AADHAR QR BASED VERIFICATION

Submitted in partial fulfillment of the requirements
for the degree of

B.E. Information Technology

By

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CERTIFICATE

This is to certify that the project entitled **"Aadhar QR based verification"** is a bonafide work of **Royston Cardoz (181254), Harsh Jain (181260), & Sayli Mhatre (171102)** submitted to the University of Mumbai in partial fulfillment of the requirement for the award of the degree of Bachelor of Engineering in Information Technology.

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Literature Review Report for T.E.

This project report entitled ***"Aadhar QR based verification"*** by ***Royston Cardoz (181254), Harsh Jain (181260), & Sayli Mhatre (171102)*** is approved for the degree of ***Bachelors of Engineering in Information Technology***.

1. ———————————

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Declaration

I declare that this written submission represents my ideas in my own words and where others' ideas or words have been included, I have adequately cited and referenced the original sources. I also declare that I have adhered to all principles of academic honesty and integrity and have not misrepresented or fabricated or falsified any idea/data/fact/source in my submission. I understand that any violation of the above will be cause for disciplinary action by the Institute and can also evoke penal action from the sources which have thus not been properly cited or from whom proper permission has not been taken when needed.

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ABSTRACT

This report highlights the important features of our project 'Aadhar QR Based Verification'.The transition towards paperless offices and increasing adoption of electronic transfer of information through emails and other web content has prompted organizations to have a system which would manage their documents effectively. A document security system provides a hassle-free classification and identity system that tags documents with information. Electronic documents are considered to be the most valuable information assets in enterprises. As the security era is coming, the existing systems need to be upgraded with most cost-effective measures, so a document security management system suitable for security is also designed. With more documents being integrated electronically and transferred as knowledge points, organizations see document management system as an integral tool to handle growing surge of data and respond to audits without heavy burdens to the business.

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Chapter 1
Introduction

1.1 Introduction to domain of project

Our core Domain for project is Data Security. Data security is a set of standards and technologies that protect data from intentional or accidental destruction, modification or disclosure. Data security can be applied using a range of techniques and technologies, including administrative controls, physical security, logical controls, organizational standards, and other safeguarding techniques that limit access to unauthorized or malicious users or processes.

1.2 Major Challenges in said domain

Almost all data security issues are caused by the lack of effective measures provided by antivirus software and firewalls. Automated data transfer requires additional security measures, which are often not available. When a system receives a large amount of information, it should be validated to remain trustworthy and accurate; this practice doesn't always occur, however.

1.3 Motivation

The level of security built into your project management software dictates how safe your project will be. This encompasses the integrity and confidentiality of your data, as well as the security of the infrastructure and the stability of your network. Security features protect the safety and integrity of your data without making it onerous for approved users to gain access. The security settings should be flexible and customizable enough that you can align them with your company's own security procedures, processes, and protocols, but robust enough to address industry-recognized threats to your data.

1.4 Problem Statement

Aadhar is one of the most important identity verification documents for an Indian resident. The purpose of our system is to make the documents available offline to the user so that there is no need to carry the documents as well as it provides proper security of the documents.

Chapter 2
Literature Review

2.1 Existing Work

2.1.1 Literature review related to exiting system/methodology

By studying the existing carpooling systems and related IEEE papers, we have come up with DOCUMENT SECURITY ON ANDROID. Here the user can login into the system. They can enter their login id and password to view their uploaded document. The administrator can manage user details. Here we have provided a police login panel, where the police officer can login into the system, scan the aadhaar card of the user and download particular data of the user to verify it. The person from PUC department can upload the PUC document of the particular user into the system using the user's aadhaar number. In the same way the Insurance department people can upload the Insurance paper of the user into the system.

By studying the existing monitoring file and access transfer with computing environment systems and related IEEE papers, we discovered that the initial experiments focusing on deploying Floggers to capture flogs across VMs and PMs for a Cloud, and also to demonstrate that we are able to join the information for VMs and their underlying host PMs. Our system enables to give a comprehensive overview of the important document accesses and transfers within a typical system. The documents uploaded on the system are highly secured. The linkage with the PUC department follow and show integrity to the user and its details.

