IMPLEMENTATION OF PAYROLL SYSTEM IN LARAVEL FRAMEWORK

BY

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This Report Presented in Partial Fulfillment of the Requirements for the Degree of Bachelor of Science in Computer Science and Engineering

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DHAKA, BANGLADESH

MAY 2018

APPROVAL

This Project titled **"Implementation of Payroll System in Laravel Framework,"** submitted by NAYEEM AZAD, ID No: 142-15-4037, to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of Bachelor of Science in Computer Science and Engineering (BSc) and approved as to its style and contents. The presentation has been held on 6th May, 2018.

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DECLARATION

I hereby declare that, this project has been done by me under the supervision of **Ms. Subhenur Latif, Department of CSE** Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ACKNOWLEDGEMENT

First I express my heartiest thanks and gratefulness to almighty God for His divine blessing makes me possible to complete the final year project successfully.

I am really grateful and wish my profound indebtedness to **Ms. Subhenur Latif**, **Assistant Professor**, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of *Computer Science and web technology* to carry out this project. Her endless patience, scholarly guidance ,continual encouragement , constant and energetic supervision, constructive criticism , valuable advice ,reading many inferior draft and correcting them at all stage have made it possible to complete this project.

I would like to express my heartiest gratitude to **Prof. Dr. Syed Akhter Hossian**, **Professor and Head,** Department of CSE, for his kind help to finish the project and also to other faculty member and the staff of CSE department of Daffodil International University.

I would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, I must acknowledge with due respect the constant support and patients of my parents.

ABSTRACT

The need for dynamic solution for payroll system is a serious demand. I therefore intend to build a system that meets the requirements and ensure strong security, give user friendly experience. Using this system any company can easily manage everything they need to pay employees. Its dashboard for admin operations based on five major modules as Configuration Module, Employee Module, Payroll Module, Reports Module. Employees also can use this system for some features. Employee dashboard includes Employee Module and Report Module.

TABLE OF CONTENTS

CONTENTS	PAGE
Board of examiners	i
Declaration	ii
Acknowledgements	iii
Abstract	iv
CHAPTER	
CHAPTER 1: INTRODUCTION	**4-5**
1.1 Introduction	4
1.2 Motivation	4
1.3 Objective	4
1.4 Expected Outcome	4-5
1.5 Report Layout	5
CHARTER 2: BACKGROUND	**6**
2.1 Introduction	6
2.2 Related works	6
2.3 Scope of the Problem	6
2.4 Challenges	6

CHARTER 3: REQUIREMENT SPECIFICATION 7-10

3.1 Business Process Modeling 7-8

3.3 Use Case Modeling and Description 9

3.4 Logical Data Model 10

CHARTER 4: DESIGN SPECIFICATION 11-12

4.1 Front-end Design 11

4.2 Back-end Design 12

4.3 Interaction Design and UX 12

CHAPTER 5: IMPLEMENTION AND TESTING 13-29

5.1 Implementation of Database 13-17

5.2 Implementation of Front-end Design 18-28

5.3 Test Results and Reports 29

CHAPTER 6: CONCLUSION AND FUTURE SCOPE 30

6.1 Discussion and conclusion 30

6.2 Scope for further Developments 30

REFERENCES 31

APPENDIX 32

LIST OF FIGURES

FIGURES	PAGE NO
Figure 3.1.1: BPM Process of Regular Payment	7
Figure 3.1.2: BPM Process of Request Payment	7
Figure 3.1.3: BPM Process of Leave Application	8
Figure 3.2.1: Use Case Model of Payroll System	9
Figure 3.3.1: Logical Data Model of Payroll System	10
Figure 4.1 : Design Specification of UI	11
Figure 5.1.1: :ER Diagram of Payroll System for Admin and Employee Tables	13
Figure 5.1.2: ER diagram of Payroll System for Admins, Sections, Depts, Tables	14
Figure 5.1.3: ER diagram of Payroll System for Admins, Allowances, Deductions, Attendances, Taxcodes	15
Figure 5.1.4: ER diagram of Payroll System for Admins and Payments Table	16
Figure 5.1.5: ER diagram of Payroll System for Tables Admins, Adpayments, Reqleaves.	17
Figure 5.2.1- 5.2.16: Frontend Designs	18-28
Figure 6.0: A Screenshot of Plagiarism	32

LIST OF TABLE

TABLES	29
Table 5.3.1: Test case for paying an employee with valid credentials	

CHAPTER 1

Introduction

1.1 Introduction

Payroll Management System is a dynamic solution for managing of Payroll records for any company. This system manages all branches of a company along with the employee details and their basic salary, allowances, deductions, printable records for company.

1.2 Motivation

Typical pen and paper based system for payroll management is complex, time and money consuming process. To ensure a fast, secure and dynamic solution I have planned to develop this web based customized management system using latest technology.

1.3 Objective

To ensure a secure system and serve companies/ organizations manage their payroll records for employees easily saving time.

1.4 Expected Outcome

This system has two type of users (**Admin** and **Employees**).
It has the following features for **admin dashboard**.

1) **Configuration Module**
    - Manage Branches ,Departments, Allowances , Deductions, Tax Codes (add, delete, edit, update, Search)

2) **Employee Module**
    - Manages Employees (searching, add, delete, edit, update)
    - Manages General and Payroll employee Information
    - Manage Leave Requests
    - Manage attendance

3) **Payroll Module**
    - Pays Employees

- Payment requests

4) Reports Module

- Generate Reports
- Searching Records

It has the following features for **Employee dashboard**

1. Employee Module

- Request for payment
- Request for advanced payments
- Request for leave

2. Reports Module

- Download Pay Slip Report

1.5 Report Layout

Chapter 2: This chapter describes about related works, comparative studies, scope of the problems.

Chapter 3: This chapter describes about Requirement Specification. It explains Business Process Modeling, Requirement Collect and Analysis, Use Case Modeling and Description, Logical Data Model, Design Requirements

Chapter 4: This chapter describes about design specification.

Chapter 5: This chapter describes about Implementation and testing. It visualize the implementation of Database, Front-end Design, Interactions, Testing Implementation, Test Results and Reports

Chapter 6: This chapter describes about future plans and goals on this project for improvement.

CHAPTER 2

Background

2.1 Introduction

This chapter explains about ongoing related works and comparative studies of payroll systems in different platforms.

2.2 Related works

There are existing and ongoing works about payroll systems. Few research works about payroll system entitles as System for web-based payroll and benefits administration[1] , Method for providing a web-based payroll and payroll related software as a service[2] and A web based Hr and Payroll software easymanage[3] .

2.3 Scope of the Problem

Security is one of the major issues for any kind of web based systems. To ensure a strong secure web based system I have worked with the latest technologies. Also concerned on how user interfaces for best user experience.

2.4 Challenges

Challenge is to ensure a dynamic transparent system for any country according to their payroll policies. I have designed the system such way so that it user can customize it as they require according to their respective country.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

Business Process Model and Notation (BPMN) is a graphical representation for specifying business processes in a business process model[4]. The following figure represents the BPMN of regular payment process.

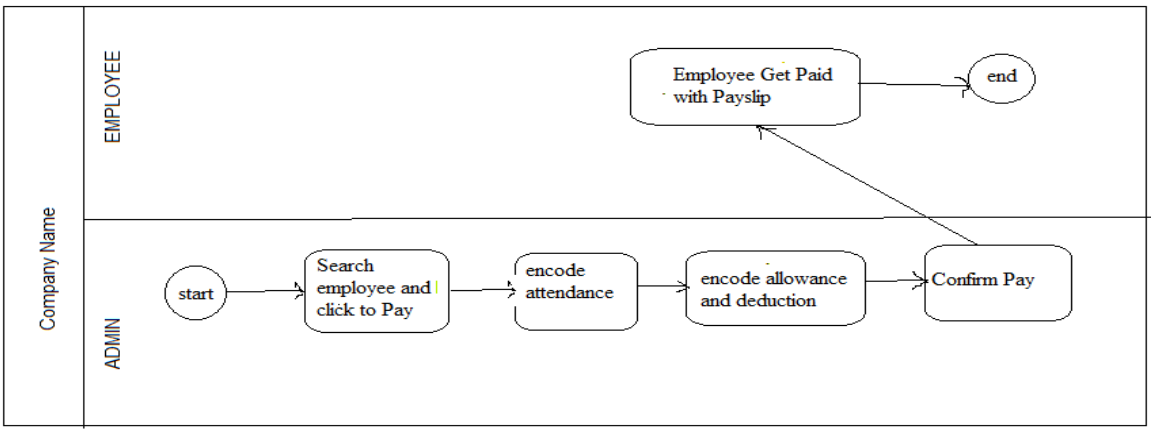

Fig: 3.1.1: BPM Process of Regular Payment

The following figure represents the BPMN of request payment process. Employees can ask for advanced payments, admin process the application.

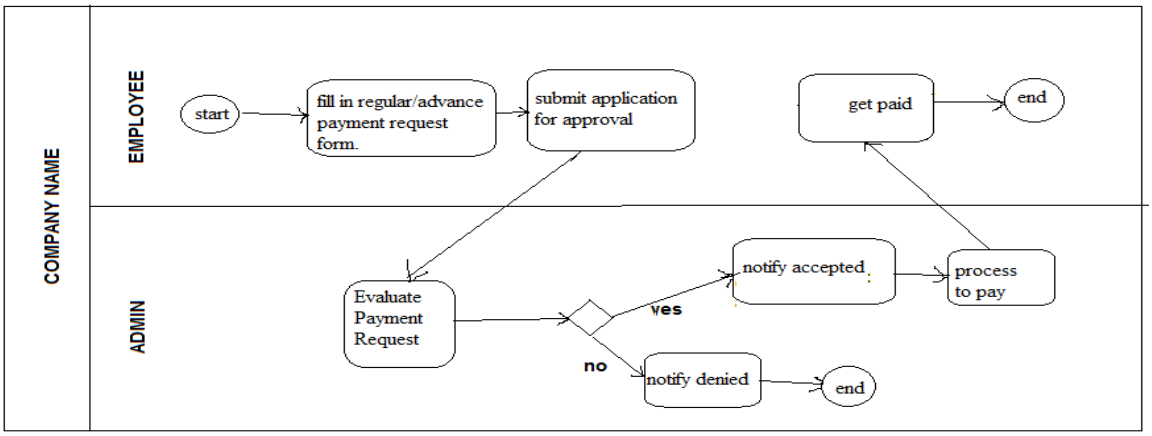

Fig: 3.1.2: BPM Process of Request Payment

The following figure represents the BPMN of leave application process. Employees can ask for leave selecting type, admin process the application.

