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Web App Development of "HR kit!"

Sharon, Adnan Rahman

Independent University, Bangladesh

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An undergraduate internship report submitted by

Adnan Rahman Sharon (Student ID: 1921662)

In consideration of the partial fulfillment of the requirements for the degree of

BACHELOR OF SCIENCE

in

Computer Science and Engineering

Department of Computer Science and Engineering

Autumn 2022

January 19, 2023

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Web App Development of "HR kit!" at

Skylark Soft Ltd.

An undergraduate internship report submitted by

Adnan Rahman Sharon (Student ID: 1921662)

has been approved on 24/1/23

MR. Sarwar Shahidi

Internship Supervisor & Lecturer

Department of Computer Science and Engineering

School of Engineering & Computer Science

Independent University, Bangladesh

Acknowledgements

First and foremost, I desire to express my deepest sense of gratitude to Almighty Allah, it isbecause of His mercy and blessing that I have come so far. It has been a great privilege towork for Skylark Soft Ltd. as an Intern. I have received so much support and encouragement from the individuals of Skylark Soft Ltd who have years of experience in Software Development. I would like to thank the members of Skylark Soft Ltd for spending their valuable time and knowledge which was essential for the completion of this report. I express my gratefulness to my internal supervisor, MR. Sarwar Shahidi, Lecturer, Department of Computer Science and Engineering, Independent University, Bangladesh (IUB), for his invaluable instructions, continuous guidance, support and motivation during my internship period and preparation of this report. I likewise, want to express my deepest gratitude to my external supervisor and my mentor Ms. Jennat Jahan for giving me the opportunity to be a part of this organization. Her support and leading ability were the driving force of this project. My gratitude also extends to all other employees of Skylark Soft Ltd who helped me learn so much in my own skill development process and made me fit right in the environment. Many Thanks to the co-developers of this project, Abir Ahmed, Taufiq Rahman for their time, effort and expert skills. Finally, I proudly acknowledge the great sacrifices, good wishes, moral support, fruitful advice, inspirations and encouragements from my family members, relatives and friends.

Adnan Rahman Sharon

14 January 2023

Letter of Transmittal

14 January 2023

MR. Sarwar Shahidi

Lecturer,

Department of Computer Science and Engineering,

Independent University, Bangladesh

Subject: Letter of Submission for Internship Report, Autumn 2022

Dear Sir,

This is to inform that with due honor and respect, I, Adnan Rahman Sharon (ID:

1921662) from Internship Course of Autumn 2022 Semester, would like to submit

my Internship report. This report is based on my internship program and the project I have worked on. My internship was conducted from 18th September to 31 December 2022 and it has been completed at Skylark Soft Ltd.

This report is based on my experience and the work I did at Skylark Soft Ltd. during my internship program. The primary goal for my internship was to gain experience from working in the software engineering industry and familiarize myself with all the different technology related fields of the company, including research and development, documentation, software development and to get acquainted with software development processes and practices. Over the period of my internship at Skylark Soft Ltd, I had to learn and adapt to the evolving technologies being used in different situations and requirements and to be able to apply them in real life projects.

I hope the following report can achieve your approval and is adequate.

Sincerely,

_____

Adnan Rahman Sharon

Email: adnan4946@ gmail.com

Evaluation Committee



Signature

Mr. Sanzar Adnan Alam

Name

Internal Examiner-1 / Panel Member-1

Qasabwala

Signature

Ajmiri Khan

Name

External Examiner-2 / Panel Member-2

Signature Shahid.

Name Sarwar Shahidi

Supervisor of the intern

Abstract

With the development of so Effective HR solution there in the web application market, companies are spending more time on their HR management than ever. While this does seem like a good way to spend the time; it does put the Company's Human Resource management more difficult.

To deal with such a situation, a certain group of developers at Skylark Soft Ltd; including myself, have decided to work on a Human Resource Management that involves the companies Higher Authority and root level employee under a rooftop. It has been decided to call the solution , "HR kit!". The background, scope, objectives and other analytical points about this game will be discussed in detail in this report. Company Profile of Skylark Soft Ltd. will also be addressed.

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Introduction

It is a one stop solution of every Human Resource related necessities. By this project any companies Human Resource department can handle it's all employees very efficiently. It will increase company's efficiency.

Objectives

●Achieve Organizational Goals

HRM function starts here. One major HRM objective is to fulfil organizational goals. Utilizing human resources to achieve business requirements and goals is very important for an effective HRM.

Organizational objectives include workforce handling, staff requirements like hiring and onboarding, payroll management, and retirement. To succeed at the organizational objectives, HR requires efficient planning and execution. Without a set parameter for goals and mission and resources, HRM is incomplete. After you know your resources and planning at the place, achieving HRM objectives is not so difficult.

Some more objectives are explained further.

● Employee Motivation

The prime objective of HR folk is to keep things on the right path. Keep distractions and negative vibes away. For this, the employees need to be attended to and kept motivated throughout. How can HR motivate employees?

Give powers to them. Take their views on things. Involve them in weekly meets or decisions. Even if it is a fresher, let them join. Keep the morale always high. Employee recognition like yearly appraisal based on their performance can too help.

An automated feedback system for performance appraisal management can keep your employees motivated and ensure productivity throughout the service. When the employees are satisfied and fulfilled, nothing else can prevent you from losing your objectives and goals.

●Data and Compliance

Functional and organizational objectives also include managing company/ employee data and managing compliances. Managing payroll compliances and keeping the company out of any penalties or fines is a huge challenge for HR people and managers. Even a small error or miscalculation can owe you huge penalties and even may lose respect. When committing to tasks like employment and payroll, you need to be careful

about laws and regulations. The objective here is to keep any unwanted claims at bay for smooth functioning.
Automated software like the HRMS system can help you keep errors at the side and leave no window for owing any penalty from IRS. It is the responsibility of HR to follow IRS guidelines and standards for effective employment at the company. Stay assured of all the legalities.

Scope of the Project

1. System can pull attendance.
2. System can prepare salary sheet.
3. System can take and store all employees details.
4. System can print attendance sheet.
5. System can prepare employees ID card, Appointment letter.

Problem statement

Process Name	Stakeholders	Concerns(Problems)	Analysis(Reason of the problem)	Proposed Solution
Manager need to take all staffs attendance manusally in a register book.	1. Manager 2.Staffs	The manager provide the attendance report to the HR department, then the department gives it to the database operator to update into the database. This process takes too much time and action.	This process takes a lot more action and time as the manager has to store the data locally and then give it to the department. The department then sends it to the operator to update the data in the	My system will take the attendance automatically. Which will save time and attendance will become more accurate.

			database.	
HR departme nt need to prepare salary sheet manually.	1.HR Department.	The accountant need to prepare salary sheet by seeing all staffs attendance report.	There isn't any solution to make salary sheet automatically by analysing staffs attendance report.	I will introduce a automatic system to prepare salary sheet which need just a click.
HR departme nt need to store staffs details manually into excel file.	1.HR department. 2.Employees.	HR department need to store all employees details into the excel file manually. Which will take a lot of time.	There hasn't any solution which can store and prepare a report of employees.	I will introduce a automatic system to store empoyees details into the system and can make employees details report by clicking once.

HR department to prepare attendance report manually. So higher management won't get attendance report instantly.	1.HR department. 2. Higher authority.	If higher authority need to know about any employees attendance status then they have to inform HR department then HR department need prepare that sheet manually.	It will take time for Higher Management to get attendance report.	I will introduce a system which can prepare attendance report by clicking a button which will be available for higher authority and HR department also.
HR department need to prepare appointment letter or any kind of important certificate manually.	1.HR department.	It will take a lot of time to prepare this kind of letter manually every time.	Most of the company doesn't have any solution to solve this problem and make the system more efficient.	I will introduce a system which can prepare all kind of certificate automatically.

Literature review

Project relation to Undergraduate Courses

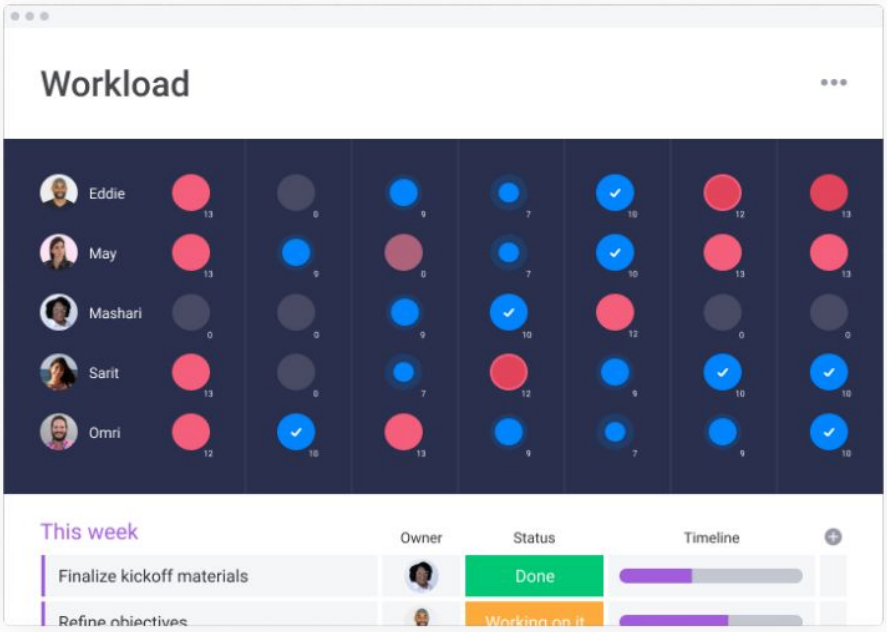
Many courses help me to complete my internship project. Some of the courses are:

