

HRM Analysis with Attendance Device Integration

Md. Aksadur Rahman
Student Id: 012171015

A Project
in
The Department
of
Computer Science and Engineering



Presented in Partial Fulfillment of the Requirements
For the Degree of Master of Science in Computer Science and Engineering

United International University

Dhaka, Bangladesh

October, 2019

© Md. Aksadur Rahman, 2019

Approval Certificate

This project titled "**HRM Analysis with Attendance Device Integration**" submitted by **Md. Aksadur Rahmna**, Student ID: **012171015**, has been accepted as Satisfactory in fulfillment of the requirement for the degree of Master of Science in Computer Science and Engineering on 06/10/2019.

Board of Examiners

1.

Dr. Mohammad Nurul Huda
Professor and Director-MSCSE
Department of Computer Science & Engineering
United International University (UIU), Dhaka-1212, Bangladesh

Supervisor

2.

Mr. Mohammad Moniruzzaman
Assistant Professor
Department of Computer Science & Engineering (CSE)
United International University (UIU), Dhaka-1212, Bangladesh

Examiner

3.

Dr. Mohammad Nurul Huda
Professor and Director-MSCSE
Department of Computer Science & Engineering
United International University (UIU), Dhaka-1212, Bangladesh

Ex-Officio

Declaration

This is to certify that the work entitled "**HRM Analysis with Attendance Device Integration**" is the outcome of the research carried out by me under the supervision of Dr. Mohammad Nurul Huda, Professor and Director-MSCE, UIU, Department of Computer Science & Engineering, United International University (UIU).

Md. Aksadur Rahman,
ID: 012171015
MSCE program
Department of computer Science and Engineering
United international University, Dhaka

In my capacity as supervisor of the candidate's project, I certify that the above statements are true to the best of my knowledge.

Dr. Mohammad Nurul Huda
Professor and Director-MSCE
Department of Computer Science & Engineering
United International University (UIU), Dhaka-1212, Bangladesh

Abstract

Usually HRM system is common software in the aspect of company needs. Recently many office of our country are using this type of software. But new technology is continually being developed in the ever-changing world where we live. Keeping attendance records is very difficult through legacy systems. An automatic attendance management system using biometrics would provide the needed solution. But Integration of attendance device with the custom made HRM system is being sometime challenging. Generally HR admin use separate two software for attendance management and HRM system. The purpose of my project is to mitigate the use of separate software and analyze the various data which will provide the major information and knowledge to the management. Moreover, system will have a leave management system by which employees can view their leave balance and check their co-workers' days-off while applying for leave. Supervisors and HR staff must have access to employee leave balance, holiday lists, department schedule, and workforce coverage to evaluate leave requests better.

Acknowledgement

Although I have worked hard in this project, it would not have been possible without the kind help and support of many individuals and organization. I would like to extend my thanks to all of them. Especially I am highly obligated to ***Prof. Dr. Mohammad Nurul Huda*** for his constant supervision and guidance. He also provided me the necessary information regarding the project. I would like to express my grateful thanks to him. I also would like to extend my thanks to my examiner ***Asst. Professor Mohammad Moniruzzaman*** for examine my project. My thanks and appreciations also go to my colleagues for helping me in various issues. Last but not the least I would like to express my thanks to my office **eGeneration Ltd.** for giving me the access of attendance device and database.

Table of Contents

1. List of Figures	8
2. Chapter 1	10
1. Introduction	10
1.1 Existing Practice	10
1.2 Objective	11
3. Chapter 2	13
2.1 System End Point	13
2.2 Design	13
2.2.1 Class Diagram	13
2.2.2 Data Flow Diagram	15
2.2.3 Use Case Diagram	17
2.2.4 Sequence Diagram	21
4. Chapter 3	23
3.1 Implementation Overview	23
3.2 Methodology	23
3.2 Software Architecture	24
3.3 Technology	24
3.4 Used Attendance Device Info	25
3.5 Testing	26
5. Chapter 4	27

4.1 Major Features	27
4.1.1 Login Interface.....	27
4.1.2 Admin Dashboard	27
4.1.3 User Dashboard.....	28
4.1.4 Employee Entry.....	28
4.1.5 Leave Entry.....	29
4.1.6 Menu Distribution	30
4.1.7 Attendance Report.....	31
4.1.8 Attendance Visualization	31
4.2 HRM Analysis	32
4.2.1 Top 10 Best Attendance (In Hour)	32
4.2.2 Top 10 of Device Punch.....	33
4.2.3 Department wise total number of Employee.....	34
4.2.4 Male VS Female.....	34
4.2.5 Married VS Single.....	35
6. Chapter 5	36
Conclusion and Future Works.....	36
5.1 Conclusion	36
5.2 Future Works	36
7. References	37

List of Figures

Figure 1.1: Existing excel data from Device.....	11
Figure 1.2: Software Processed Data.....	12
Figure 2.1: Class Diagram for Attendance System.....	14
Figure 2.2: Class Diagram for Leave Management System.....	15
Figure 2.3: Data Flow Diagram for Attendance System.....	16
Figure 2.4: Data Flow Diagram for Leave Management System.....	17
Figure 2.5: Use Case Diagram for Attendance System.....	19
Figure 2.6: Use Case Diagram for Leave Management System.....	20
Figure 2.7: Sequence Diagram for Attendance System.....	21
Figure 2.8: Sequence Diagram for Leave Management System.....	22
Figure 3.1: Agile Methodology.....	23
Figure 3.2: Software Architecture.....	24
Figure 3.3: Attendance Device.....	25
Figure 3.4: Black Box Testing.....	26
Figure 3.5: White Box Testing	26
Figure 4.1: Login Interface	27
Figure 4.2: Admin Dashboard.....	27
Figure 4.3: User Dashboard.....	28
Figure 4.4: Employee Entry	29
Figure 4.5: Leave Entry.....	30

Figure 4.6: Menu Distribution.....	30
Figure 4.7: Attendance Report.....	31
Figure 4.8: Attendance Visualization.....	32
Figure 4.9: Top 10 Best Attendance	33
Figure 4.10: Top 10 of Device Punch	33
Figure 4.11: Department wise Employee	34
Figure 4.12: Male VS Female	35
Figure 4.13: Married VS Single	35

Chapter 1

Introduction

Every company of this modern world has been run by various type of employees. The performance of these employees make a company successful or unsuccessful. And these performance depends on various factors. Among these a very emergency and important factor is employee attendance. To inform correctly and enhance the performance I tried to build this project. In this "**HRM Analysis with Attendance Device Integration**" project I developed various analysis regarding their attendance performance as a report and graph chart. To make this project real time, the real data comes from attendance device automatically. So that I developed real time device integration system with the HRM Analysis System.

1.1 Existing Practice

Generally HR admin uses Microsoft Excel to track employee attendance. This excel file sometime comes from attendance device. Only in-out time and the working hour is presented in excel report. No comparative analysis has been found. Some sophisticated company are using separate two software for attendance management and HRM system.

	A	B	C	D	E	F	G	H
1	USERID	CHECKTIME	Memoinfo	EntryDate	EntryBy			
2	2015	9/19/2018 15:06	3	10/4/2019 19:30				
3	2015	9/19/2018 15:06	3	10/4/2019 19:30				
4	2017	9/19/2018 15:06	3	10/4/2019 19:30				
5	2015	9/19/2018 15:09	3	10/4/2019 19:30				
6	2015	9/19/2018 15:09	3	10/4/2019 19:30				
7	8016	9/19/2018 15:10	3	10/4/2019 19:30				
8	8016	9/19/2018 15:10	3	10/4/2019 19:30				
9	8015	9/19/2018 15:10	3	10/4/2019 19:30				
10	8007	9/19/2018 15:21	3	10/4/2019 19:30				
11	8016	9/19/2018 15:21	3	10/4/2019 19:30				
12	8004	9/19/2018 15:22	3	10/4/2019 19:30				
13	2015	9/19/2018 15:23	3	10/4/2019 19:30				
14	2015	9/19/2018 15:23	3	10/4/2019 19:30				
15	2015	9/19/2018 15:23	3	10/4/2019 19:30				
16	8016	9/19/2018 15:23	3	10/4/2019 19:30				
17	2017	9/19/2018 15:21	3	10/4/2019 19:30				

Figure 1.1: Existing excel data from Device

1.2 Objective

To analyze the various data which will provide the major information and knowledge to the management and mitigate the use of separate software is my objective. In addition system has a leave management system. By leave management system employees can check their co-workers' days-off while applying for leave and view their leave balance. Supervisors and other HR staff also can access and informed about employee leave balance, holiday lists, department schedule, and workforce coverage to evaluate leave requests better.

1	Name	Date	InTime	OutTime	DayName	DelayFlag	Holiday	WorkingHour
2	Aksadur Rahman	1/1/2019	30:00.0	00:00.0	Tuesday	00:00.0	0	9.5
3	Aksadur Rahman	2/1/2019	30:00.0	00:00.0	Wednesday	00:00.0	0	9.5
4	Aksadur Rahman	3/1/2019	01:00.0	25:00.0	Thursday	31:00.0	0	8.4
5	Aksadur Rahman	6/1/2019	30:00.0	00:00.0	Sunday	00:00.0	0	9.5
6	Aksadur Rahman	7/1/2019	30:00.0	00:00.0	Monday	00:00.0	0	9.5
7	Aksadur Rahman	8/1/2019	01:00.0	57:00.0	Tuesday	31:00.0	0	7.933333
8	Aksadur Rahman	9/1/2019	30:00.0	00:00.0	Wednesday	00:00.0	0	9.5
9	Aksadur Rahman	10/1/2019	17:00.0	43:00.0	Thursday	47:00.0	0	5.433333
10	Aksadur Rahman	13/01/2019	30:00.0	00:00.0	Sunday	00:00.0	0	9.5
11	Aksadur Rahman	14/01/2019	44:00.0	41:00.0	Monday	14:00.0	0	8.95
12	Aksadur Rahman	15/01/2019	45:00.0	20:00.0	Tuesday	15:00.0	0	4.583333
13	Aksadur Rahman	16/01/2019	30:00.0	00:00.0	Wednesday	00:00.0	0	9.5
14	Aksadur Rahman	17/01/2019	30:00.0	00:00.0	Thursday	00:00.0	0	9.5
15	Aksadur Rahman	20/01/2019	30:00.0	00:00.0	Sunday	00:00.0	0	9.5
16	Aksadur Rahman	21/01/2019	46:00.0	26:00.0	Monday	16:00.0	0	4.666666
17	Aksadur Rahman	22/01/2019	30:00.0	00:00.0	Tuesday	00:00.0	0	9.5
18	Aksadur Rahman	23/01/2019	30:00.0	00:00.0	Wednesday	00:00.0	0	9.5
19	Aksadur Rahman	24/01/2019	52:00.0	31:00.0	Thursday	22:00.0	0	4.65

Figure 1.2: Software Processed Data

Chapter 2

Background and Literature Review

HRM analysis with Attendance Device Integration system is necessity for every company that have a numbers human resource working and there performance is directly or indirectly related to company performance. The idea of analysis is for important management information. And real time device integration makes the live of employee attendance performance measurement.

