A Mobile based application for Human Resource Management System

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Group: A

An Information Systems Project Proposal Submitted to the Faculty of Information Technology in partial fulfillment of the requirements for the award of a Degree in Business Information Technology.

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# Declaration

I declare that this work has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the research proposal contains no material previously published or written by another person except where due reference is made in the research proposal itself.

Student Signature:	
Sign:	_ Date:
Supervisor's Name	

### Abstract

Human Resource is a vital organ in any organization and has a hand in every day to day activities of the organization. Human Resource Management is the process of recruiting, selecting, inducting employees, providing orientation, training and development, appraising the performance of employees, deciding compensation, motivating employees, maintaining proper relations with employees within an organization. Therefore simply put, it would be quite tiresome to operate an organization without having a Human Resource Team. In regards to the functions of a Human resource team, you would find that majority of these tasks are done entirely by human effort that is: going through job applications that have been provided, carrying out employee appraisals often, receiving requests from employees to receive salary advances, leave days, solving internal disputes etcetera. Having said that the tasks mentioned could seem to be tiresome and at times overwhelming to Human resource persons especially those who do not necessarily have a large Human Resource Department. What this tends to do, is result to a delay to employees requests since they have to be dealt with one at a time and also in the rare occasion of loss of data it could result to forgetting of a request or two by the human resource personnel. This problems could be solved by the creation of an information system, specifically a mobile based information system. What the system will do is act as a middle man between the Human Resource team and the employees, whereby the application process of events such as salary advances, job applications and leave applications could be done just by the click of a button or two on one's mobile device. What then in turn this will do is present this requests on the Human Resource Teams side on their dashboard, whose main purpose is to always notify the team of requests and act as a remainder since the main objective it to always leave the dashboard clear which means all employees have been sorted. Additionally the system will go further and incorporate Artificial Intelligence that will help filter job applications based on the criteria dictated by the HR team and secondly based on the organizations KPIs, it will be able to predict employees performance ratings. Tools to be used in the project development will include Java Programming language, MySQL database and Android Studio. In conclusion the project will benefit an organization by providing a mechanism to ease up the processes present between the employees and Human Resource and in the long run support effective and efficient Human Resource Management.

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# List of Abbreviations

**HRM** - Human Resource Management

**HR** -Human Resource

**KPI** -Key Performance Indicator

# Chapter 1: Introduction

### 1.1 Background

(Aisha, 2018) States human resource management system is an integral component of any organization; overall efficiency of the company's processes is dependent on the adaptation of an effective Human Resource Management system. An organization is therefore unable to achieve its maximum efficiency without having a human resource department to handle the social interactions and protocols within the organization/company. An organization has its set objectives and a HRM system is able to facilitate the achievement of these objectives between the stakeholders and each department within the organization. The current systems in most workplaces within Kenya are those of actual day to day interactions between the employees and the Human resource department. If there is an application one manually has to fill the applicant form and the respective people have to filter the applications accordingly. In the presence of a problem of conduct by an employee, a deduction of payment, an advance in salary or application for a leave there has to be numerous interactions between individuals of different department i.e. the human resource department and the employee of whichever department (International Journal of Economic Perspectives, 2017).

In this current decade of time, majority of organizations and business are leaning towards the base of Information Technology from sales management to management of daily business processes. Therefore, the human resource departments cannot afford to be left behind in this new wave and trend (Dr. A.Narasima Venkatesh, 2017). Therefore, inducing a mobile based Human resource management will not only be time effective but it may also increase the efficiency of an organization resulting to perfecting of company objectives. Automation of a Human Resource Management means that an individual's payroll be visible to him/her throughout, constant notifications of job applications, notice of warnings issued to an individual, application of Leave, advance salary and loans plus the availability of the company timetable schedule. This will result to a promising upraise of the organization with the use of Artificial Intelligence to assist in application filtering and producing the reviews of individuals and the organization (Paul Poisat, 2017)

#### 1.2 Problem Statement

The current Human Resource Management Systems being used are described as being time consuming, stressful and inefficient to some extent (Aisha, 2018). Since the current system is entirely dependent on human effort, one gets tired during the process hence reducing the efficiency to which a task is carried out. This may result to the waiting period to be long and endless for company employees. Additionally vacancies within the organization may not be known to everyone in the organization. Basically within an organization, departments have different functions and tasks carried out. Therefore the Human Resource Department is tasked with facilitating employees within an organization and also maintaining good relationships of conduct within the organization and also with its clients. Having understood that we get to see the HR team with tasks such as leave guarantees, issuing of warnings, salary distribution, staff performance rating, timetable creation, job application vacancies and interviews. This are but a few of the tasks present and majorly depends on human effort.

