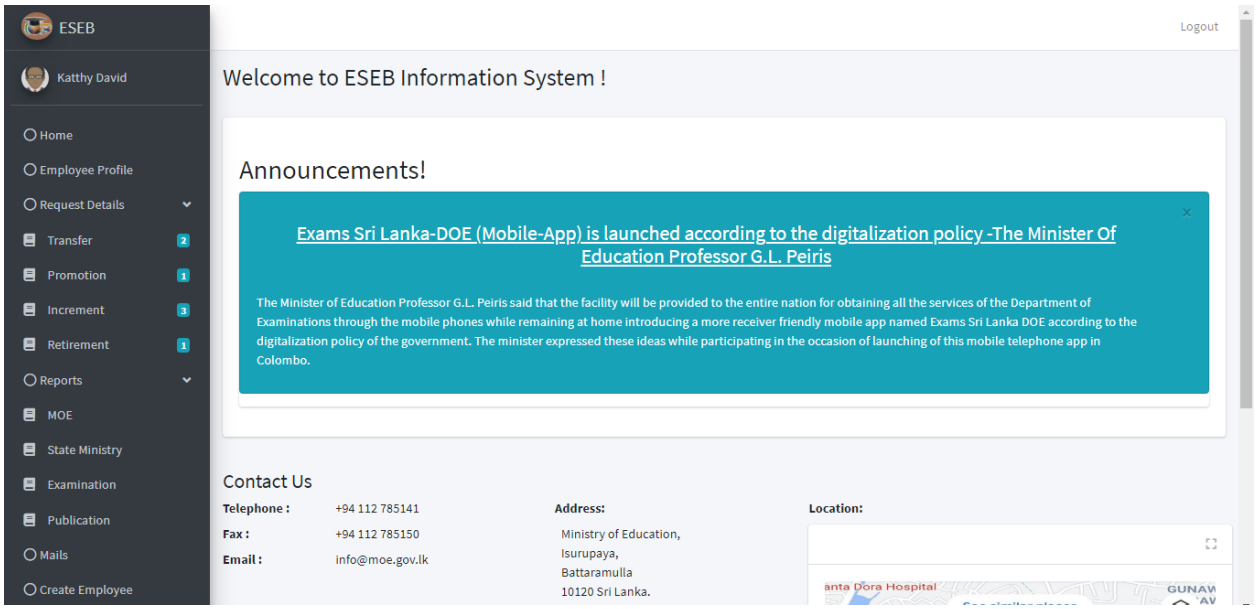



**Figure C.32 Assistant Secretory Home**

### - Show Announcements

Figure C.33 is used to Show Announcements UI.