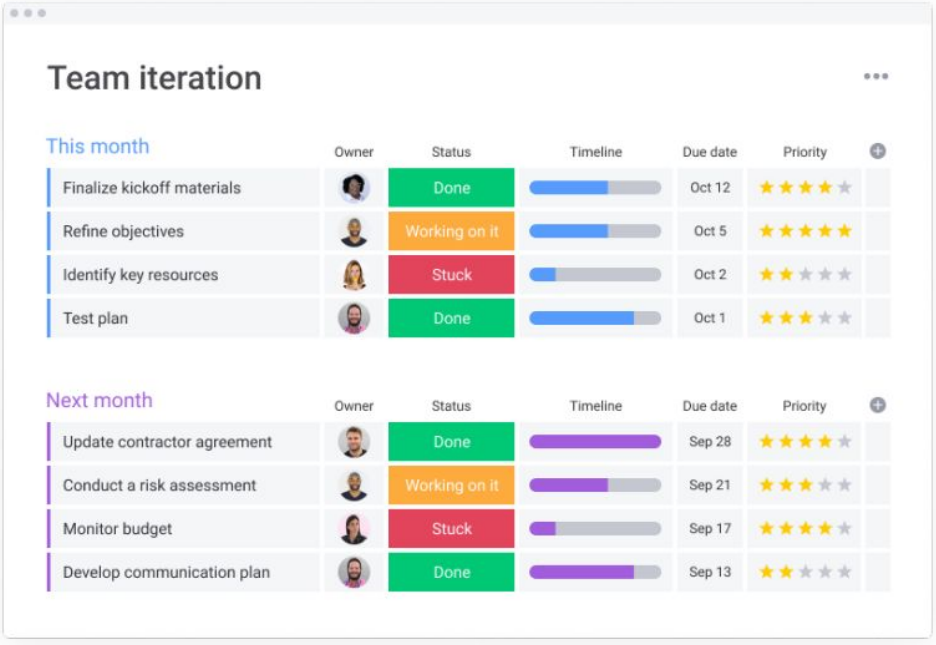
- **CSE 203 Data Structure:** this course was about teaching how to handle and manipulate complex arrays, objects, classes, array of objects, objects of array, nested arrays, nested objects, etc. As “Pace Up!” involves many complex data structures, the skills gained from this course made handling them much easier.
- **CSE 213 Object-Oriented Programming:** this course is a deep dive into classes and its objects of programming. It also taught how to write modular programs which made codes less repetitive and more reusable. It helped to design “Pace Up!” code in a modular format. Also, as the application grew bigger, this practice helped avoid writing new modules from scratch by using parts of old modules and adding new functions to them.
- **CSE 303: Database Management:** this was the first course which taught how to design and plan a project. It covered popular planning and strategy practices such as System Development Life Cycle, Rich Picture, Requirement Analysis, Entity Relationship Diagram, Business Process Model and Notation Diagram and many more. These techniques helped in the development planning and strategy of “Pace Up!” and also they helped in writing this report.
- **CSE 309: Web Applications and Internet:** this is the course where the development of web applications was taught. It covered very important technologies that are highly in demand in the industry, such as HTML, CSS, JavaScript, jQuery, Laravel. The tools and technologies learned from this course immensely contributed to the development of “Pace Up!” as it is a mobile application built with similar web technologies and it has a backend server which had to be deployed to the cloud server as well.

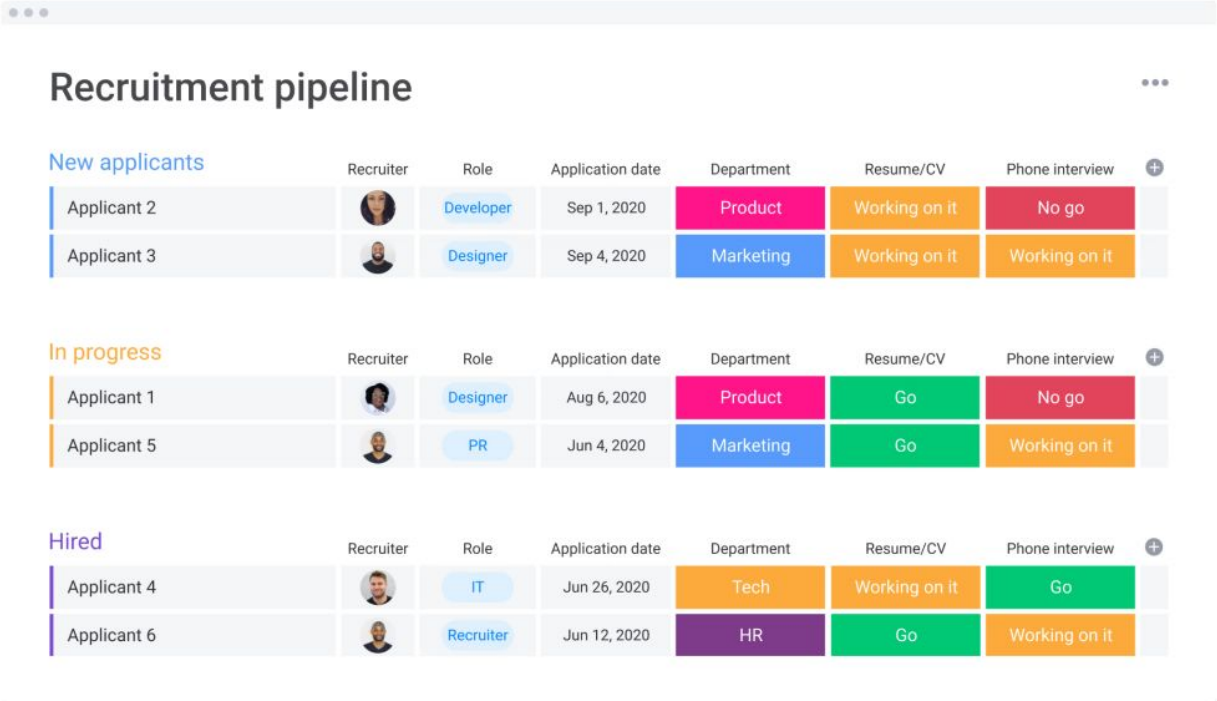
Related Works

monday.com – all-in-one HR software

monday.com is an open platform that makes it easier for HR managers to build custom solutions for their team's needs. Thus, this ultimate software has been praised by many human resources managers for its clean UI, simple system, and engaging core HR functions.


Workload
Eddie
May
Mashari
Sarit
Omri
This week
Owner
Status
Timeline
Finalize kickoff materials
Done


Team iteration
This month
Owner
Status
Timeline
Due date
Priority
Finalize kickoff materials
Done
Oct 12
Refine objectives
Working on it
Oct 5
Identify key resources
Stuck
Oct 2
Test plan
Done
Oct 1
Next month
Owner
Status
Timeline
Due date
Priority
Update contractor agreement
Done
Sep 28
Conduct a risk assessment
Working on it
Sep 21
Monitor budget
Stuck
Sep 17
Develop communication plan
Done
Sep 13



Recruitment pipeline

New applicants

	Recruiter	Role	Application date	Department	Resume/CV	Phone interview
Applicant 2		Developer	Sep 1, 2020	Product	Working on it	No go
Applicant 3		Designer	Sep 4, 2020	Marketing	Working on it	Working on it

In progress

	Recruiter	Role	Application date	Department	Resume/CV	Phone interview
Applicant 1		Designer	Aug 6, 2020	Product	Go	No go
Applicant 5		PR	Jun 4, 2020	Marketing	Go	Working on it

Hired

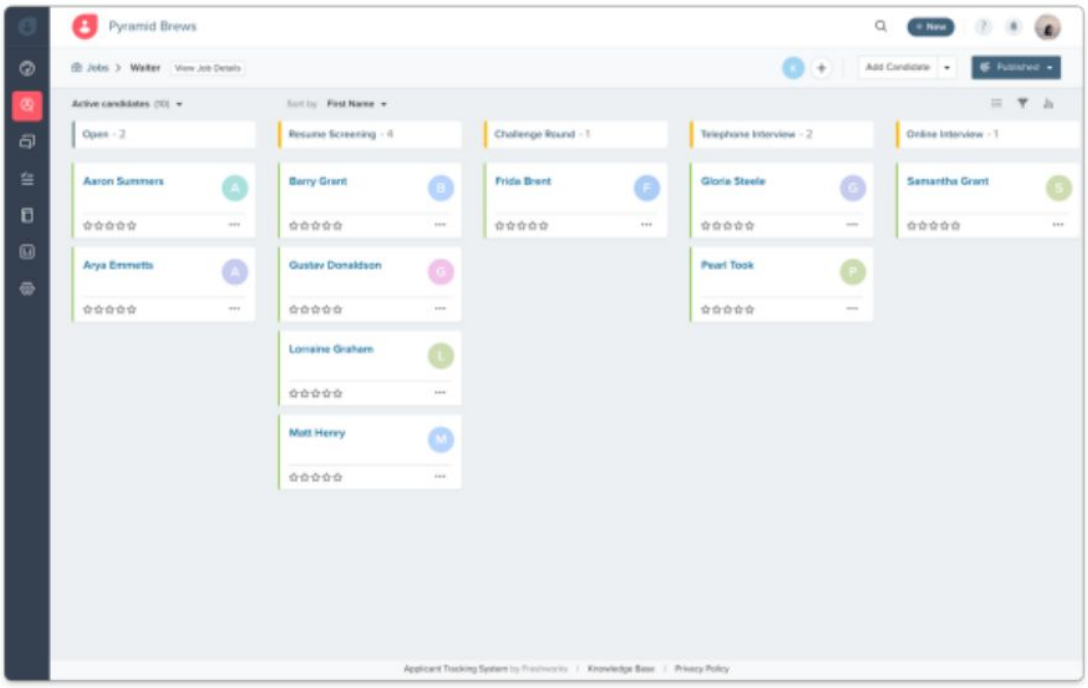
	Recruiter	Role	Application date	Department	Resume/CV	Phone interview
Applicant 4		IT	Jun 26, 2020	Tech	Working on it	Go
Applicant 6		Recruiter	Jun 12, 2020	HR	Go	Working on it

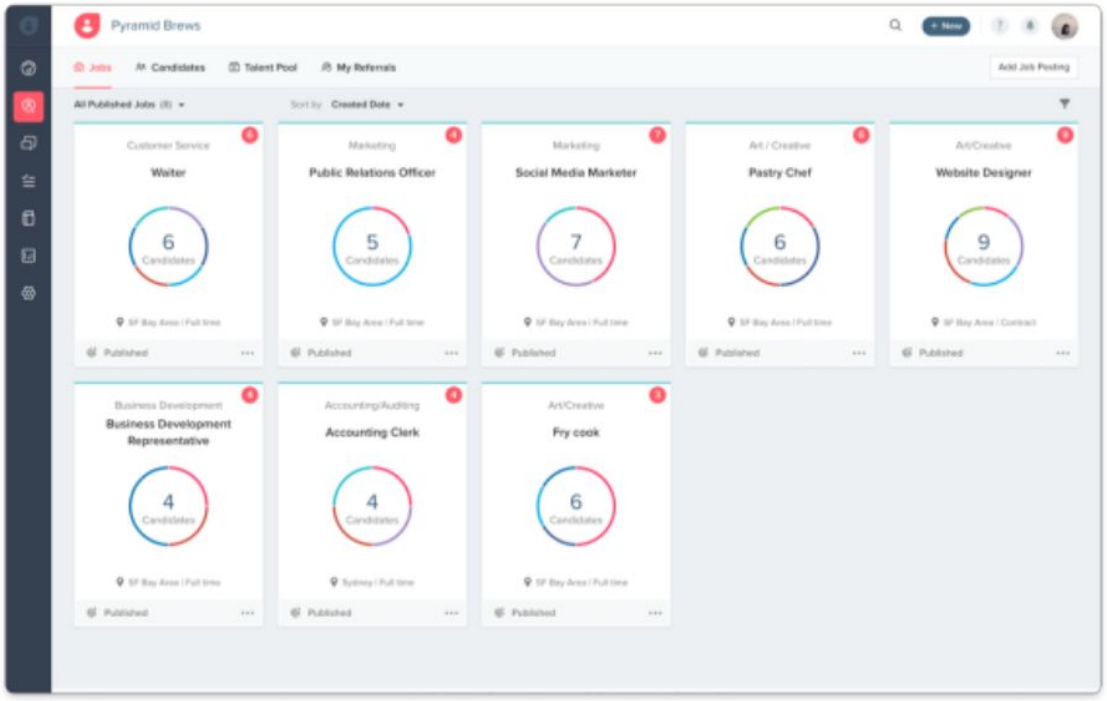
Freshteam by Freshworks – Competent HR Software Solution

Freshteam, from the renowned software company Freshworks, acts as a smart all-in-one software for HR teams.

