EMPLOYEE MANAGEMENT SYSTEM

(WINDOW STORE APPLICATION)

By

Group A

SOFTWARE ENGINEERING PROJECT

DEPARTMENT OF SOFTWARE ENGINEERING

APTECH COMPUTER EDUCATION

A Technical Design Document submitted to the Aptech Computer Education

For the Study Leading to a Project in Partial Fulfillment of the

Requirements for the Award of the Certificate / Diploma of Software Engineering of Aptech Computer Education.

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DECLARATION

We declare to the best of our knowledge that all the information contained here with this project design document is out of our hard work and as a result of actual fieldwork carried for our project.

Sign:

…… ……

Date

…… ……

Supervisor's Approval

I……. being an Aptech supervisor, have supervised a design document titled ……

Date …….

Name of Supervisor ……

Signature …….

ACKNOWLEDGEMENT

Let us take this time and thank the Almighty God for having guided us through the preparation of this project design document up to this time.

We are very grateful to our parents/guardians who have managed to sponsor us in this research financially and morally through trying times, may God bless you abundantly.

We would like to acknowledge our Supervisor Eng. Magezi Francis for the academic guidance and parental role-played in guiding our research. Thank you and May God reward you for your commitment.

In a special way, we would like to thank everyone in the department of Software whose guidance and cooperation has made us proud of this document.

List of Figures

Contents

Chapter One

1.1 Introduction

The Employee Management System is a Windows Store application that will enable companies in Uganda to manage employee records more efficiently.

The user of the application (employee manager) is able to view the employee records and update them for all the employee records in a company.

The Administrator (Employee Manager and is the only user) has privileges or access to the entire functionality of the application listed below:

1: Can add, and delete records of the employees.

2. Can modify and search for all the records of the employees by Last Name or City.

3. Can display all the records and count them.

4: Can add, delete or edit records of the employees.

5: Can view all the employees working in accompany for proper assessment and management.

This Application is designed in XAML and C#, and it is built in Visual Studio 2013 All the information is obtained from a database (SQLITE for Windows Runtime (Windows 8.1)). This Application is compatible with all Computers Running Windows 8 and later versions of windows Operating System.

1.2 Purpose

The sole and seemingly main purpose of this document is to objectively guide the software development team responsible for implementation of the Employee Management System application.

The intended audience of this document includes the designers, developers and the testers of the system. However, other users such as the maintainers and the end users may find this document instrumental in the deep understanding of the system design and outlay.

1.3 Scope

1.3.1 Document Scope

This document contains description of the Employee Management System's system procedures and Component;

1.3.2 Project Scope

The main Product of the project is a complete operational and tested Employee Management System Application Component, which will be able to provide users with the available information on the employees in the company.

1.3.3 System Scope

Employee Management System Application is intended to accomplish the following:

- Search should be available on Last Name and City.
- Should add, and delete records of the employees.
- view all the employees working in accompany for proper assessment and management.
- Reducing availability of ghost workers.

1.4 Benefits of the Project

The benefits of Employee Management System Application include the following:

This application will first and foremost optimize the work load and of course simplify the administrative task therefore assign tasks in the company with much ease.

Ensures data security with good employee records management system

It will ensure a better work environment even better helping keep track of employee performance.

It will eliminate bias in the process of recruitment as well as employee management

It will create flexible management boundaries it can be concluded that it is highly beneficial for any organization to implement robust process of employee management to ensure proper employee management and of course proper employee development

Uganda is shifting from traditional methods to computerized high technology methods and this application will help embrace the change hence improving on the technological advancement of Ugandans.

About convenience, This Application will be viewed on any computer running windows 8 and later versions of the windows operating system despite its size.

1.5 Goals and Objectives of the Project

Improve on Management of employees in companies.

- The application will help company owners especially those dealing with big number of employees to manage their data easily.
- The Administrator will be able to have information on his or her employees like Phone number, name etc.
- Monitoring of employees is easily done through the data collected on them which enables the business to run faster and a few errors are done.
- The application will be able to keep records of all the employees in the company.

Improve Technology in Uganda.

- The application will help the people who are not able to use computers to get familiar to them
- Company owners will be able to store the record of their employees in a more modernized way using a computer in case they were using book records.

1.6 Security Assessment

The Application is downloaded from the windows store and obeys the windows application privacy policy, this grantees users of safety from Hacker and any malware that could be got from the internet and other sources.

Since the Application can only be used from the computer on which its downloaded this this will be protected from unauthorized access through protection from the windows sign in when computer is started.