### 1.3 Aim

The aim is developing a mobile based human resource management application to address the problems listed in 1.2 above

### 1.4 Specific Objectives

- i. To investigate the current Human resource Management systems in use within organizations.
- ii. To Evaluate challenges faced with the current working systems
- iii. To develop an automated mobile based application that will facilitate Human resource management with the help of Artificial intelligence.
- iv. To test the proposed system

### 1.4 Justification

This project is important because it will not only automate the already existing systems, but it will also create a window whereby time usability is minimized in terms of period but maximized in terms of efficiency. As proven by Venkatesh (2017), technology and its trends is a delightful topic that crosses people at the work place and its environs resulting to the urge

to transform most business processes to technology capable tasks. Therefore a mobile based Human resource management system will enable an organization to achieve its set objectives with more precision since time management is one of the factors catered for in the system. Additionally (Wang, 2018) states that the proposed system will result in reduction in the communication costs improving the general net profit capability of the organization. (Kravets, 2019) goes further ahead to state that use of integrated software allows an organization to effectively manage their resources resulting in little, if possible no non-traceable losses.

### 1.5 Scope/Limitations

The purpose of this project is to create a mobile based application with the help of Artificial Intelligence that will result to an Automated Human resource Management System, whose sole purpose will be to act as a medium between the normal employee and Human resource department. Whereby this channel will always keep both parties updated and issue reminders often so as to prevent time wastage. Once the Human resource department keys in data it will automatically reflect on the system o the employee. My assumptions is that majority of organizations are structured without automated HRM systems. The system will firstly be Android based as the first development and maybe in future with growth both IOS mobile version and a web Api could be developed.

The limitation of this system is that its mobile based meaning its sole purpose is to function on mobile devices, hence it deems useless when placed in other mediums such as the web.

Secondly is that it works with the assumption that all employees within a given organization have accessibility to mobile devices.

# Chapter 2: Literature Review

#### 2.1 Introduction

This chapter will be reviewing Human resource Management at large whereby we shall begin by firstly identifying the current human resource management systems that are present in most organizations in Kenya and will be using Total as a referencing organization. Once we are familiar with the systems that are in use, then we shall be able to scrutinize and deeply analyze those systems which should result in identifying various challenges that are faced accordingly. Having identified the existing challenges then we shall try and devise methods by which they can be solved by the use of a new and automated HRM systems that if deployed will provide major benefits to organizations such as financial growth and labor reduction.

### 2.2 Current Human Resource Management Systems

Human Resource Management (HRM) is what organization use to illustrate systems created and put in place for the management of people within an organization. The role/ task place in the hands of a Human Resource manager is majorly categorized in three: staffing, employee compensation and benefits, and designing work. Objectively the sole responsibility of the HRM is to maximize the productivity of an organization by optimizing the effectiveness of its employees. (Armstrong, 2018) States that business success is most likely to be achieved if the personnel policies and procedures of the enterprise are closely linked with, and make a major contribution to, the achievement of corporate objectives and strategic plans.

Research gets to make us understand that most organizations have Human resource as a department on its own and whose main purpose is to monitor and facilitate other employees in their day to day activities. (Westfall, 2019)Stated that no matter where in its lifespan your business is, the fact remains the same: Your business needs HR software to keep it on course. Therefore most organizations have software's such as: Payroll, Personal Tracking, Time and attendance, Applicant tracking, Performance management and benefits administration, that they use to keep track of their employees. But all this software's are only accessible by management who in this case is HR. Therefore an employee when in need of assistance they have to go and visit the HR department to be assisted.

# 2.3 Challenges facing the current HRM systems

# 2.3.1 Application process proves tiresome

The first challenge in this chapter is that of Application processes within an organization. According to (Zolfagharian & Naderi, 2019)applications are of two types: one that of an individual outside the organization looking for employment within the given organization and the second one is that of a vacancy within the organization that an already employee would like to occupy if given the chance.

In the first situation one has to provide numerous documentations such as: application letters, Identification documents, school certificates, KRA, NSSF, NHIF documents, a guarantor copy and some organizations also require a copy of good conduct etc. In the second case one most probably will submit their application letter and then HR can counter heck their credentials with their already existing files.

Now here is where the challenge comes about, there could be numerous applications that have been submitted to the HR desk and in order to filter these applications the HRM have to go through them one by one in order to pick those that they deem able to appear for an interview. This process tends to be long and tiresome since other activities planned for the day might have to be suspended to handle this, which is if it happens at a certain period of time like end of month.

### 2.3.2 Waiting period for responses could be unnecessarily long

The second challenge identified by (Wilton, 2016) is that of the waiting period to receive a response from the HRM by an employee of the organization. Within an organization there could be up to 50+ employees present, and it is possible for more than 5 to issue a request around the same time. For instance it is almost mid-month and one requires an advance in salary urgently. The HRM has no otherwise but to process each request one at a time and in the occurrence of another pressing task available they will have to temporarily suspend that task to deal with another. This process can be too long on the end of the employee since the urgency does not change with the task.