With Freshteam, you get to make sure your HR efforts are up to date with the 2022 standards, from hiring to onboarding, time tracking, employee data, and day-to-day

workflows of the HR team.

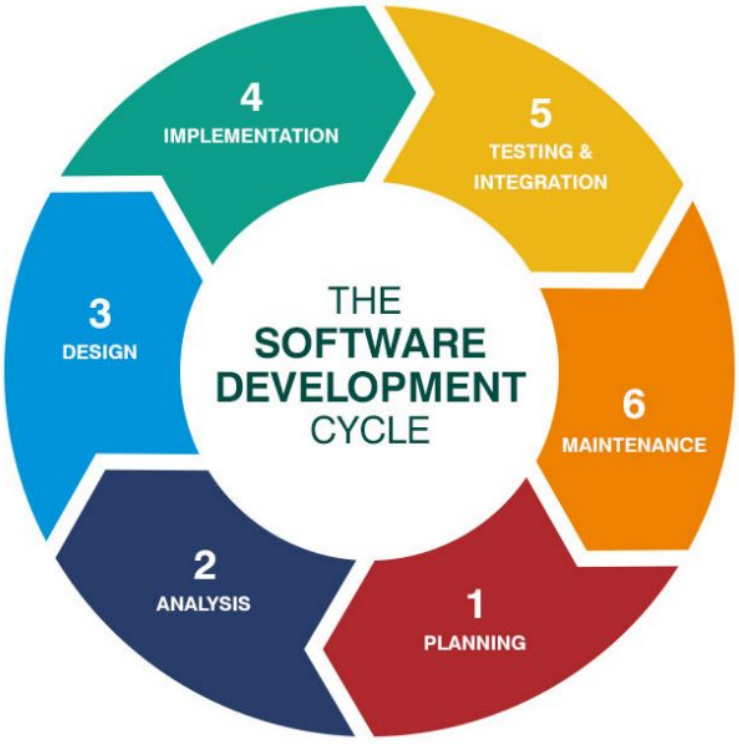




Methodology

Software Development Methodology

In software engineering, a software development process is the process of dividing software development work into distinct phases to improve design, product management and project management. It is also known as a system development life cycle (SDLC) [2]. We can define SDLC as a framework that describes the activities performed at each stage of a System Development Project. So, it has some basic stages to be followed during the development phase.



Software Development Life Cycle (SDLC)

The methodology may include the pre-definition of specific deliverables and artifacts that are created and completed by the project team to develop or maintain an application. Basically, software or system development methodology is a framework that is used to structure, plan, and control the process of developing an information system.

There are several system development methodologies or models that are used in developments; among them, some of the most used are given below:

- Prototyping
- Agile
- Spiral Model
- Rapid Application Development
- V-Model
- Incremental
- Evolutionary Model

Extreme Programming (XP) Methodology

For methods, the developers of Skylark soft Limited follow the most current methods of system development methodologies, that is the Agile [3] method. To be more specific, we follow the Extreme Programming (XP) method which is an agile software development framework that aims to produce higher quality software, and higher quality of life for the development team. XP is the most specific of the agile frameworks regarding appropriate engineering practices for software development. The teams are expected to be self-organized, hence Extreme Programming provides specific core practices where each practice is simple and self-complete & combination of practices produces more complex and emergent behavior. The five values of XP are communication, simplicity, feedback, courage, and respect:

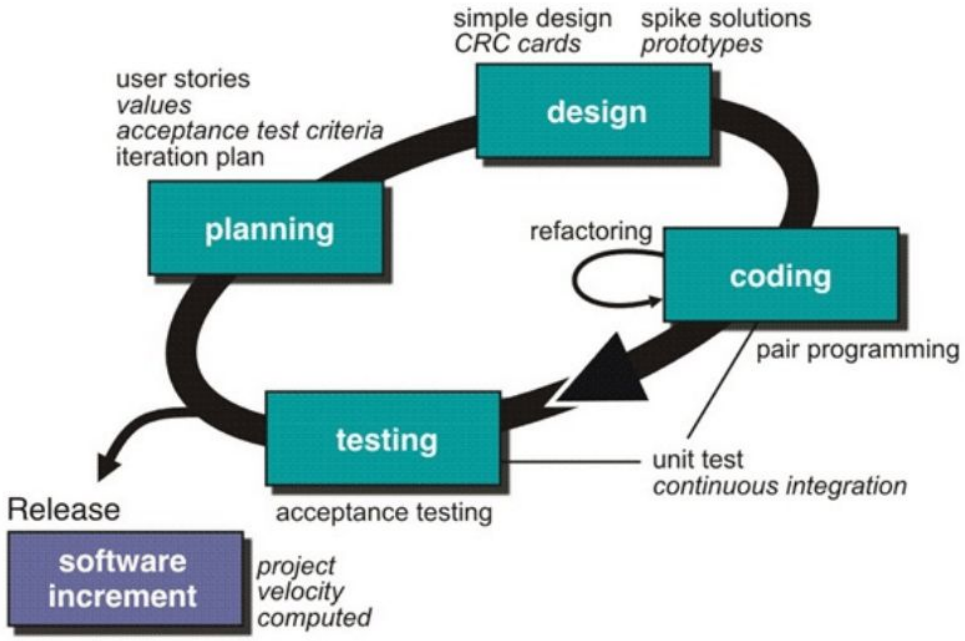
● Communication: XP stresses the importance of the appropriate kind of communication through team meetings and discussions.

● Simplicity: do only absolutely necessary things such as keep the design of the system as simple as possible so that it is easier to maintain, support, and revise.

● Feedback: Through constant feedback about their previous efforts, teams can identify areas for improvement and revise their practices. It also supports simple design.

● Courage: raise issues that are hampering workflow, stop doing something that does not work and try something else, accept and act on unpleasant feedback, etc.

● Respect: members of the team need to respect each other in order to communicate with each other, provide and accept feedback, and to work together to identify simple designs and solutions.



Extreme programming Methodology

Extreme Programming Advantages

Extreme Programming solves the following problems often faced in the software development projects:

● Slipped Schedule: ensure timely deliveries.

● Cancelled projects: focus on continuous customer involvement ensures transparency with the customer and immediate resolution of any issues.

● Costs incurred in changes: extensive and ongoing testing makes sure the changes do not break the existing functionality. A running working system always ensures sufficient time for accommodating changes such that the current operations are not affected.

● Production and post-delivery defects: emphasis is on the unit tests to detect and fix the defects early.

● Misunderstanding the business and/or domain: making the customer a part of the team ensures constant communication and clarifications.

● Business changes: changes are considered to be inevitable and are accommodated at any point of time.

Back-end Development

Back-end Development refers to the server-side of development. It is the term used for the behind-the-scenes activities that happen when performing any action on a website or a mobile application. Backend development focuses on databases, scripting, and the architecture of web and mobile applications. Code written in the back-end helps to communicate the database information to the browser or the mobile app.

Back-end Development involves:

● Web Development Languages: involves a series of server-side programming languages like Java, JavaScript, PHP, Ruby, .Net, etc.

● Database: use of various Database Management System (DBMS) technology is another important part of backend development. MySQL, MongoDB, Oracle, SQLServer, Redis are widely used for this purpose.

● Server: a computer or computer program which manages access to a centralized resource or service in a network. Current most popular servers are Apache, Nginx, IIS servers and Microsoft IIS. Typically, Linux is used in administering servers.

● Application Programming Interface (API): a set of protocols, routines, functions and/or commands that are used to develop software or facilitate interaction between distinct systems. APIs are available for both desktop and mobile use and are typically useful for programming GUI (graphic user interface) components, as well as allowing a software program to request and accommodate services from another program.

Development Tools Used

In the development of the Web app game, “HR Solution!” several modern application development tools were used.

Laravel



Laravel is a free and open-source PHP web framework, created by Taylor Otwell and intended for the development of web applications following the model–view–controller (MVC) architectural pattern and based on Symfony. Some of the features of Laravel are a modular packaging system with a dedicated dependency manager, different ways for accessing relational databases, utilities that aid in application deployment and maintenance, and its orientation toward syntactic sugar.

GitLab



GitLab is a for-profit company that offers a cloud-based Git repository hosting service. Essentially, it makes it a lot easier for individuals and teams to use Git for version control and collaboration. GitLab interface is user-friendly enough so even novice coders can take advantage of Git. Without GitLab , using Git generally requires a bit more technical savvy and use of the command line. GitLab is so user-friendly, though, that some people even use GitLab to manage other types of projects – like writing books. Additionally, anyone can sign up and host a public code repository for free, which makes GitLab especially popular with open-source projects. As a company, GitLab makes money by selling hosted private code repositories, as well as other business-focused plans that make it easier for organizations to manage team members and security. We utilize GitLab extensively at Kinsta to manage and develop internal projects.

Docker



Docker is a software platform that allows you to build, test, and deploy applications quickly. Docker packages software into standardized units called containers that have everything the software needs to run including libraries, system tools, code, and runtime. Using Docker, you can quickly deploy and scale applications into any environment and know your code will run. Running Docker on AWS provides developers and admins a highly reliable, low-cost way to build, ship, and run distributed applications at any scale.