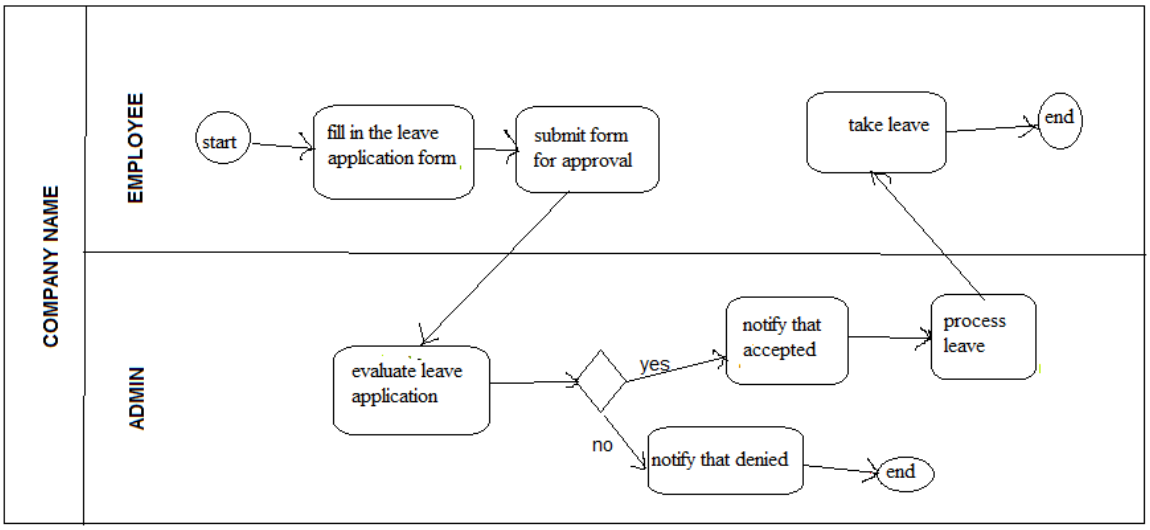

Fig: 3.1.3: BPM Process of Leave Application

3.2 Use Case Modeling and Description

This is the use case for the payroll system. It visualizes the actions of Admin and Employees. There is two type of actors named as Admin and Employee.

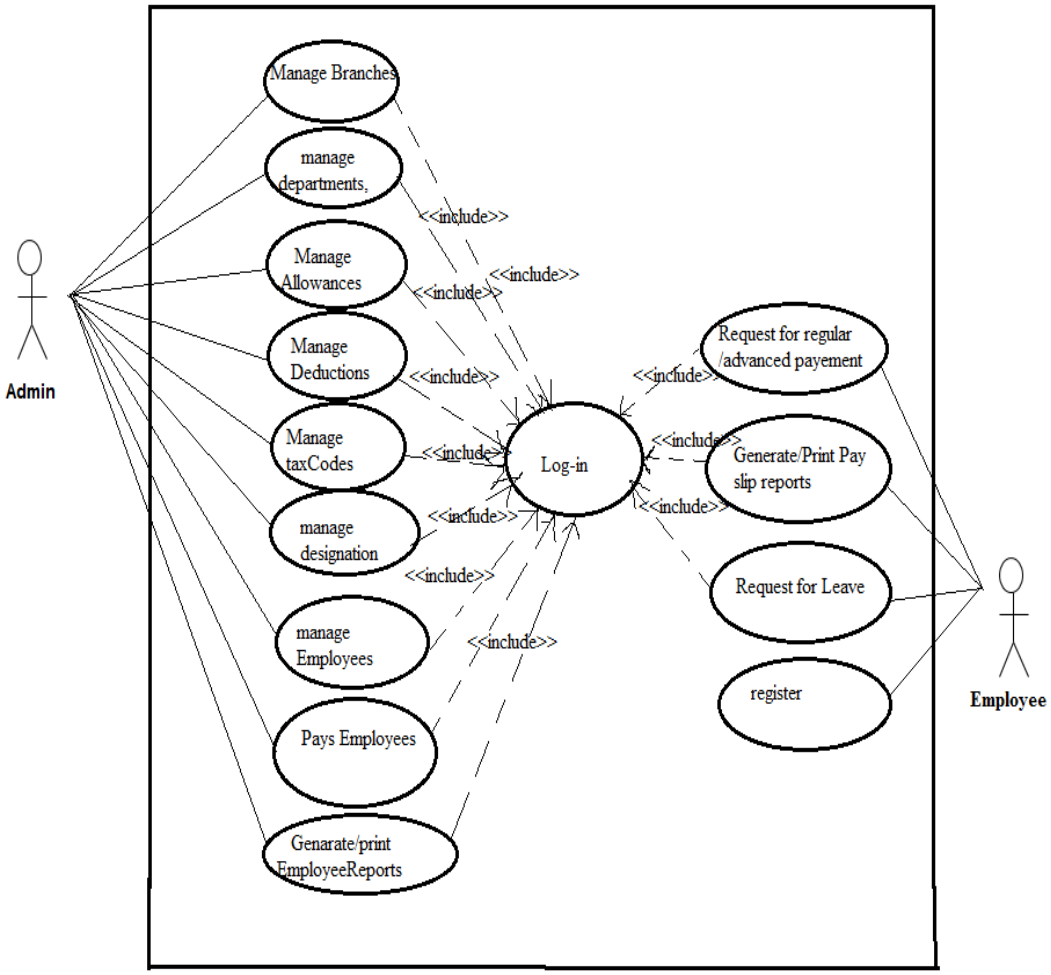

Fig: 3.2.1: Use Case Model of Payroll System

3.3 Logical Data Model

This is the logical data model for payroll system. It explains properties and functions available relationships in different classes.

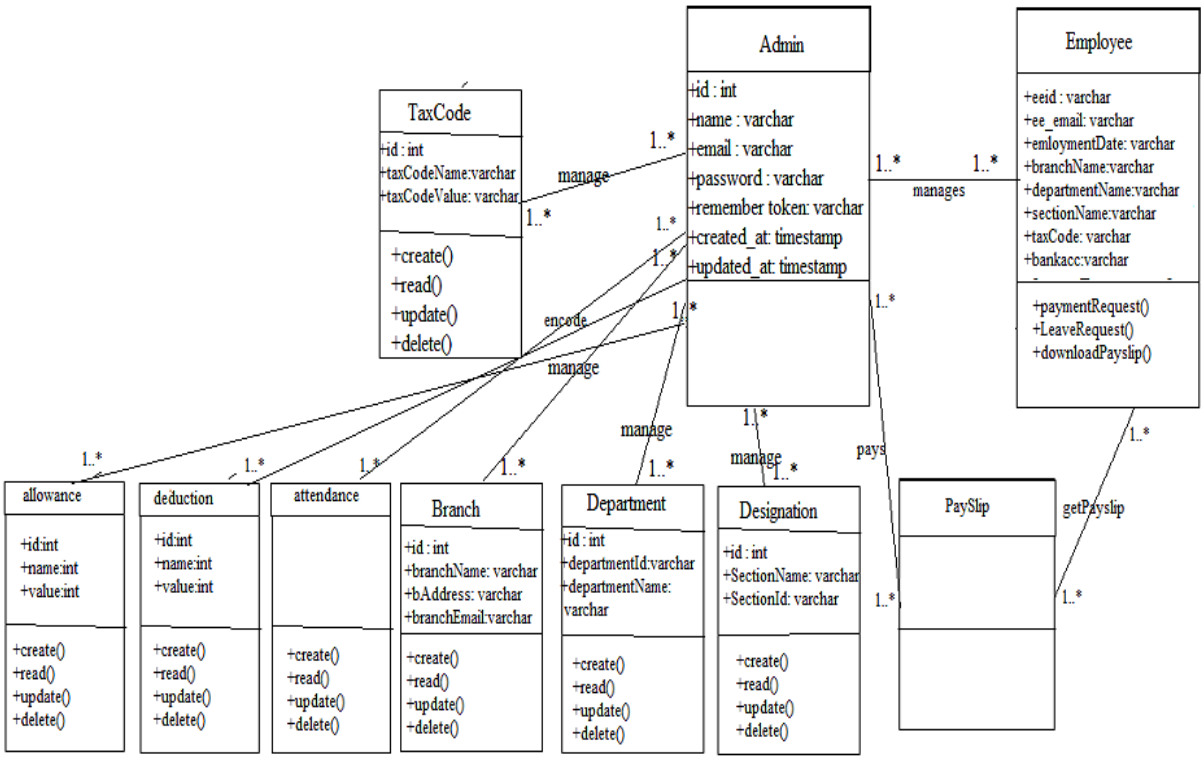

Fig: 3.3.1: Logical Data Model of Payroll System

CHARTER 4

Design Specification

4.1 Front-end Design

- **BOOTSTRAP:** Bootstrap is a framework that helps to responsive design. In this project I have used the bootstrap 3[5].
- **HTML 5:** HTML defines the structure of the webpages.HTML5 is the latest version of HTML[6].
- **CSS3:** CSS3 is the latest version of CSS which is used to design or style the web pages[7].

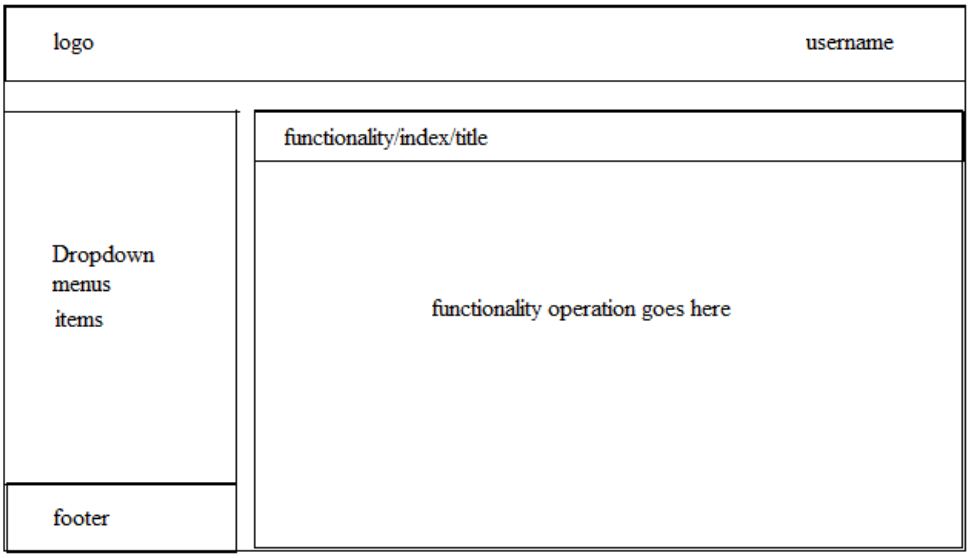

Fig: 4.1: Design Specification of UI

4.2 Back-end Design

- **LARAVEL 5.4:** Laravel is an open source PHP framework created by Taylor Otwell .Laravel follows MVC architectural design pattern. I have built the project on Laravel 5.4 framework[8].