Even if quite impossible, there could be a request that could have been missed since there is a large sum of tasks the HRM is faced with. This will not only be devastating to the employee who issued

the task but also the HRM sine their major task is facilitating the employees within the organization.

Lastly the waiting period that could also seem to be quite long is that for an application that had been given. Those who make it for the interview tend to receive their responses not too long after submission, but what of those that did not necessarily reach the criteria put in place, they at times end up showing up personally for them just to be told they did not meet the certain requirements that are required.

### 2.3.3 Generation of KPIs/ Management of employee performance

A key Performance Indicator is a measurable value that demonstrates how effectively a company is achieving key business objectives. Organizations use KPIs at multiple levels to evaluate their success at reaching targets. High-level KPIs may focus on the overall performance of the business, while low-level KPIs may focus on processes in departments such as sales, marketing etcetera.

Therefore this is a process that occurs often within an organization in order to determine if their set goals and targets are being worked towards effectively and if not what changes should be made. This goes hand in hand with the rating of the employee performance that in most cases is done by the HRM. This can be tiresome and unnecessarily time consuming to the HRM since it is an activity that is repetitive every time it is carried out.

### 2.4 A review of solutions to the challenges at hand

i. The solution I suggest to the first problem of having the application process being tiresome is that an automated application system to be applied. There are such existing systems available and mostly you will find them on websites such as that of KPLC, Oracle and even Safaricom that prompt an interested party to apply for a given job and as well attach the relevant documents.

To assist the HRM team in their part of viewing the applications, a system can be created such that it is able to filter out applications that don't attain the requirements that have been outlined by the HRM team. Which now means that the HRM simply is left with applications that meet a certain criteria and they are able to easily scrutinize them if need be and contact the necessarily individuals. This would save lots of time and energy.

- ii. The second issue was that of placing requests and probably having a long wait period for a response. In this case the proposed system will have a means by which one is able to key in the request on the mobile application. Therefore the HRM team will have this requests on their dashboard allowing them to easily process the request and at all times leave their dashboard clear meaning that all requests have been responded to, as opposed to having physical requests let's say on paper.
- iii. The third challenge that was identified was the repetitive process of employee performance ratings done often within an organization. The suggested solution to this problem was the incorporating of Artificial Intelligence that will use the employee KPIs done to predict the employee's performance resulting in time conversation and avoiding this repetitive processes by the HRM team.

# 2.5 Conceptual Framework

The Figure 1 below is an illustration on how the proposed system is supposed to function. The HR manager or team will login with the correct credentials into the system whereby they shall be allocated the administrator authority. With this ability they will be able to key in employee details such as payroll, documentation, leave dates and timetables that will automatically be saved on the database server. This will then give the opportunity of any employee by the use of a mobile device to create a user account or login if already have an existing account. Once that is completed the system will then pull data on that individual from the database server and portray it on the system for the user.

The database is part of the system and not a separate entity on its own. Data that will be saved on the database are employee records such as Employee ID, First name, Last name, Date of birth, contact details (e-mail and phone number), wages, leave dates available, performance ratings, national ID, KRA pin, NSSF and NHIF numbers. Once the database is completed then the Artificial Intelligence as mention earlier can now be incorporated whereby it shall be able to firstly pick the performance ratings from the database for the purpose of creating future ratings based on trends. Lastly the Artificial Intelligence will be incorporated into the system in order to be able to follow the criteria set by the HR team in order to filter applications.

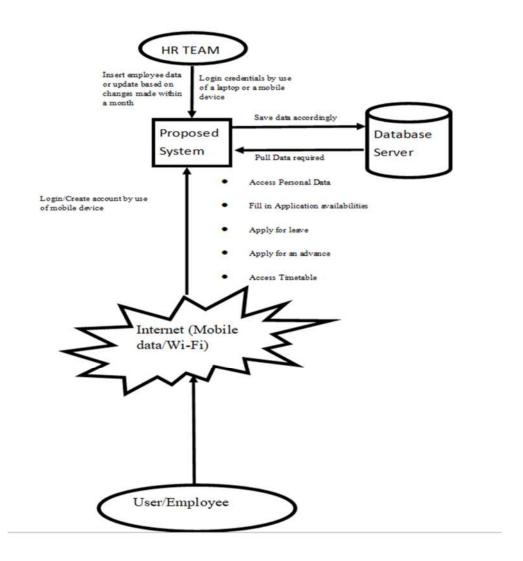


Figure 1: Conceptual Framework

# Chapter 3: System Development Methodology

#### 3.1 Introduction

This chapter is basically a description of the methodology that will be used to create the proposed system. A methodology is the specific procedures or techniques used to identify, select, process, and analyze information, in this case based on the proposed system. Therefore the purpose of the methodology in this chapter will be to ensure that the proposed system will be able to achieve its objectives and create a better automated HRM system. The chapter will cover a variety of areas which include: System Development Methodology, Analysis (Functional & Non Functional requirements), Designs, System Development Tools and Techniques, Testing methods and the Domain of execution. The paradigm that shall be used is the Structured System Analysis and Design (SSAD) and is explained further in sub section 3.3