Vue.Js



Vue.js features an incrementally adaptable architecture that focuses on declarative rendering and component composition. The core library is focused on the view layer only. Advanced features required for complex applications such as routing, state management and build tooling are offered via officially maintained supporting libraries and packages.

Vue.js allows for extending HTML with HTML attributes called directives. The directives offer functionality to HTML applications, and come as either built-in or user defined directives.

ClickUp



The ClickUp platform allows users to utilize more than 100 features which include: to-do lists, assign comments, resolve comments, have recurring tasks, sync with Google Calendar, sorting, customize assignees, collaboration detection, image mockups, assign multiple people to tasks, threaded comments, slash commands, multitask toolbar, rich

editing, Chrome extension, assign task priorities, board view, box view, project progress percentage, task hierarchy, customized notifications, user activity streams, mentions, and more features.

Project Management & Financing

Work Breakdown Structure:

The Work breakdown structure is a method for getting a complex, multi-step project done. It is a way to divide and conquer large projects, so things are done faster and more efficiently. Work breakdown structure (WBS) is a hierarchical tree structure that outlines a project and breaks it down into smaller portions. The goal of a WBS is to make a large project more manageable. Breaking it down into smaller chunks means work can be done simultaneously by different team members which leads to better team productivity. Below is the WBS of “HR kit!”

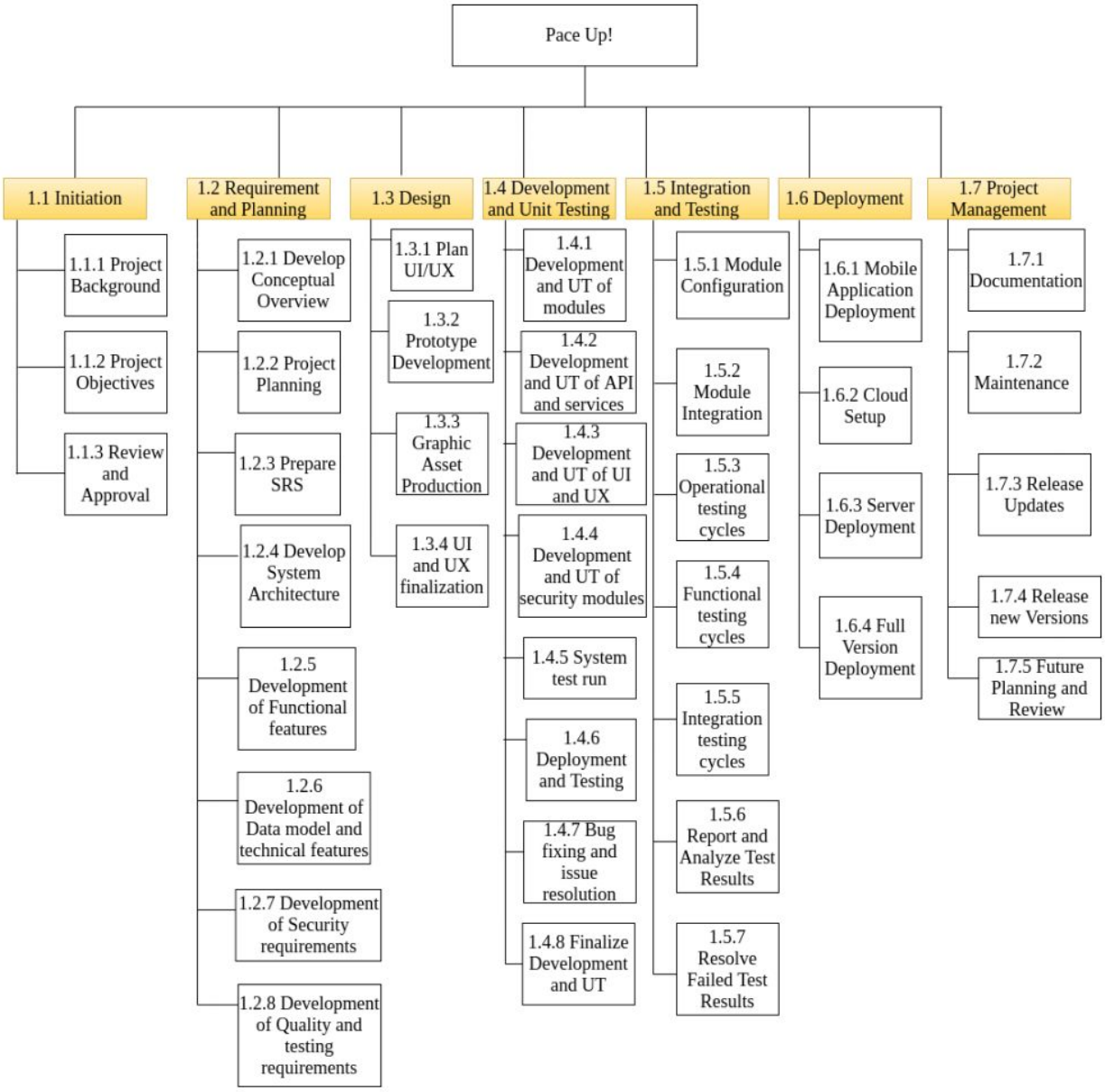


Figure: Work breakdown Structure of “HRkit!”

Process/Activity wise Time Distribution

The Critical Path Method is used to determine the shortest possible time to complete the project. The CPM is a sequence of activities of a project's starting activity & time and the project's finish time and activity. This tool is totally based on mathematical calculations and is used for scheduling project activities. This method is one of the parts of the Arrow Diagram.

Process Name	**Time**
Planning	1 week
Resource Allocation	3 days
Development	3 week
Testing	1 week

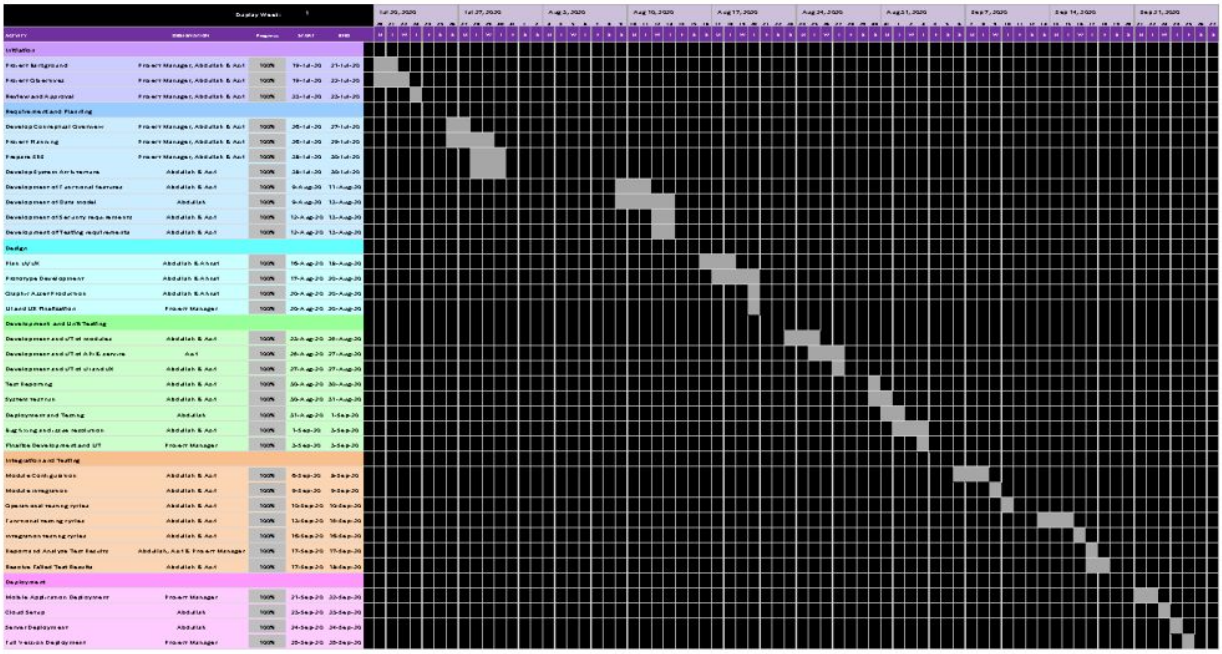
Gantt chart

A Gantt chart has been produced to help plan and schedule project tasks. It helped assess how long the project should take, determine the resources needed and plan the order in which tasks will be completed. It also helped in managing the dependencies between tasks.

The Gantt chart was also useful for monitoring the project's progress once it has started. It helped in having a clearer vision of what should have been achieved by a certain time frame and when the project fell behind schedule; appropriate actions were taken to bring it back to course. Below is the produced Gant chart for "Pace Up!". Since the chart is quite wide, it proved difficult to input full names of the people for the "Designation" column and hence only one part of the names was put.

The full names for each input names are:

● Adnan – Adnan Rahman Sharon



Process/Activity wise Resource Allocation

To assign the available resources in an economic way is known as resource allocation. The planning of the activities and the resource required by these activities while taking into consideration both resources availability and project time is termed as resource allocation in project management.

Resource	Quantity	Time
Project manager	1	5 week
UI/UX designer	1	1 week
Developer	1	3 week
Tester	1	1 week

Estimated Costing

Website Feature	Cost
Domain	1,000 – 5,000 BDT
Hosting/month	3,000 – 51,000 BDT
SSL Certificate	0 – 17,000 BDT
Website theme/template	0 – 17,000 BDT
Website content	0 – 43,000 BDT

Body of the Project

Work Description:

In my HR module there are 4 sections. They are Dashboard, Employee , Attendance, Leave. HR members and Higher authorities can see various information about all employees of their department. The separate menu in a particular section are:

Dashboard: In this section Higher management can see the number of total active employees, number of daily attendance, number of monthly attendance, shift wise daily Attendance and list of employee on leave today.

Employee: In this section a HR officer can put entry of a particular employee and store that information in the system. Management can see the staff list, management list also. Management can prepare identity card by using our system. Also management can see the salary history of an employee by our system.

Attendance: Management can see attendance dashboard by our system.

Leave: An employee can do application of leave by our system and management can see the summary of leave application by our system.

Requirement Analysis:

The software requirements are descriptions of features and functionalities of the target system. Requirements convey the expectations of users from the software product. The requirements can be obvious or hidden, known or unknown, expected or unexpected from the client's point of view.
Requirements can be divided into two types; functional and non-functional requirements

Function: Viewing Dashboard		
Input: Users Credentials	**Process:** System will match users credentials and display the dashboard.	**Output:** User will see the dashboard available for him.
Precondition: User need to login into the system.		
Postcondition: User will get the success massage and can view the dashboard.		

