Military Institute of Science & Technology

Department of CSE

Project Name: Officers Smart Notecase

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1. Preface

Starting from the very beginning of the career of an army officer, there are many essential documents that need to be preserved whole throughout the service life. Officers face many problems in various occasions due to not possessing these necessary documents once required. This includes all sorts of personal documents such as CORO records, IPFT records, RET reports, various course results, Pay slip etc. These documents are circulated physically throughout Army. These documents are preserved physically and if by any chance these are lost, they cannot be regained easily and officers have to face a lot of hassle. Officers remain busy with their daily duties and cannot keep track with their important files. It is very important to have an automatic preservation system where all these can be preserved and accessed easily from anywhere, anytime. With the introduction of the “Officers Smart Notecase”, these problems will come to a solution.

The SRS projects all the demands, features and aspects including the working mechanism and probable conclusions to these problems. All these information are valuable for developing an automated data storage and this will provide a guidance to other developers working in this field to create a better environment for the military personnel.

2. Introduction

2.1 Purpose. The Purpose of an activity, project or procedure represents the reason for the change, induction or migration in a brief way. Now the purpose of the Officers Smart Notecase is to end the struggle faced by our officers while handling personal files. This problems have been in the Army for a long time and we intend to provide a permanent solution to this.

2.2 Intended Audience. Intended audience is defined as the group of people for which a service or product is designed. Our prime target is to ensure the safe storage of personal files of Army officers. Definitely with the progress of time , we can widen our range of users providing better service to the nation.

2.3 Scope. Scope of an activity, project or procedure represents their limitations or defines the boundaries of its application. Officers Smart Notecase is a web based application that will automatically preserve all personal documents of an officer serving in the army which are required whole throughout the service. This application will provide an easy and secured access to his personal documents and reduce the effort. Our application is going to maintain and update the documents to give an up-to-date service 24/7. It will be a simple and easy application for an officer. Officers will be within a secured system which will be ensured by accessing the credentials of his biometric identification card. We will try to restrict the data loss and data leak from this system. Our application will extract the latest circulated CORO order, IPFT results and RET results from formation HQ and store all this for an individual officer. With the help of this application, officers will be allowed to access all the pay slips from IBAS++ which will be synchronized with his email. Officers will be allowed to store all his personal documents such as birth certificate, marriage certificate, TIN certificate, Driving License, NID card etc. through scanning.

3. Glossary of Terms

3.1 CORO. CORO means Central Officers Records Office. This is where all the records of all the officers are processed and circulated throughout the Army.

3.2 IPFT. IPFT means Individual Physical Fitness Test. Officers need to appear a fitness test twice a year which is known as IPFT.

3.3 RET. RET means Range Efficiency Test. Officers need to appear a firing test twice a year which is known as RET.

3.4 IBAS++. IBAS means Integrated Budget and Accounting System. IBAS++ is responsible for budget and account maintenance of all the government service holders.

3.5 Pay Slip. Pay slip is a document generated by IBAS++ for an Officer with his monthly salary or allowance details.

3.6 API. API is the acronym for Application Programming Interface, which is a software intermediary that allows two applications to talk to each other. Each time you use an app like Facebook, send an instant message, or check the weather on your phone, we're using an API.

3.7 Cloud Storage. Cloud storage is a cloud computing model in which data is stored on remote servers accessed from the internet, or "cloud." It

is maintained, operated and managed by a cloud storage service provider on storage servers that are built on virtualization techniques.

3.8 SDK. SDK is the acronym for "Software Development Kit". The SDK rings together a group of tools that enable the programming of mobile application.

3.9 UI. UI means User interface. Whatever is visible in an interface of an application to a user is known as UI.

3.10 Biometric ID Card. Biometric ID Cards are a form of identification that recognizes and analyzes an individual based on their physical and behavioral traits. This includes fingerprints, eye retina and iris scanning, voice recognition, facial patterns, and body movement.

4. Requirements Discovery

To collect the user requirements, we had to interact with the MIST student officers of different departments staying in Dhaka Mess. After interaction with the officers we have identified and sorted their requirements. The interaction consisted of verbal interviews with question answer sessions and conducting of a mini-survey. Then we have consulted with our team members for identifying the problems and changed the requirements as per the survey and interview conducted.