2.1.2 Literature review related to Algorithms

By the Cloud based document management system and its IEEE research papers, it provides powerful tools and algorithms that manage the documents on larger scale. The application can also manage a larger number of users and their documents and keep them secured. The security increases because of use of cloud in the system. The database and cloud also provides distributed system through which data can be remotely accessed from anywhere.

2.2 Literature relate to Technology/Tools/Framework

ASP.NET is more than the next version of Active Server Pages (ASP); it is a unified Web development platform that provides the services necessary for developers to build enterprise-class Web applications. While ASP.NET is largely syntax-compatible with ASP, it also provides a new programming model and infrastructure that enables a powerful new class of applications.

You can migrate your existing ASP applications by incrementally adding ASP.NET functionality to them. ASP.NET is a compiled .NET Framework environment. You can author applications in any .NET Framework compatible language, including Visual Basic and Visual Csharp. Additionally, the entire .NET Framework platform is available to any ASP.NET application. Developers can easily access the benefits of the .NET Framework, which include a fully managed, protected, and feature-rich application execution environment, simplified development and deployment, and seamless integration with a wide variety of languages.

.net Framework:

The .NET Framework is Microsoft's Managed Code programming model for building applications on Windows clients, servers, and mobile or embedded devices. Microsoft's .NET Framework is a software technology that is available with several Microsoft Windows operating systems. In the following sections describes, the basics of Microsoft .Net Frame work Technology and its related programming models. Csharp is a language for professional programming. Csharp (pronounced C sharp) is a programming language designed for building a wide range of enterprise applications that run on the .NET Framework. The goal of Csharp is to provide a simple, safe, modern, object-oriented, high-performance, robust and durable language for .NET development. Also it enables developers to build solutions for the broadest range of clients, including Web applications, Microsoft Windows Forms applications, and thin and smart-client devices.

Microsoft SQL Server

Relational database management:

A relational database management system uses only its relational capabilities to manage the information stored in its database.

Information Representation:

All information stored in a RDBMS is represented only by data item values, which are stored in the tables that makeup the database.

Logical Accessibility:

Every data item value stored in a relational database is accessible by stating the name of the table it is stored in, the name of the column under which it is stored and the value of the primary key that defines the row in which it is stored.

Representation of Null Values:

The database management system has a consistent method for representing null values. For example, null values for numeric data must be distinct from zero or any other numeric value and for character data it must be different from a string of blanks or any other character value

Catalogue Facility:

The logical description of the relational database management system is represented in the same manner as ordinary data. This is done so that the facilities of the relational database management system itself can be used to maintain database description.

Data Language:

A relational database management system may support many types of languages for description data and accessing the database. However, there must be at least one language that uses ordinary character strings to support the definition of data, the definition of views, the manipulation of data, constraints on data integrity, information concerning authorization and the boundaries for recovery of units.

View Updating:

Any view that can be defined using combinations of base tables, that are theoretically update-