2.1 System End Point

This system will covered the following facilities

- Dashboard for Admin where management can see the Employee Attendance performance and others important information.
- User Dashboard where general user can see their won emergency information.
- Leave Management
- Attendance visualization
- Attendance device integration
- User Management

2.2 Design

2.2.1 Class Diagram

It represent the structure and design of a class and interface. The constraint, attributes and their relationships like associations, generalizations and dependencies are describe here.

Class Diagram for Attendance System

Here showing the five main classes related to attendance, Daily attendance, Device Integration, Attendance Adjustment, Employee and device data. Every class is designed for special attributes and methods. Here also shown the relationship with the classes related to Attendance Management.

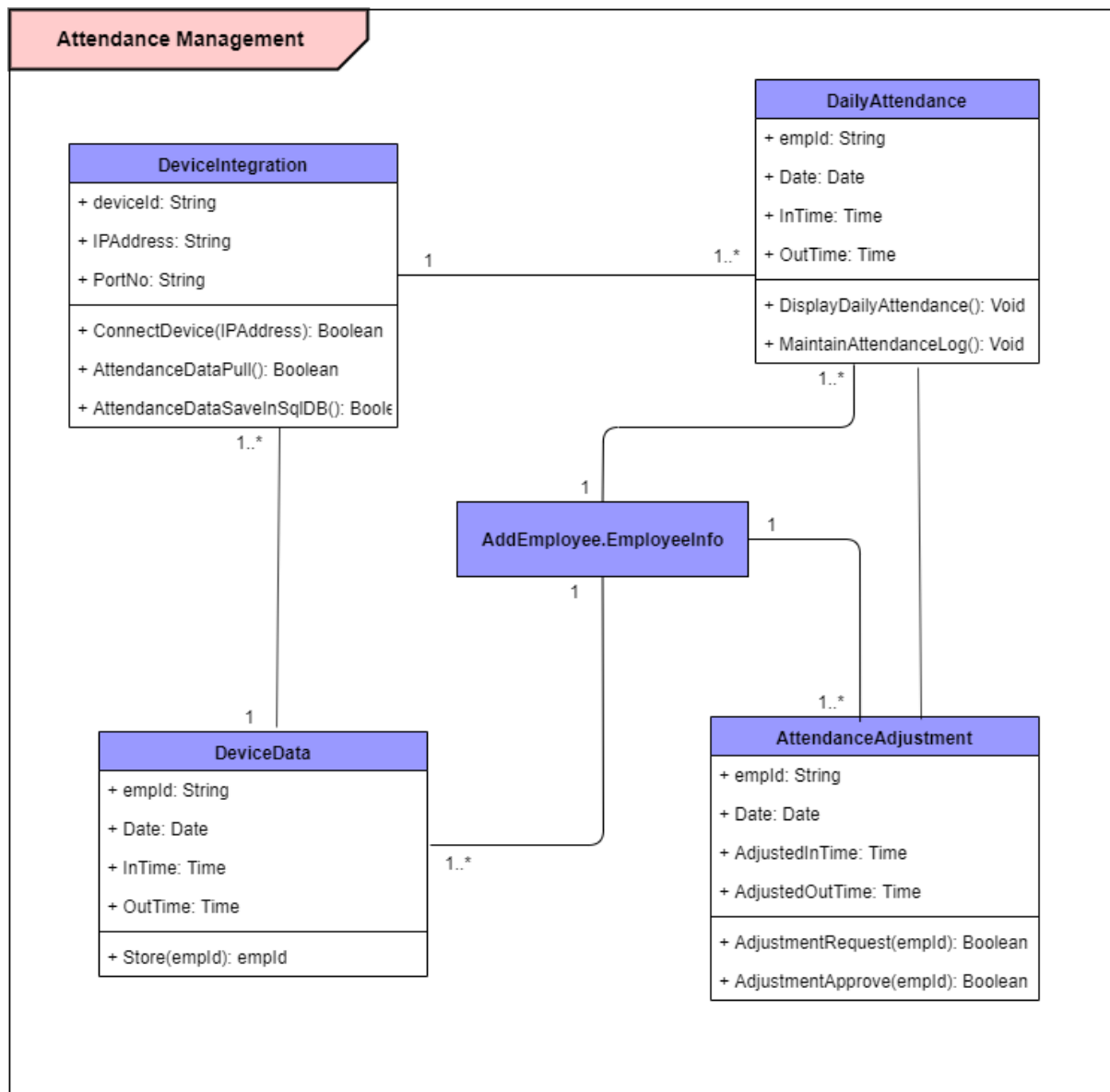


Figure 2.1: Class Diagram for Attendance System

Class Diagram for Leave Management System

Here showing the five main classes related to leave management, Employee, Leave Type, Leave Application, Leave Approval and Email Notification. Every class is designed for special attributes and methods. Here also shown the relationship with the classes related to Leave Management.

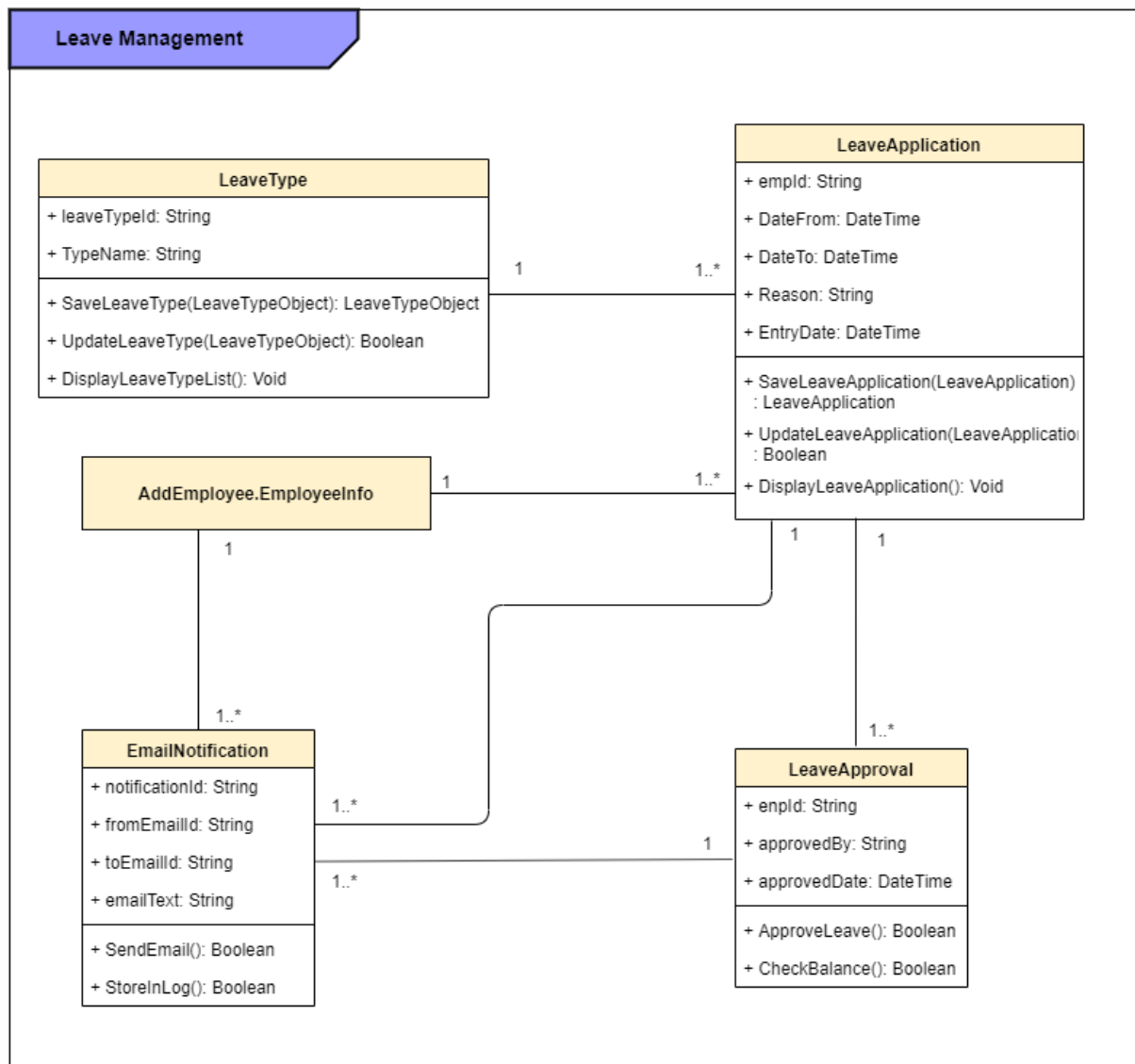


Figure 2.2: Class Diagram for Leave Management System

2.2.2 Data Flow Diagram

Here we can analyze the design method and structure of the data. Generally it represent the visual information and data flows within a system.