# 3.2 Rapid Application Development Methodology

The choice of methodology that shall be used to create the proposed system is the Rapid Application Development Methodology that is part of the Agile Software Development Methodology and its phases are as shown in the diagram below.



Figure 2: Rapid Application Development Methodology

### 3.2.1 Requirements

This is the first phase of the RAD methodology and is based on the customer needs/requirements which justify the need for the creation of the proposed system. It is almost entirely based on the customer's feedback on their requirements. The techniques by which the customer requirements will be collected is by means of using questionnaires that shall be sent out to a handful of organizations. Additionally interviews shall be carried out but by random sampling and not necessarily handpicking specific organizations. Lastly if possible observation could be another technique that could be implied since it has no biases present in its research.

### 3.2.2 Plan

Once the Requirements phase is completed the next step is that of planning. Here the stakeholders are able to discuss with the creators of the project and identify the project scope, business requirements, constraints and the system requirements. Once identified, then the planning of the system creation is able to occur. Having acquired the customer requirements required, a plan shall be devised whereby the steps/ phases that are required to create the system will be written down and a timetable guideline will assist in dictating what needs to be done by when. From creation to testing and even launching of the system.

### 3.2.3 Design

This is the phase whereby actual concepts of the proposed system are created and ability to picture how the system will not only appear but also what functions it will be able to achieve based on the customer requirements. If any additional functions are present they shall also be able to be identified. This specific phase is well described further in the chapter at sub section 3.4, it gives a glimpse of the design diagrams that shall be incorporated and why.

### 3.2.4 Develop

This phase is whereby all requirement specifications, design and modules have been agreed on and now it's the phase by which the system is made a reality. Each model may be done independently such that the database and mobile application can be done separately and combined to be one.

#### 3.2.5 Release

Once the development is done the system may be released to the stakeholders and a limited number of users.

In this phase we shall have somewhat of a prototyping technique whereby, the first release will be majorly based for trial purposes to identify any flaws present before releasing the actual system to the general public.

#### 3.2.6 Track and Monitor

This phase is similar to review and maintenance of the system whereby the system is followed upon in order to ensure it has a suitable expectation fulfilment as promised

### 3.3 Analysis

Software Development Analysis is a process in system development that focuses on the tasks/functions that determine that the needs/conditions that were presented by the user requirements and stakeholders are met and functional.

This project will use the Structured Systems Analysis and Design (SSAD) approach reason being the problem at hand has to be broken down in phases in order to cater for each and every party of the system independently.

SSAD may help as well in getting effective feedback as the process of completion of the system approaches. In this particular project SSAD may help in the communication creation process such that with the system broken down on its individual modules and problem-solving skills its help in perfecting the system.

### 3.3.1 Functional Requirements

Functional Requirements are basically the functions and services that the proposed system will be able provide to provide in order to base it as a fully functional system.

In this case we are dealing with a HRM system that should be able to implement the following functions:

#### i. Administrative Functions

This refers to the ability of the HR team to log in as an administrator and create, read, update and read data concerning each and every employee in an organization.

Additionally they are able to accept or decline a job application, advance salary and leave requests.

They should also be able to input the organizations KPIs. Lastly they should be able to post shift timetables, notices and warnings to employees.

# ii. Reporting

The system should be able to produce reports based on the organization KPI and individual job rating performance.

### iii. Authentication

The system should basically be able to allow individuals to login or create an account based on their authoritative capabilities by which they shall access their data as input on the database.

# iv. Filtering Data

The system should be able to follow a criterion created by the HR team in order to do the first filtering of Applications by individuals in order to reduce the bulking of applications.

# v. Applications

General employees are able to apply for categories such as: Job vacancy, leave application, advance salary application.

### 3.3.2 Non-Functional Requirements

Non Functional requirements are the means by which a system is put to test for judgement purposes. The non-Functional requirements include:

### a) Performance

The system will prove to be a perfectly running system with fast, if not immediate feedback to the users.

### b) User-Friendly

The system will be designed in such a manner that it is easy to use by user and is suitable for comfort and understanding.

### c) Accessibility

The system will be easily accessible so long as one has internet connection at any time therefore they may access the updated information with the slide of their thumb.