able, is capable of being updated by the relational database management system.
Insert, Update and Delete:
Any operand that describes the results of a single retrieval operation is capable of being applied to an insert, update or delete operation as well.
Physical Data Independence:
Changes made to physical storage representations or access methods do not require changes to be made to application programs.
Logical Data Independence:
Changes made to tables, that do not modify any data stored in that table, do not require changes to be made to application programs.
Integrity Constraints:
Constraints that apply to entity integrity and referential integrity are specifiable by the data language implemented by the database management system and not by the statements coded into the application programs.
Database Distribution:
The data language implemented by the relational database management system supports the ability to distribute the database without requiring changes to be made application programs.
Not Subversion:
If the relational database management supports facilities that allow application programs to operate on the table's a row at a time, an application program using this type of database access is prevented from bypassing entity integrity or referential integrity constraints that are defined for the database. Business today demands a different kind of data management solution. Performance scalability, and reliability are essential, but businesses now expect more from their key IT investment. SQL Server 2005 exceeds dependability requirements and provides innovative capabilities that increase employee effectiveness, integrate heterogeneous IT ecosystems, and maximize capital and operating budgets. SQL Server 2005 provides the enterprise data management platform your organization needs to adapt quickly in a fast changing environment. Benchmarked for scalability, speed, and performance, SQL Server 2005 is a fully enterprise-class database product, providing core support for Extensible Mark-up Language (XML) and Internet queries.
Easy-to-use Business Intelligence (BI) Tools:
Through rich data analysis and data mining capabilities that integrate with familiar applications such as Microsoft Office, SQL Server 2005 enables you to provide all of your employees with critical, timely business information tailored to their specific information needs. Every copy of SQL Server 2005 ships with a suite of BI services
Self-Tuning and Management Capabilities:
Revolutionary self-tuning and dynamic self-configuring features optimize database performance, while management tools automate standard activities. Graphical tools and performance, wizards simplify setup, database design, and performance monitoring, allowing database administrators to focus on meeting strategic business needs.
Data Management Application and Services:
Unlike its competitors, SQL Server 2005 provides a powerful and comprehensive data management platform. Every software license includes extensive management and development tools, a powerful extraction, transformation, and loading (ETL) tool, business intelligence and analysis services, and analysis service, and such as Notification Service. The result is the best overall business value available.

ANDROID

Android is a mobile operating system developed by Google, based on a modified version of the Linux kernel and other open source software and designed primarily for touchscreen mobile devices such as smartphones and tablets. In addition, Google has further developed Android TV for televisions, Android Auto for cars, and Android Wear for wrist watches, each with a specialized user interface. Variants of Android are also used on game consoles, digital cameras, PCs and other electronics. Android has been the best-selling OS worldwide on smartphones since 2011 and on tablets since 2013. As of May 2017, it has over two billion monthly active users, the largest installed base of any operating system, and as of 2017, the Google Play store features over 3.5 million apps. Android Studio Android Studio is Android's official IDE. It is purpose built for Android to accelerate your development and help you build the highest-quality apps for every Android device. It offers tools custom-tailored for Android developers, including rich code editing, debugging, testing, and profiling tools. Instant Run Android Studio's Instant Run feature pushes code and resource changes to your running app. It intelligently understands the changes and often delivers them without restarting your app or rebuilding your APK, so you can see the effects immediately. Intelligent code editor The code editor helps you write better code, work faster, and be more productive by offering advanced code completion, refactoring, and code analysis. As you type, Android Studio provides suggestions in a dropdown list. Simply press Tab to insert the code. Fast and feature-rich emulator The Android Emulator installs and starts your apps faster than a real device and allows you to prototype and test your app on various Android device configurations: phones, tablets, Android Wear, and Android TV devices. You can also simulate a variety of hardware features such as GPS location, network latency, motion sensors, and multi-touch input. Code templates and sample apps
Android Studio includes project and code templates that make it easy to add well-established patterns such as a navigation drawer and view pager. You can start with a code template or even right-click an API in the editor and select Find Sample Code to search for examples. Firebase and Cloud integration The Firebase Assistant helps you connect your app to Firebase and add services such as Analytics, Authentication, Notifications and more with step- by-step procedures right inside Android Studio. Built-in tools for Google Cloud Platform also help you integrate your Android app with services such as Google Cloud Endpoints and project modules specially-designed for Google App Engine.