1.7 Definitions Acronyms and Abbreviations

C#	C sharp
XAML	Extensible Application Markup Language

1.8 References

Recommended practice for software Design (https://www.ieee.org/index.html)

1.9 Overview

Chapter one is an introduction and includes the description of the project and applicable reference document.

The remaining chapters and their contents are listed below.

Chapter two provides system overview, which describes the system architecture, the system characteristics, infrastructure requirements and the different components.

Chapter three describes the system design method, standards and conventions which talks about C# programming language

Chapter Two

2.0 System Overview

Employee Management System Application is a windows store application that consists of Employee records.

The only user is the Administrator;

The Admin is able to modify employee's information, add employee details, view Employee details, count records, and search through records.

All the information entered by the Admin i.e. first name, last name, phone number, city and Address details, is stored safely in a storage server (SQLITE for Windows Runtime (Windows 8.1)). This information is dynamic i.e. it can be changed, edited and deleted. This information is also available any time a user requests for it.

This Application is designed using visual Studio 2013, using languages XAML and C#. This Application is compatible with Computers running windows operating system versions 8 and later.

2.1 System Characteristics

The system is divided into parts namely:

Index page: This is the first page which is loaded when the applications starts. It contains a BottomAppbar part, which has navigation to files page with the Add record, delete record, and modify.

Files Page: This comprises of all employee record files.