- **PHP 5.6:** PHP is server side scripting language, basically used for making dynamic web applications. Here I used PHP 5.6[9].

- **MySQL:** MySQL is a relational database management system.

4.3 Interaction design and UX

- J**AVASCRIPT:** JavaScript is high level client side scripting language use to design interactive web pages[10].

This system's UX has been made user friendly with responsive design for all devices. To make it more interactive I have focused on JavaScript with JQuery library.

CHARTER 5

Implementation and Testing

5.1 Implementation of Database

A **database-management system** (**DBMS**) is a computer-software application that interacts with end-users, other applications, and the database itself to capture and analyze data. A general-purpose **DBMS** allows the definition, creation, querying, update, and administration of databases[11]. The following figure represents relationship between two tables named as admins and employees.

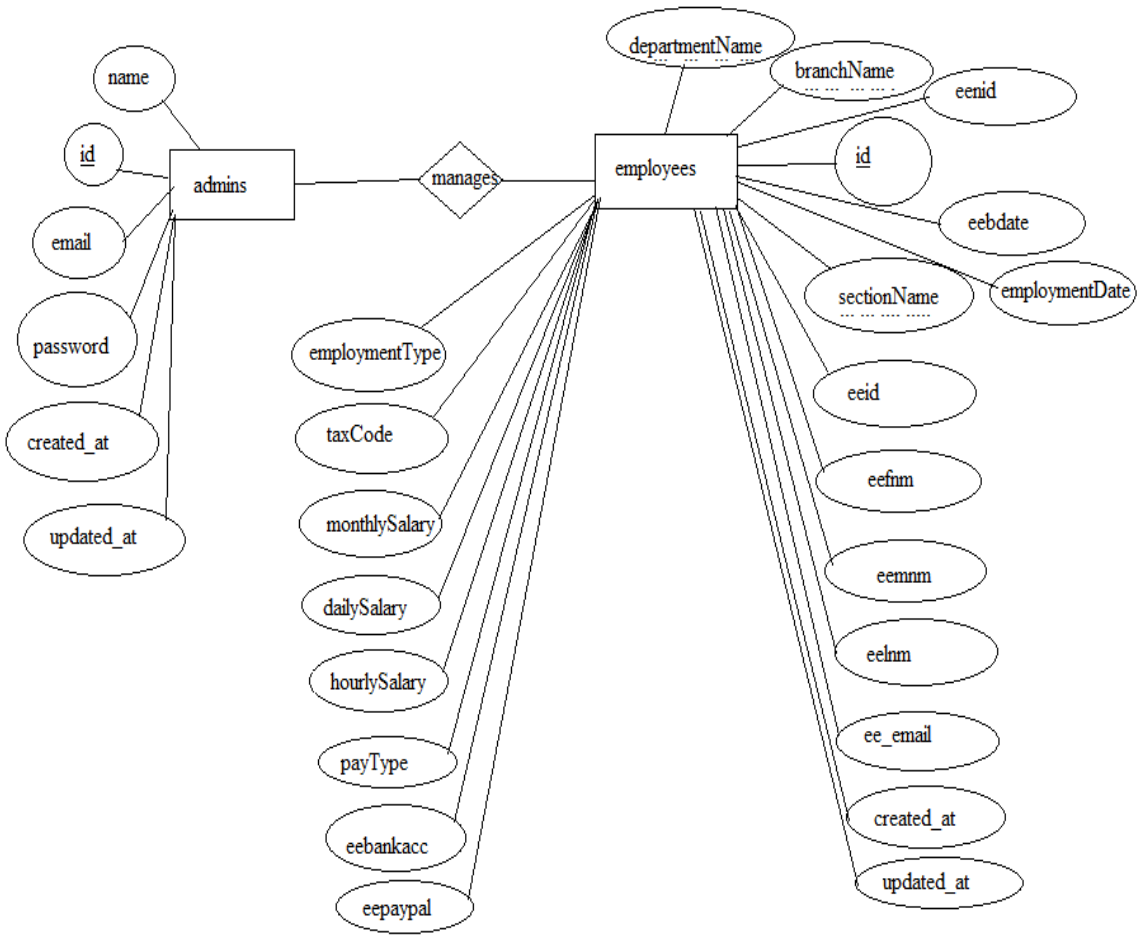

Fig: 5.1.1: ER Diagram of Payroll System, Admin and Employee Tables

The following figure represents relationship among tables named as admins, sections, depts.

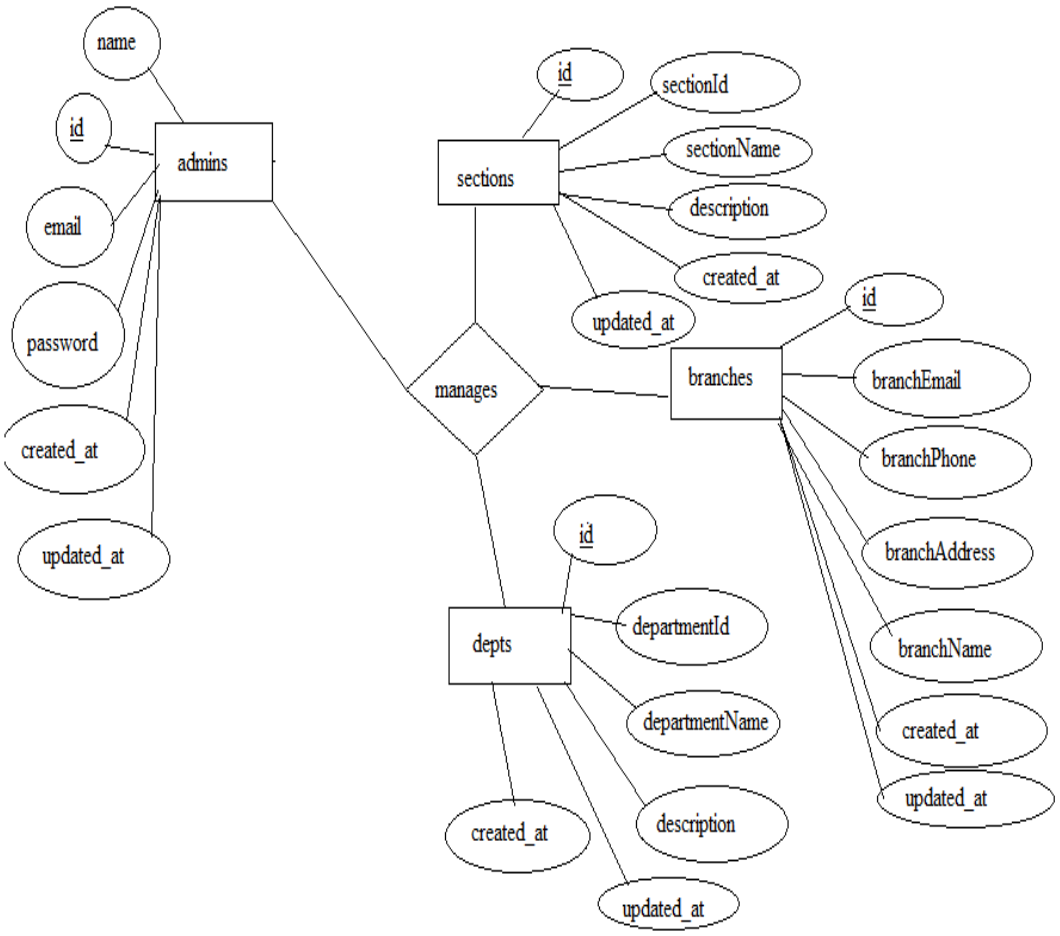

Fig: 5.1.2: ER Diagram of Payroll System for Admins, Sections, Depts, Tables

The following figure represents relationship among tables named as admins, allowances, deductions, allowances, tax codes.

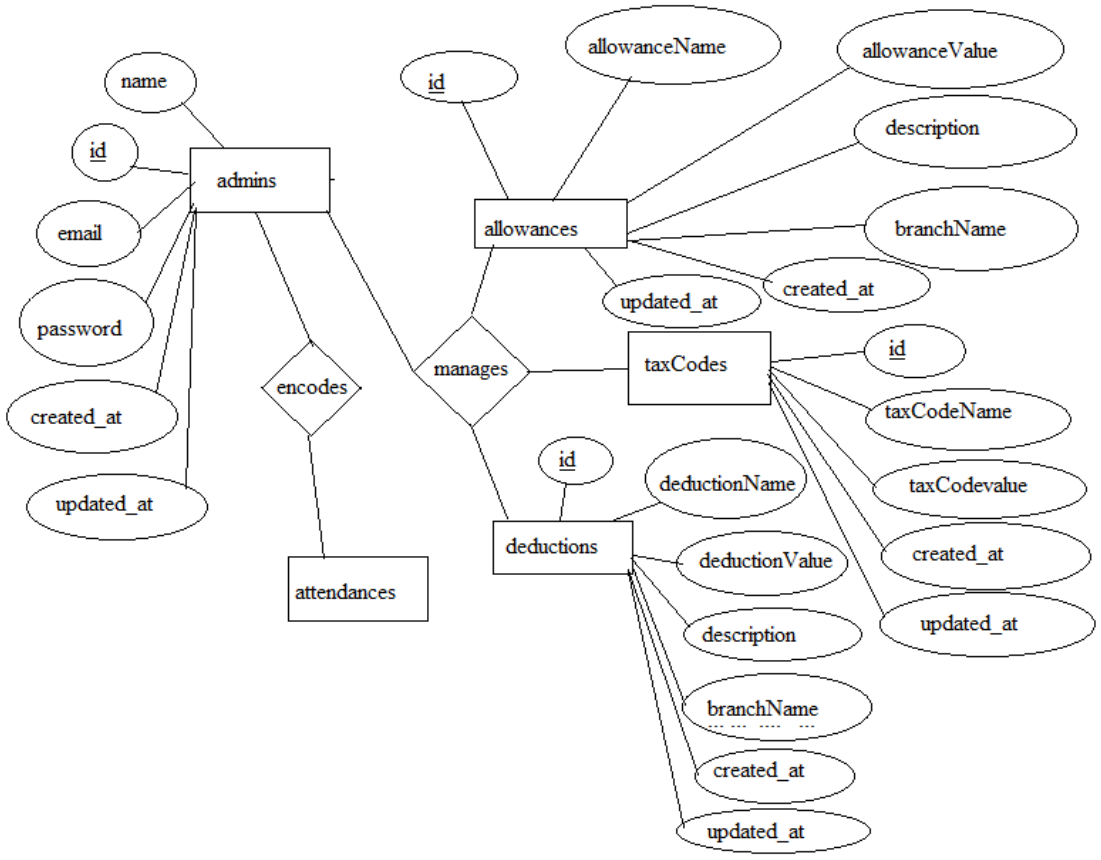

Fig: 5.1.3 : ER Diagram of Payroll System for Admins, Allowances, Deductions, Attendances,Taxcodes

The following figure represents relationship among tables named as admins, payments.