The system will also be accessible 24/7 regardless of where you are trying to gather information from.

### 3.4 System Designs

(udah, 2018) Defines System Design as the process of defining elements of a system like modules, architecture, components and their interfaces and data for a system based on the specified requirements. It is the process of defining, developing and designing systems which satisfies the specific needs and requirements of a business or organization.

In the next chapter we shall have a look at the following designs:

- a) Sequence Diagram These are the graphical representation of the logical flow of data.
- b) Class Diagram that describes the structure of a system by showing the system's **classes**, their attributes, operations (or methods), and the relationships among objects.
- c) Use Case Diagram-this is appropriate since it focuses on the behavior of the system from and external point of view and describes a function provided by the system that yields a visible result for the user of the system.
- d) Entity Relationship Diagram-shows the relationships of entity set stored in a database. An entity in this context is a component of data. ER diagrams illustrate the logical structure of databases.
- e) Database Schema-refers to the organization of data as a blueprint of how the database is constructed.

### 3.5 System Development Tools and Techniques

#### 3.5.1 Firebase

This is a relational database management that uses Structured Query Language (SQL) to add, access and manage the information in the database. The system will use this to manage the database.

#### 3.5.3 XAMPP

The system will use this for database management and allow one to run the system on the server during and even after creation of the system.

### 3.5.3 JavaScript

Java programming language is what shall be used to create the modules and the system at large.

# 3.5.4 Android Studio

Since the system is a mobile based application the system shall be created by the help and design tools of android studio.

# Chapter 4: System Analysis and Design

#### 4.1 Introduction

In this chapter the system is defined in regard to the environment it is expected to have effects on, reason for the need of the system, what features will make this able to be achieved and the process by which this system will be created into reality. The requirements analysis is assessing what the system will do while observing certain constraints through which it will operate. There are two types of requirements which are: Functional requirements and non-functional requirements.

### 4.2 System Requirements

System requirements is a statement that identifies the functionality that is needed by a system in order to satisfy the customer's requirements. There are two types of requirements which are: Functional requirements and non-functional requirements:

### 4.2.1 Functional Requirements

Functional Requirements are basically the functions and services that the proposed system will be able provide to provide in order to base it as a fully functional system.

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This refers to the ability of the HR team to log in as an administrator and create, read, update, and read data concerning each and every employee in an organization.

Additionally, they are able to accept or decline a job application, advance salary, and leave requests.

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The system should be able to follow a criterion created by the HR team in order to do the first filtering of Applications by individuals in order to reduce the bulking of applications.

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The system will prove to be a perfectly running system with fast, if not immediate feedback to the users

### b) User-Friendly

The system will be designed in such a manner that it is easy to use by user and is suitable for comfort and understanding.

# c) Accessibility

The system will be easily accessible so long as one has internet connection at any time therefore, they may access the updated information with the slide of their thumb.

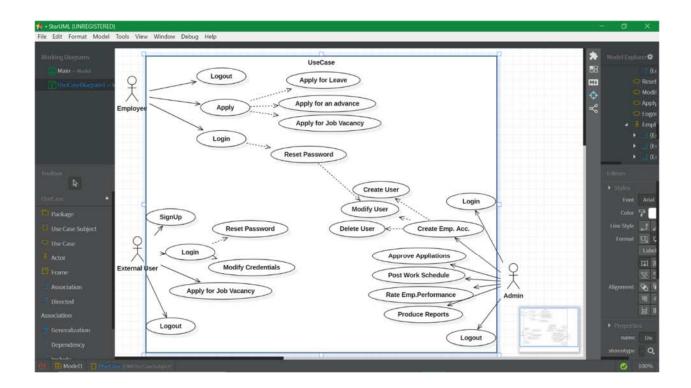
The system will also be accessible 24/7 regardless of where you are trying to gather information from.

### 4.3 System Architecture

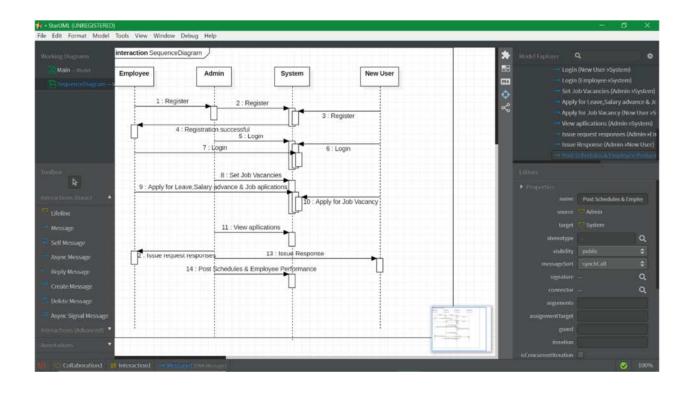
System diagrams are well-defined illustration of the system. They capture the system architecture, user modules, the different interfaces of showing interaction and data that the system requires to satisfy the specified requirements. This phase provides understanding on what data is available and how it is supplied to the system to ensure system requirements are met.