5. User Requirements

5.1 Convenient interface.

[Source: Interview of Lt Shabir, EECE Dept, MIST]

5.2 A copy of the documents preserved and accessible in mobile storage.

[Source: Feedback of Mini Survey at Dhaka Mess, Dhaka]

5.3 Better security and good protection.

[Source: Interview of Lt Labid, ME Dept]

5.4 Documents copied by scanning.

[Source: Feedback of Mini-survey at Dhaka mess, Dhaka]

5.5 Pay Slip acquired automatically.

[Source: Interview of Lt Shabir, EECE Dept]

5.6 Accessible from various platforms.

[Source: Interview of Lt Araf, EECE Dept]

5.7 Provide the up-to-date service.

[Source: Feedback of Mini-survey at Dhaka mess, Dhaka]

5.8 Notification alert system so that the users don’t miss anything.

[Source: Feedback of Mini-survey at Dhaka mess, Dhaka]

6. System Architecture

6.1 Model View Controller

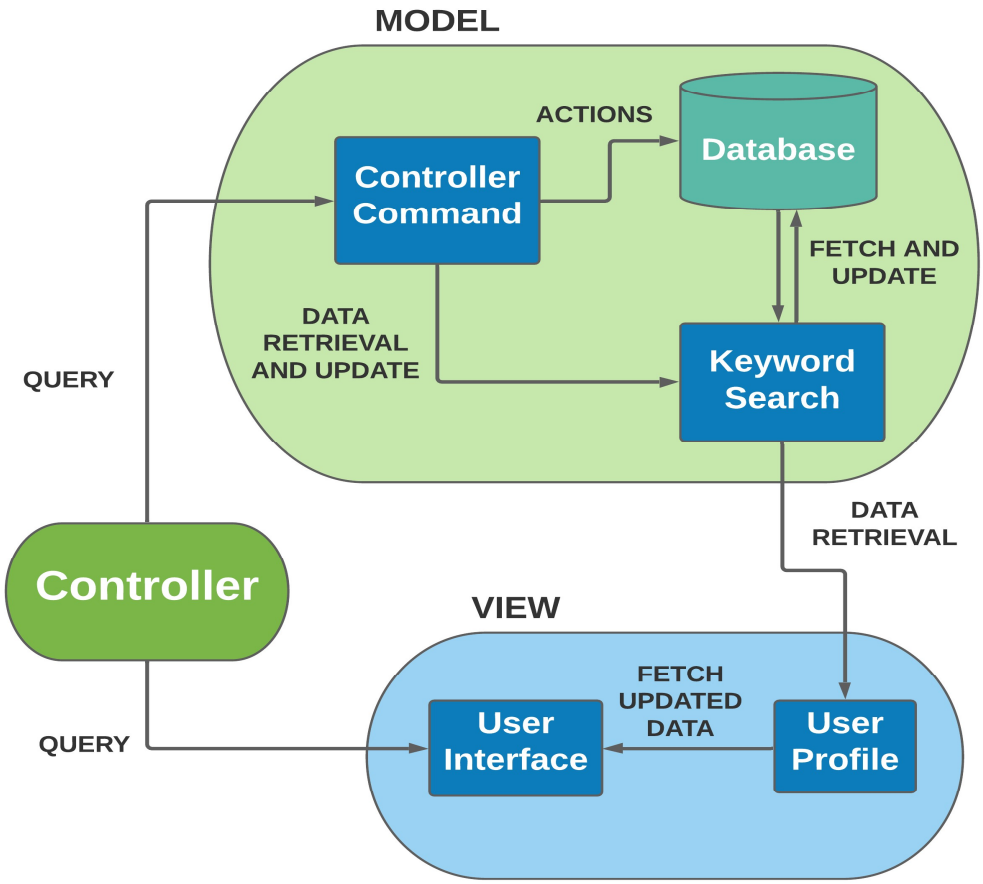

Figure 1.1: System Architecture of Officer's Smart Notecase

6.2.1 Model. It is known as the lowest level which means it is responsible for maintaining data. Handle data logically so it basically deals with data. The model is actually connected to the database so anything you do with data. Adding or retrieving data is done in the model component. It responds to the controller requests because the controller never talks to the database by itself. The model talks to the database back and forth and then it gives the needed data to the controller. Note: the model never communicated with the view directly.