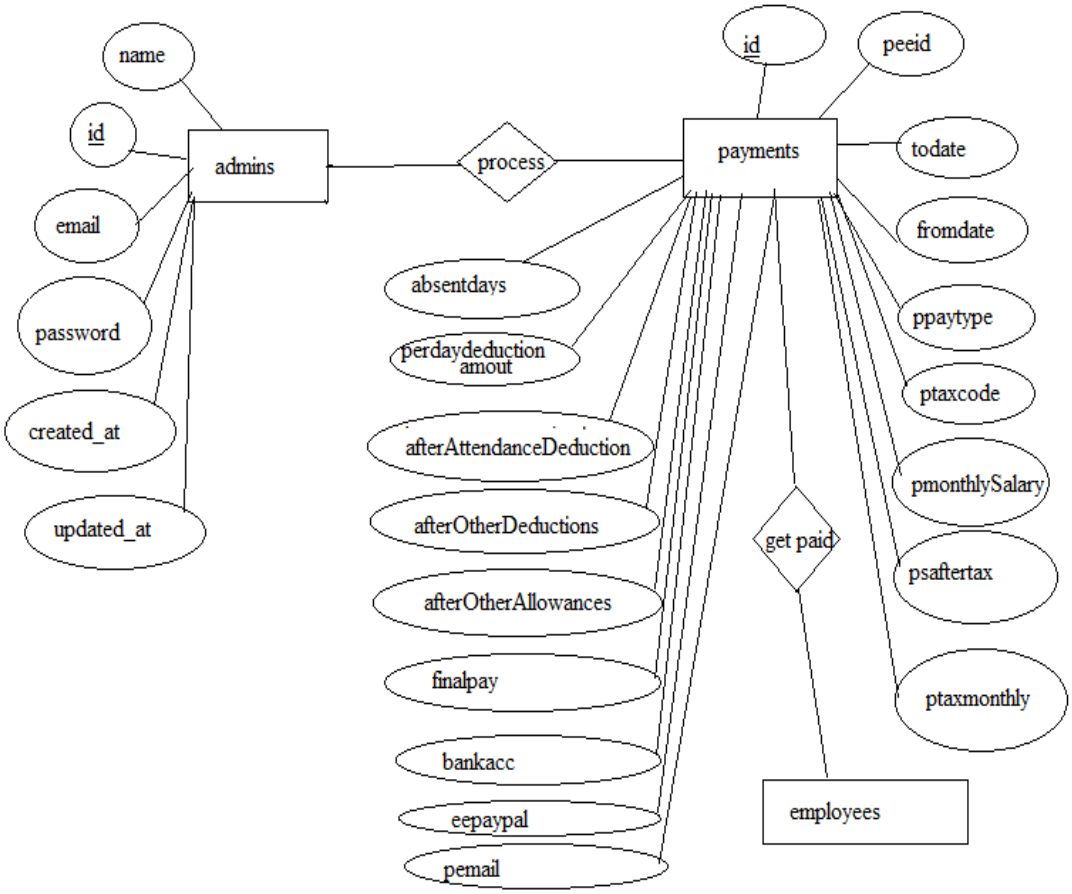

Fig: 5.1.4: ER Diagram of Payroll System for Admins and Payments Table

The following figure represents relationship among tables named as admins, adpayments, reqleaves.

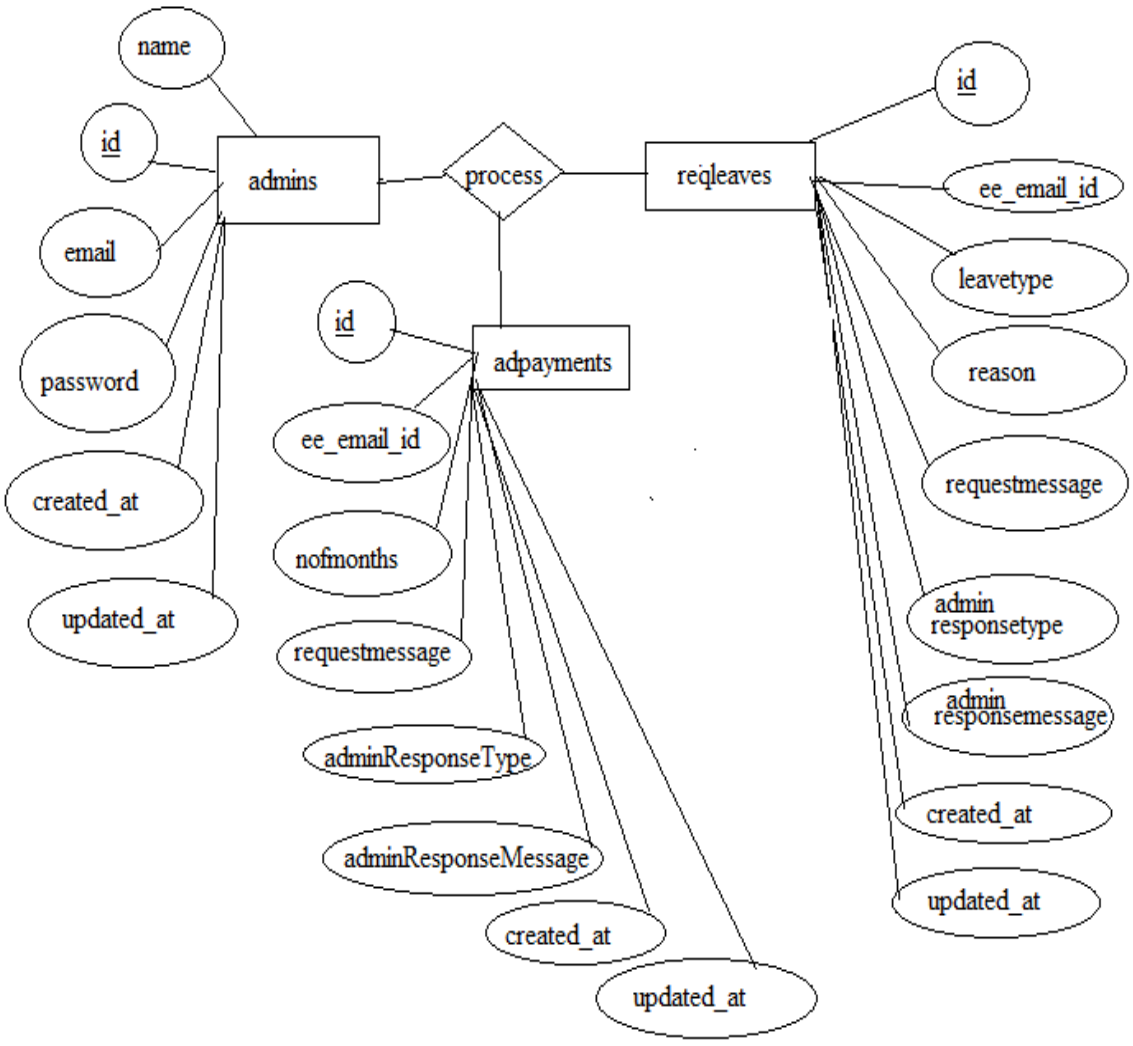

Fig: 5.1.5: ER Diagram of Payroll System for Tables Admins, Adpayments, Reqleaves.