Data Flow Diagram for Attendance System

For attendance management, there are four processes and two types of actors. Here the diagram which show the database integration. There are two types of database exist, device data in stored in attendance device and sql server data.

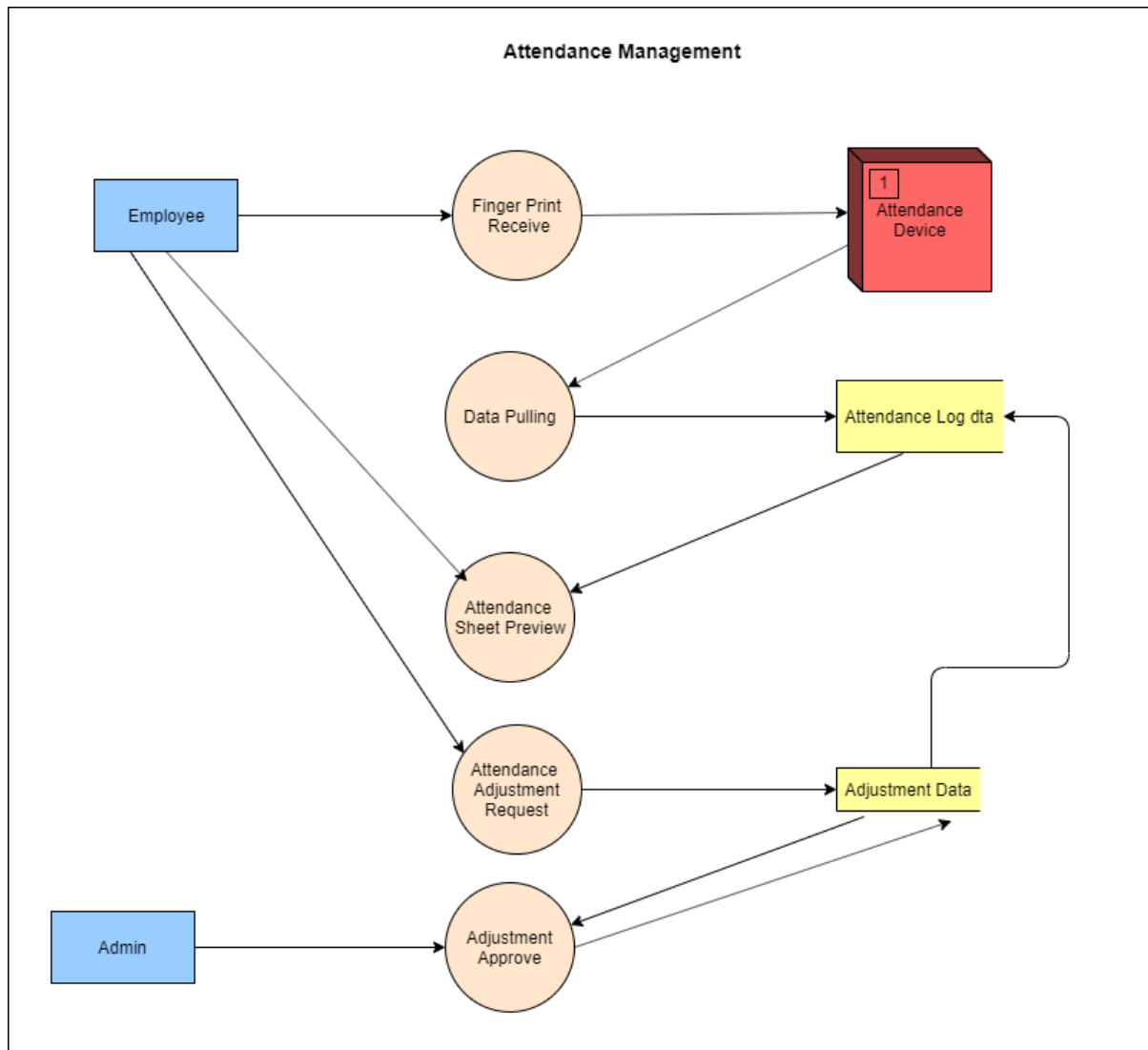


Figure 2.3: Data Flow Diagram for Attendance System

Data Flow Diagram for Leave Management System

For leave management, there are five processes and three types of actors. Here the diagram which show the database integration.

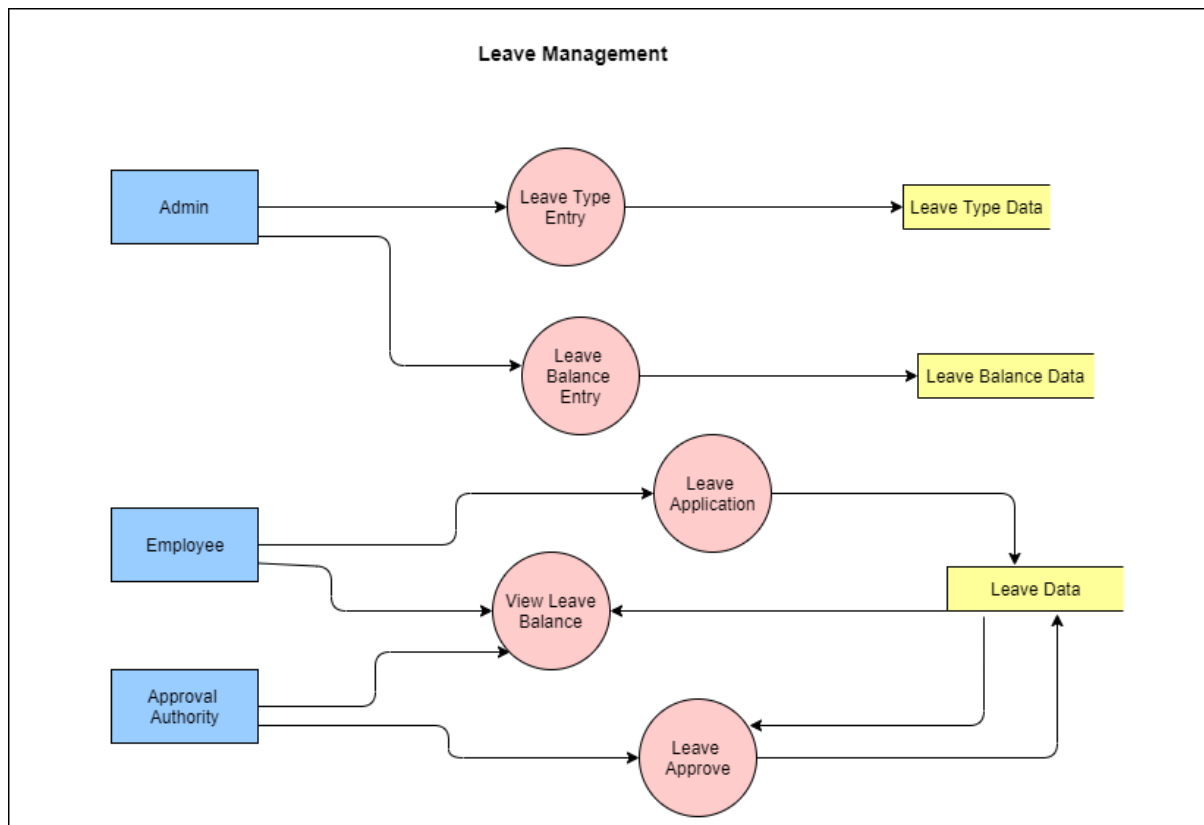


Figure 2.4: Data Flow Diagram for Leave Management System

2.2.3 Use Case Diagram

Use case is the combination of set of actions and their actors. It describe which action is being performed by which actors. And also the extended or included actions are describe here.

Use Case Diagram for Attendance System

Use Case Name	Attendance Management
Description	Employee attendance is the vital information of a company. And it is very difficult to manage by legacy system. We integrate a device to store attendance log. From device data will store in sql database automatically by system. And System will generate attendance report.
Actors	Employee Admin Device System
Basic Flow	Alternate Flows
1. Daily Attendance Input 2. Attendance log entry in database 3. Show Attendance 4. Attendance Adjustment Request 5. Adjustment Approve 6. Generate Attendance Report	NA
Pre-Conditions	NA
Post-Conditions	NA