6.2.2 View. Data representation is done by the view component. It actually generates UI or user interface for the user. So at web applications when you think of the view component just think the Html/CSS part. Views are created by the data which is collected by the model component but these data aren't taken directly but through the controller, so the view only speaks to the controller.

6.2.3 Controller. It's known as the main man because the controller is the component that enables the interconnection between the views and the model so it acts as an intermediary. The controller doesn't have to worry about handling data logic, it just tells the model what to do. After receiving data from the model it processes it and then it takes all that information it sends it to the view and explains how to represent to the user. Note: Views and models cannot talk directly.

7. System Requirements Specification

7.1 System Requirements

7.1.1 System should have a very clear and concise interface to avoid ambiguity.

7.1.2 System should be able to record of IPFT, RET, CORO Records of the particular officer inside the database.

7.1.3 System should be properly secured by two factor authentication. System interface should be accessible to only the authorized users.

7.1.4 System should be able to upload personal documents manually using users camera and other scanning applications.

7.1.5 Email Authentication for Pay slip Acquirement.

7.1.6 Smart ID card recognition using QR code.

7.1.7 Developer team will update and make necessary corrections for fortnightly.

7.1.8 After every six months notification will be send to users whose IPFT record is missing in our database.

7.2 Requirements Classification

A functional requirement describes what a software system should do, while non-functional requirements place constraints on how the system will do so. The functional requirement is describing the behavior of the system as it relates to the system's functionality. The non-functional requirement elaborates a performance characteristics of the system. Examples of non-functional requirements are :- Accessibility, Efficiency, Security.

Serial Number	User Requirement	Type of Requirements	
		Functional	Non Functional
01.	Convenient interface.		
02.	A copy of the documents preserved and accessible in mobile storage.		
03.	Better security and data protection		
04.	Documents copied by scanning.		
05.	Pay Slip acquired automatically.		
06.	Accessible from various platforms.		
07.	Provide the up-to-date service.		
08.	Notification alert system so that the users don't miss anything.		

8. System Model

8.1 Context Diagram

A system context diagram represents all the components that may interact with the system, hence displays the entire software system as a unit.