QR Code

QR is short for Quick Response. It is a barcode type machine-readable optical label that contains information about the item to which it is attached. A QR code uses four standardized encoding modes (numeric, alphanumeric, byte/binary, and kanji) to efficiently store data; extensions may also be used. Applications include product tracking, item identification, time tracking, document management, and general marketing. A QR code consists of black squares arranged in a square grid on a white background, which can be read by an imaging device such as a camera, and processed using Reed–Solomon error correction until the image can be appropriately interpreted. The required data is then extracted from patterns that are present in both horizontal and vertical components of the image. By scanning the QR code, the details of the card holder into database/software by encoding the data in a format that is uniform across all platforms. QR codes can be used on various mobile device operating systems. These devices support URL redirection, which allows QR codes to send metadata to existing applications on the device. Many paid or free apps are available with the ability to scan the codes and hard-link to an external URL.

2.3 Gap identified

Effective utilisation of Resource Management and to map the impact of building Employee Work Profile(skillset) and effectively use it in the system for Employee growth. Easy and efficient delegation to monitor each and every milestone. To check overall progress of employee and project. Report generation for mid level and high level management.

Chapter 3
Proposed Methodology

3.1 Problem Formulation

The proposed system is to cut down the need to carry the hard copy of the identity documents, allowing for more effective way by signing in to the application and uploading the documents and making it available offline. This will assure the safety of the documents and the personal data. This analysis aims to make the documents available offline to the user. The goal is to secure the user data and a helping hand to the officers to check the identity by just scanning the QR code on the aadhar card. To achieve this, we have used various technologies, methods and testing strategies to fit a function that can fulfill all the above features.

3.2 Problem Definition

Problems are faced at different places for verification by police for Driving license, PUC, Insurance not only by police but by different government official or by different authorities. In this system, we will be implementing steps through data security which will provide complete security and integrity to user's data. The primary step is to logging in to the application and then uploading the documents. In the first step, the user and the officer has to log in with proper details. The next step is to upload the documents, here the documents will be verified and then successfully uploaded. These documents get stored in the database. And then the documents can be available offline. The officer just needs a camera to scan the QR code and the documents will appear.

3.3 Scope

Being an identification and verification system, the system has lot of scope for improvement. The system carries out work faster and efficiently. A lot of manual work in later stages is reduced to a large extent. The system needs to be maintained from time to time i.e. for adding new users as well as modifying details of users. The system can be expanded for more departments. Documents such as passports and voter ID can also be included in this system Some more advanced features will be added to improve work experience. User Interface will be made more user friendly and appealing.

3.4 Proposed Methodology

By studying the existing carpooling systems and related IEEE papers, we have come up with DOCUMENT SECURITY ON ANDROID. Here the user can login into the system. They can enter their login id and password to view their uploaded document. The administrator can manage user details. Here we have provided a police login panel, where the police officer can login into the system, scan the aadhaar card of the user and download particular data of the user to verify it. The person from PUC department can upload the PUC document of the particular user into the system using the user's aadhaar number. In the same way the Insurance department people can upload the Insurance paper of the user into the system.

3.5 Proposed Algorithm

By studying the existing carpooling systems and related IEEE papers, we have come up with DOCUMENT SECURITY ON ANDROID. Here the user can login into the system. They can enter their login id and password to view their uploaded document. The administrator can manage user details. Here we have provided a police login panel, where the police officer can login into the system, scan the aadhaar card of the user and download particular data of the user to verify it. The person from PUC department can upload the PUC document of the particular user into the system using the user's aadhaar number. In the same way the Insurance department people can upload the Insurance paper of the user into the system.

3.6 Features of proposed System

Reduced Storage: The cost of commercial property and the need to store documentation for e.g. retrieval, regulatory compliance means that paper document storage competes with people for space within an organization. Flexible Retrieval: Retrieving documents stored as hard copies, or on microfilm absorbs time. Less time is spent locating the documents as they can be retrieved without leaving a desk. Improved Security: The system also provides an audit trail of who viewed an item, when or who modified an item and when. Also removes the possibility of having confidential material lying around unattended. Disaster Recovery: A DMS provides an easy way to back-up documents for offsite storage and disaster recovery providing failsafe archives and an effective disaster recovery strategy.