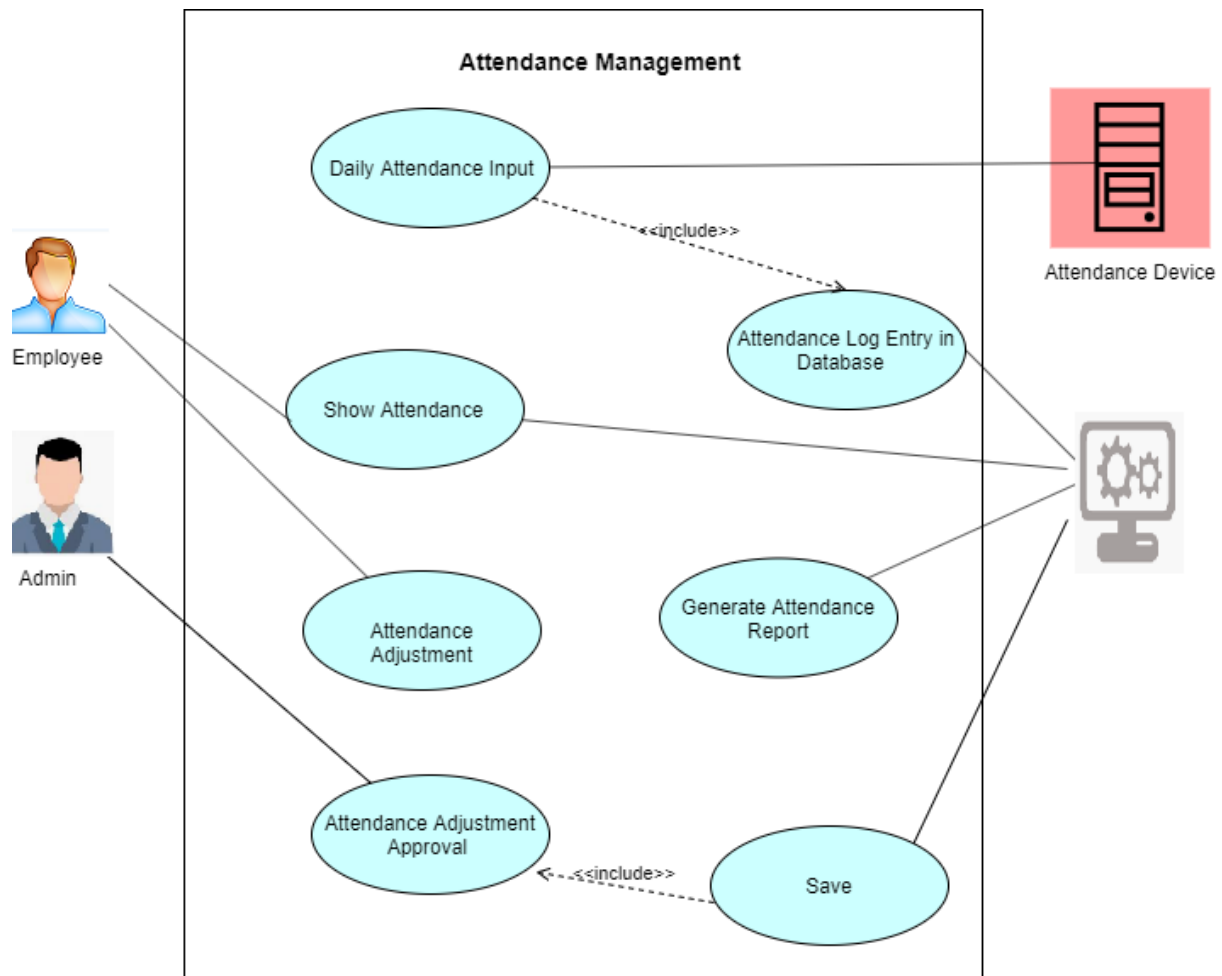


Figure 2.5: Use Case Diagram for Attendance System

Use Case Diagram for Leave Management System

Use Case Name	Leave Management
Description	Employee needs to take various leave. And to store the leave log and manage leave balance of an employee this module is required
Actors	User Employee Approval Authority System
Basic Flow	Alternate Flows
1. Leave Type Entry 2. Leave Balance Entry 3. Leave Application 4. Leave Approval 5. Validation	NA

6. Submit and store	
7. Check availability	
8. Email Notification	
Pre-Conditions	NA
Post-Conditions	NA

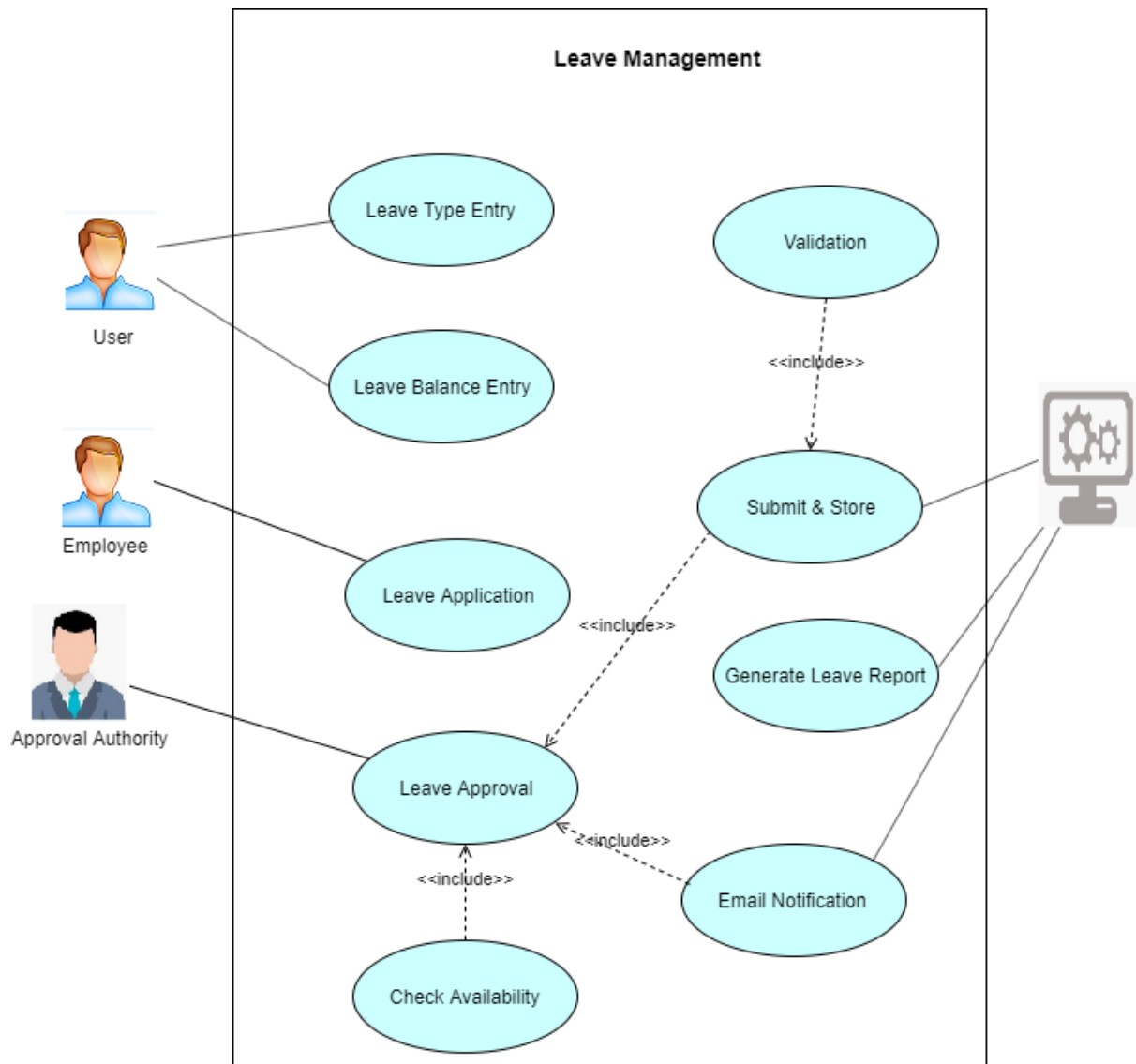


Figure 2.6: Use Case Diagram for Leave Management System

2.2.4 Sequence Diagram

The Sequence Diagram is the most common interaction diagram. The exchange of messages between different lifelines is the main goal of this diagram.

Sequence Diagram for Attendance System:

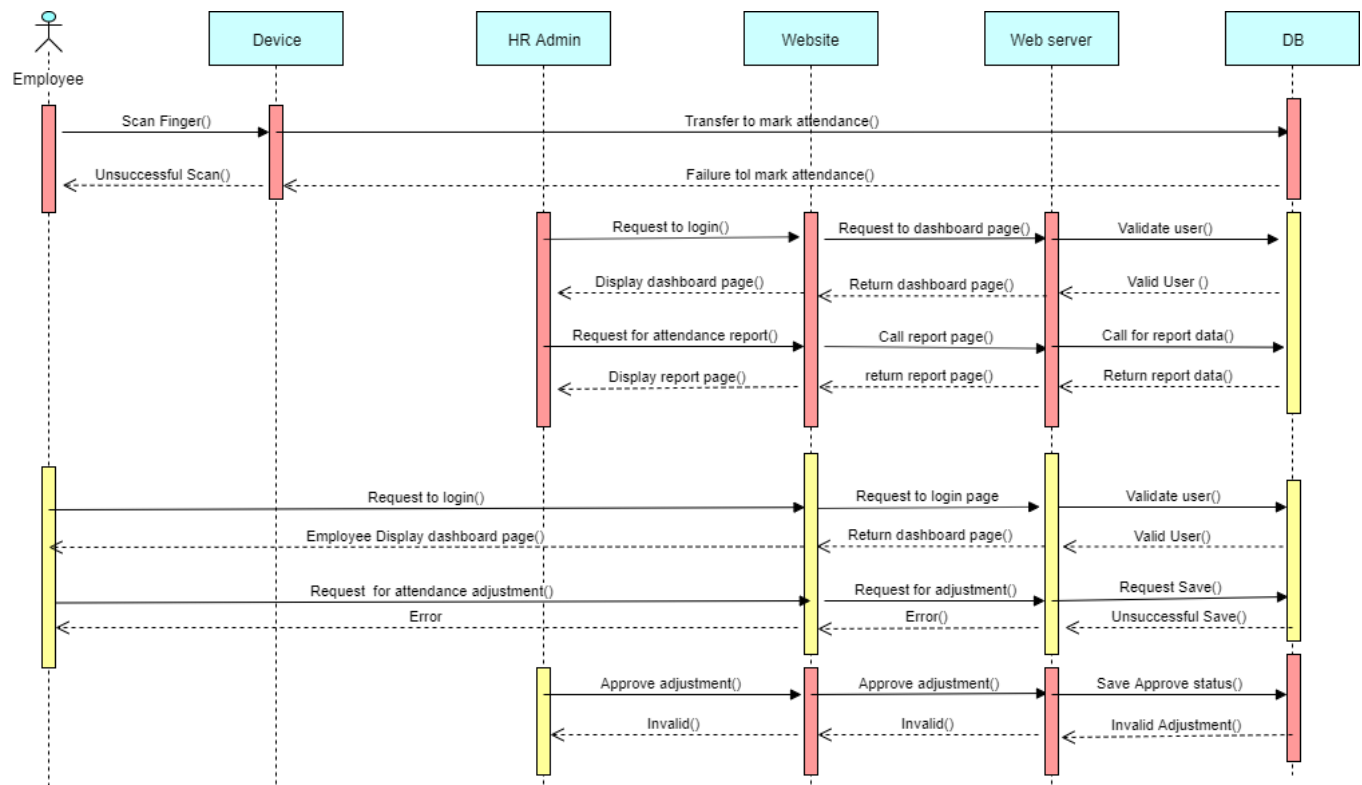


Figure 2.7: Sequence Diagram for Attendance System

Sequence Diagram for Leave Management System:

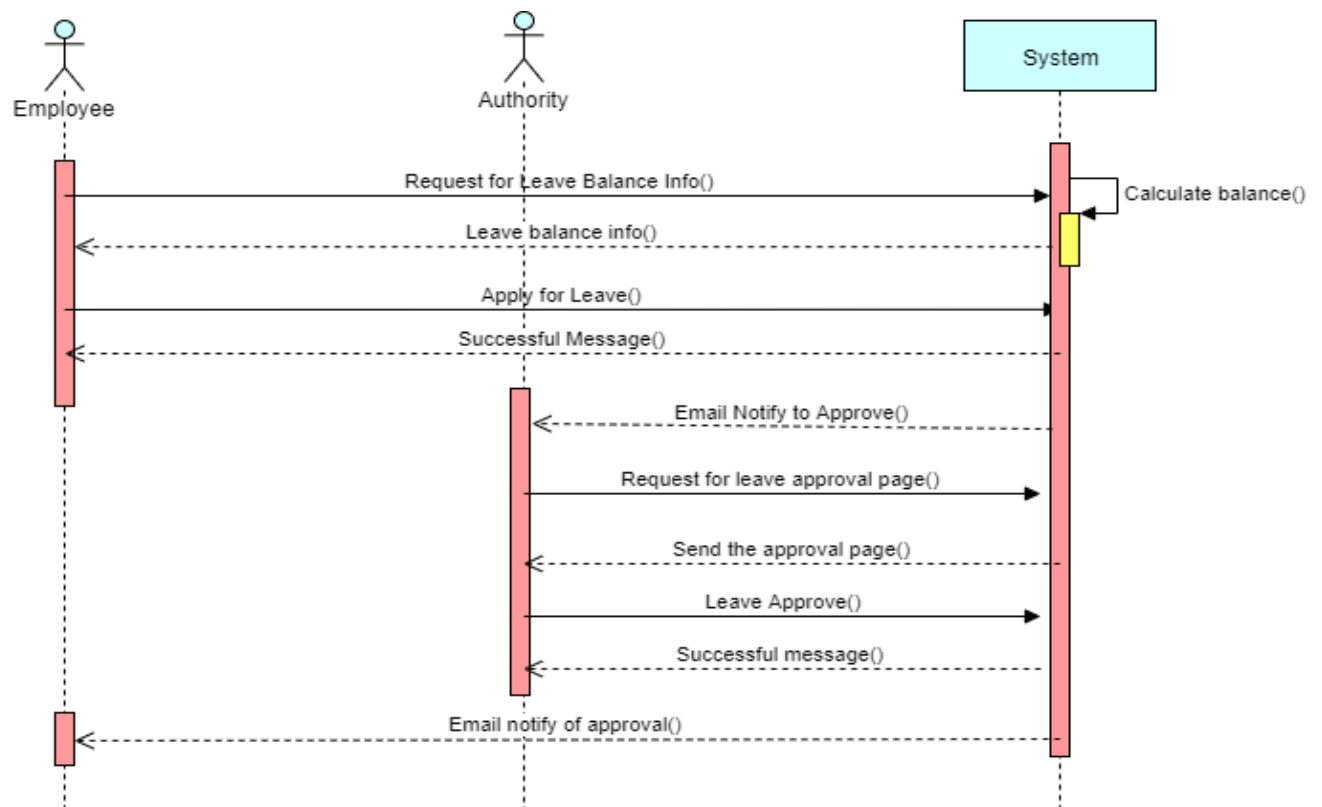


Figure 2.8: Sequence Diagram for Leave Management System

Chapter 3

Implementation & Testing

3.1 Implementation Overview

This project is web based and need to be hosted in any server. As it is developed in .Net framework it required IIS server and any windows server as an operating system. Client can access through browser from any location in the world only needed the internet connection. So we need only a server to host and deploy. But user training and relevant initial data entry for the first time implementation is required.

3.2 Methodology

Agile process is the most sophisticated software development process now a days. By this methodology one member can easily collaborate to others. The customer also be included in this process. It assumed that customer also the part of the project team. In every stage change is acceptable here. And evaluation of a process or feature makes this final deliverable. Every day project team discuss each other's by scam meeting. All the member is treated here the important team member. Though this project has no team but I tried to develop following the Agile Methodology in every part of my project.

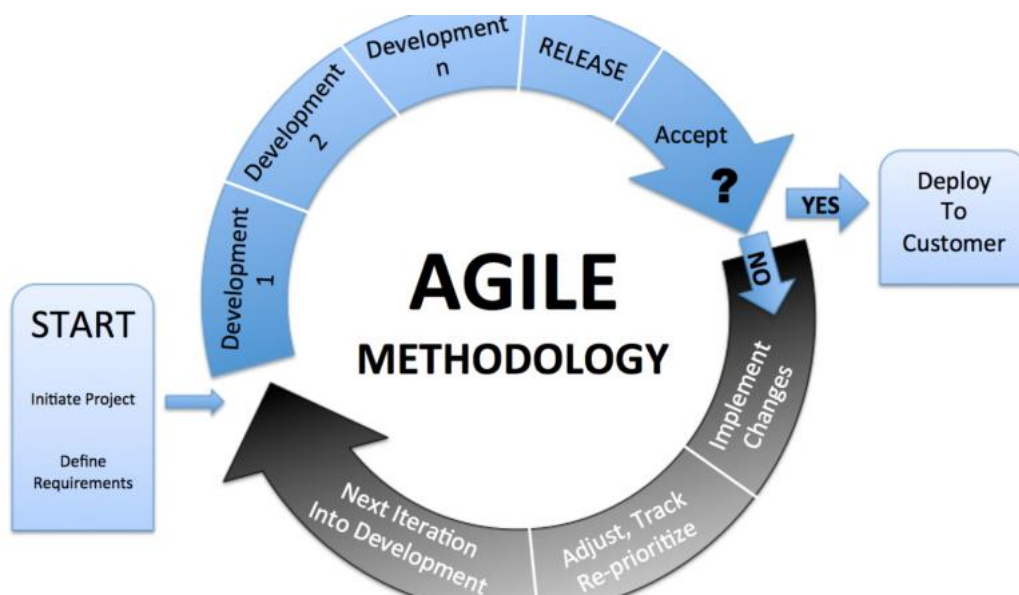


Figure 3.1: Agile Methodology

3.2 Software Architecture

During the development period the following are the main issues I wishes to focus during development procedure:

- N-tier architecture.
- Secured Data transfer from front-end to database and vice versa.
- Developed with minimal rework to operate

I wish to divide my development process into four layers as follows:

- UI Layer.
- Presentation Layer.
- Business Layer.
- Data Access Layer.

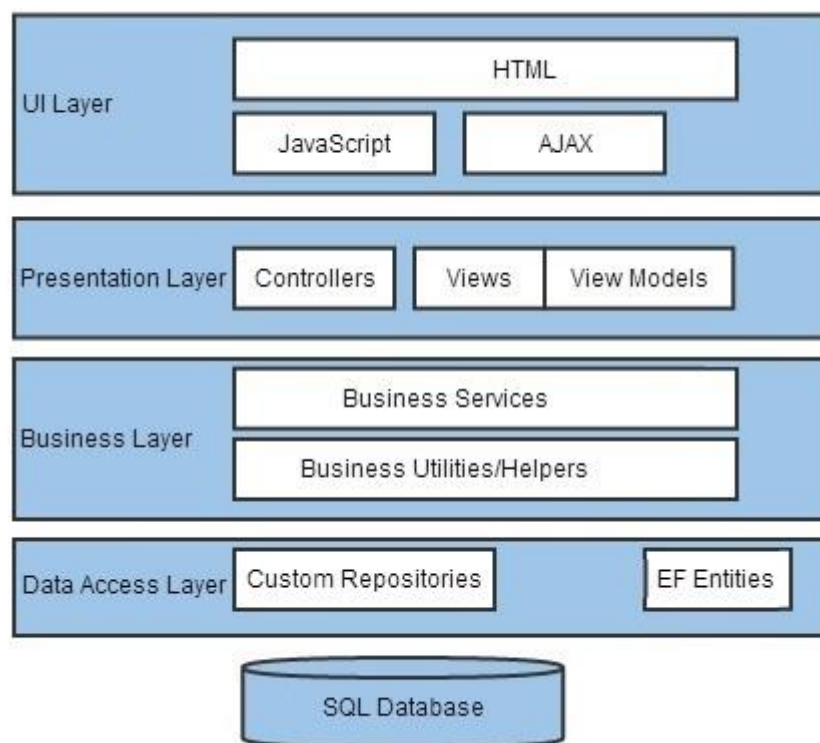


Figure 3.2: Software Architecture

3.3 Technology

Following technologies are used for this project.

- Bootstrap & JavaScript for application User Interface
- ASP .Net/C#

- SQL Server for database
- Crystal Report for Reporting Tools
- Ajax Control Toolkits
- Microsoft Visual Studio for Development Environment

3.4 Used Attendance Device Info

Brand	ZKTeco
Model	ZKTeco Fingerprint F18
Fingerprint Sensor	ZK Optical Sensor
Display	TFT LCD Color Screen
Fingerprint Capacity	3000
ID card Capacity	5000
Logs Capacity	100,000
Interface (Built-in)	RS232/485, TCP/IP, USB-host
Function	Algorithm Version: ZK Finger VX9.0&10.0, Standard
Power supply	Function: Webserver, Anti-passback 12V DC,3A
Dimension	80 x 183 x 42mm
Others	User: 5,000, Transactions Capacity: 30,000 Transactions, Reader Supported, Fingerprint Standalone



Figure 3.3: Attendance Device

3.5 Testing

Testing is a process by which we can ensure the developed software product is defect or bugs free. As well as we can measure the software performance also. So in the software development world testing is a very important part. This project is also tested and corrected as per testing. There are two type of testing are performed here.