2.2 Component Diagram of Employee Management System

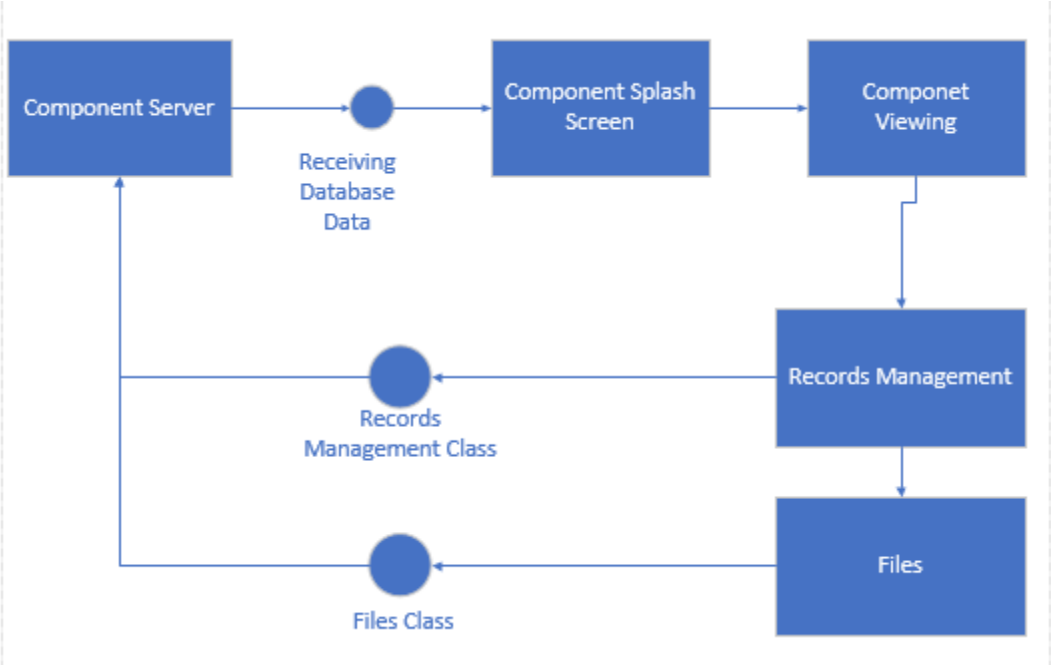


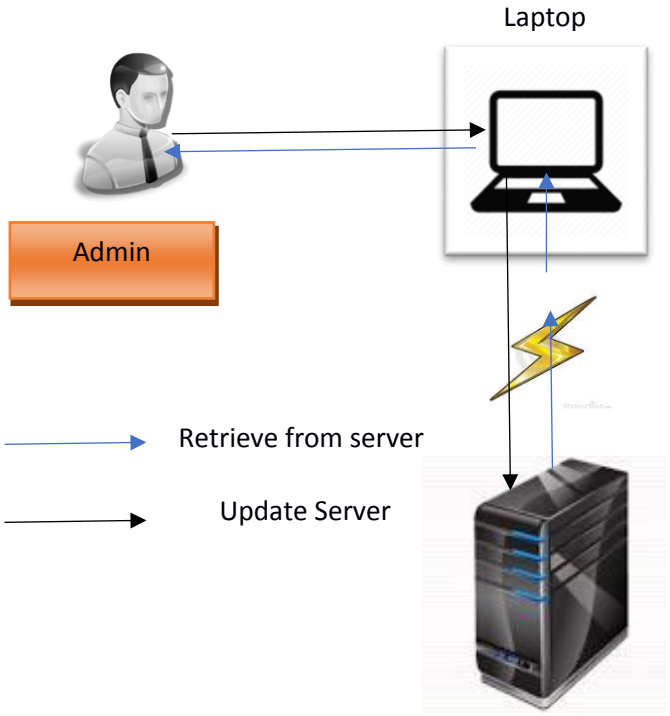
***Figure 1**:* Component Diagram

Administrator Component: This component provides information to the server maintains and updates data in the server. The administrator also logs in the system.

Server Component: This component contains all the data that is being used in the system i.e. Employees data

Viewing component: This component acts as a display interface that appears after the user and the administrator launches the application.

2.3 System Architecture



2.5 Deployment Diagram for Application Tier

DEPLOYMENT DIAGRAM OF EMPLOYEE RECORD MANAGEMENT APPLICATION

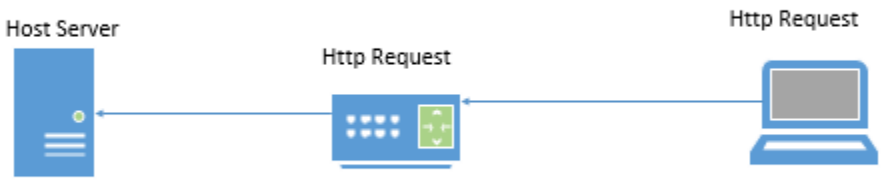


Figure 4: Deployment Diagram

Figure 4 focuses on how the system will be deployed. The system will be able to be run on computer after it has been downloaded and installed from the windows store.

2.6 Overall System Class Diagram

CLASS DIAGRAM

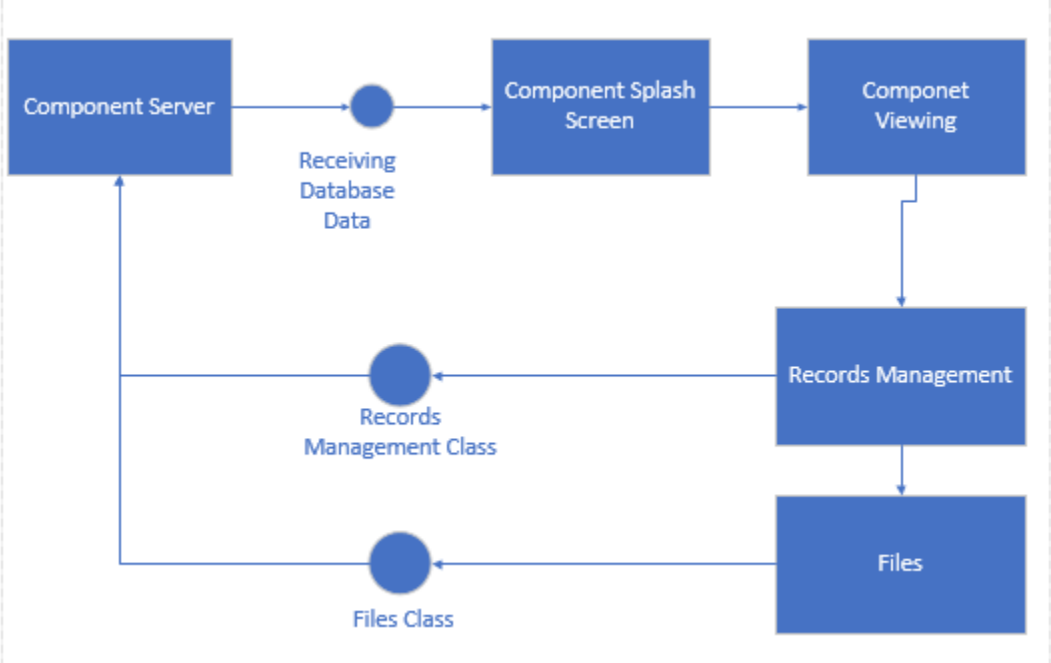


Figure 5: Class Diagram

The diagram above shows the static representation of Employee Record Manager system

Below we explain how the different classes in the system interact

2.7.2 Server This is the system brain which is used to process, store and retrieve data

2.7.3 Administrator

This person manages the systems data (server) He can view all the data in the database, edit and delete.