Chapter 4
System Analysis

4.1 Functional Requirements

- The design or layout of every form will be very clear and very interactive to the user.
- When the user opens the software the welcome window will appear.
- In the login window the user can easily enter the aadhar card details.
- Then it will give the successful login message.
- From each and every window the user can easily go to any desired window that is there will be an absolute and relative linking.
- In every window and Mac there is a help and support option that is present for the ease of the user.
- There will be a proper collection of GUI interface, which will provide a better look and feel.
- In the screen layout the background color is very light and the graphics and font style will be in proper manner and well organized.
- In each and every window there will be an alert, confirm etc message box for displaying Message.
- The user will be able to search any data from the record by using the proper guideline shown in the window and Mac.
- This will provide better security data because the menu window will be displaying according to the login (admin or normal user).
- Users can easily keep track of the records of insurance, puc and vehicle paper etc.
- This software will be easily understandable and operable by the user.

4.2 Non-Functional Requirements

- This application does not break down suddenly in any disaster like no internet connection.
- The risk factor must be taken at the initial step for better performance of the application.
- For individual functions the performance will be good.
- For login to the software password and username will be matched to the password and name saved in the database and thus only authenticated users are allowed to the login.
- There will be various ways of retrieving data and it takes less time.
- The data is already stored and saved in the database.
- There will be no ambiguity in the data and the record.
- User Friendly Graphical Interface.

4.3 Specific Requirements

Hardware :

- CPU : 3.Intel 1.66 GHz Processor Pentium 4
- GPU : Minimum 2GB Graphics Memory with DX10.
- RAM : 1 Gb or above.
- Memory : Minimum 200 GB HDD
- Operating System : Windows 7 or above

Software :

- Visual Studio 2010
- Android Studio
- Microsoft SQL server

4.4 Use-Case Diagrams

Use Case diagrams, usually referred to as behavior diagrams are used to describe a set of actions that some system or systems should or can perform in collaboration with one or more external users of the system. Use case diagrams are in fact twofold - they are both behavior diagrams, because they describe behavior of the system, and they are also structure diagrams - as a special case of class diagrams where classifiers are restricted to be either actors or use cases related to each other with associations. Use case diagrams are used to specify:

- Requirements (external), required usages of a system under design or analysis (subject) - to capture what the system is supposed to do.

- The functionality offered by a subject – what the system can do.
- Requirements the specified subject poses on its environment - by defining how environment should interact with the subject so that it will be able to perform its services.

Table 4.1: Use Case Diagram Description

Actors	Description
Employee	The user provides the system with the details. The system then provides the user with the list of documents. After getting the list of documents the user uploads the required documents. The system then acknowledges the users with the status of their uploaded documents. The documents can be downloaded offline.
Police Officer	The police officer also creates an account. Through this account, they can scan the code or enter the number. The documents are verified and the officers then give the confirmation status to the system and the user.
Administrator	Administrator An Aadhar QR based verification System has many users creating their accounts, making it difficult to handle the documents and records of every specific user who have looged in. hence admin keeps the records of all the users and the officers. All the account details of the users are even shared by the system to the admin. It keeps the report and uploads the documents of the users.