Function: Enter employees informations		
Input: Employees data which need to store.	**Process:** System will store the information into the database.	**Output:** User will see the dashboard of employees.
Precondition: User need to login into the system.		
Postcondition: Employee list will be updated.		

Function: Enter employees Salary information		
Input: Employees data which need to store.	**Process:** System will store the information into the database.	**Output:** User will see the dashboard of employees Salary information

Precondition: User need to login into the system.
Postcondition: Employees salary list will be updated.

Function: Employee can apply for leave.		
Input: Users Credentials and all necessary information for applying leave.	**Process:** System will store the information into the database.	**Output:** User will ge a success message.

Precondition: User need to login into the system.
Postcondition: User will get the success massage after applying for leave.

Systems Analysis:

It is a process of collecting and interpreting facts, identifying the problems, and decomposition of a system into its components. System Analysis is conducted for the purpose of studying a system or its parts in order to identify its objectives. It is a problem-solving technique that improves the system and ensures that all the components of the system work efficiently to accomplish their purpose. Analysis specifies what the system should do. This chapter contains parts of System Analysis that will help understand the project better.

ess	em Roles					
	Human	Non puting Hardware	Computing Hardware	Software	Database	Comm. & Network
Viewing Dashboard	User	N/A	Laptop or Desktop	Windows, Linux, MacOs	Mysql	LAN, WAN
Enter employees informations	User	N/A	Laptop or Desktop	Windows, Linux, MacOs	Mysql	LAN, WAN
Enter employees Salary information	User	N/A	Laptop or Desktop	Windows, Linux, MacOs	Mysql	LAN, WAN
Employee can apply for leave.	User	N/A	Laptop or Desktop	Windows, Linux, MacOs	Mysql	LAN, WAN

Feasibility Analysis

Feasibility Study is a study to evaluate feasibility of a proposed project or system. Feasibility study is the feasibility analysis or it is a measure of the software product in terms of how much beneficial product development will be for the organization in a practical point of view. Feasibility study is carried out based on many purposes to analyze whether software products will be right in terms of development, implantation, contribution of project to the organization, etc. Main parts of Feasibility Study :

● Technical Feasibility: In Technical Feasibility, current resources; both hardware and software along with required technology are analyzed/assessed to develop the project. This technical feasibility study gives a report whether there exists correct required resources and technologies which will be used for project development. Along with this, feasibility study also analyzes technical skills and capabilities of technical team,

existing technology can be used or not, maintenance and up-gradation is easy or not for chosen technology, etc.
“HR kit!” is built using Laravel, VueJs, MySql. These are the technologies that are very popular in the modern industry and everyone involved in the making of this project had the skills to work with at least one of the technologies mentioned. Hence, it can be concluded that the project is Technically Feasible.
● Operational Feasibility: In Operational Feasibility degree of providing service to requirements is analyzed along with how easy the product will be to operate and maintain after deployment. Along with these, other operational scopes are determining usability of the product and determining whether a suggested solution by the software development team is acceptable or not etc.

● Economic Feasibility: In Economic Feasibility study cost and benefit of the project is analyzed; a detailed analysis of what will be the cost of the project for development which includes all required cost for final development like hardware and software resource required, design and development cost, operational cost, etc. After that it is analyzed whether the project will be beneficial in terms of finance for organization or not.

Problem Solution Analysis:

Problems: In existing time and situation where there are so many smartphones and so many people spending so much time behind it and also the given pandemic situation where people are asked to stay home, there are problems that have been observed and analyzed, they are:
● Physical Pain: People are spending too much time by sitting which causes pressure on the spinal cord and nape area which results in pain.
● Eye Strain: Too much time spent using of Software without giving the eyes proper rest causes eye strain, irritation, dry eyes, etc.
● Bad Posture: Most people tend to sit and look down at the phone screen, resting the upper torso on their arm. These affect the joint areas of a person, especially the nape and back area.
● Laziness: As people tend to sit while using their Laptop or Desktop, they end up having reduced bodily movement which results in them becoming lazier.
● Weight Gain: Most people, as mentioned earlier have their bodily movements reduced which means lesser physical activity to burn off calories. While intake of food remains unchanged but there is a decrease in physical activity, people are gaining unwanted weight.

Solutions: The problems that have been analyzed can be solved by the use of “HR kit!” by:

● Solution to Eye Strain: Our system has Dark theme which can reduce pressure of users eye.

Effect and Constraints Analysis:

Effect Analysis: The effect of HR module is insane. By this all the HR related work become more efficient, fast and accurate. Any kind of information and summary will be available for just a click. It will increase the companies productivity.

Constraints Analysis:

The time constraint: The project will take 4 months to complete.

The cost constraint: The project need high configured desktop.

The scope constraint: We will deliver a proper HR management system.

System Design

System design is deriving a solution which satisfies software or system’s requirements. We can define software design as translating requirements into software components and interactions among them. Any design may be modelled as a directed graph made up of entities with attributes which participate in relationships. Design represents the system, how it will work and how it can be assessed for quality. Design is the way to translate client’s requirements into a system or software product accurately. Software architecture provides an abstract representation of the overall structure of software. This chapter contains numerous design level diagrams to have a clearer understanding of the system and flow of data.

Implementation:

Critical aspect of a successful HR software implementation is following the correct procedure.



Determining Requirements

Before taking the plunge into what the HR market offers, do some introspection involving all stakeholders. Having well-researched answers to some of the following questions can go a long way in making your HR implementation process smoother:

Planning

Once we have laid the groundwork for your requirements, plan for the implementation because a new HR system will impact the entire organization and its operations. Make sure we consider and plan for risk factors and unforeseen difficulties. This step also sets the framework within which you'll implement the HR system.

The planning phase also helps minimize the risk of inaccuracies, miscommunication and chaos while ensuring that implementation aligns with your business goals.

Setting Design and Scalability Expectations

As part of planning for your HR implementation process, assessing and gaining clarity on some fundamental fronts is essential before heading to the next vendor selection phase. Some design and scalability considerations include:

Shortlisting and Selecting a Vendor

Some pointers to keep in mind during this phase are:

- Choose a vendor open to understanding your organization's specific processes and functional requirements.
- Involve any references from current clients of similar scale and comparable business functions before finalizing on a vendor. Also, took time to confirm the vendor's claims.
- Discuss long-term support, services and training in the purchase agreement.
- Set our priorities straight between functional and technical requirements and their costs.

Actual Implementation

The central part of the implementation stage involves rigorous system testing, data configuration and migration. In this phase, technical staff tests specific module functionality, verifies that it meets promised standards and maintains data integrity.

Testing:

Project Manger and QA members will prepare a test plan for testing the system. They will check all the functionality of the system and check is all the requirements fulfilled or not. As well as weu are developing a web HRM solution, we will use market-leading test automation tools like **Selenium**.

Results & Analysis

As mentioned earlier, for the development of this project, LARAVEL has been used to build the web application and VUE.js were used for the frontend development. LAravel is used because it runs on web supported devices hence it runs faster and uses lesser space. This chapter contains screenshots of the web application so it can be seen about how the actual application looks like:

- **Dashboard:**
  In the dashboard, User will have the option to see about overall system. The User will also be able to view the total number of active employees, summery of monthly, daily and shift wise attendance. Also user can see the list of employees who are in leave.

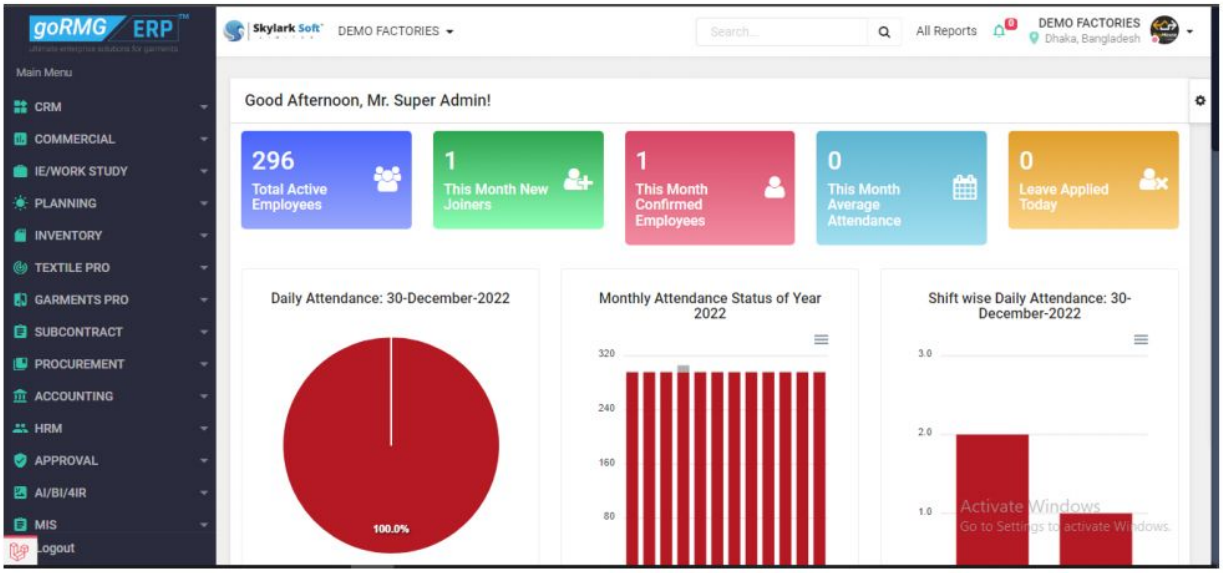


Figure 1.1 : Screen View of Dashboard

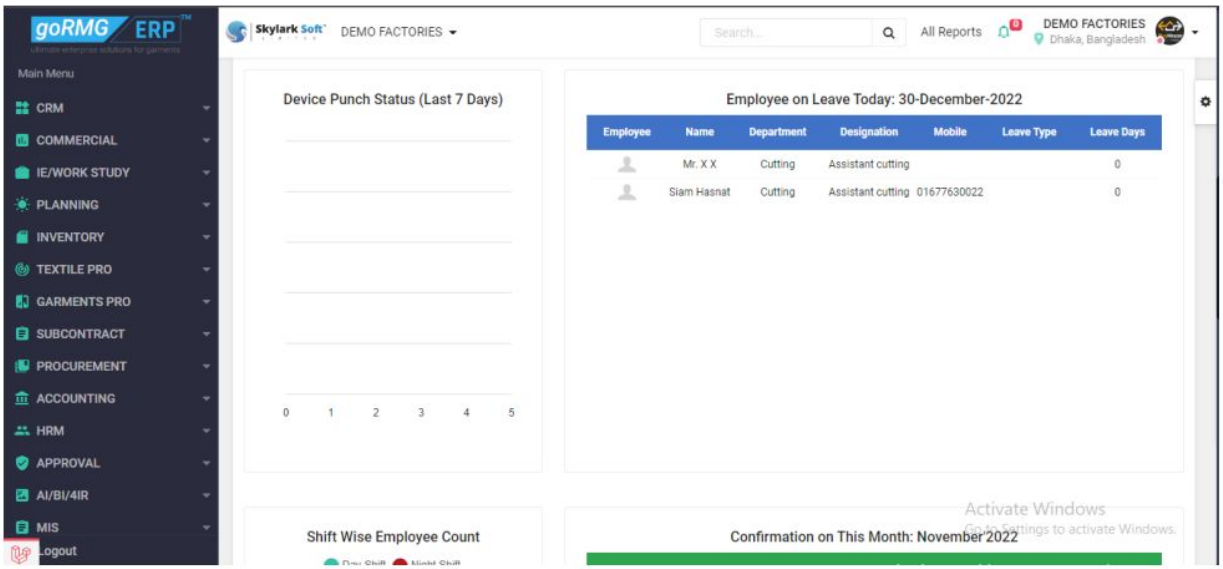


Figure 1.2 : Screen View of Dashboard

- **Employee Create:**
  The next section is Employee create section. From this HR can store all necessary information about employee and make that person a valid employee of that organization.