# 4.3.1 Use Case Diagram

A use case diagram displays a list of actions that define interactions between actors and the system to achieve the system requirements.

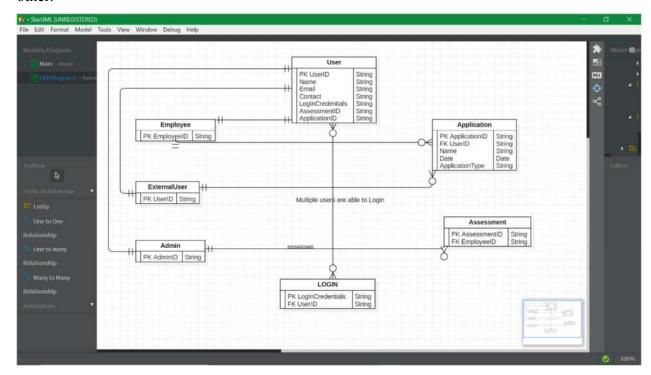


# 4.3.2 Sequence Diagram

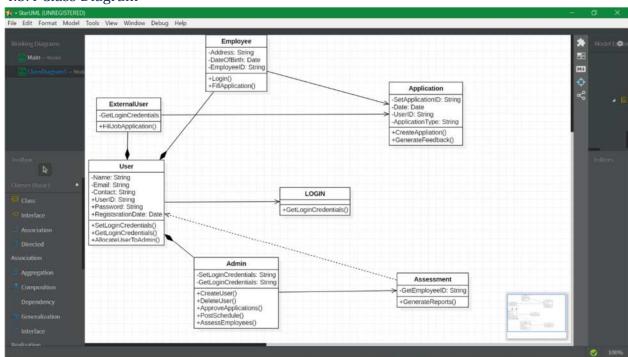


# 4.3.3 Entity Relationship Diagram

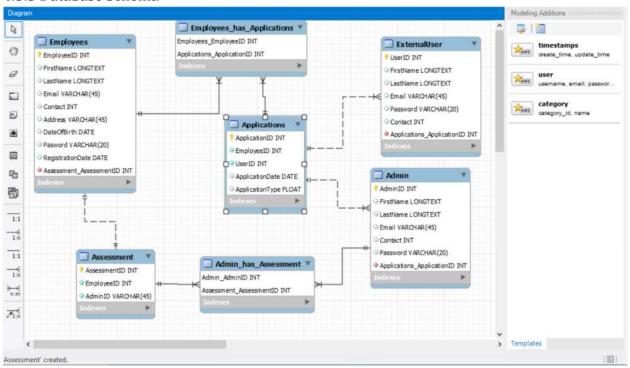
An entity relationship diagram is an actual representation of how data is stored in a database. It identifies the entities that exist within a system and how they relate with each other.



4.3.4 Class Diagram



### 4.3.5 Database Schema



# Chapter 5: System Implementation and Testing

### 5.1 Introduction

In this chapter we look at the means used to test the system in order to approve validation and verification. We shall have a look at the test cases and the results from the results.

### 5.2 Test Environment

The test Environment in system testing is in regard to the software and hardware specification whose main function is to ensure that the developed system's performance is at its absolute best with the functionality intended.

### 5.2.1 Hardware Specification

The table below gives a full description of the Hardware that was used in the development of the Human Resource Management System

Hardware	Properties		
Processor	The machine that I used to develop the		
	system used a processor that was an		
	Intel® Core <sup>TM</sup> i5-6200U CPU @		
	2.30GHz 2.40GHz		
Machine	The computer or rather machine that was		
	used was an HP Envy		
Memory (RAM)	The system has a smooth running since		
	the memory of the system was <b>8.00GB</b>		

### 5.2.2 Software Specification

The table below gives a full description of the Software that was used in the development of the Human Resource Management System

Software	Properties	
System	The type of system that was used was a	
	64-bit Operating system	
Web Server	Firebase is the web server that served	
	best to host and run the system	

Operating System	Windows 10 is the operating system that		
	was used		

### 5.3 Testing

Testing the system involves putting it into use and examining from the users' point of view. This system has been tested using both development testing and test-driven development to discover program defects and to ensure the system carries out its intended purpose.

# 5.4 Development Testing

Development Testing includes all testing activities that are carried out by the team developing the system and the testers are usually the programmer or programmers who developed the system. (Sommerville, 2009). The system is tested using the system teting which is part of the development testing.