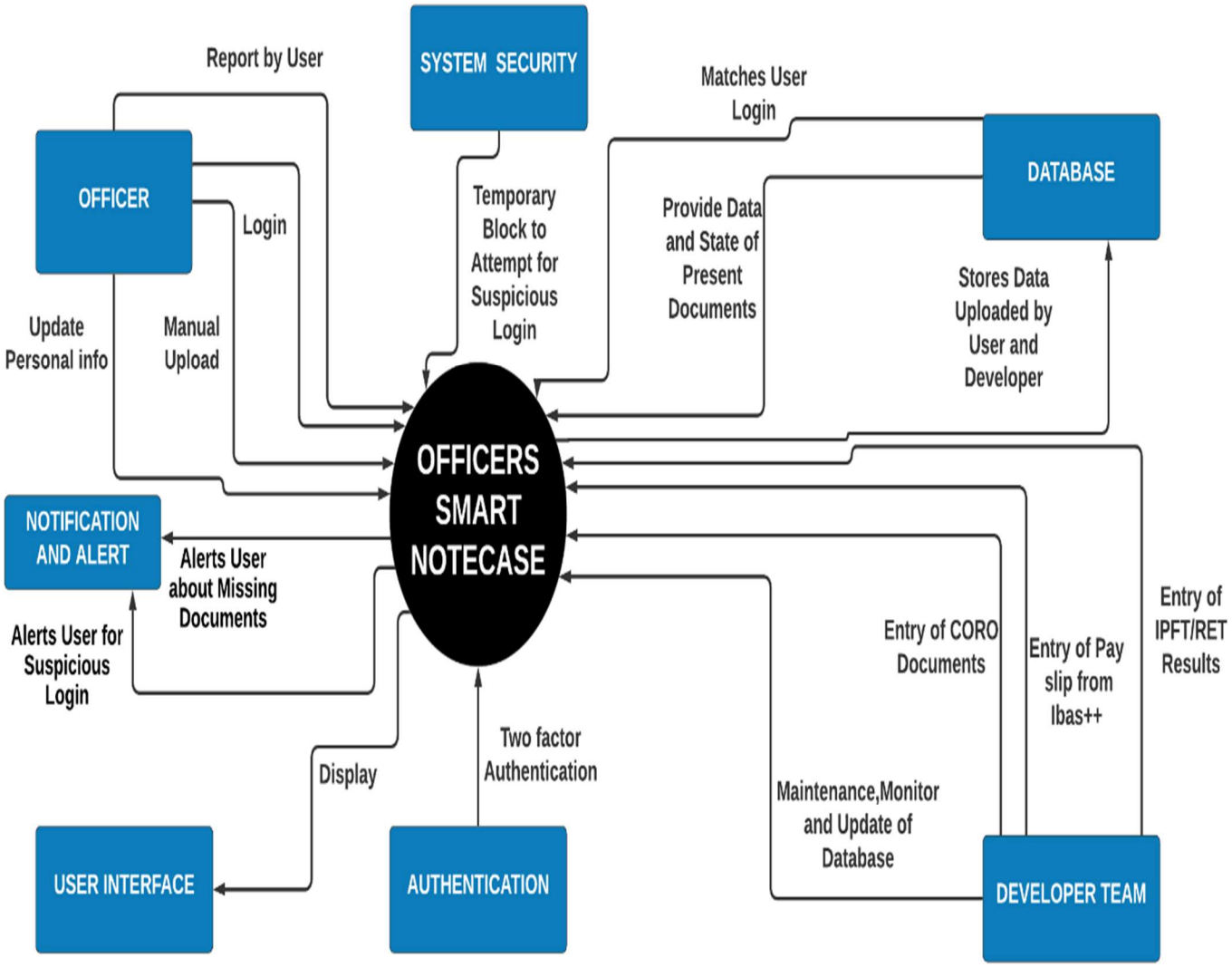

Figure 1.2: Context diagram of Officer's Smart Notecase

8.2 Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved.