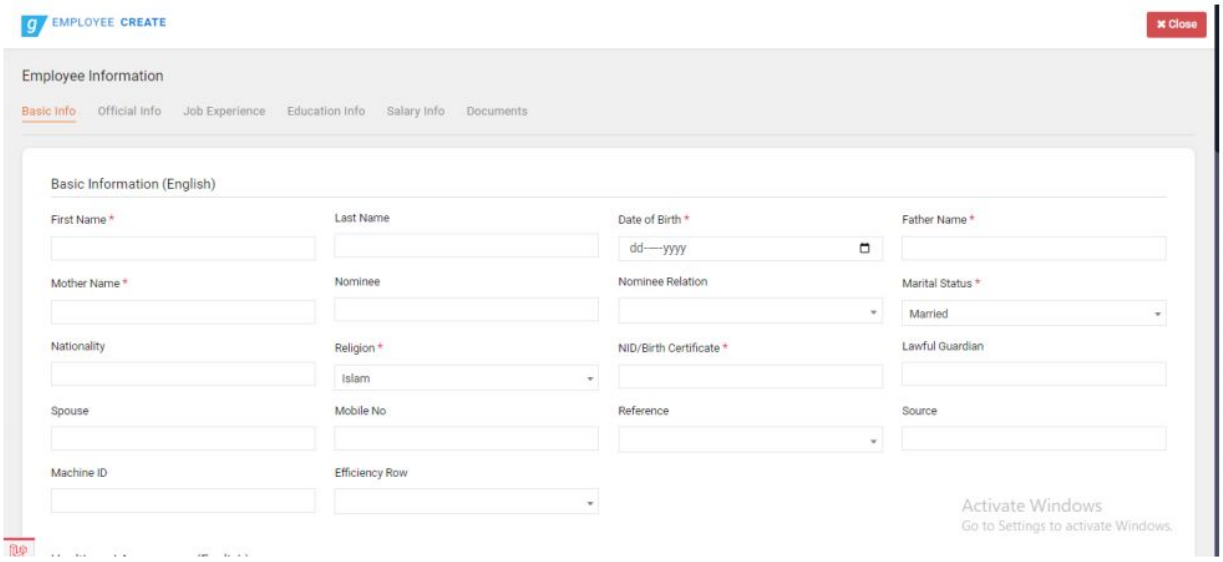


Figure 2.1 : Screen View of Employee Section

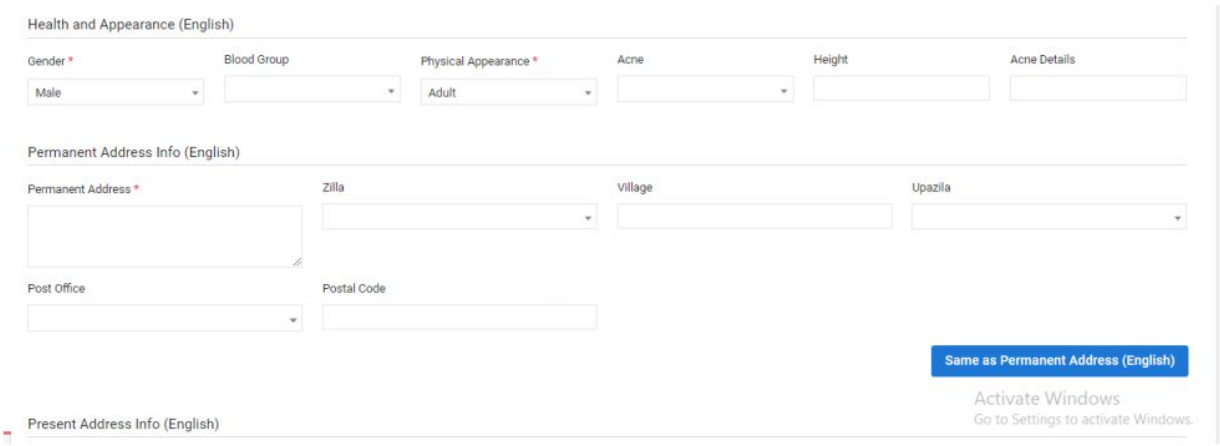


Figure 2.2 : Screen View of Employee Section

- **All Employee List:**
  In this section HR and Higher Management can see the list of employees. There Name, Code, Unique ID, Department, Salary, Grade is visible in this section. Also there is available a button for create new employee. A button for see the list of Separated and closed Employees and download the list of employees in a excel format.

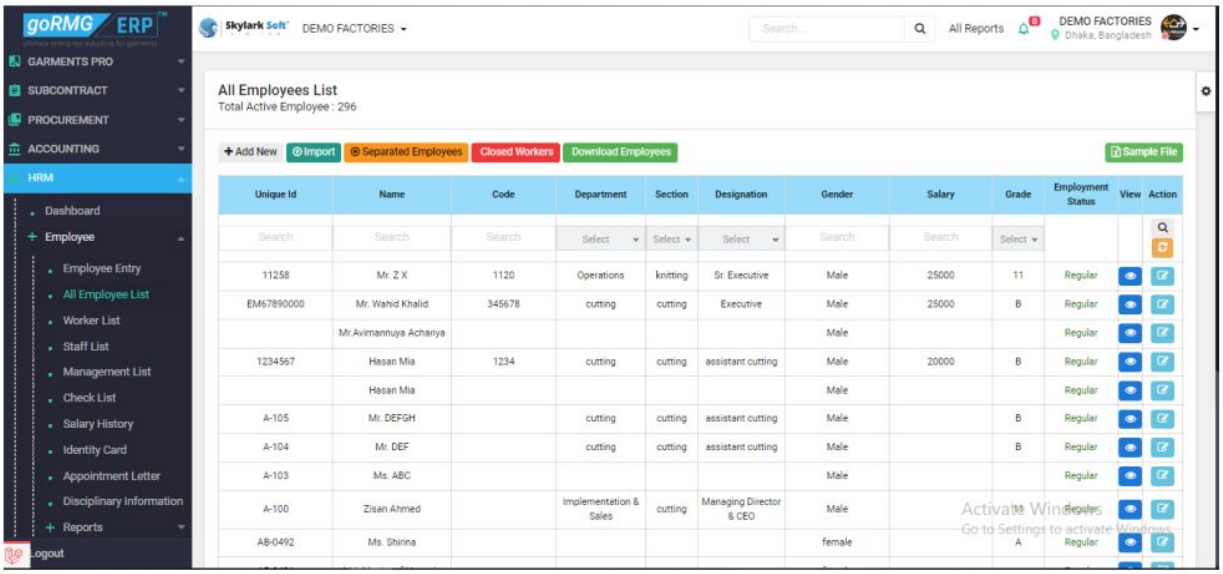


Figure 3 : Screen View of All employee list

- **Salary History:**
  In this section Higher Management can see the History of all Employees. And Create the new record of Salary History.Also they can edit or delete the information.