2.8 Use case Diagram of Employee Record Management System

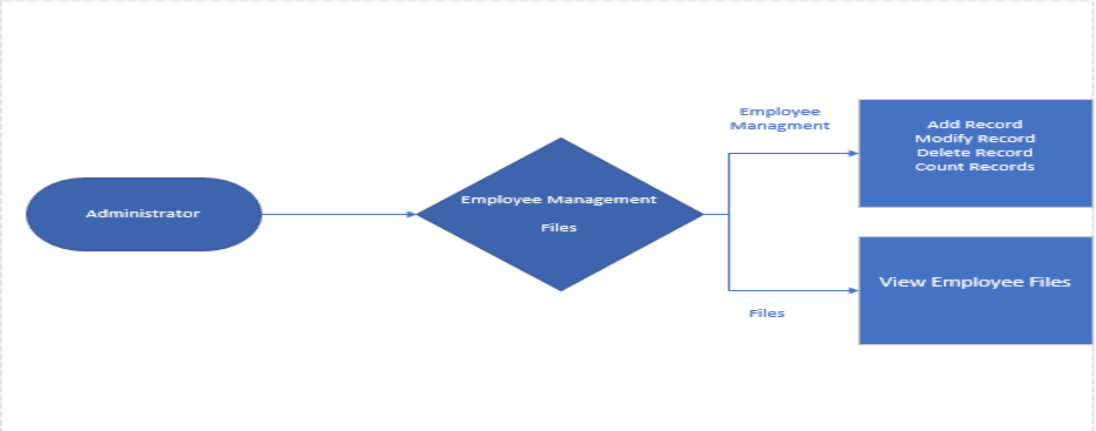


Figure 6: Use Case Diagram

Figure 6 shows the interaction of the actors with the system and their roles in the system i.e. the server performs the processing of data, whereas the administrator updates the server information.

2.9 Flow chart for Employee Record Manager System

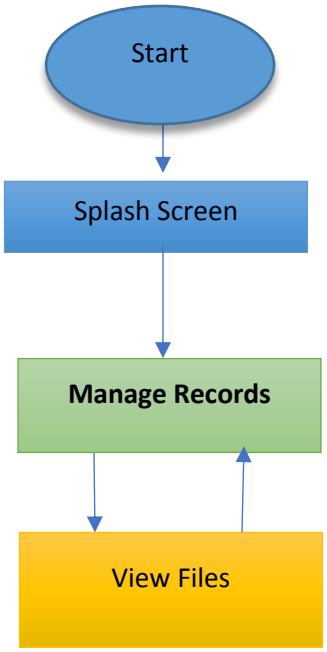


Figure 7: *flow chart diagram*

Chapter Three

3.0 Data Design

Database of Employee Record Manager System

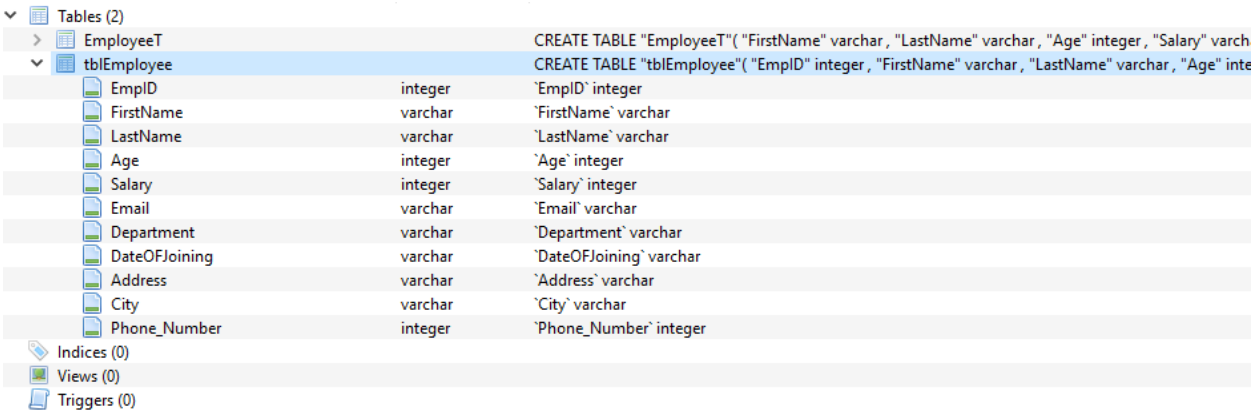


Figure 8: Database diagram

These table contains data that is availed to the user according to what they search.