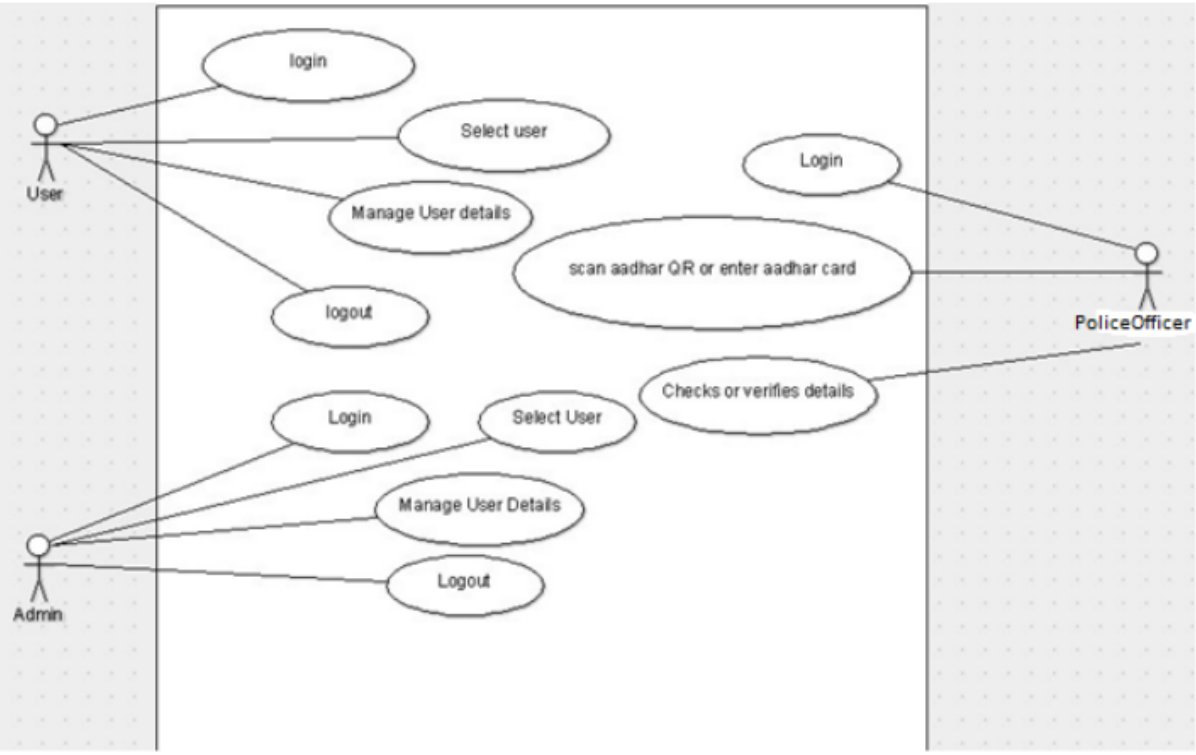

Figure 4.1: Use Case Diagram

Chapter 5
Analysis Modeling

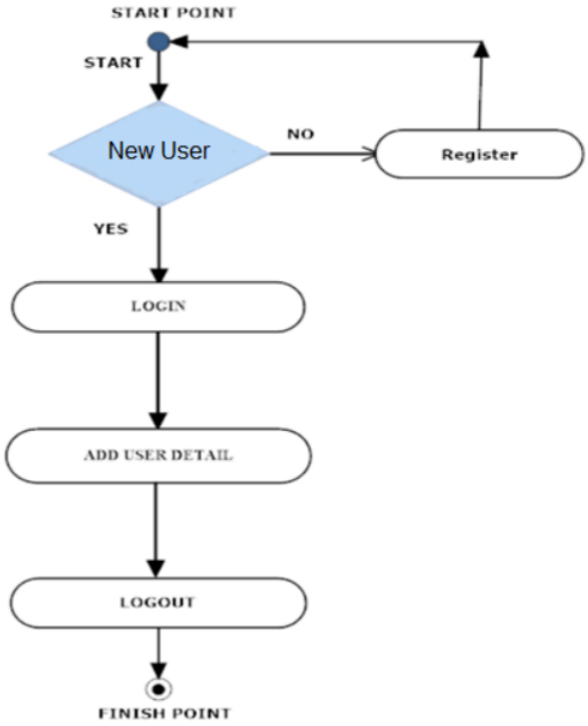

Figure 5.1: Activity Diagram for User.

The Activity Diagram gives us a gist of the stages in the application Process. The stages are the creation of the project, development of project and completion of project. The diagram shows the different activities of employees, managers and administrators from project creation to completion.