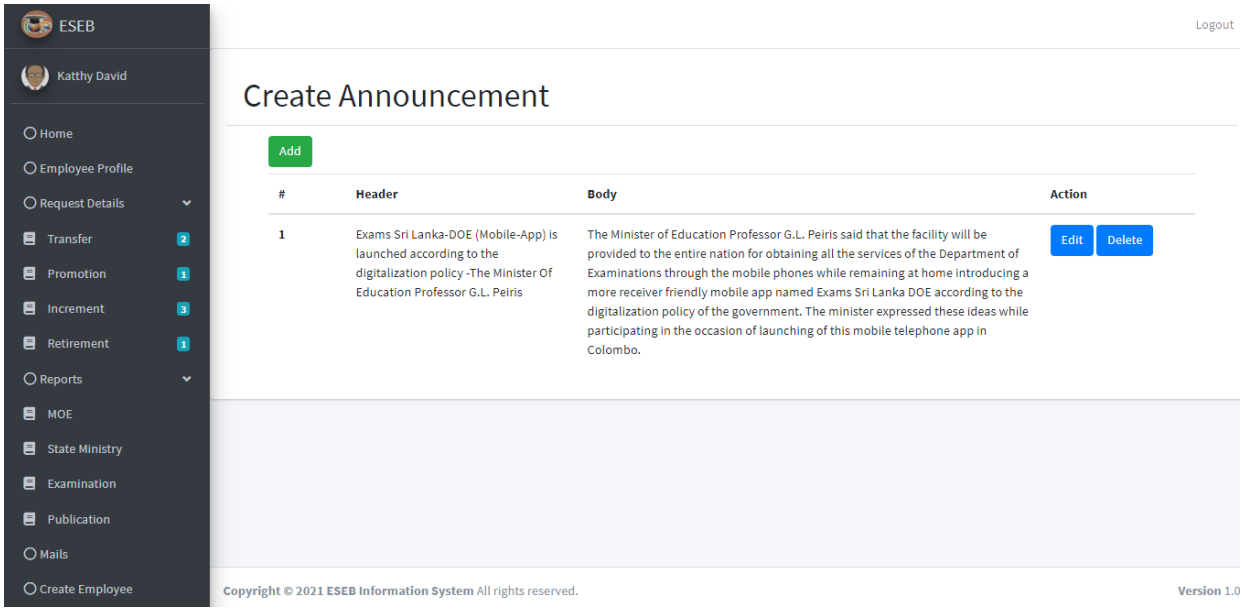



**Figure C.33 Show Announcements**

**- Edit Announcements**

Figure C.34  is used to Edit Announcements UI.

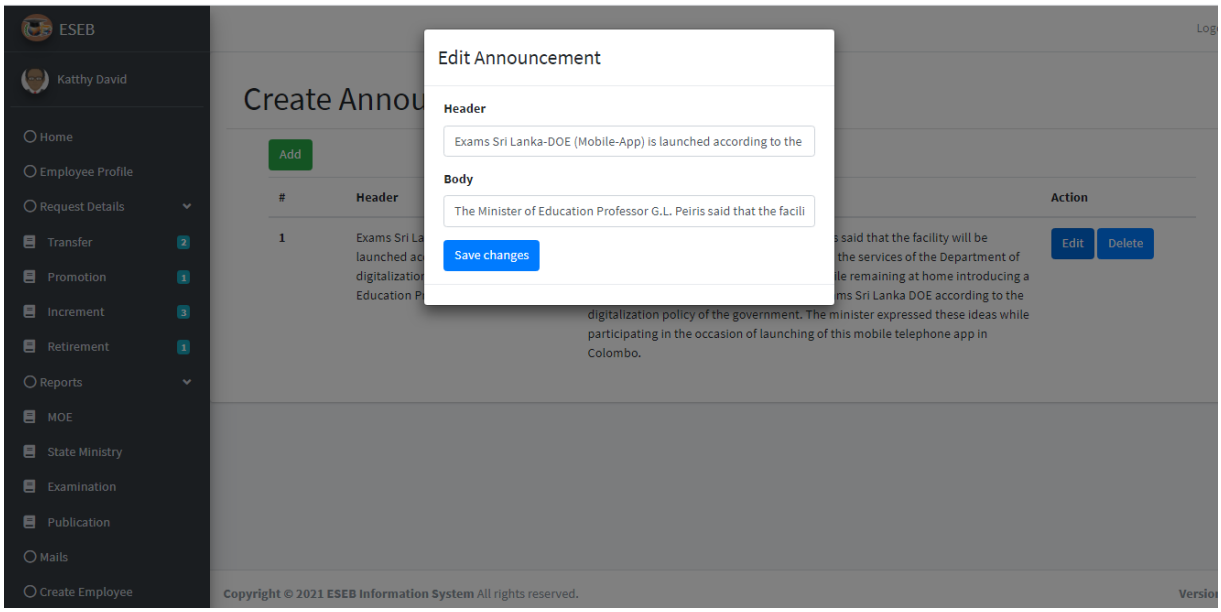



**Figure C.34 Edit Announcements**

**- Delete Announcements**

Figure C.35 is used to Delete Announcements UI.