Chapter Four

4.1 Component Description

The following components are the various types of components entailing the Employee Record Manager System application.

4.2 Purpose

Easy Employee Management Worldwide Since the application is deployed to the windows store and is free this will make it accessible to a large number of users that would like to manage their employee records through downloading it from the windows store.

4.2.3 Interfaces

The interfaces of Employee Record Manager System are the databases and the front-end user interface to which the user interacts with. The database is where the structure of the information that is uploaded to server is maintained. This information is already processed by the time of entry.

4.2.4 Resources

The major resource of this system is database from which information that the user needs is saved and accessed.

4.2.5 References

UML Modeling with Visual Paradigm

Chapter Five

Human User Interface Design

5.2.1 System Administrator.

The Administrator updates the application's data in the database, deletes unwanted data and manages the application. He also manages files of each Employee that is added to the System.

5.3 Screen images

Below is how the screen images look like:

5.3.1 Index Page.

Figure 9: index page

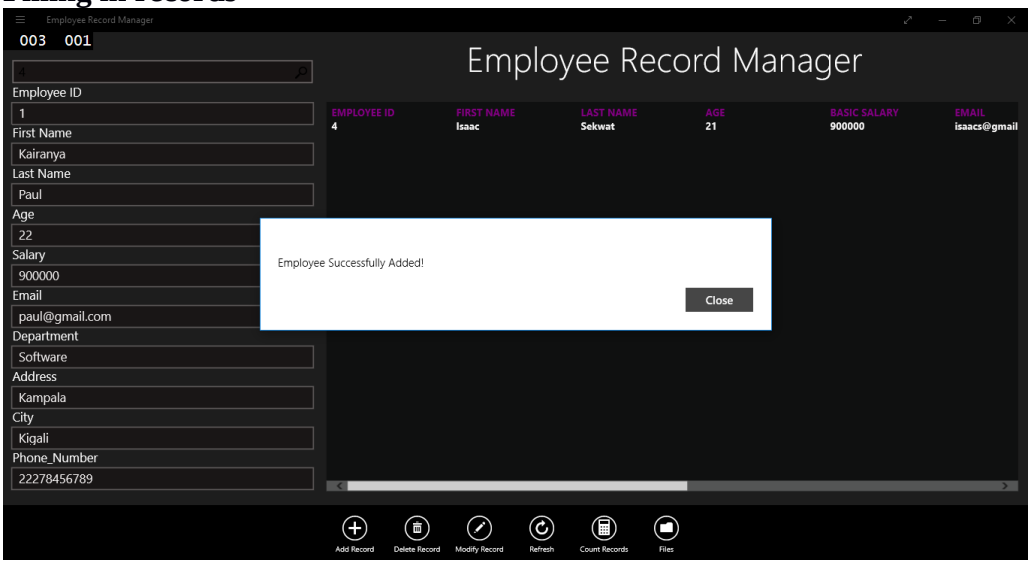
The MainPage:

This is the first page that is loaded when the application is loaded. It contains a BottomAppBar that contains the Add, Delete, Modify Record buttons, Count Records, Refresh and Files button which navigates to the files page where the user manages the Employees files.

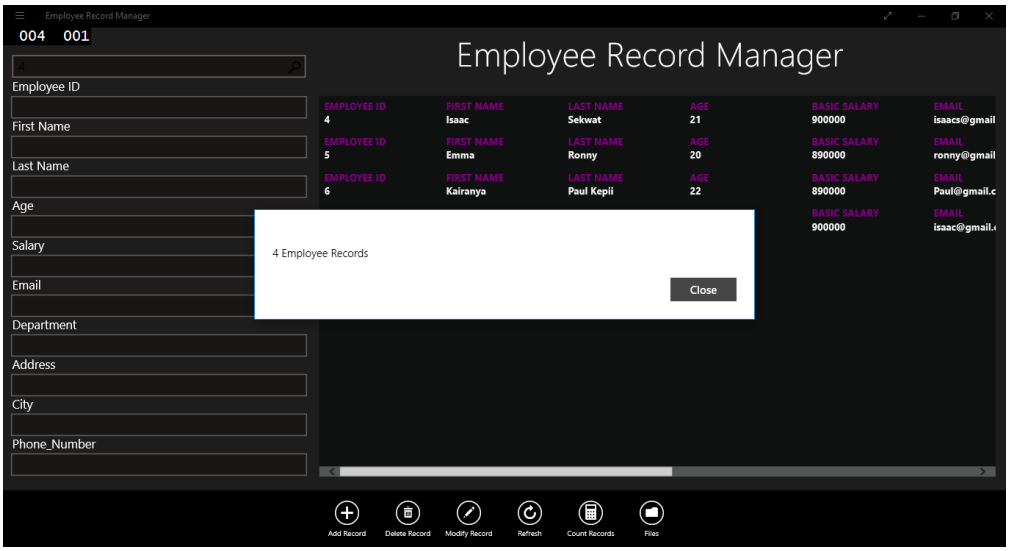
It also has the GridView which properly displays all Employee Records in the database with enabled page scrolling this allows the app to save running memory by displaying a given number of records depending on the available display space.