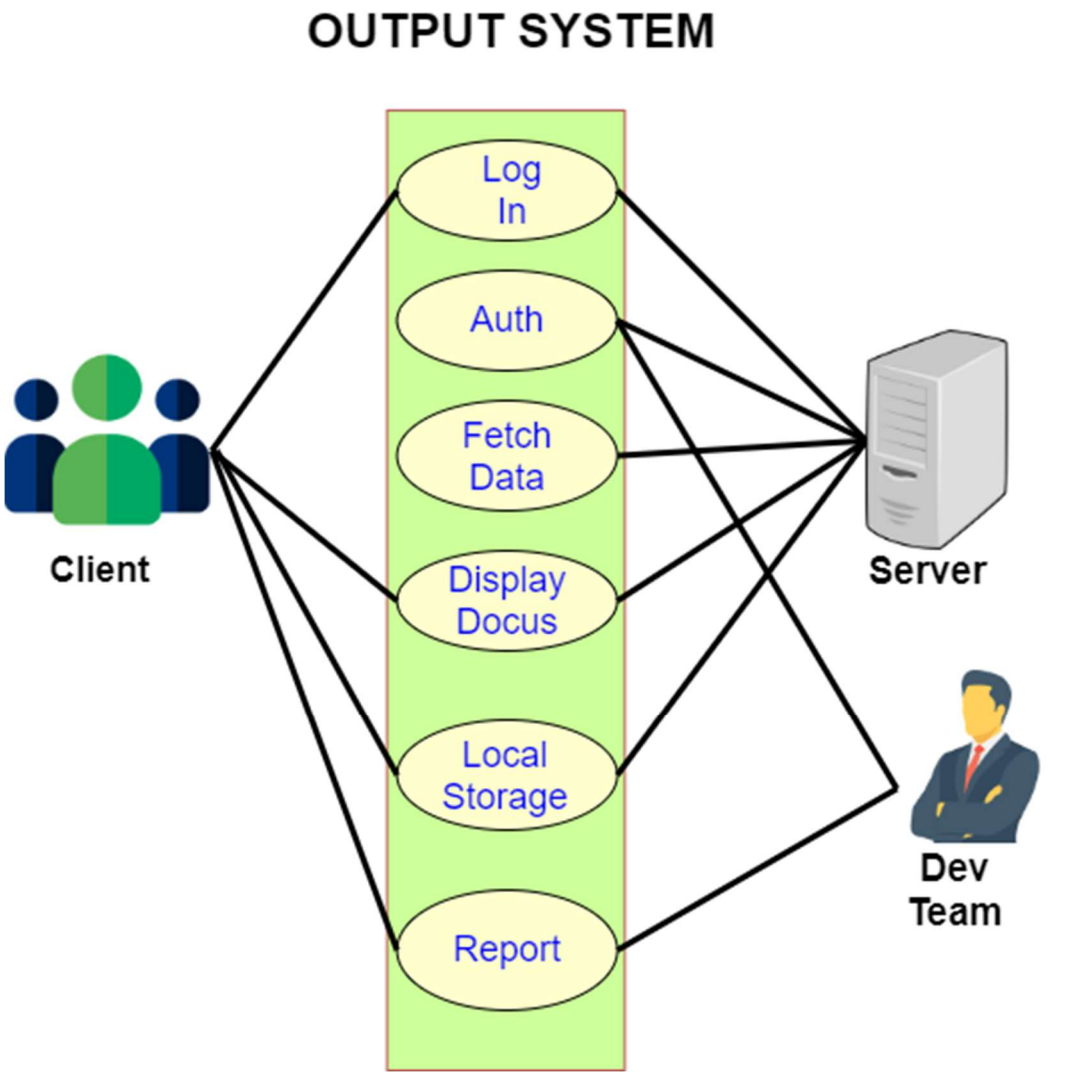

Figure 1.3: Use case diagram of Output System

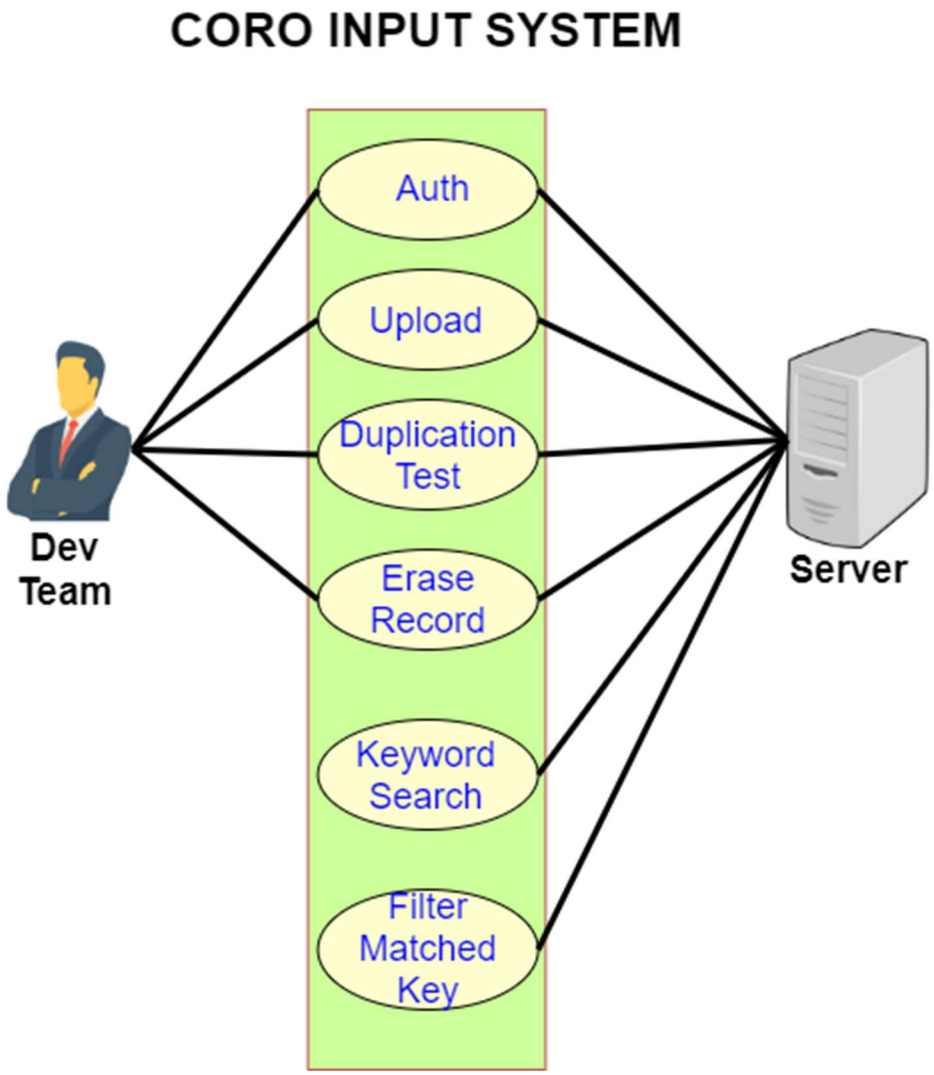

Figure 1.4: Use case diagram of CORO Input System

Authorization, Notification & Modification System	
1. Actors	• Authorized Clients • Developer Team • Server
2. Data	• Login authority information • Client personal data • Report in specific times
3. Stimulus	• Client himself • In some cases, Developer Team
4. Response	• Block Unauthorized Access After 5 wrong attempts • Notification Alert
5. Work Flow	• Developer Team ▪ System login ▪ Data Input ▪ System modification in regular interval ▪ Monitoring user data ▪ System debugging • Client ▪ User login ▪ View personal documents ▪ Entry of new documents ❖ Notification alert ❖ Report
6. Comments	It is a database, which holds the information and documents of the clients. The clients can easily access documents and any kind of updates can be made as per the requirement.

8.3 Activity Diagram

Activity diagram is basically a flowchart to represent the flow from one activity to another activity. The activity can be described as an operation of the system. The control flow is drawn from one operation to another.