### 5.4.1 System Testing

This involves integrating components to create a version of the system and then testing the integrated system and checks that the components are compatible, interacting correctly and that they are transferring the right data at the right time (Sommerville, 2009).

### 5.5 Test Cases

Test ID	Related	Inspect Check	Pre-	Test data	Priority test
	Requirement		Condition		
T1	System login	Does the	All	Data input	High
	details	system verify	columns	into to the	
	verification	the user from	should be	database	
		the Database	specified		
T2	Filling in	Does the	The user	Data keyed	High
	applications	system accept	should be	in by the user	
	data	application	logged in		
		details			

T3	Viewing data	Can a user be	User should	Data from	low
	from the	able to see	be logged	the database	
	announcements	multiple	in	keyed in by	
	present	announcements		an	
		and dates		administrator	
T4	CRUD	Does the	The User	Data input by	High
	functionality	system allow	should be	the user	
	by an admin of	an admin to	logged in		
	employees	carry out			
		CRUD			
		functionality of			
		employees			
T5	Viewing	Can a user	The user	Data from	low
	Employee	view his/her	should be	the database	
	details	own details	logged in		
T6	Employees	Is an employee	Employee	Data from	High
	feedback	able to give	should be	the client	
		their comments	logged in		
		or reviews			
T7	Logout	Is one able to	None	None	High
		exit the			
		application			
		once done			

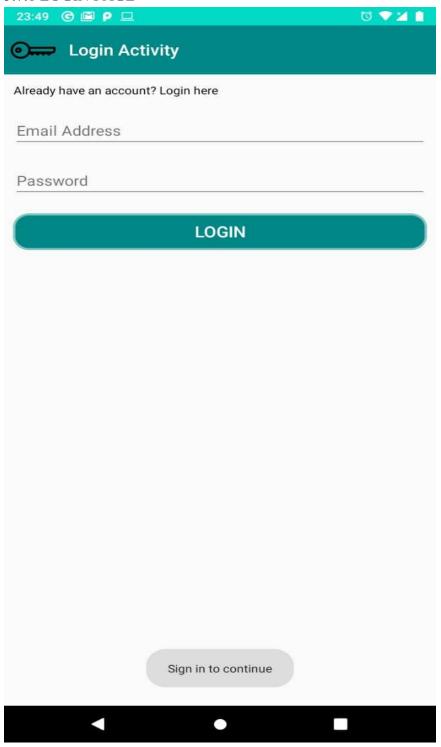
# 5.5 Test Results

Test ID	Expected	Actual result	Status	Remarks
	results			
T1	System should	Logging in was	Pass	Fast process
	allow one to	a success		
	login			

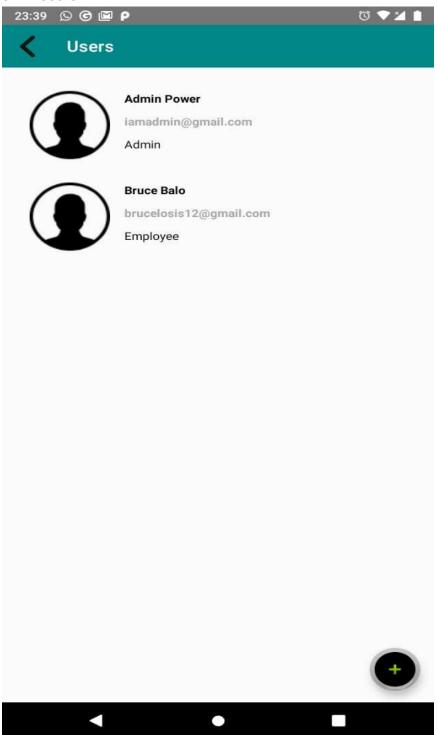
T2	Filling in	Application	Pass	Successfully
	applications	details were		inserted an
	data	added		application
				detail
Т3	The system	One can access	Pass	Successful
	should display	announcements		viewing of the
	details in the			details
	database			
T4	CRUD	The system can	Pass	Successfully
	functionality	CRUD the		added
	by an admin of	details to and		
	employees	from the		
		database		
T5	Viewing	One can view	Pass	Successful
	Employee	details of an		viewing of
	details	employee		details
Т6	Employees	Employees can	Pass	Successful
	feedback	give their		
		feedback		
Т7	Logout	The logout	Pass	Logout was
		process was		successful
		made		
		successful		