On the left of the GridView are the Textboxes in which the Admin (Employee manager) inserts Records (Employee ID, Last Name, First Name, Age, Salary, Email, Department, Address City and Phone Number), from here he can also update records and Delete any record by searching the record to be deleted by the Employee ID in the Search field then hit the Delete Button.

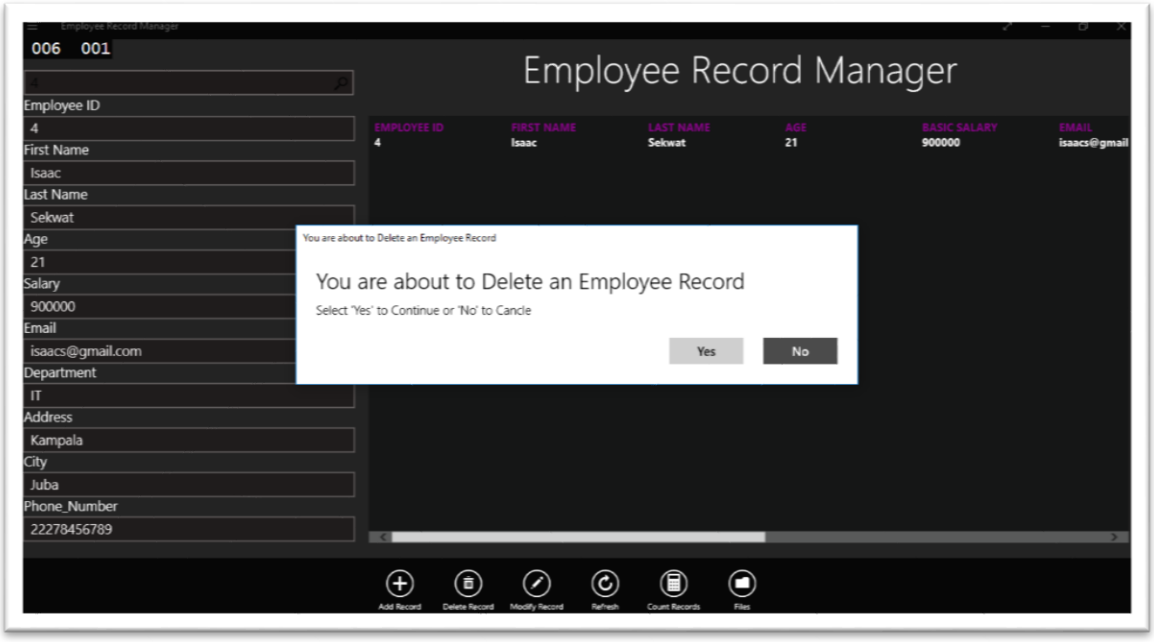
Filling in records



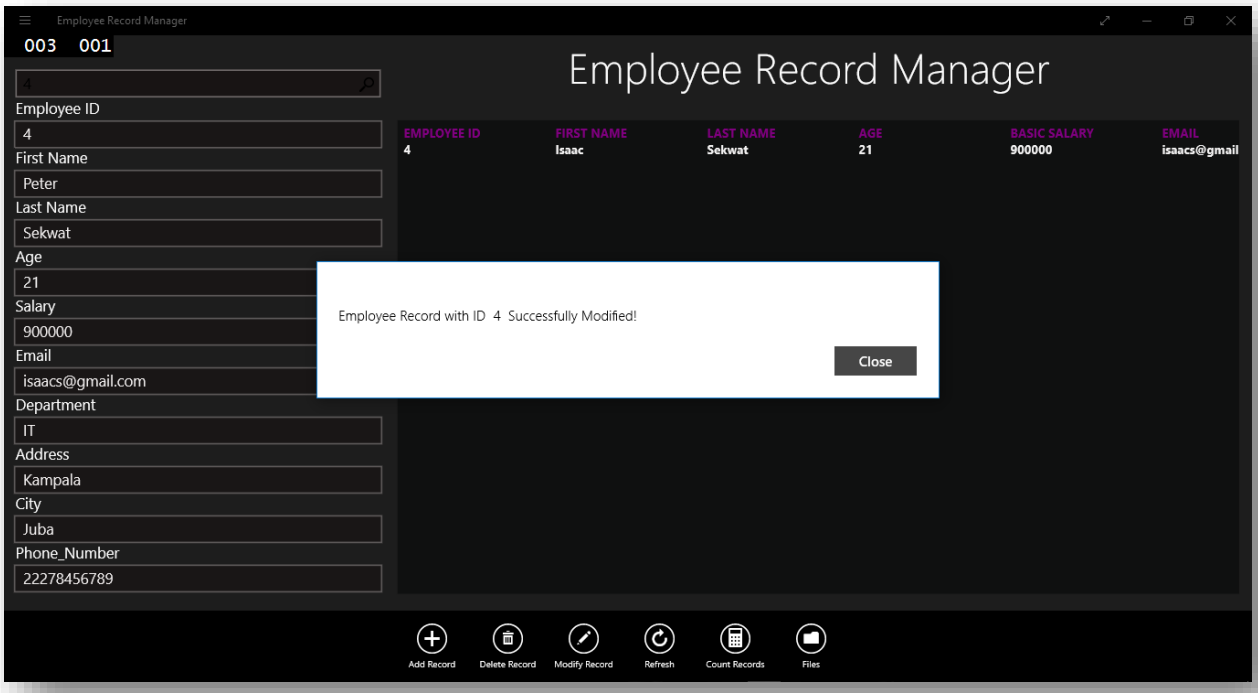
Count of records



5.3. DELETE RECORDS



MODIFY



5.4 Implementation, Testing and Validation report for Employee Management System

Prepared by:	Nyajore Patricia prudence
Date:	**12th March 2018**
Version:	**2.0.0**

5.5 Document Approval

Paul Kairanya and Sekwat Isaac Lisok Joseph	Designed the user interface, implemented the back end C# code, and designed the database.
Nyajore Patricia prudence and Mukama Jovita Jason	Worked on the report and gathering of the necessary materials for the project.

Chapter One

1.0 Introduction

Over view of this document:
This document talks about the testing and the validation findings that will encompass this application's lifecycle activities, requirements and system acceptance test specifications, the design and implementation process, inspections and testing, precautions, installation and system acceptance test, performance servicing maintenance and phase out plus conclusions which will encompass the user manual and where users will find it.