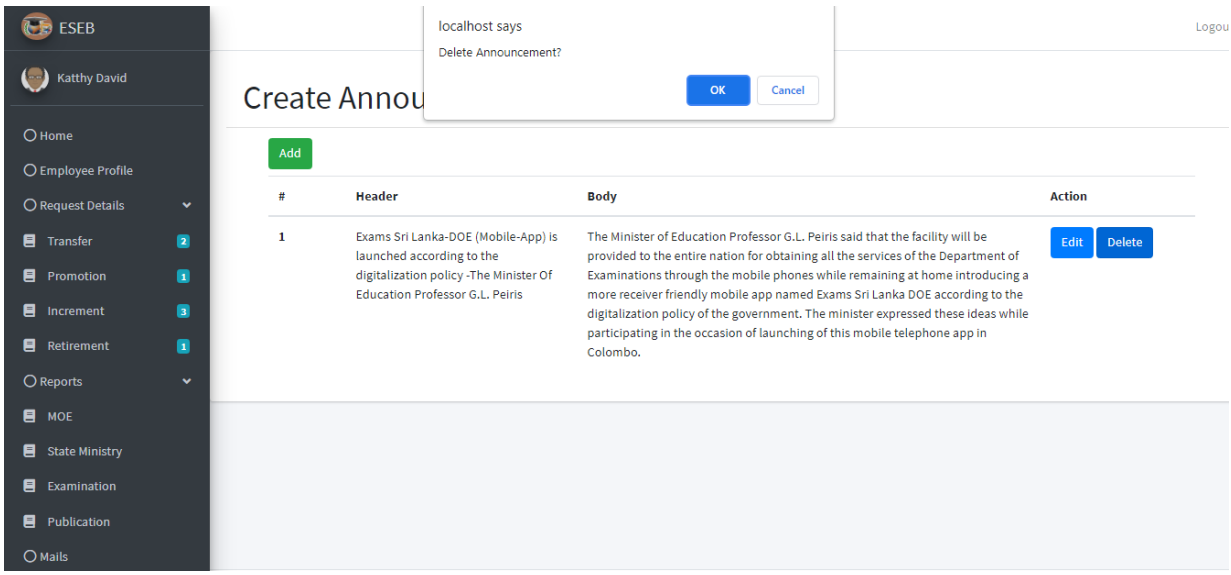



**Figure C.35 Delete Announcements**

## 5. Admin

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

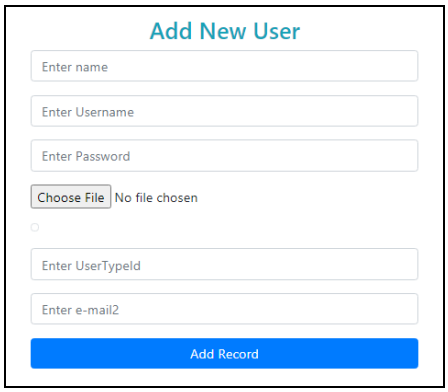



**Figure C.36 Gant Access to new user**

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

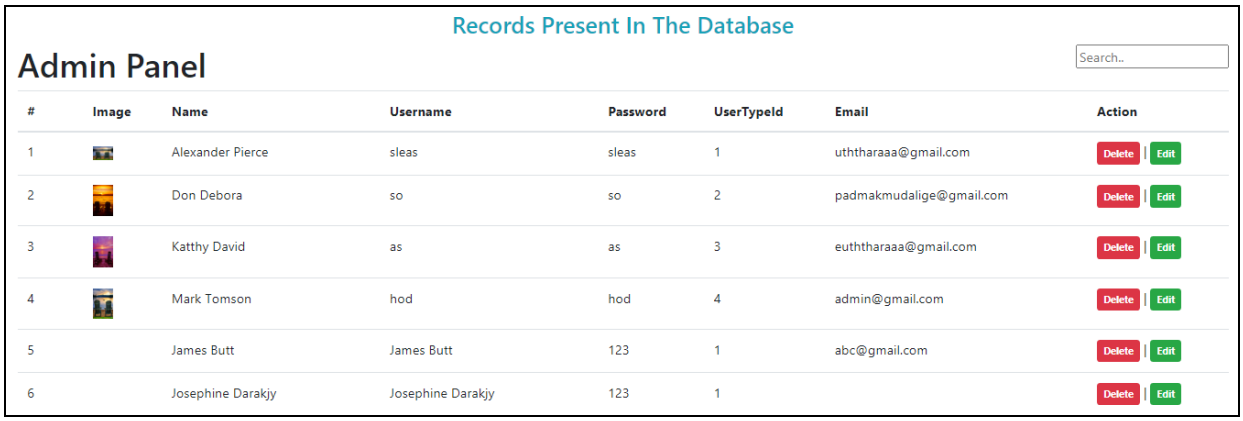