1. Black Box Testing
2. White Box Testing

Black Box Testing

It is known as input/output testing. Sometime it is called behavioral testing. Here we put only the input and check the output is correct or not. If output is ok then the result is passed. But the coding structure and the complexity is not tested here. Following figure illustrate the black box testing.

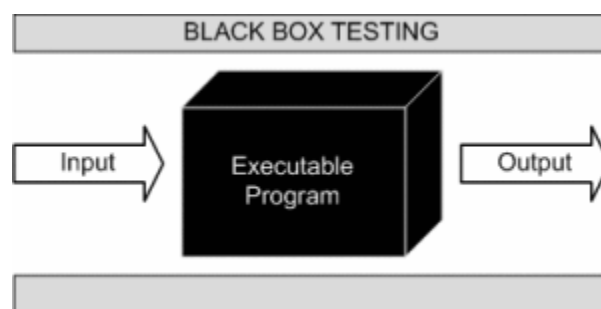


Figure 3.4: Black Box Testing

White Box Testing

White box testing is the type of testing which testing is carried out based on the knowledge of the internal architecture of the application. In white-box testing, the tester analyzes the quality of source code on different parameters like code optimization, code coverage, code reusability etc. It is applicable for lower levels of testing types - unit testing and integration testing where we have to deal with individual modules of the application and their interfacing.



Figure 3.5: White Box Testing

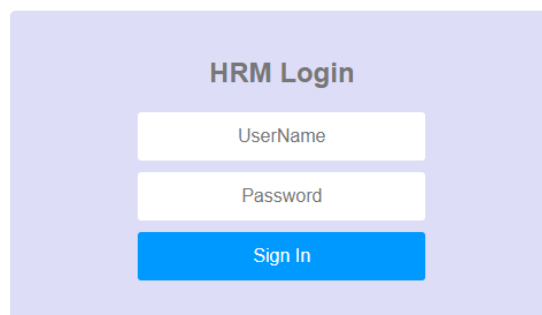
Chapter 4

Experimental Results and Analysis

4.1 Major Features

4.1.1 Login Interface

For security purpose almost every system has to have a login system. For this system following is the login page. In database password is encrypted using hash technology. So that no one can retrieve password through database access.



The login interface is a light purple rectangular box. At the top center, it says "HRM Login" in bold black text. Below this, there are two white rectangular input fields. The first field is labeled "UserName" in black text. The second field is labeled "Password" in black text. Below these two fields is a blue rectangular button with the text "Sign In" in white.

Figure 4.1: Login Interface

4.1.2 Admin Dashboard

Dashboard for Admin where management can see the Employee Attendance performance and others important information.

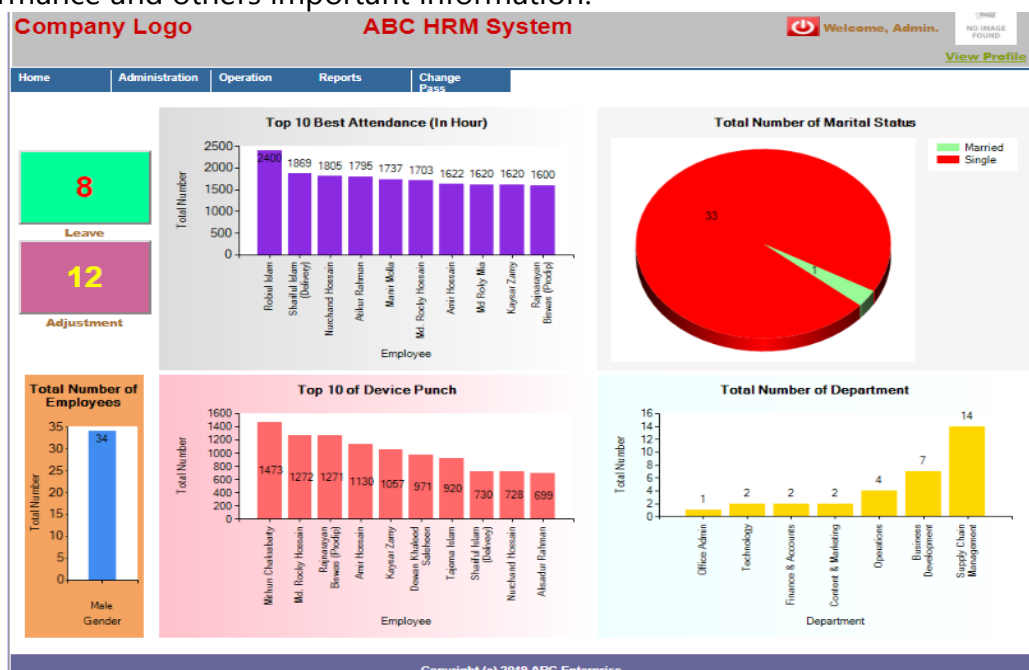


Figure 4.2: Admin Dashboard

4.1.3 User Dashboard

User Dashboard where general user can see their won emergency information. Especially employee can inform the taken leave information, absent, attendance adjustment ratio and department wise employee information.

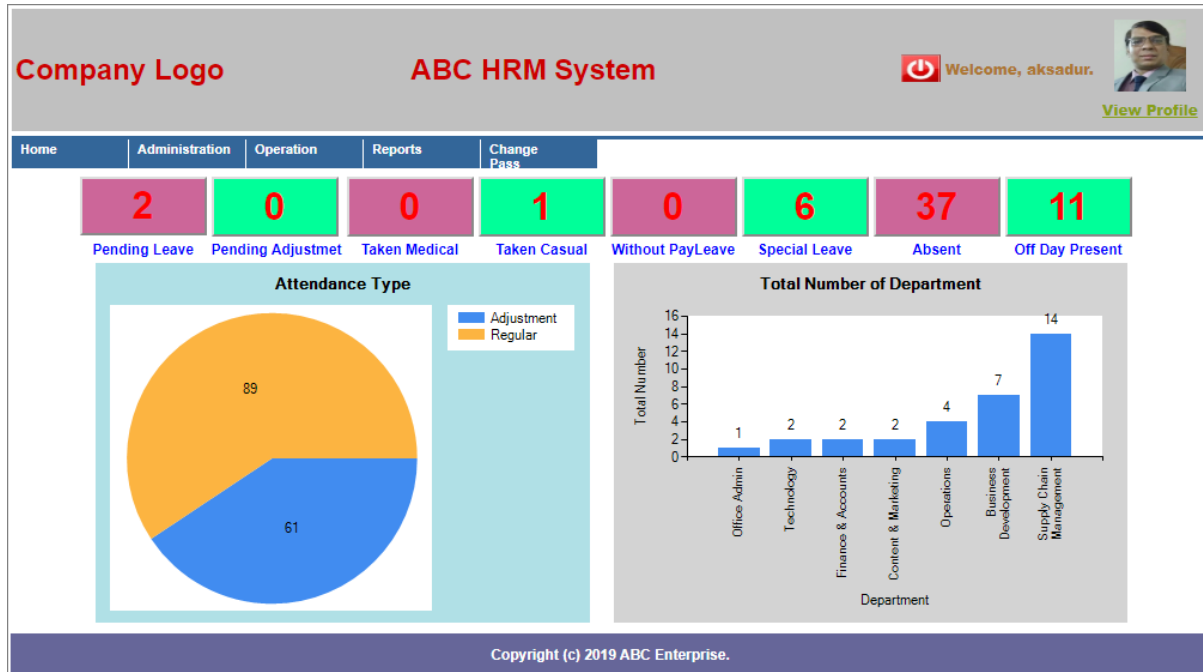


Figure 4.3: User Dashboard

4.1.4 Employee Entry

By this feature employee has been registered in the system. As well as we can enter all the basic information like ID, NID, Educational info, Photo, Blood group, Mobile no etc through this feature. In addition we can search any specific employee here with different search criteria.

Company Logo
ABC HRM System
Welcome, Admin.
NO IMAGE FOUND
View Profile

Home
Administration
Operation
Reports
Change Pass

Employee Entry

Full Name *
User Name*
Password*
Confirm Password*
Designation
Department*
Select
Email
Cell Phone
Office Extention
Type*
Company*
Reporting To*
Leave Approval Officer*
Blood Group
Select
NID
Marital Status*
Single
Married

Photo
NO IMAGE FOUND
Choose File
No file chosen
Upload
User ID*
Highest Education
Select
Subject/Division
Result
Confirmation Date
Gender*
Male
Female
Is Part Time?
Is Active
Save

User Search
Company
Type
IsActive
Name
Search

Active
Go to S

Figure 4.4: Employee Entry

4.1.5 Leave Entry

Employee can enter his or her leave information here. A single day or a range of day can be entered here. There are four types of leaves like casual, medical, special and without pay leave are available. Company can set the total number of leave which can be taken by the employee.

Company Logo

ABC HRM System

NO IMAGE FOUND

View Profile

Home

Administration

Operation

Reports

Change Pass

Leave Entry

Year

2019

Employee

Designation

ReportingTo

LeaveApprovalBy

Date From

Date To

Leave Type

Descriptions

Casual Leave Available

Taken

Rest

Medical Leave Available

Taken

Rest

Without Pay

0

Absent

0

Special

0

OffDayPresent

0

Save

October, 2019

Su	Mo	Tu	We	Th	Fr	Sa
29	30	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	1	2
3	4	5	6	7	8	9

Today: October 8, 2019

Status

Unapprove

Copyright (c) 2019 ABC Enterprise.