System Overview
This document points towards the employers who intend to adopt the modern methods of keeping records of employees in a particular company, for the success of this application.

1. System end Users: The Person to have access to the application (The administrator).
2. Project Supervisor: These manage the resources during the development of this application.
3. Domain Experts: These give essential background information about the application domain

Chapter Two

2.0 Testing and Validation findings

2.1 System life cycle activities

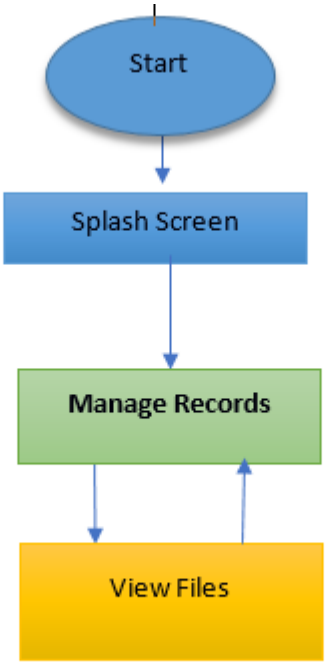
This section contains tables for documentation of the system validation activities. Each subsection is numbered in accordance with the overview scheme above. The tables are filled in with information about the tasks to be performed, methods to be used, criteria for acceptance, input and output required for each task, required documentation, the persons that are responsible for the validation, any other information relevant for the validation process. Topics excluded from being validated are explicitly marked as such.