5.2 Implementation of Front-end Design

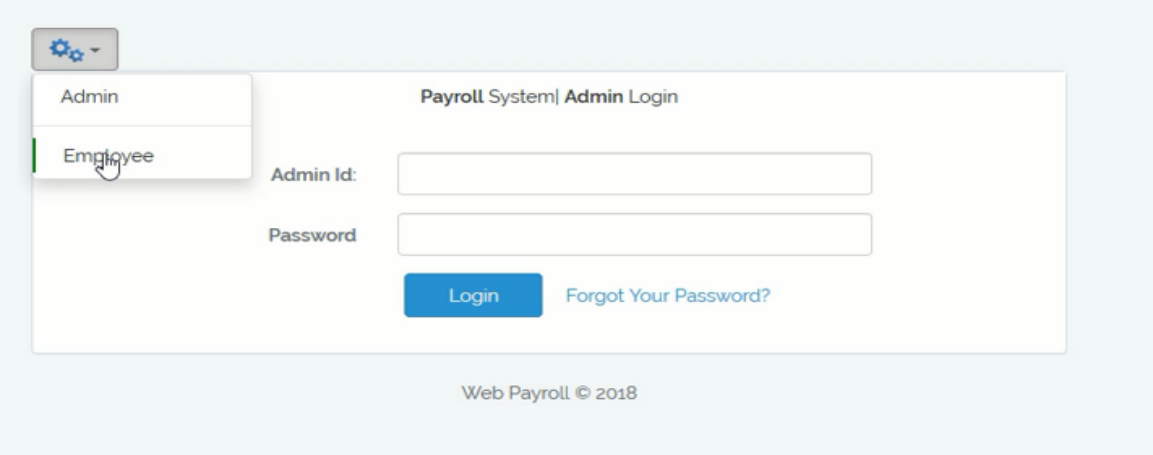

Fig: 5.2.1: Frontend Design of Admin Login Page

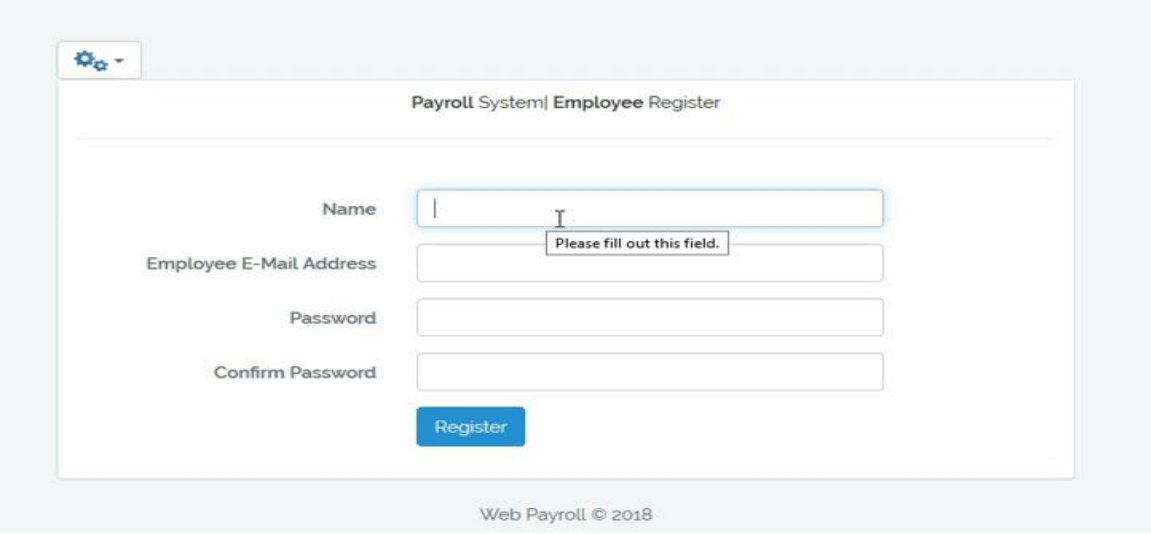

Fig: 5.2.2: Frontend Design of Employee Register Page

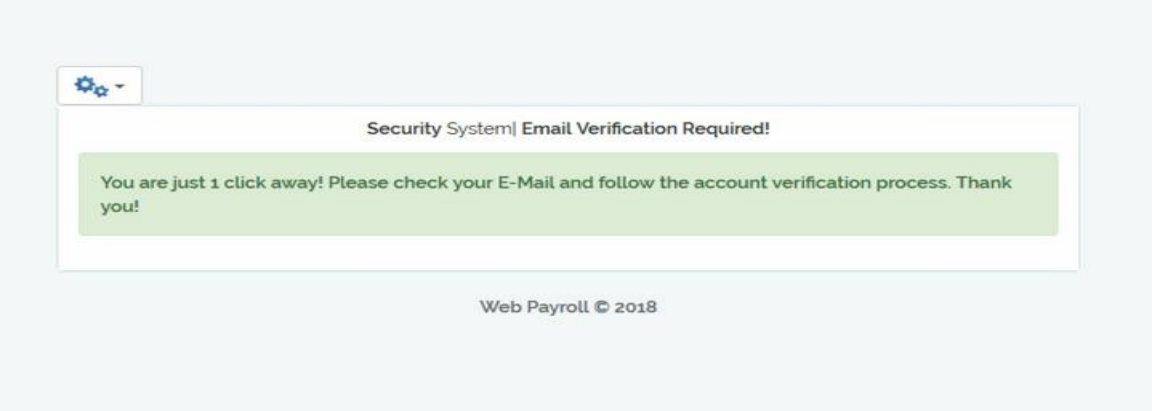

Fig: 5.2.3: Email Verification Required Page

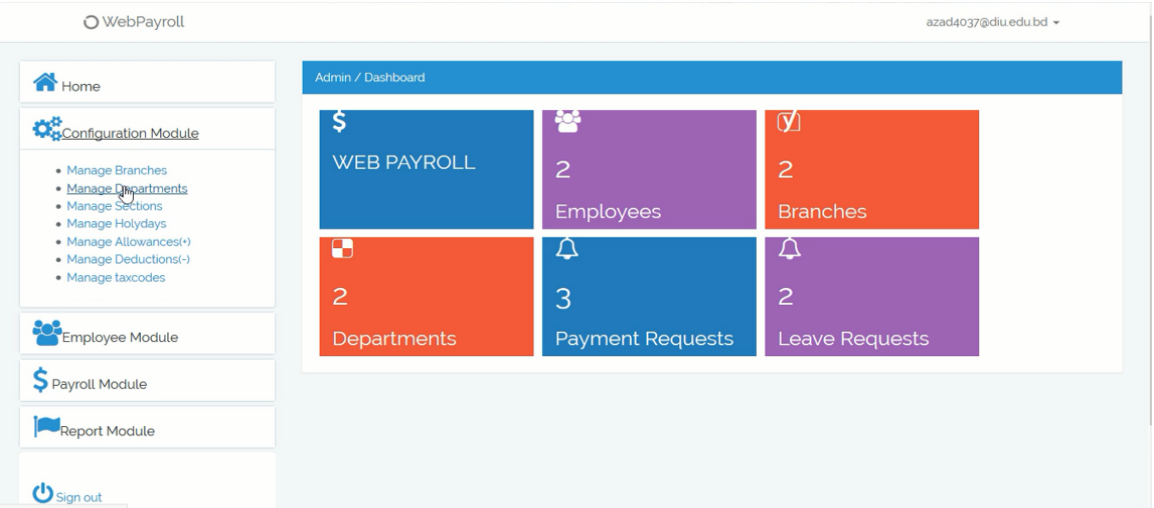

Fig: 5.2.4: Admin Dashboard Page

Branch Management Page

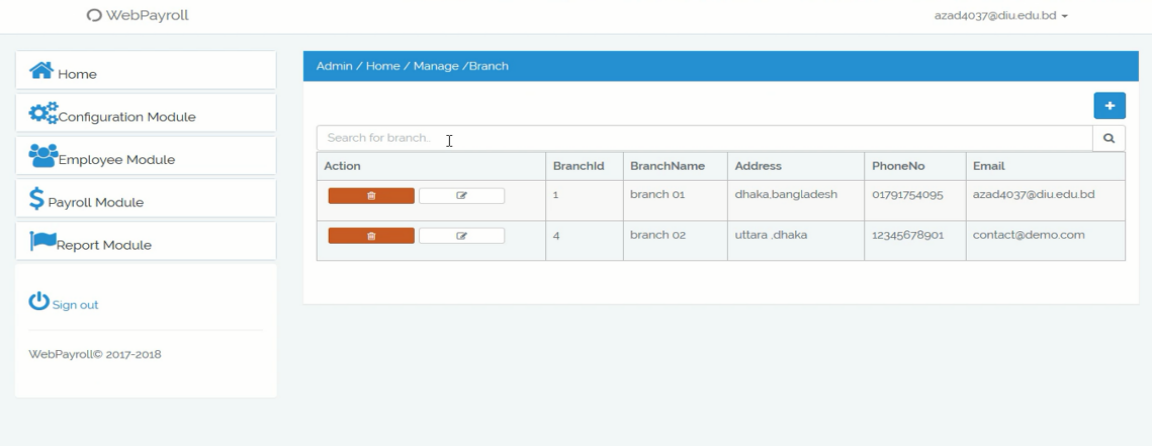

Fig: 5.2.5: Frontend Design of Branch Management Page

Department Management

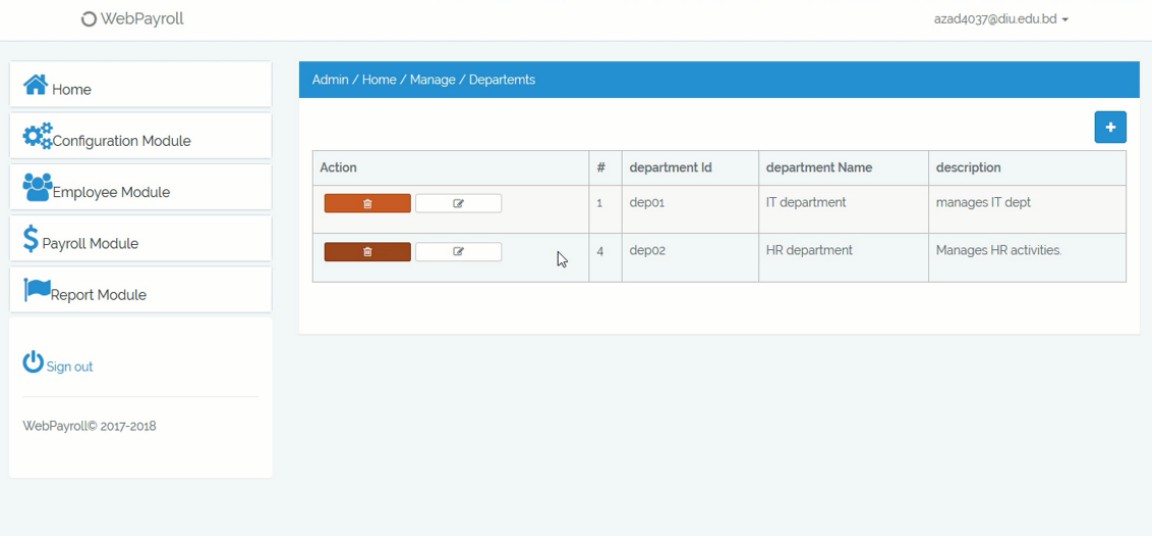

Fig: 5.2.6: Frontend design of department management page

Tax Codes Management

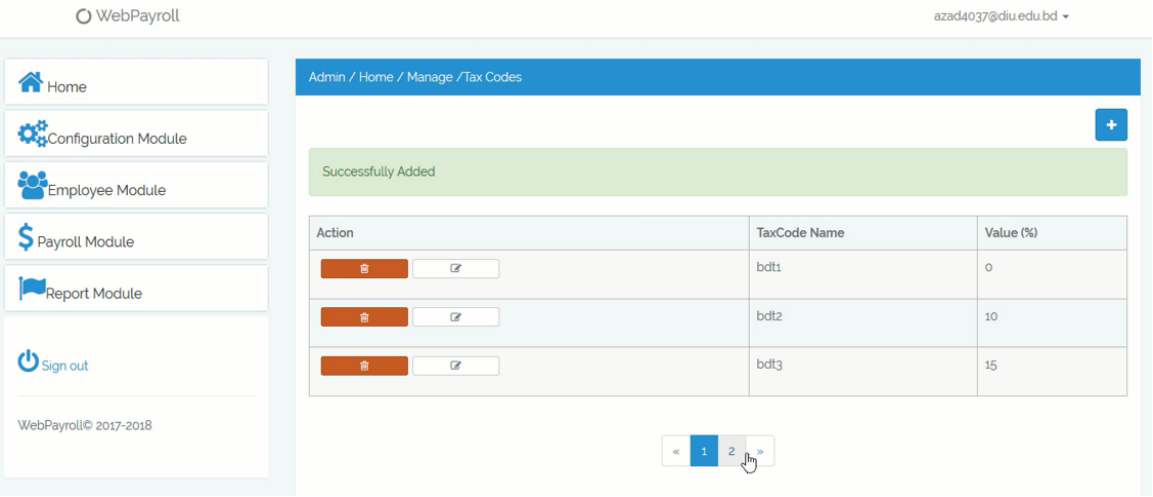

Fig: 5.2.7: Frontend Design of Tax Codes Management Page

Employee Management

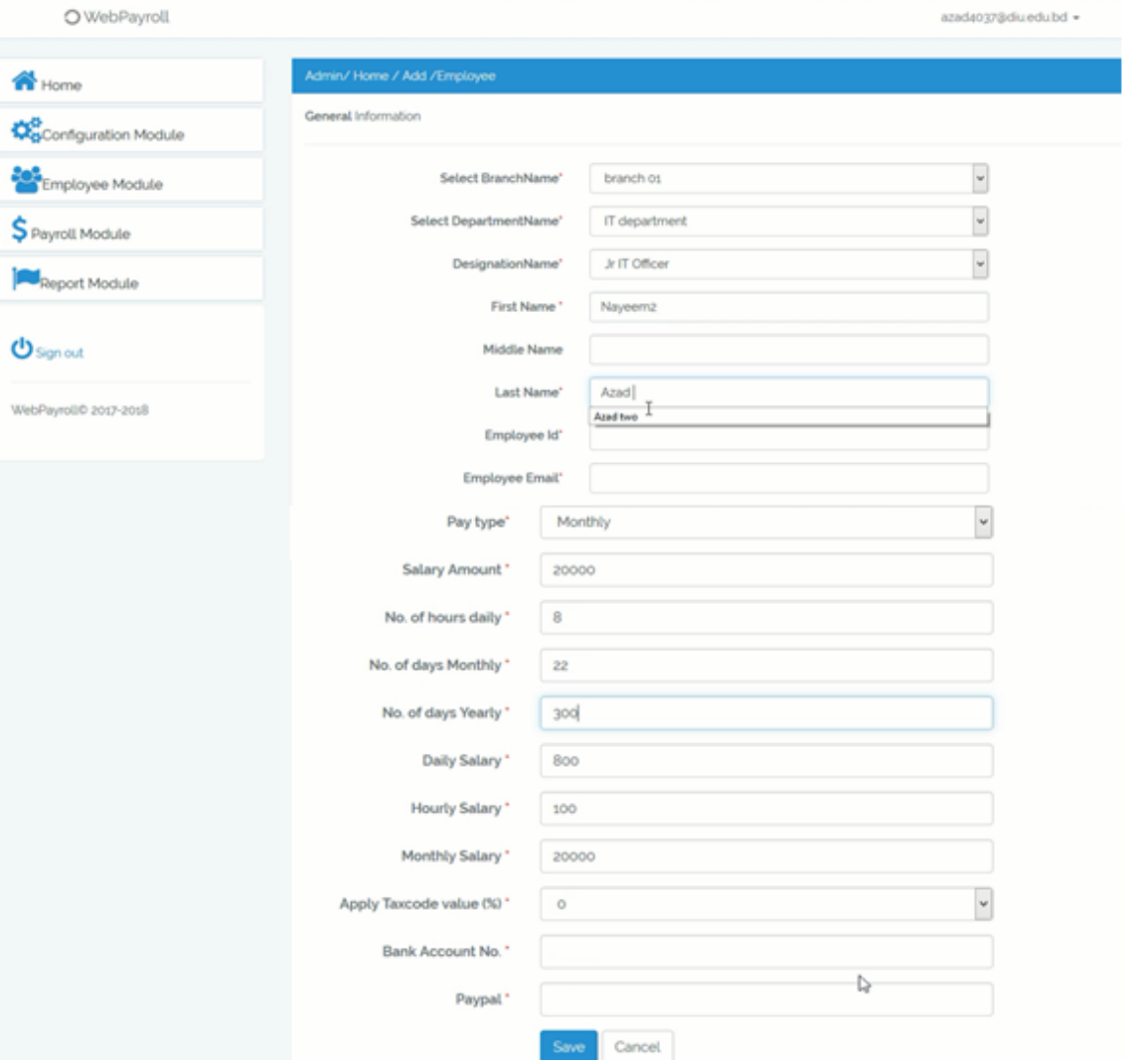

Fig : 5.2.8: Frontend Design of Employee Add Page

Payment Request Management

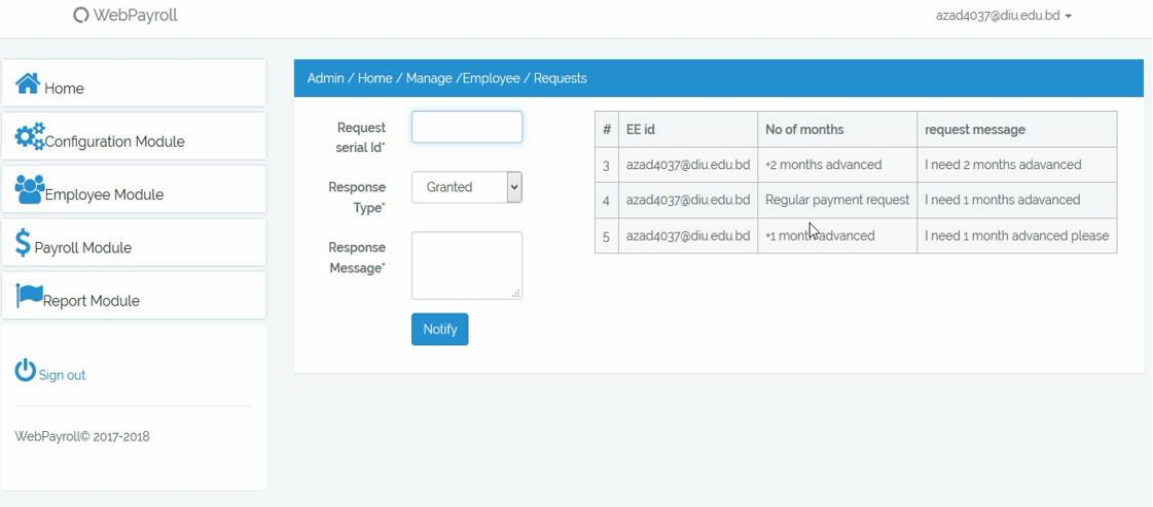