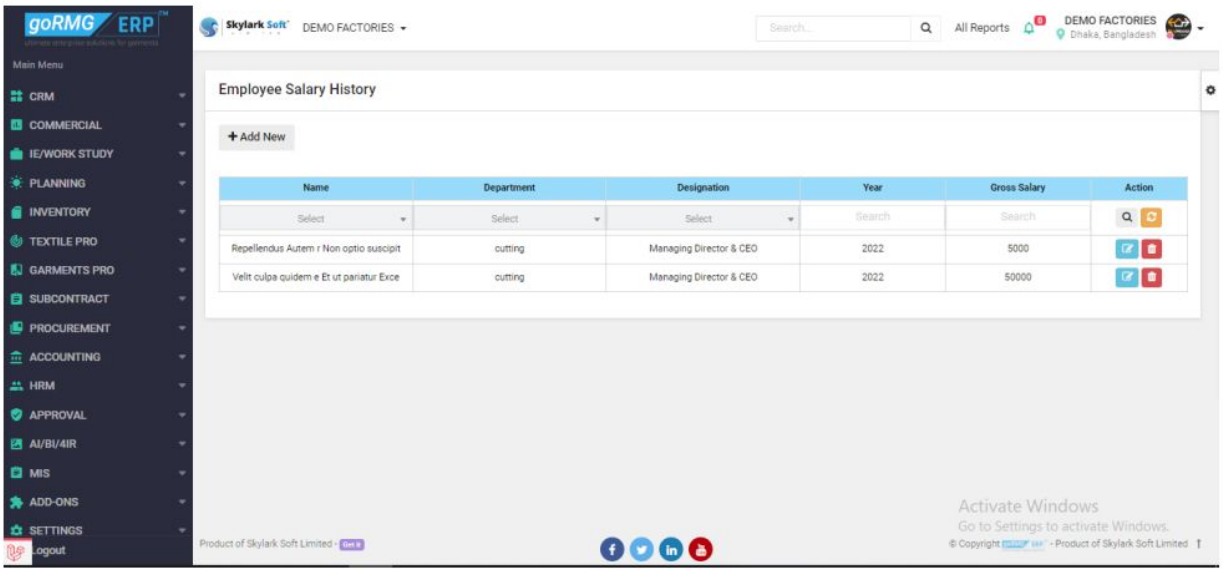


Figure 4 : Screen View of Employee Salary History

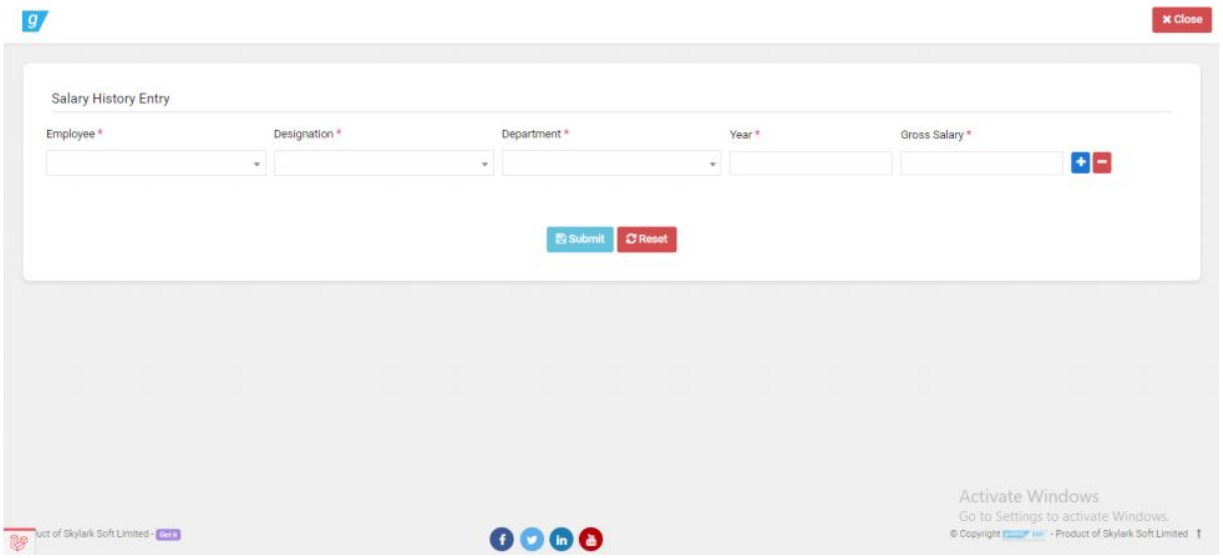


Figure 4.2 : Screen View of Employee Salary History

- **Print Identity Card:**
  In this section HR can print the ID card of any employee. There is some Some dropdown available for filter the records. The deopdowns are Department, Section, Designation, Employee ID and so on.

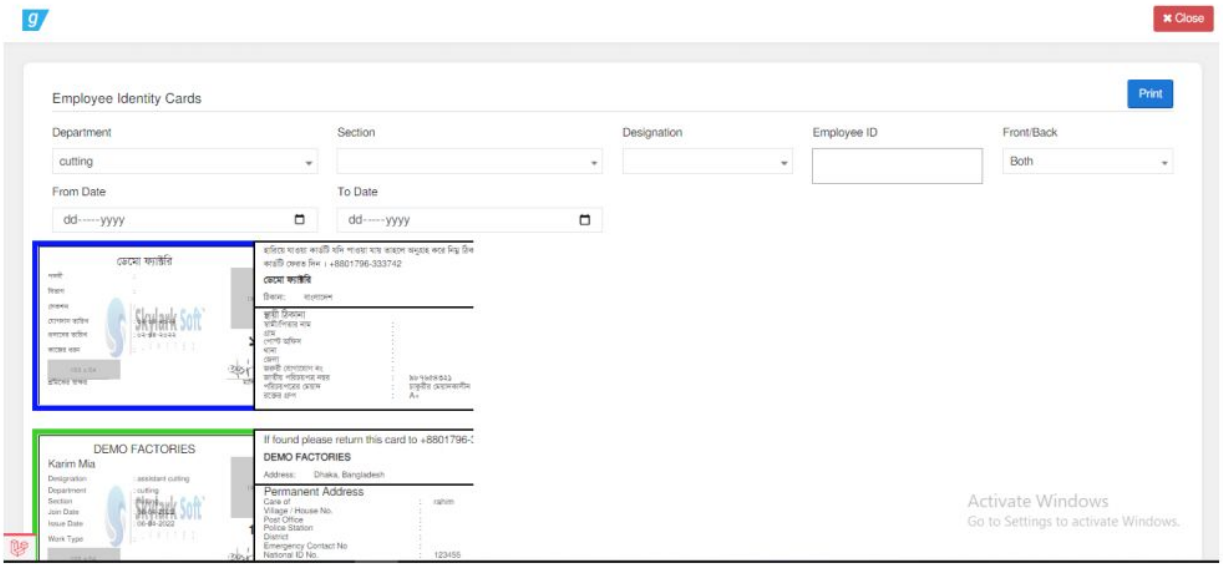


Figure 5 : Screen View of Employees ID card

- **Attendance Details Report:**
  In this section HR can see the attendance details of any employee. They can see the summary report of attendance in this page. Also they can print the report by clicking on PDF and excel button.

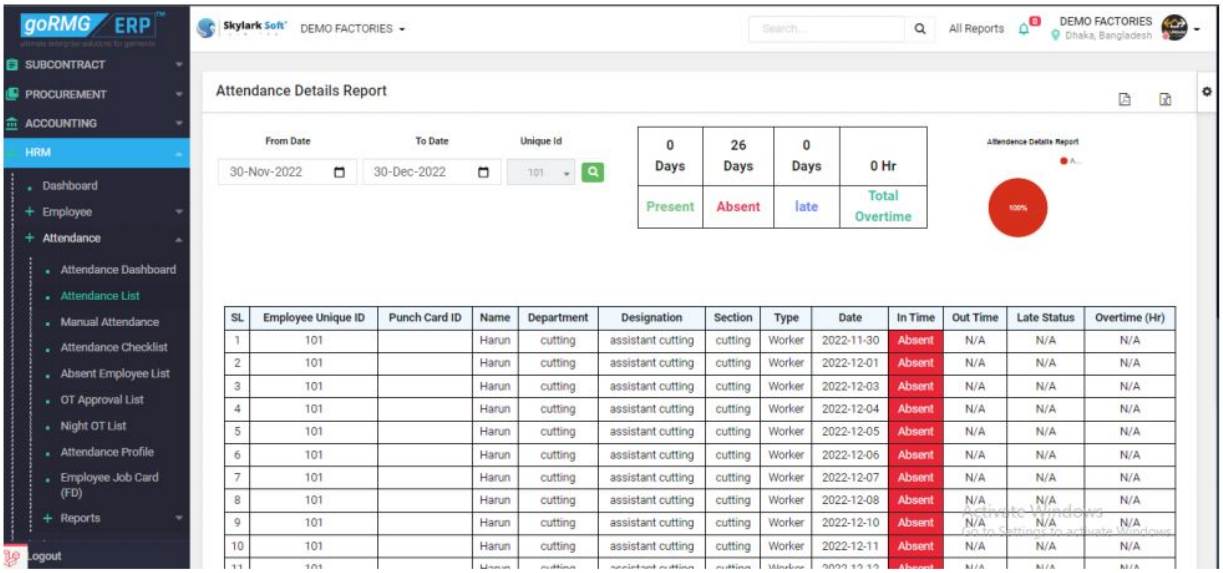


Figure 6 : Screen View of Employees Attendance Report

- **Leave Application:**
  In this section user can apply for leave by filluping the necessary information.

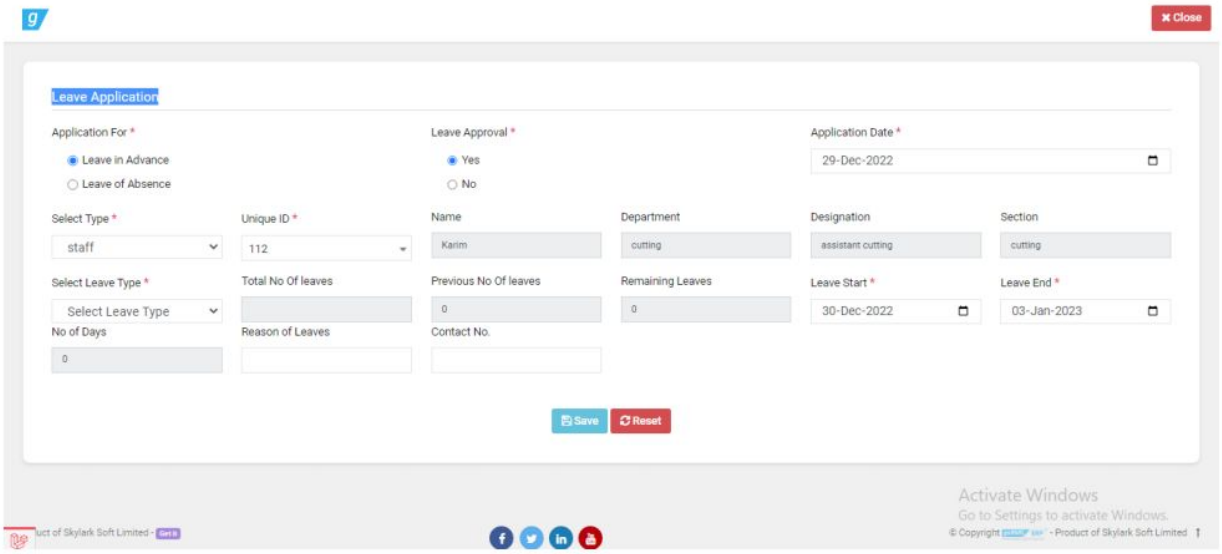


Figure 7 : Screen View of Employee Leave Application

- **Leave Application List:**
  In this section HR can see the list of users who applied for leave. HR can see the approve status and also the can filter the list by filluping the dropdown.