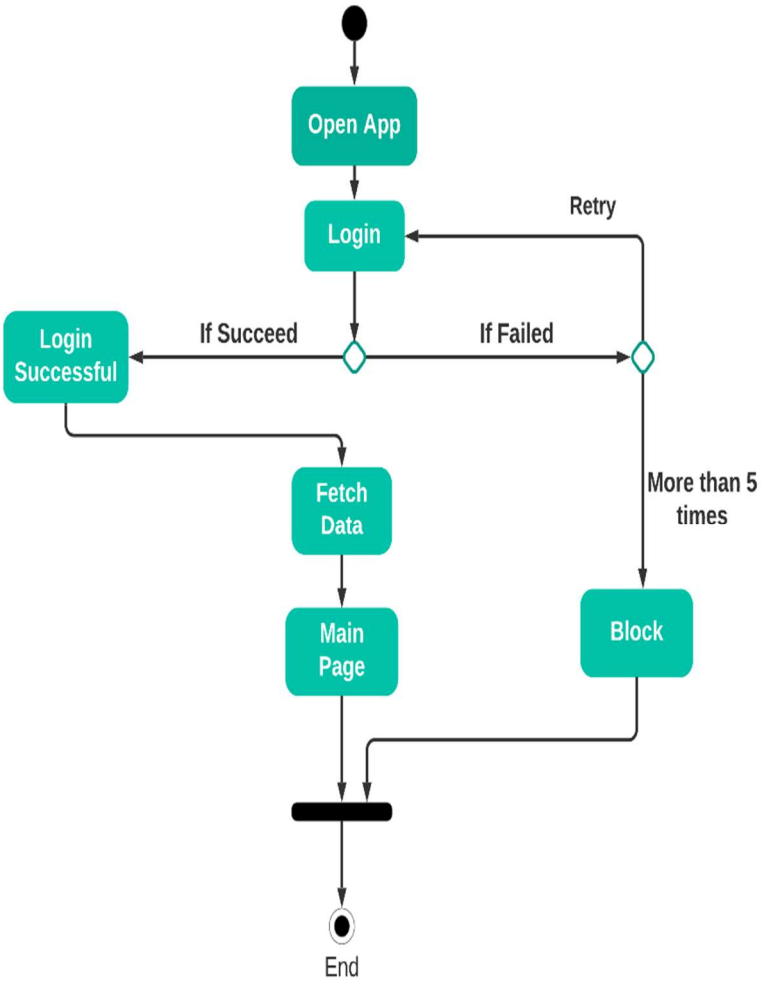

Figure 1.5: Activity diagram of User Login System

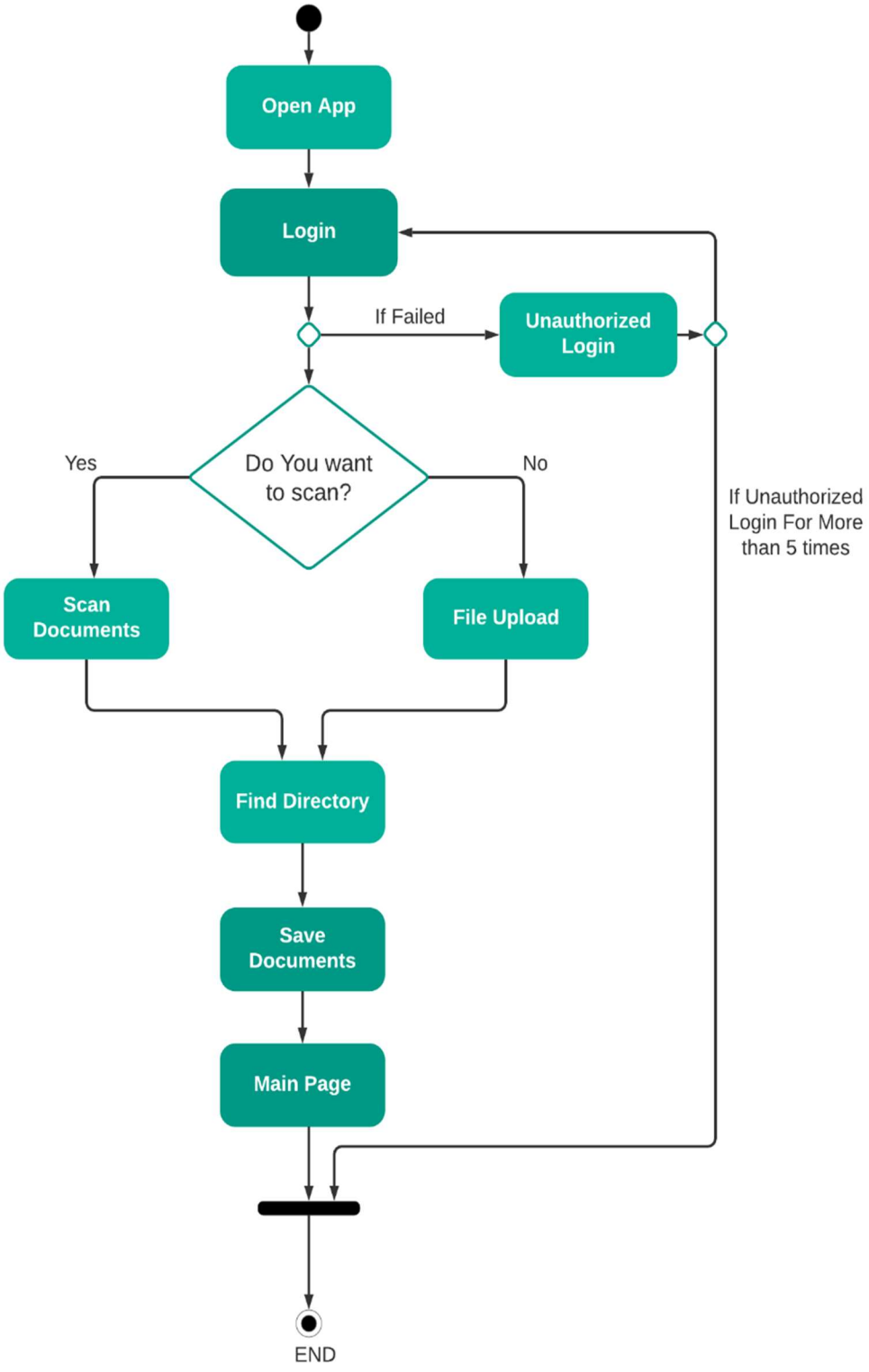

Figure 1.6: Activity Diagram of Document Upload System

8.4 Sequence Diagram

A sequence diagram shows object interactions arranged in time sequence. It depicts the objects involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario.