Fig : 5.2.9: Frontend Design of Payment Request Management

Leave Request Management

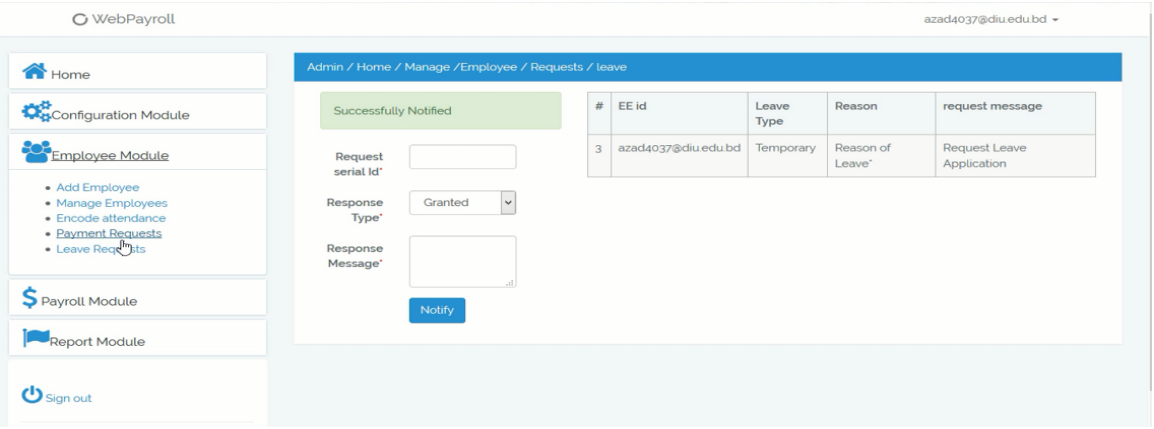

Fig : 5.2.10: Frontend Design of Leave Request Management

Attendance Encoding

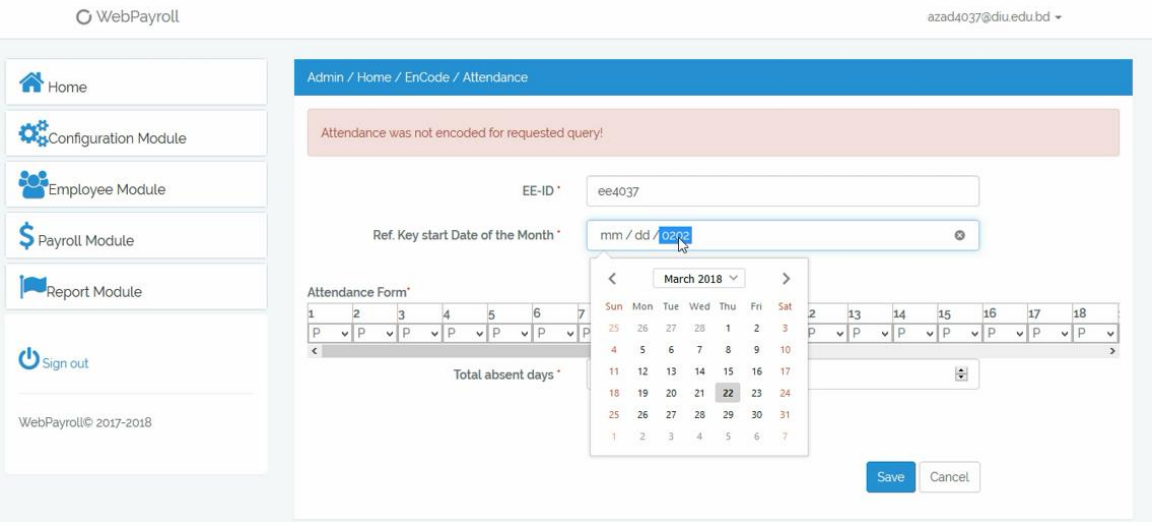

Fig : 5.2.11: Frontend Design of Attendance Management

Employee Payment Process

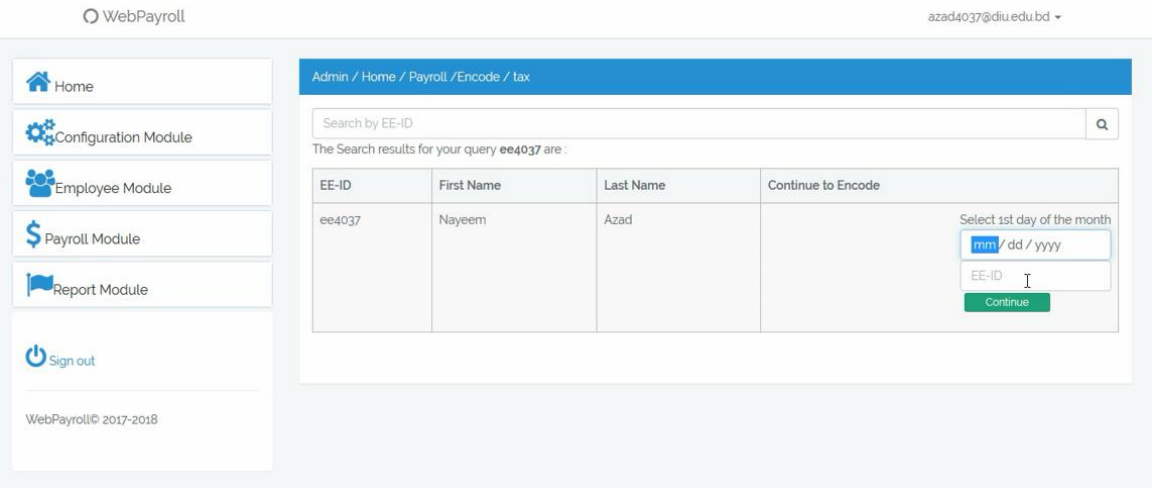

Fig : 5.2.12.1: Frontend Design of Employee Payment Process

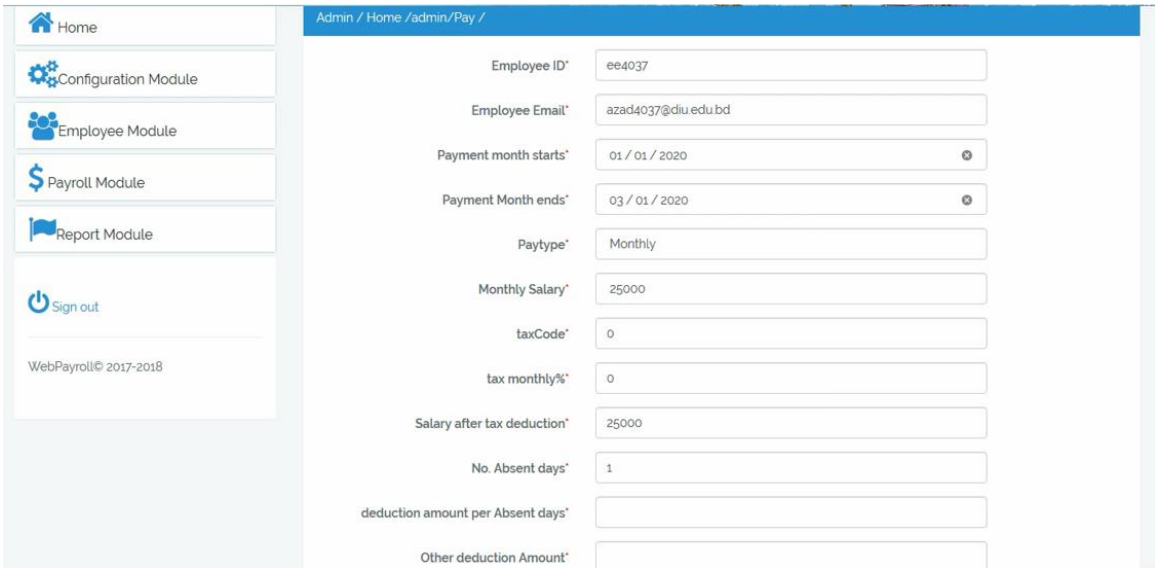

Fig 5.2.12.2 : Frontend Design of Employee Payment Process

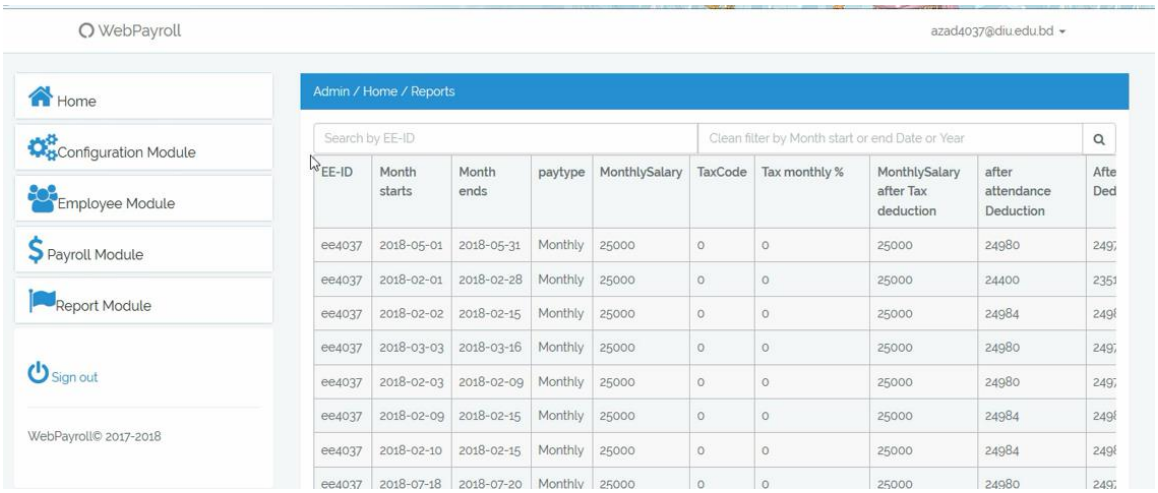

Fig : 5.2.12.3: Frontend Design of Employee Payments List

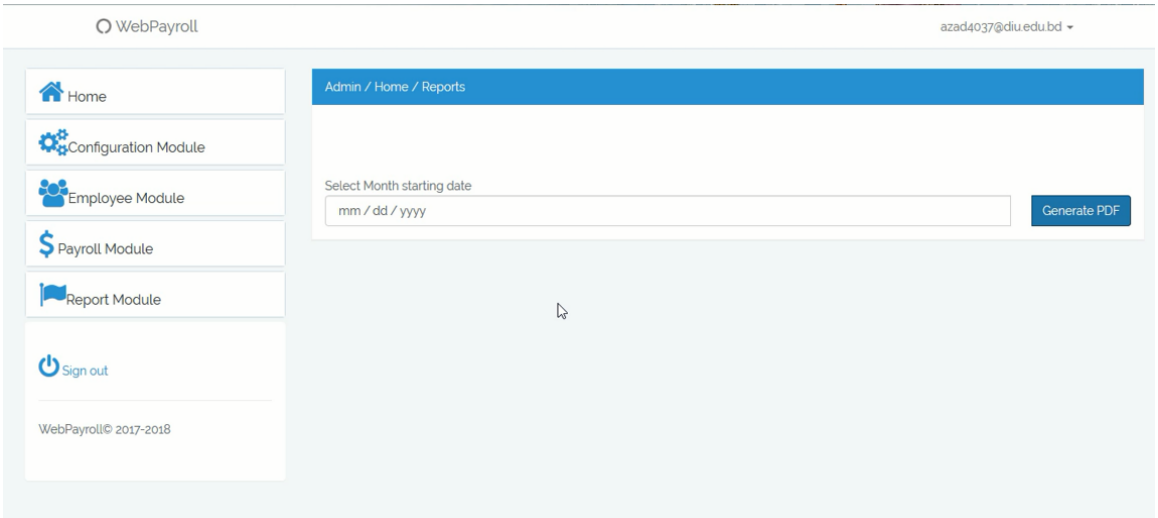

Fig : 5.2.12.4: Frontend Design of Report Generate Page

Employee Payment Requests

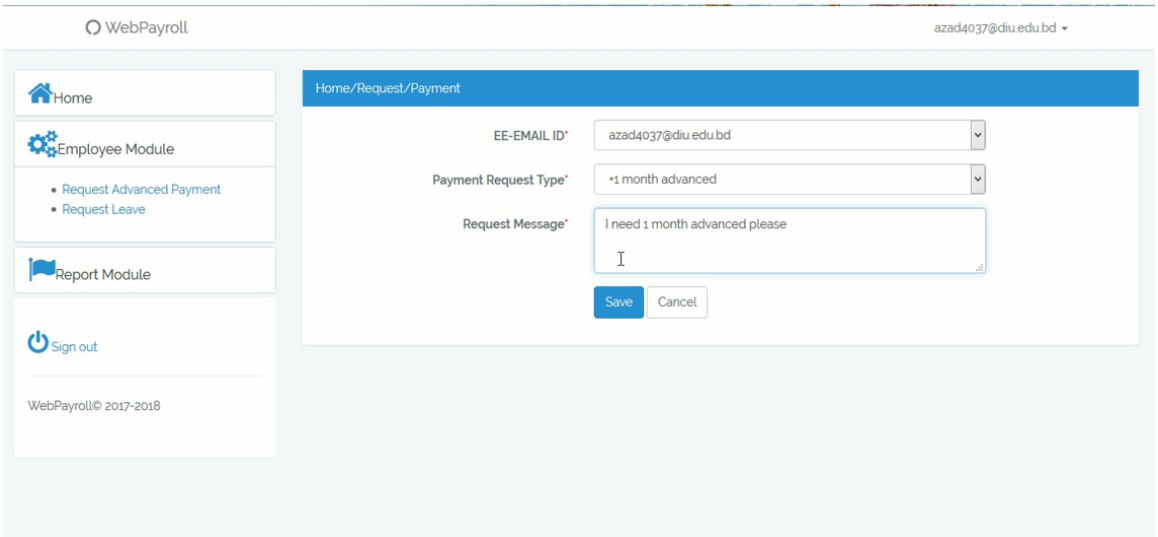

Fig : 5.2.13: Frontend Design of Employee Payment Request Feature

Employee Leave requests

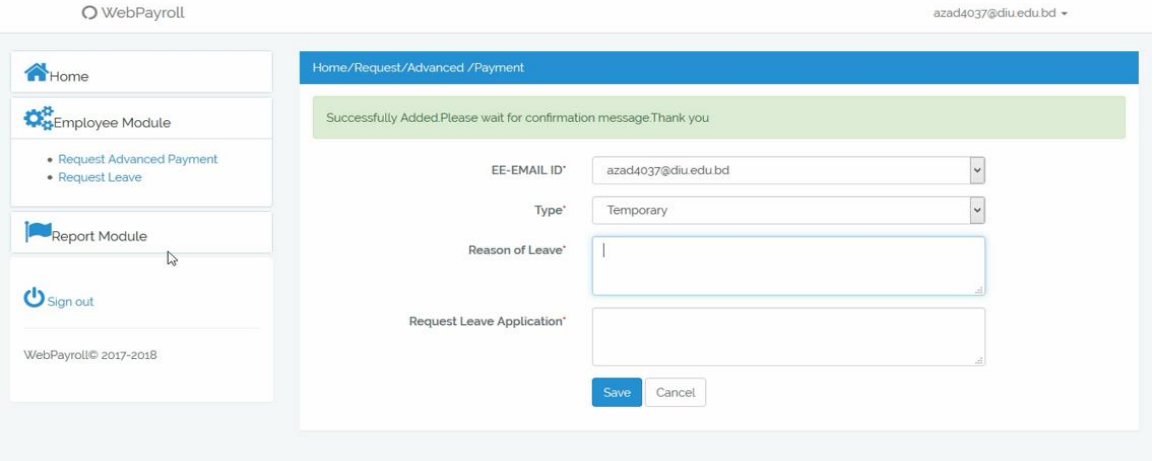