Figure 4.5: Leave Entry

4.1.6 Menu Distribution

There are so many features are available in this software. But admin can fix the access of any employee through this module. He can distribute the menu from here. And employee can access only the page or menu which has been distributed by admin.

Company Logo

ABC HRM System

NO IMAGE FOUND

View Profile

Home

Administration

Operation

Reports

Change Pass

Name

Select One

User Name

Save

Select ALL Clear ALL

Home	Administration	Operation	Reports
	☐ User Entry ☐ Leave Approve (HR) ☐ Data Updating ☐ Time Adjustment ☐ Reset Password ☐ Project Entry ☐ Menu Distribution ☐ Holiday Entry ☐ Late Report ☐ Absent Report	☐ Leave Entry ☐ Adjustment Request ☐ Leave Approve ☐ Leave Recommend	☐ Holiday ☐ Leave ☐ Attendance2 ☐ Attendance ☐ Employee

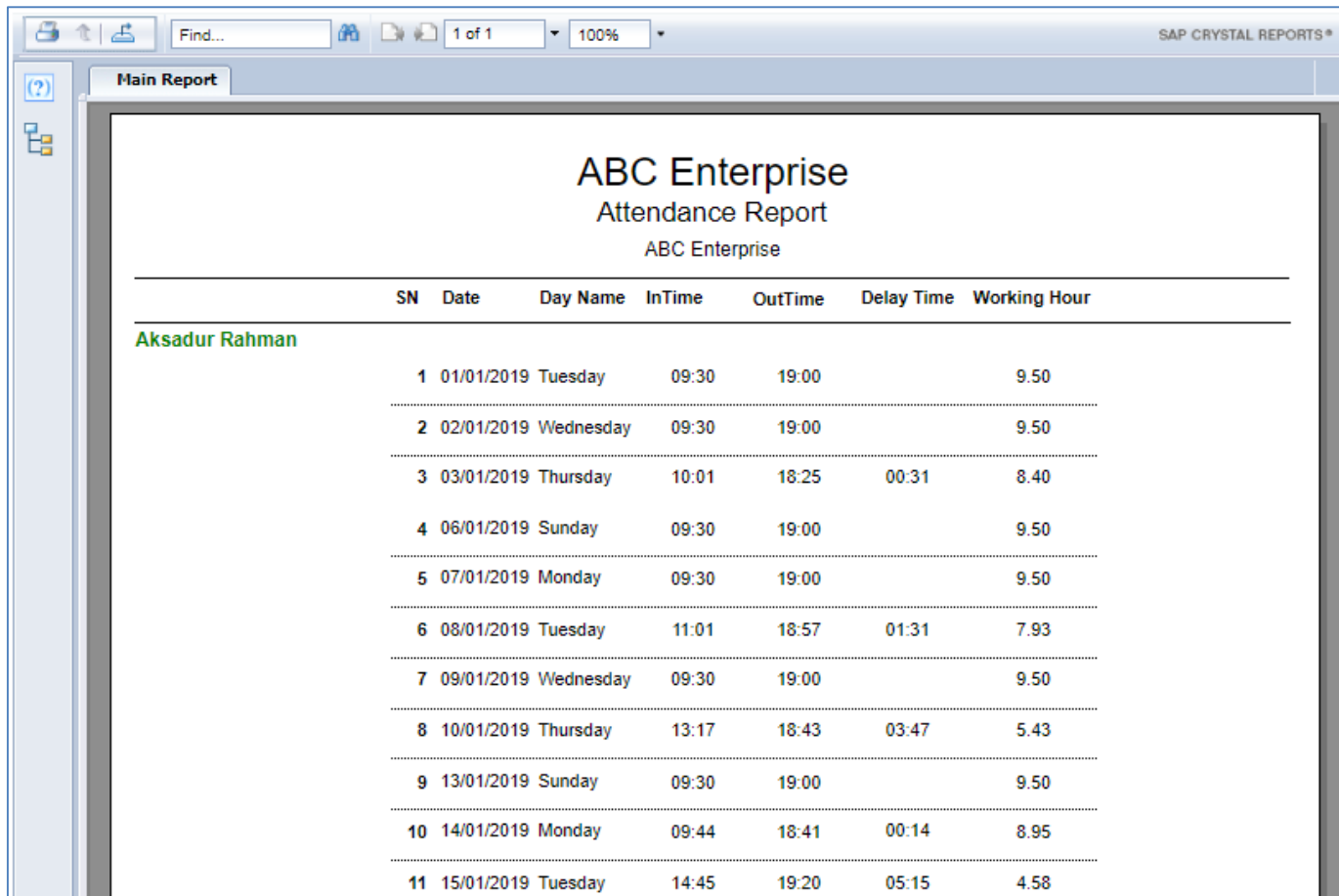
Change Pass

Copyright (c) 2019 ABC Enterprise.

Figure 4.6: Menu Distribution

4.1.7 Attendance Report

Month wise attendance report of an employee has been shown in this report. Here we can see the detail information. We can see the in-time, out-time, delay time, working hour of an employee for specific day here.



The screenshot displays a SAP Crystal Reports interface. The main report area is titled "ABC Enterprise Attendance Report" and "ABC Enterprise". Below the title is a table showing attendance data for the employee "Aksadur Rahman". The table has the following columns: SN, Date, Day Name, InTime, OutTime, Delay Time, and Working Hour. The data is presented for 11 days, from 01/01/2019 to 15/01/2019.

SN	Date	Day Name	InTime	OutTime	Delay Time	Working Hour
1	01/01/2019	Tuesday	09:30	19:00		9.50
2	02/01/2019	Wednesday	09:30	19:00		9.50
3	03/01/2019	Thursday	10:01	18:25	00:31	8.40
4	06/01/2019	Sunday	09:30	19:00		9.50
5	07/01/2019	Monday	09:30	19:00		9.50
6	08/01/2019	Tuesday	11:01	18:57	01:31	7.93
7	09/01/2019	Wednesday	09:30	19:00		9.50
8	10/01/2019	Thursday	13:17	18:43	03:47	5.43
9	13/01/2019	Sunday	09:30	19:00		9.50
10	14/01/2019	Monday	09:44	18:41	00:14	8.95
11	15/01/2019	Tuesday	14:45	19:20	05:15	4.58

Figure 4.7: Attendance Report

4.1.8 Attendance Visualization

For any month even any year we can see the employee's attendance in at a glance by this report. Employee also can see his or her attendance position over the year here.

1 of 1+

100%

SAP CRYSTAL REPORTS*

Main Report

ABC Enterprise

Attendance Report

Year: ABC Enterprise

(x)=Present, (-)=Absent, (F)=Friday, (S)=Saturday, (H)=Holiday, (L)=Leave, (P)=Special Leave

ID	NAME	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
January																																
1017	Aksadur Rahman	x	x	x	F	S	x	x	x	x	x	F	S	x	x	x	x	x	F	S	x	x	x	x	x	F	S	x	x	x	x	
February																																
1017	Aksadur Rahman	F	S	x	x	x	x	x	F	S	x	x	x	x	x	F	S	x	x	x	x	H	F	S	x	x	x	x	H			
March																																
1017	Aksadur Rahman	F	x	x	x	x	x	x	F	S	x	x	x	x	x	F	S	H	x	x	x	x	F	S	x	x	H	x	x	F	x	x
April																																
1017	Aksadur Rahman	x	x	x	x	F	S	x	x	x	x	x	F	S	H	x	x	x	x	F	S	x	x	x	x	x	F	S	x	x	x	
May																																
1017	Aksadur Rahman	H	x	F	S	x	x	x	x	x	F	S	x	x	x	x	P	F	x	x	x	L	x	P	F	x	x	x	x	x	F	
June																																
1017	Aksadur Rahman	S	H	H	H	H	H	F	S	x	x	x	x	P	F	x	x	x	x	x	P	F	x	x	x	x	x	x	F	S	x	
July																																
1017	Aksadur Rahman	x	x	x	x	F	S	-	-	-	-	-	F	S	-	-	-	-	-	F	S	-	-	-	-	-	F	S	-	-	-	-
August																																

Activate Windows

Figure 4.8: Attendance Visualization

4.2 HRM Analysis

4.2.1 Top 10 Best Attendance (In Hour)

Some time it is very necessary to know the employees comparative attendance performance to evaluate an employee. Some company give the award on this type of information. By this chart management can easily identify and compare the attendance performance.

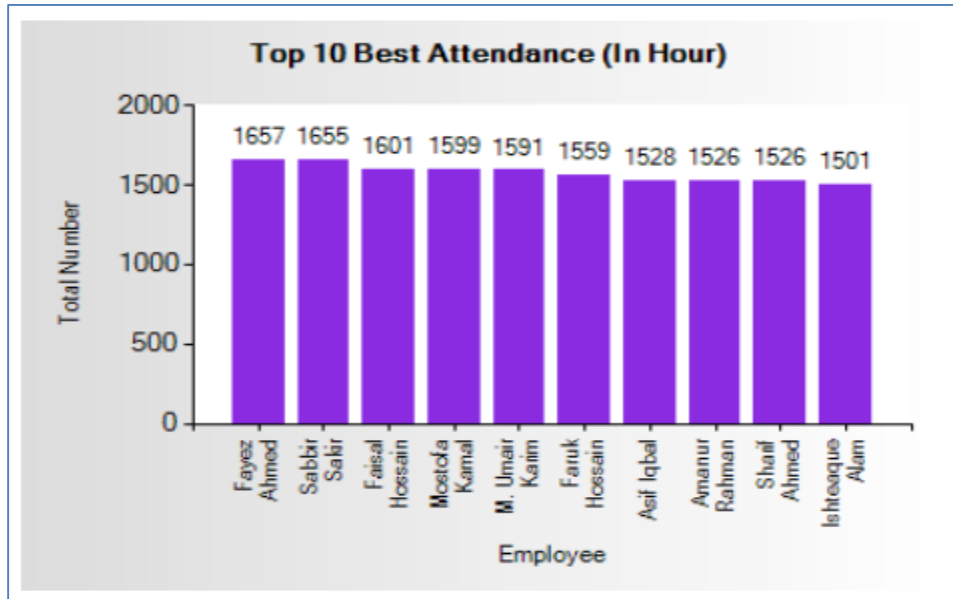


Figure 4.9: Top 10 Best Attendance

4.2.2 Top 10 of Device Punch

This analysis shows the frequent of device punching. Employee who generally works in a single desk the high punch frequency rate is abnormal. So management can track the top punch frequency and take relevant actions on it by this analysis.