**Figure C.37 Deny / Edit Access to system**

## 6. HOD Officer Module

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

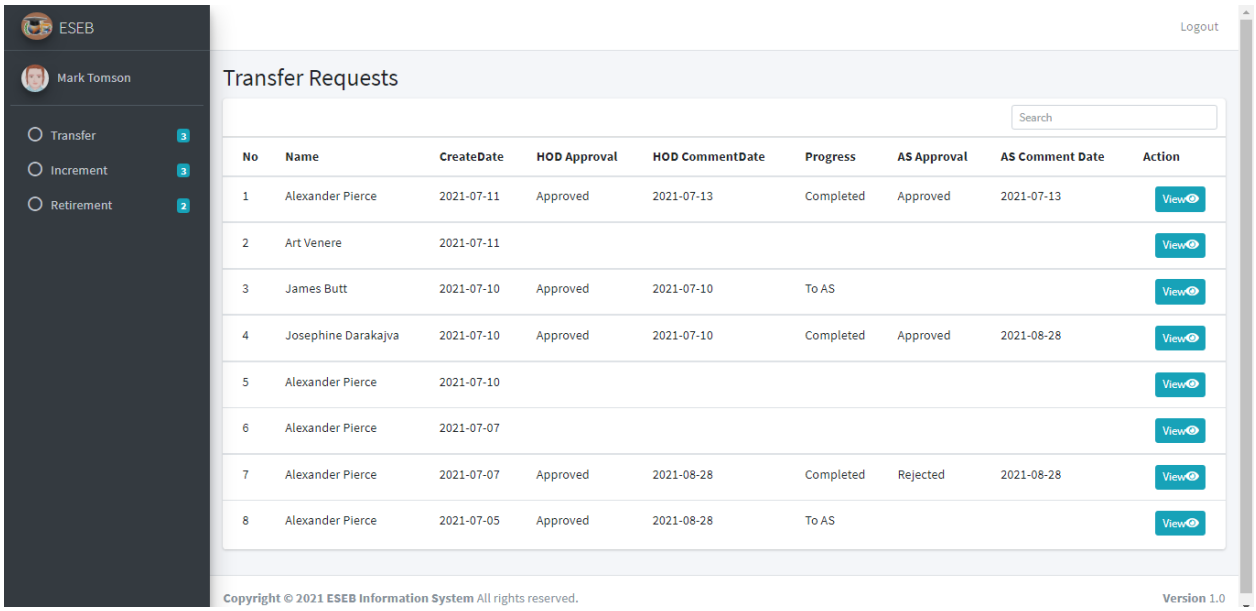



**Figure C.38 Show all received requests in a table**

### - View a request details and Approve / Reject Request

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