Fig : 5.2.14: Frontend Design of Employee Leave Request Feature

Download Payment Report

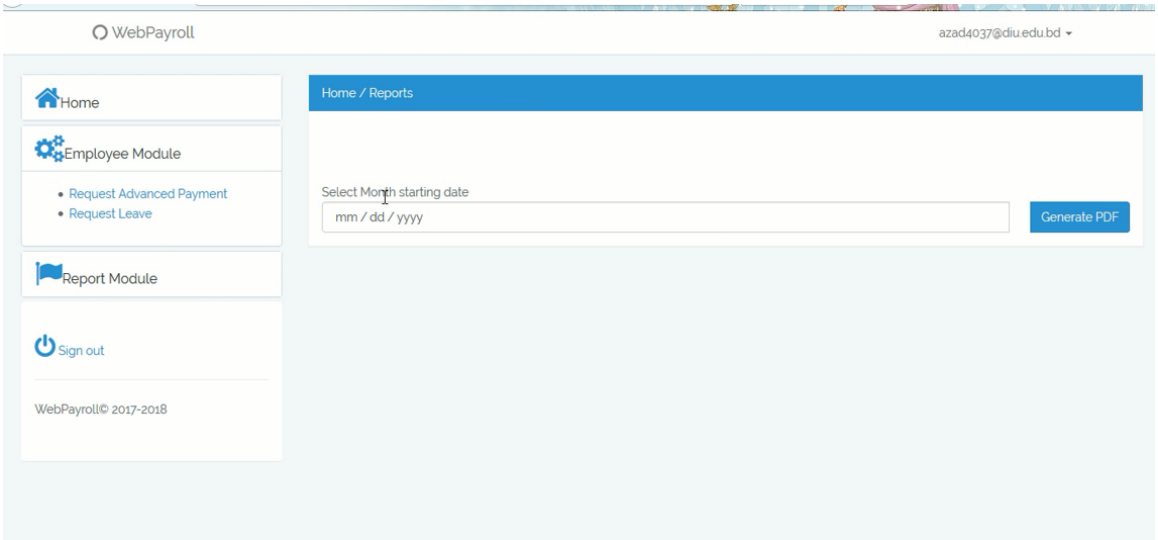

Fig : 5.2.15: Frontend Design of Employee Payment Report Generate Page

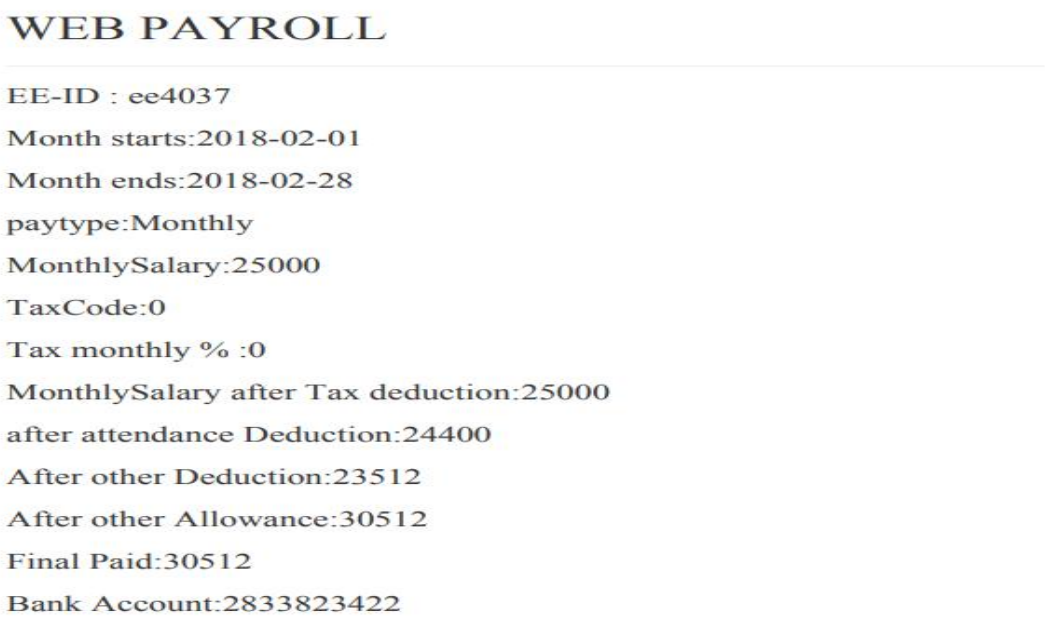

Fig : 5.2.16: Frontend Design of Payment Report

5.3 Test Results and Reports

Table 5.3.1: Test case for paying an employee with valid credentials

Test Case 01: Pay an Employee (with Valid credentials)

Test case id :testcase01 Test designed by: Nayeem Azad
Test priority (high/medium/low):low Test Designed date:30/3/2018
Module Name: Employee payment Test Executed by : Nayeem Azad
Title :Pay Employee with valid Credentials Test Execution date:30/2/2018

Pre-Condition: Admin must encode attendance, other deductions and allowances, no duplicate payment in same month.

Step	Test Data	Test Data EEID	Expected Result	Actual Result	Status (Pass/fail)	Notes
1	Seach eeid	EE4037				