2.1.1 Requirements and System acceptance test Specification

Topics	Requirement specification
Objectives	A computer with internet access to access the windows store
Version requirements	A computer with windows 8.1 or later
Input	Only Administrators enter information in the application
Output	Processed data is rendered according to users requests.
Functionality	Requests or response are instant according to the demands of the one requesting
Hardware Control	Devices to access the application are computers with Dual core processors and higher.
Limitations	Limited only to Computers running the Windows operating system windows 8 and later
Safety	Protected by the windows sign in
Version Control	No update needed from the user
Dedicated platform	A computer running the windows operating system, windows 8.1 or later
Installation	Downloaded and installed from the windows store
Special Requirements	Windows store account
Validation report	This document will be validated to the architects, maintainers and system integrators specifying the validation of the system.

Topics	System Acceptance specification
Service and Maintenance	This document is generated by the project manager concerning maintenance, future updates, problem solutions and requested modifications to be used by the architects and maintainers
Error and Alarms	Any types of errors, the system will be able to flag them
Objectives	Run on only windows operating system version of windows 8 or later
Scope	The acceptance test encompasses the functionality, error handling and version control
Input	This is property and user information entered in the application
Output	This is processed data viewed according to the user's request
Functionality	User friendly and used by a single user
Personnel	Administrator (Single user of the Application)
Errors and alarms	Error Messages are displayed according to the type of error

2.1.2. Design and Implementation Process

Topics	Design and development planning
Objectives	The project has spanned for one month where successive prototypes were produced and presented to the supervisor for feedback
Design Plan	**Flow Chart of the Application**  *Figure1: A flow chart of the Application.* **High Level Architecture** *Figure2: High level Architecture*
Development Plan	Development tools were Microsoft Visual Studio 2013 IDE. Platform: Windows 10 64 bit C# and XAML The team was comprised of 4 developers
Review and	The supervisor reviewed the design plan and approved testing through careful configuration, building and release preparation.

Acceptance	

Topics	Design Output
Implementation (coding and compilation)	Development tools were visual studio 2013 IDE Platform: Windows 10 64 bit.
C# And Xaml	Xaml for front End development and C# for backend development.
Good programming practice	Source code is; • Modulated • Functionally divided Source Code is; • Commented • Readable
Windows Programming	
Dynamic Testing	✓ All statements are executed at least once. ✓ All functions have been executed at least once. ✓ All case segments have been executed at least once.
Utilities for validation and testing	Survey forms are to be put in future releases so as to engage users to act as passive developers
Inactive Code	
Documents	A technical design document was developed to cater for the design output specifications
Review and Acceptance	The consistency of all sections in the technical design document was tested and validated.

Topics	**Design Verification**
Review	This system is in its final stages of development as testing and validations is vigorously being carried out
Change plans	If functionality couldn't be implemented, the supervisor was notified and functionality removed.

2.1.3. Inspection and testing

Topics	Inspection plan and performance	Date/Initials
Design Output	✓ Programming coding structure and source code. ✓ Evidence of hood programming practice ✓ Design verification and documented reviews Comments: There was evidence of good programming practice with properly verified and documented reviews	11th March 2018
Documentation	✓ System documentation, flow-charts etc. Comments: There is sufficient documentation as well.	12th March 2018
Software development environment	✓ Data Integrity ✓ File storage ✓ Access rights ✓ Code protection Comments: Inspected and approved	11th March 2018
Result of Inspection	✓ Inspection Approved Comments: The core functionality i.e. performance, security, integrity were found to be present	11th March 2018

2.1.4. Precautions

Topics	Registered Anomalies
Operating System	Some application's system input features are still manual yet there can be some easier way to enhance on this functionality
General precautions	The application entirely depends on internet connection to be downloaded from the windows store so it is advised to be connected to internet to have access.

2.1.5. Installation and System Acceptance Test

Topics	Installation summary
Installation Method	No installation from windows store required
Installation Media	none
Input files	Processed data(Text).

Topic	Installation Procedure	
Installation test	Completely tested according to plan	

Test Environment	The actual operating environment (Site test)	11th Mar 2018
Test Performance	✓ Start up and shut down ✓ Selected inputs ✓ Selected Outputs ✓ Selected functionality ✓ Performance Vs. user interaction Comments: Since the system was simple to develop, testing these requirements was quite easy and all tests were successful.	11th Mar 2018
User level test	✓ Tested on user level ✓ Tested on Admin level	12th Oct 2017

Result of Testing	Testing approved	12th March 2018

2.1.6. Performance, Servicing, maintenance and phase out

Topics	Performance Information	Date
Problem/Solution		12th Mar 2018
Functional Maintenance		12th Mar 2018
Functional expansion and performance improvement		12th Mar 2018

2.1.7. Conclusion

By the subjected signatures, it becomes evident that all validation activities are documented and approved.