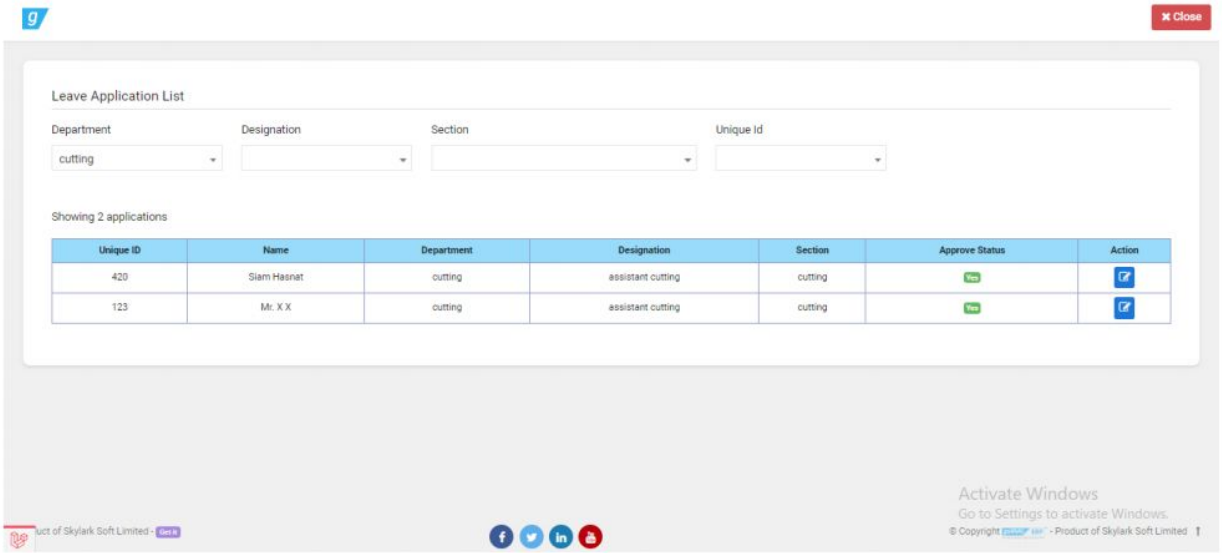


Figure 8 : Screen View of Employee Leave Application List

- **All Leave Dates:**

  In this section HR can see the list of leave dates applied by all employees. Also name, unique ID, Department, Designation, Date of application and leave date is available in this section. HR can search any particular employees information by clicking on the dropdown.

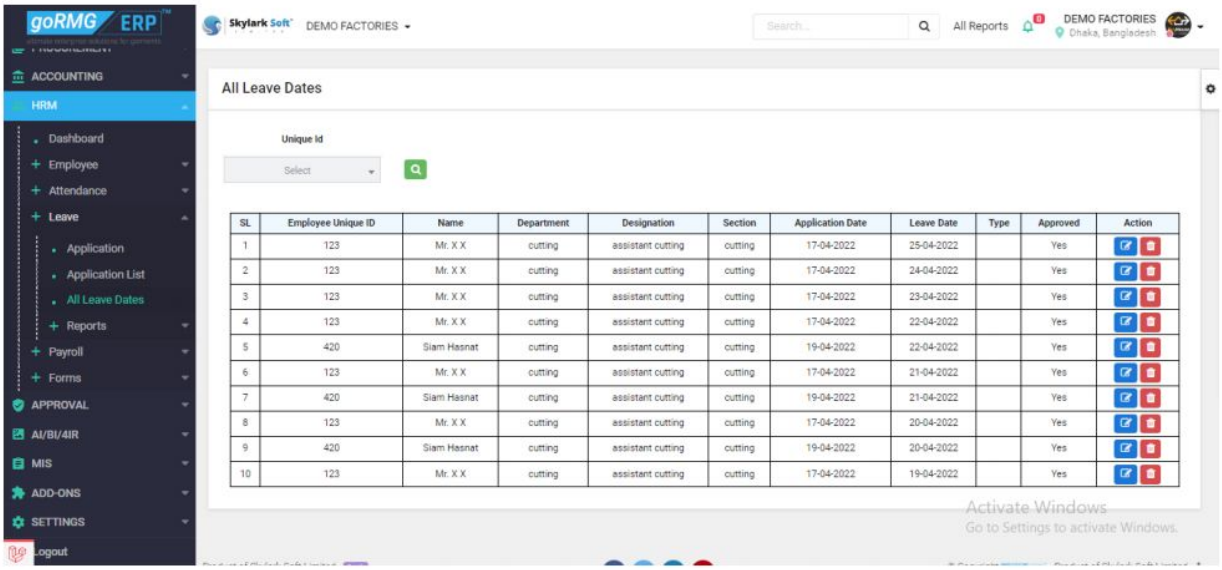


Figure 9 : Screen View of Employee All Leave Dates

Sustainability of the Product

Sustainability of the product refers to its ability to be maintained and updated. In the modern world, every application being released needs to be maintained and continuously
updated for its user base.
A product can be sustainable in three main categories:

● **Community Sustainability:** it means how much and how actively the users will support the project. Support comes in many forms such as downloading and installing the system, using the application, subscribing to paid services, giving rating and feedback, referring to other people, etc.
After the release of “HR kit!” in the software market, it is believed that it will have a strong user base since it is a unique idea of exercising in a playful and competitive way. As the user base grows so will the community and hence it can be said that it is Sustainable in terms of Community.

● **Financial Sustainability:** this refers to how the application’s running cost will be maintained after it has been released and whether it will generate enough revenue as acceptable profit. An application’s running cost includes - server cost, database storage cost, third party api cost, etc.
When “HR kit” will get a full-fledged release into the application market, it will have advertisements to generate revenue and also a paid monthly subscription will be offered to the users to remove all advertisements from the application for a month. This method of revenue generation is believed to be able to cover the costs to be able to keep the application running after release. Thus, the project can be determined as Financially Sustainable.

● **Organizational Sustainability:** it relates to how the organization will continue to operate after the release of the application. After the release of an application, usually the organization maintains the application via its current team, an extended team or by a fresh new team. Also, organizations update their project by adding newer features to it and organization may pivot to other projects, expand the teams, create new teams, etc.
“HR kit” has many more future planned features to be worked on and released. Since it is a unique mobile game, the project will be maintained and updated after its release as well. Taking core features from “HR kit” and adding more ideas and features to it, another new project may also be planned and worked on. In conclusion, it can be said that the project is Organizationally Sustainable.

Social and Environmental Effects and Analysis

Smartphones are popular among people for the applications they offer to users. Smartphones
make communications with people quite easier. People enjoy a lot of benefits in various forms of their daily work. Some advantages smartphones provide – better means of communication, learning options to users, great exposure to the latest things, ways to personality development, simple ways to access applications, ideas to succeed in business,
platforms to grow their applications and more.
The aim of “HR kit” in the world of smartphones is to simply entertain people while making them exercise so they will remain fit and healthy.

Social Effect:

“HR kit” aims to keep people healthier and fit. People spending too much time on their phones browsing social media or playing games can cause serious health issues such as eye strain, dryness, irritation, back pain, neck pain, headaches, joint muscle pain, etc. “HRkit” will have a much more positive impact since the game will make people walk or run to play. People will want to play it more since they can play and compete against their friends and family and it will make them more competitive as well. Hence the more the people will play the more the people will spend energy moving and the lesser they will be at health risks.
Also, the more the people are busy playing this game, the lesser the time they will spend on social media and other games. In a sense, “HRkit” will make people exercise in a fun and competitive way.

Environmental effect:

Playing “HRkit” regularly will make people more active and less lazy. Active people become more eager to do more physical tasks. These physical tasks include taking care of their own home environment like picking up litter from the floor, taking out the trash, dusting, cleaning, washing, organizing things, etc. Although this is not the main goal of “HRkit”, but this buildup of subconscious behavior is believed to be a good thing and hence it results in having a positive impact on their environment.
.

Problems Faced During this Period

During my internship program, I have faced lots of challenges while working on this Project.
The main ones are:

● **Understanding the Requirement:** it was quite difficult to understand what was really required; often I would do things that were not asked to be done and miss out on the actual requirement. It was recurring at the beginning but as time went on and I started to have better understanding the problem was minimized.

● **Adapting to New Technologies:** since this was the first time, I have ever worked on a
mobile application I had to learn and adapt to new technologies. Although acquiring the skill set was possible it became hard to apply them in real life situations.

● **Keeping up to Speed:** after learning new technologies and putting them to use was a slow process for me initially as it was the first time, I have ever used it. Hence, it was quite difficult to meet weekly deadlines and this slowed down the overall pace at which the application was developing.

● **Identifying and Fixing Bugs:** often, there were bugs which were very hard to find, and even after they have been found it became a big problem to fix it. There were bugs that were so difficult to deal with that it would take a whole week to fix it.

Solution of those Problems

I solved the problem by taking help from my seniors and my team lead. They guide me a lot to overcome all the problems and making my concept clear about building a software from scratch level.

Future Work

This project, “HRkit!” is still in its development phase and there many more planned features that are to be added in the near future. Some of them are:
➔ Automatic Leave application system
➔ Digital Payroll system
➔ Employee tracking system

Conclusion

During Internship I worked on a web application called “HRkit”. In this web application people can manage all HR related work by our system.
Working in Skylark Soft Ltd. as an intern has been an amazing experience. I have learned a lot about developing different kinds of web applications and also about development styles. Working with cutting-edge technology like Laravel, Vue js. is among the major takeaways from the Internship Program. Through this program I have been exposed to a developer's working life. Throughout my internship, I could understand more about the definition of a software engineer and programmer and this helped prepare myself to become a more responsible and innovative developer in future. During my project, I cooperated with my mentors and seniors to solve the challenges faced. Moreover, the project indirectly helped me to learn independently, discipline myself, be patient, take initiative and the ability to solve problems. Besides, my communication skills have also strengthened as I had to give regular updates and was engaged in many pair programming sessions. As I had to face many problems, solving them developed my programming skills which made me more sharp in my skills in PHP since Laravel itself is a PHP framework for creating user Interface and Vue.js is done in JavaScript. This internship opportunity has paved the way to look into the development environment and marketplace. I would like to once again appreciate everyone who has made my life as an intern such a great experience

Bibliography

1. https://www.skylarksoft.com/
2. What Is SDLC? Understand the Software Development Life Cycle
3. Agile software development - Wikipedia
4. Laravel
5. Vue.js
6. Clickup
7. Gitlab
8. What is WBS (Work Breakdown Structure) in Project Management?
9. System Analysis Overview - TutorialsPoint
10. Feasibility Analysis - Simplicable
11. Software Architecture Guide
12. What is Software Requirement? Types of Requirements.
13. What is a Functional Requirement? Specification, Types

An Undergraduate Internship/Project on yourTopic

By

Adnan Rahman Sharon

Student ID: **1921662**

Autumn, 2022

Consent from Supervisor

The student modified the internship final report as per the recommendations made by his/her academic supervisor and/or panel members during and/or before final viva, and the department can use this version for archiving as well as the OBE course material for CSE499.

(Signature of the Supervisor)

Shahidi 24/01/2022

MR. Sarwar Shahidi

Department of Computer Science & Engineering

Independent University, Bangladesh