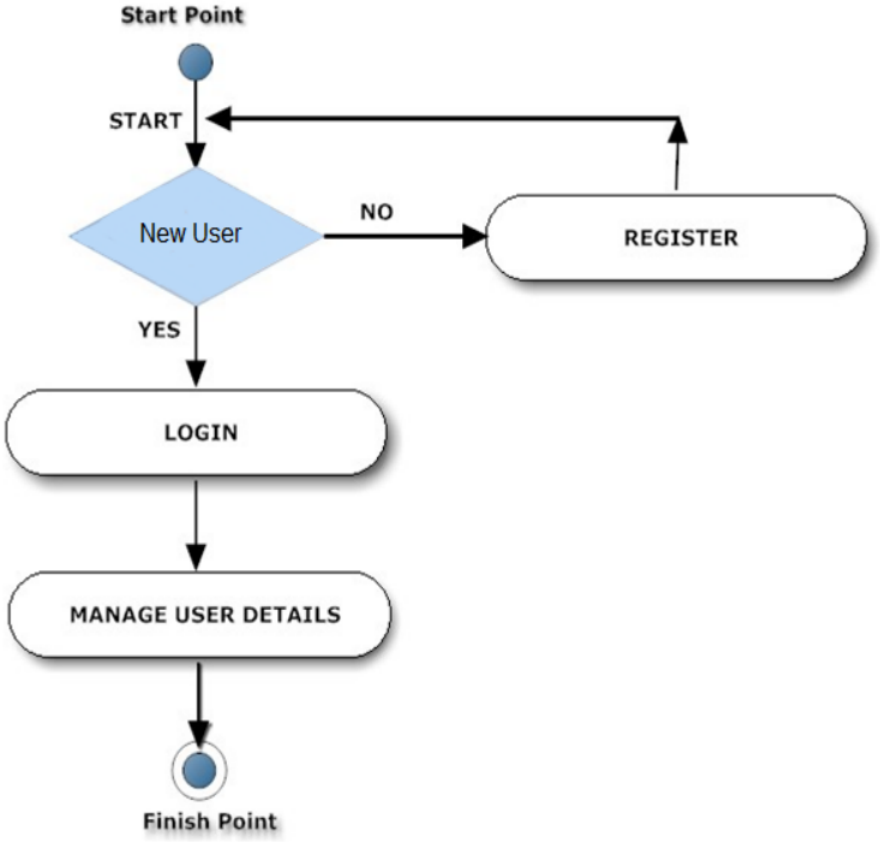

Figure 5.2: Activity Diagram for Police Officer.

The Activity Diagram gives us a gist of the stages in the application Process. The stages are the creation of the project, development of project and completion of project. The diagram shows the different activities of employees, managers and administrators from project creation to completion.

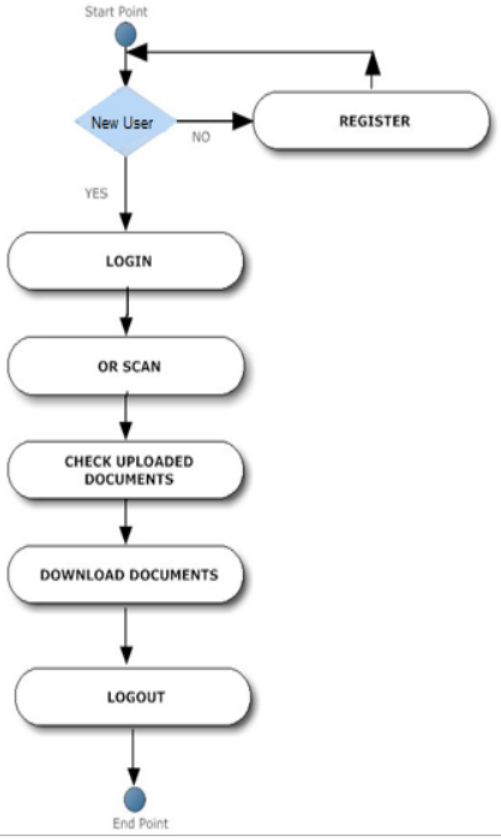

Figure 5.3: Activity Diagram for Admin.