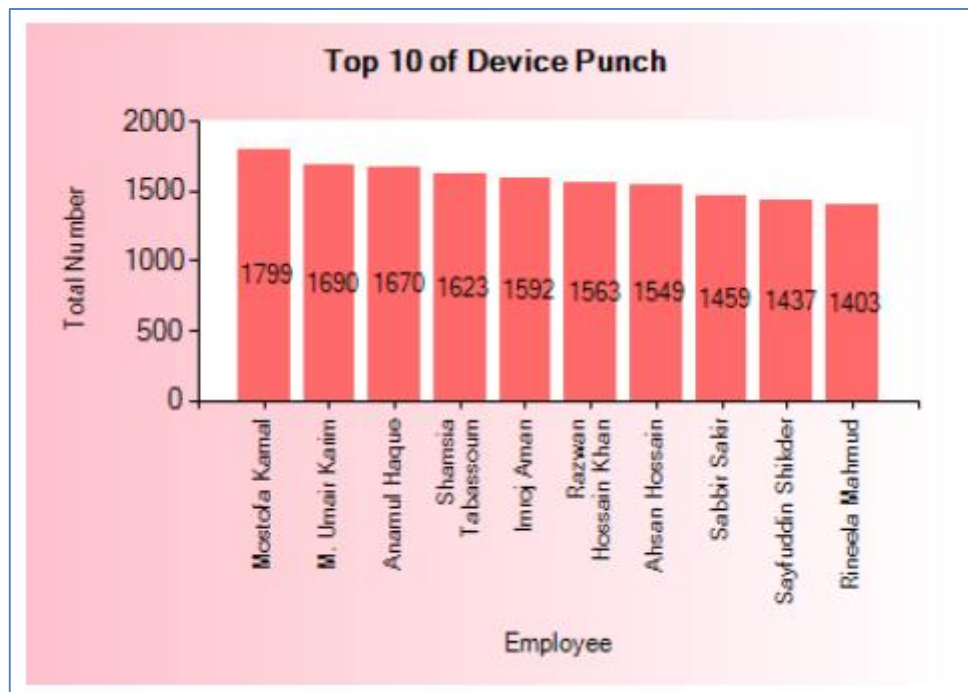


Figure 4.10: Top 10 of Device Punch

4.2.3 Department wise total number of Employee

This graph shows the various department and the number of employees in every department.

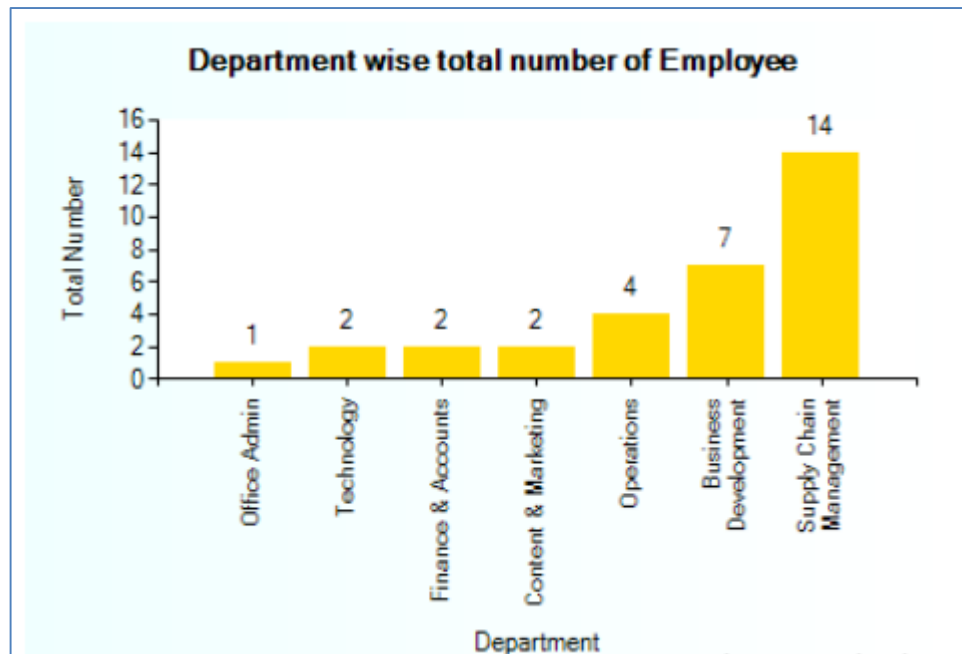


Figure 4.11: Department wise Employee

4.2.4 Male vs Female

Following is the pie chart analysis where illustrate the male vs female employee ratio of the company. Some time management needs to know the ratio for employee balancing.

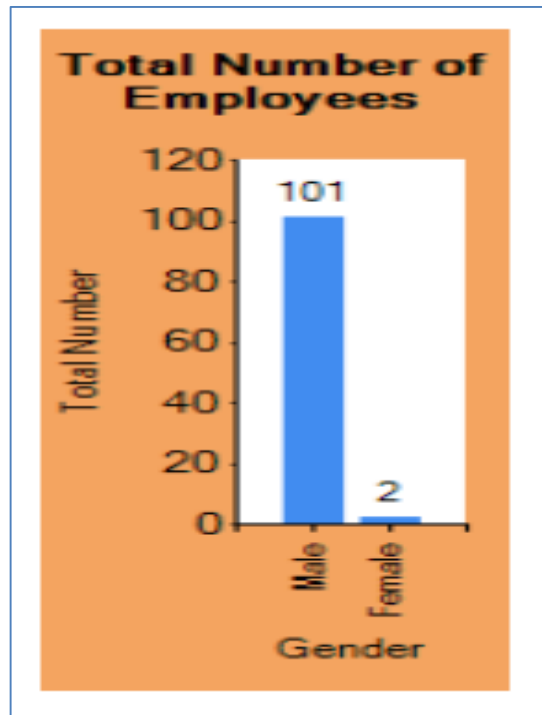


Figure 4.12: Male vs Female

4.2.5 Married vs Single

Following is the pie chart analysis where illustrate the married vs single employee ratio of the company. Some time management needs to know the ratio for employee balancing.

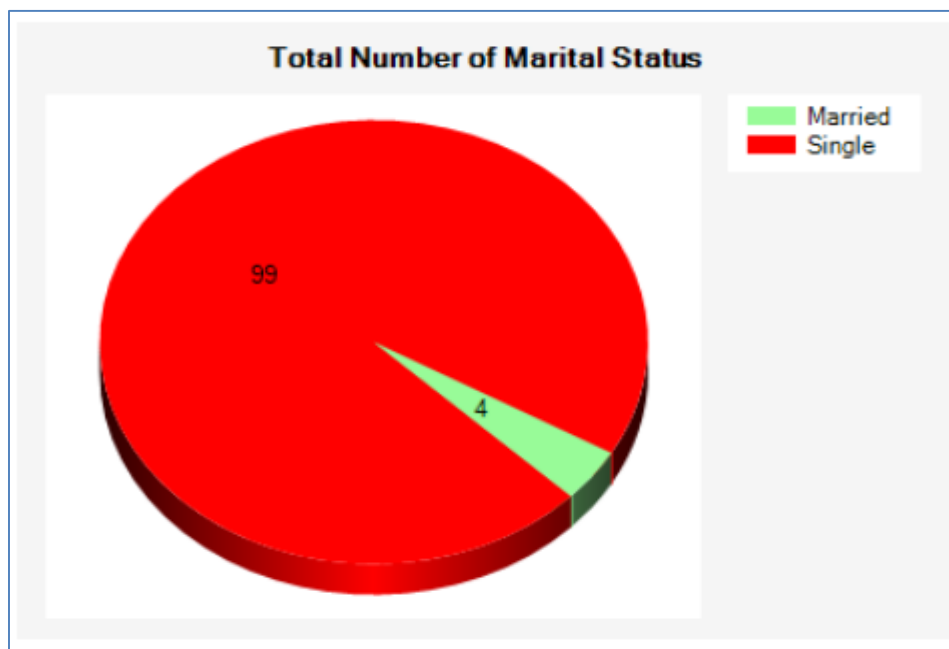


Figure 4.13: Married vs Single

Chapter 5

Conclusion and Future Works

5.1 Conclusion

This project is developed for HRM analysis with device integration. But the analysis is not done by very widely. Because of insufficient data. If any company use this system and continue data entry, analysis will be performed better. But what is developed here is sufficient for day to day attendance information and basic analysis with device integration.

5.2 Future Works

My plan is to enhance this project in very short time. Especially I would like to implement here the machine learning algorithm for employee attendance prediction. And I also have a plan to extend some features here like performance appraisal management, Employee Training Management and payroll system.

References

- [1] Barkha Gupta, "Human Resource Information System (HRIS) Important Element of Current Scenario," IOSR Journal of Business and Management (IOSR-JBM), Volume 13, Issue 6 (Sep. - Oct. 2013).
- [2] O. Shoewu, "Development of Attendance Management System using Biometrics," The Pacific Journal of Science, 2012
- [3] D Kahn, "System for web-based payroll and benefits administration," US Patent 6,401,079, 2002
- [4] Mohd Helmy Abd Wahab, "Design and development of portable RFID for attendance system," International Conference on Information Retrieval & Knowledge Management (CAMP), 2010