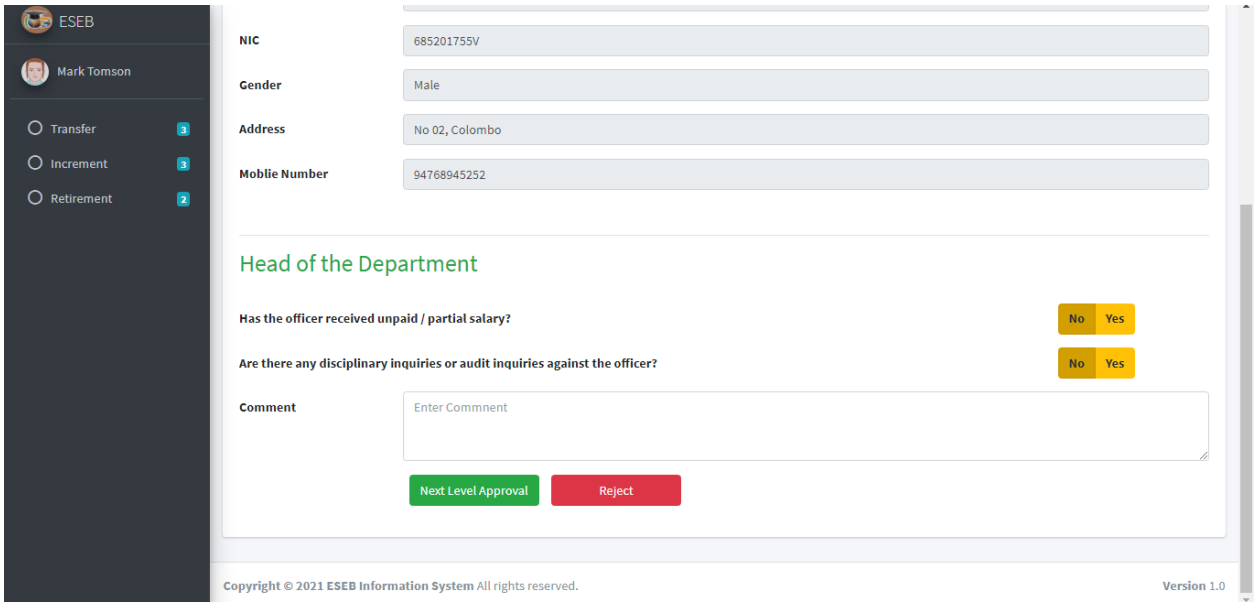



**Figure C.39 View a request details and Approve / Reject Request**

**- Filter table data according to search**

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

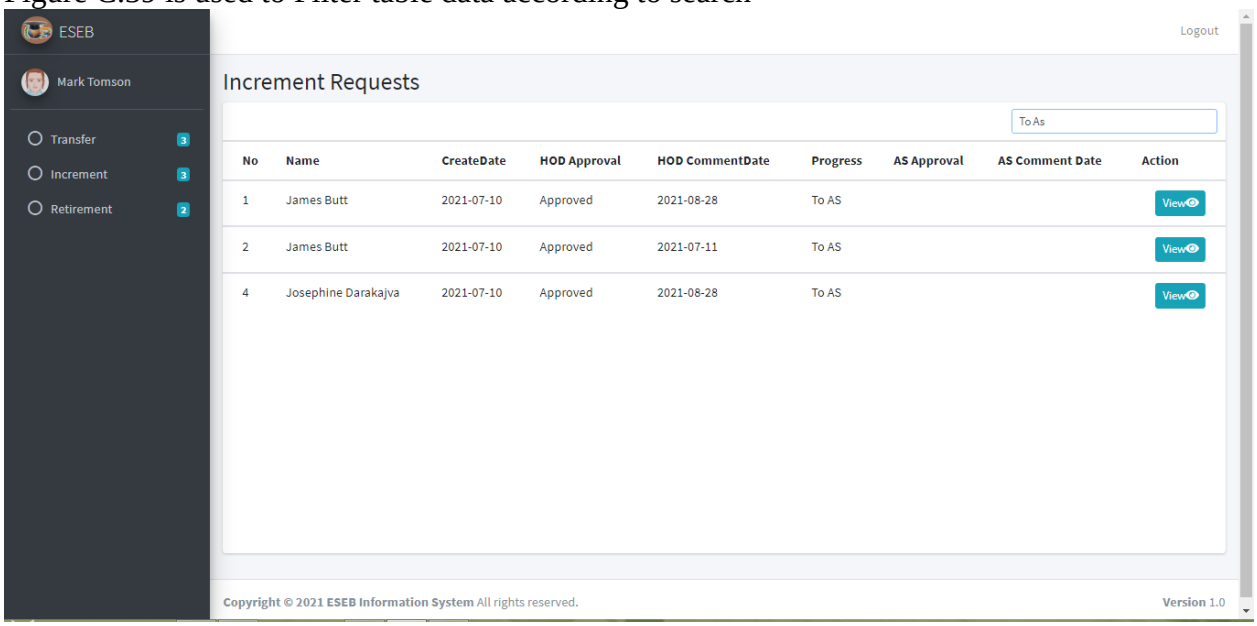



**Figure C.40 Filter table data according to search**