# 5.7 System Implementation

# 5.7.1 LOGIN PAGE

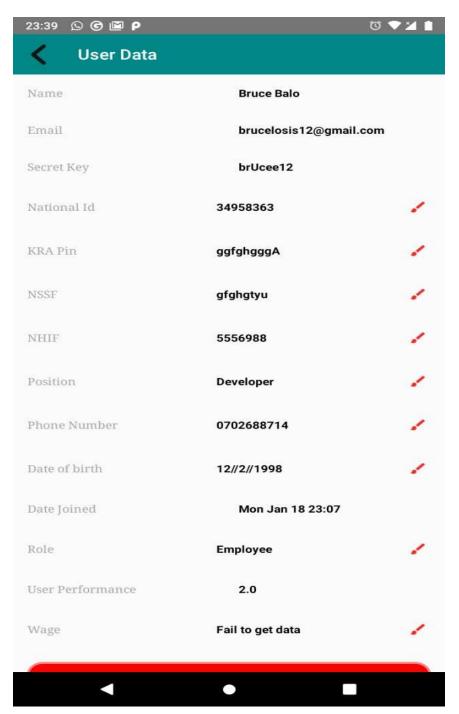


5.7.2 Users

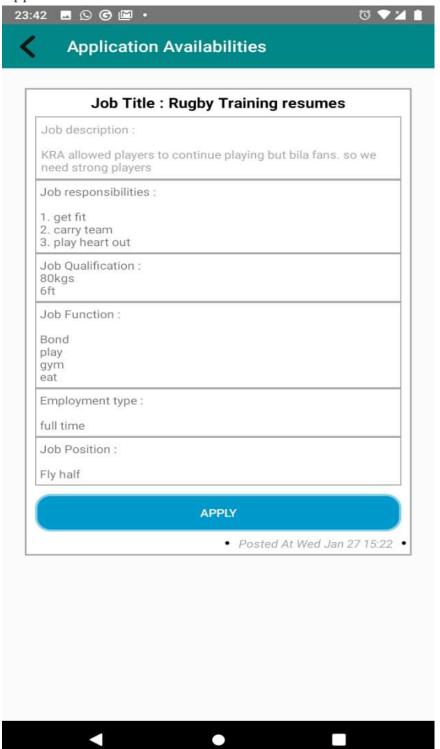


# 5.7.3 CRUD of an Employees by Admin

Allows for an Administrator to create, read, update and delete user.



# 5.7.4 Applications



# Chapter 6: Conclusion, Recommendations and Future Works

#### 6.1 Conclusion

In conclusion, this system is a mobile-based application that acts as a middleman between a Human Resource Team and its employees. Its major reasons for creation were:

- a. To minimize the time lost between an employee and the HR, time such as: filling in manual form, discussions and back and forth processes.
- b. To ensure that there is no misplacement of critical data such as applications.
- c. Helps to keep the Human Resource on their toes since, any unresolved issue will always be on their dashboard.

In my opinion and that of Total Airport view, the system was a success, for it addressed majority of the issues that they were faced with. It also gave a chance for employees to air their opinions easily without any fear of not being heard. Therefore, in the long run it somewhat built the relationship between the Human Resource Team and its employees.

### 6.2 Recommendations

In this project, it is advisable to use a computer that runs on Microsoft Windows 10 and can connect to the internet for future developers who would like to make a similar system. The computer should also run on an Intel processor i3 and above and should have a graphics card.

In regard to the users of the system, they should use android based mobile phones and that are able to connect to the internet.

#### 6.3 Future Works

The team behind the Human Resource Management System will upgrade the system to allow users whose phones are that or apple to be able to use this very system. Additionally, due to time, external users were not able to be factored in when creating the system, therefore they would serve as a priority in future.

### References

- 1. Zolfagharian, M. and Naderi, I. (2019), "Human resource management challenges facing franchise businesses", *Personnel Review*, Vol.49 No.1, pp.104-124. https://doi.org/10.1108/PR-04-2018-0139
- 2. A. Mohammed Abubakar, Taraneh Foroutan, Khaled Jamal Megdadi, "An integrative review, International Journal of Organizational Analysis", (2019).
- 3. Muhammad Ali, Shen Lei, Susan Freeman, Mubbsher Munawar Khan, "Implemented and perceived high-performance work system and its effect on branch performance, Employee Relations", 10.1108/ER-08-2017-0186, 41, 4, (793-810), (2019).
- 4. Ingham, J. and Ulrich, D. (2016), "Building better HR departments", *Strategic HR Review*, Vol. 15 No. 3, pp. 129-136. https://doi.org/10.1108/SHR-03-2016-0025
- 5. Jackson, S. E., Schuler, R. S., & Jiang, K. (2014). An aspirational framework for strategic human resource management. The Academy of Management Annals, 8(1), 1-56. Doi: https://doi.org/10.1080/19416520.2014.87233
- 6. Adetoye, A., & Kehinde, O. (2014) Design of an Employee Management System.
- 7. Tiskevits, A. (2016) Human management in medium sized companies.

# Appendix A: Time Schedule