The Activity Diagram gives us a gist of the stages in the application Process. The stages are the creation of the project, development of project and completion of project. The diagram shows the different activities of employees, managers and administrators from project creation to completion.

5.1 Functional Modeling

5.1.1 DFD:Level 1

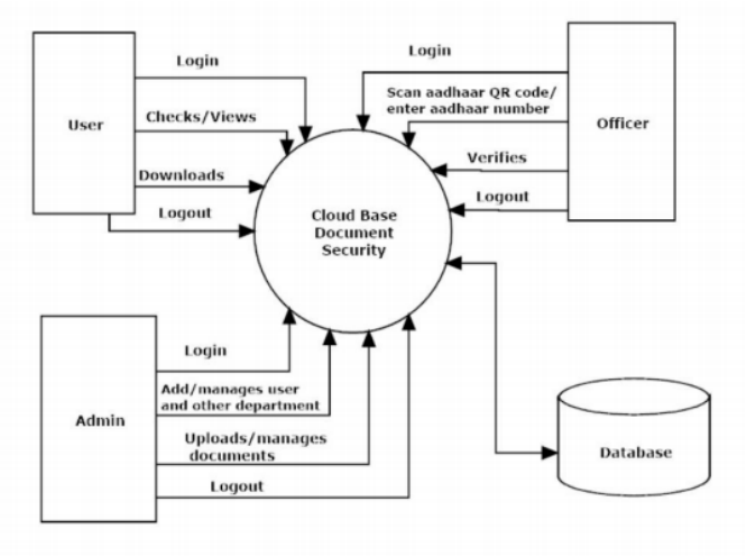

Figure 5.4: DFD Level 1.

In the above DFD level 1 the different users and their roles in different action in the system and along with the flow of information it also shows the participation of actors in the action. The administrator is responsible for project creation, employee hiring and project assignment. IT will interact with the two databases Project Data and Employee Data. IT has access to all the data in the system. The manager is responsible for the project/s under him along with the employees that work for him. He is responsible for creation of reports on the projects and assignment of modules to the employees. The employees work on the modules of the project and manage their skill set upon improving their skill set they can update their work profile.

5.2 TimeLine Chart

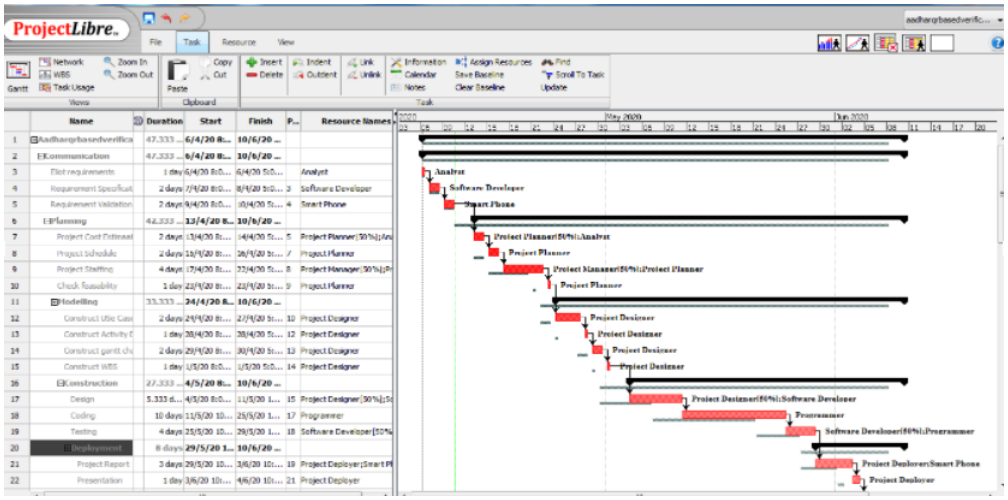

Figure 5.5: Time Chart Tasks.

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