2	Encode deductions					
3	Encode Allowances					
4	Submit		Payment Should be successful	Success on Payment	PASS	

Post-condition: Employee Get paid

CHARTER 6

Conclusion and Future Scope

6.1 Discussion and conclusion

This is developed to meet secure, user friendly & time saving payroll operations. This system is developed with latest technologies like Laravel and follows MVC, encrypted connection & custom optimized algorithms to secure the system.

6.2 Scope for further Developments

I have plans for further developments integrating instant easy payment gateways and 1-click bank transactions.

6.3 Limitation

Currently, there is no integrated payment gateways to this system. This is a limitation so far of this system.

REFERENCES

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APPENDIX

Appendix B:

Plagiariasm Check Report

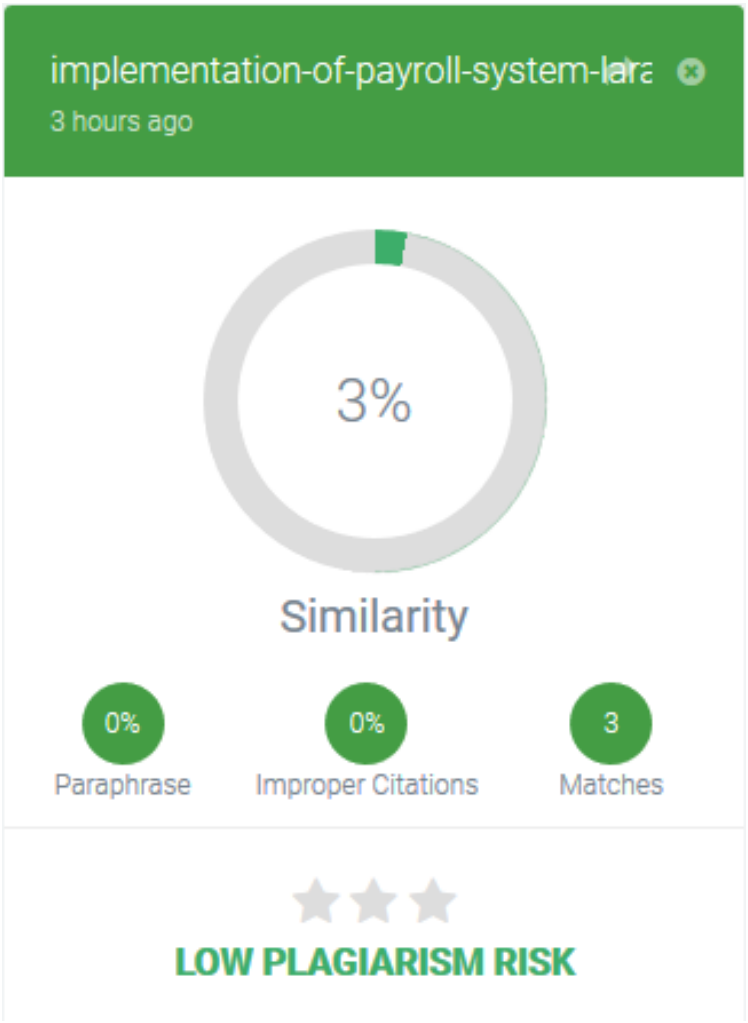

Fig:6.0 : A Screenshot of Plagiarisam