User Registration

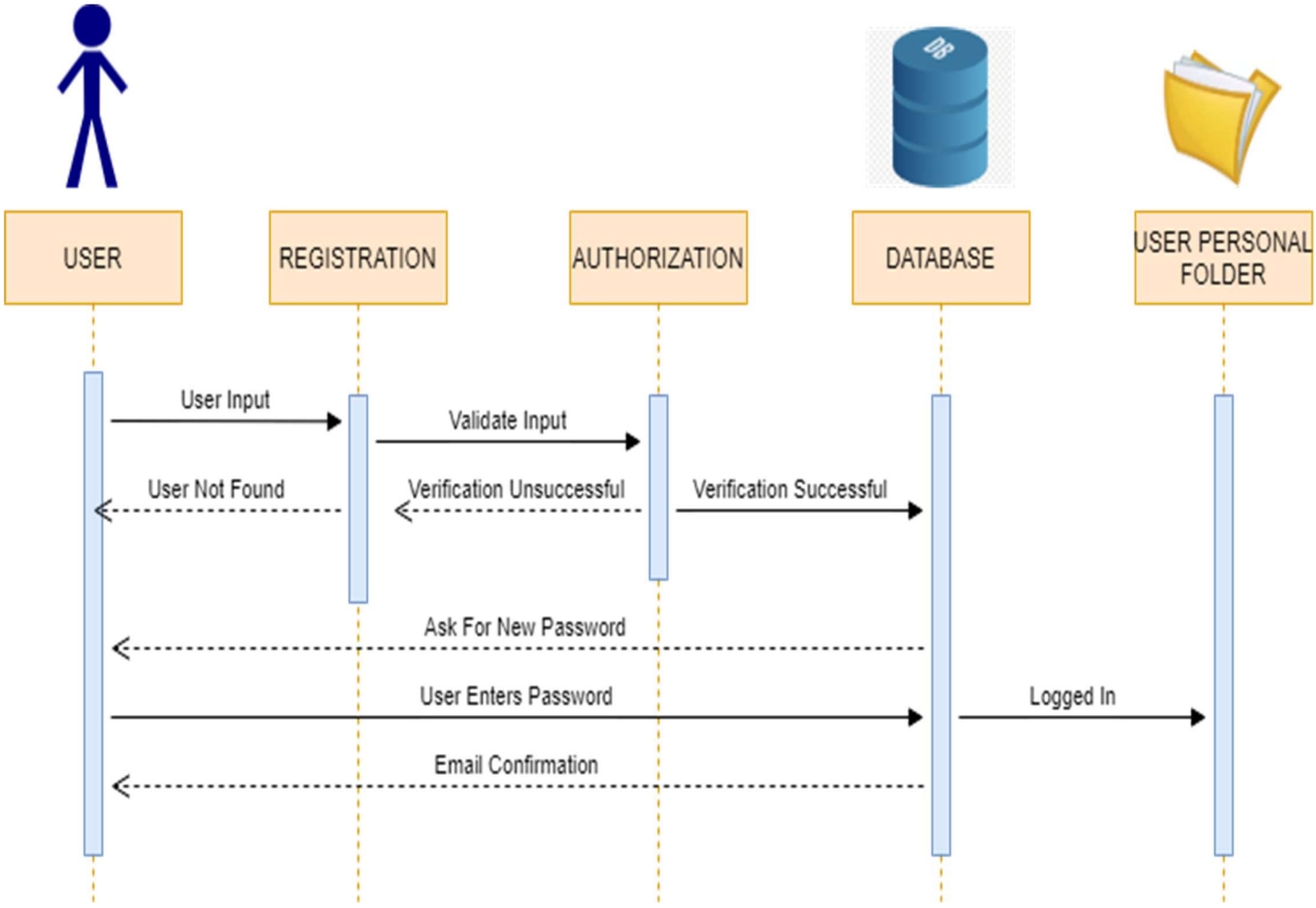

Figure 1.7: Sequence Diagram For User Registration

Document Extraction By User

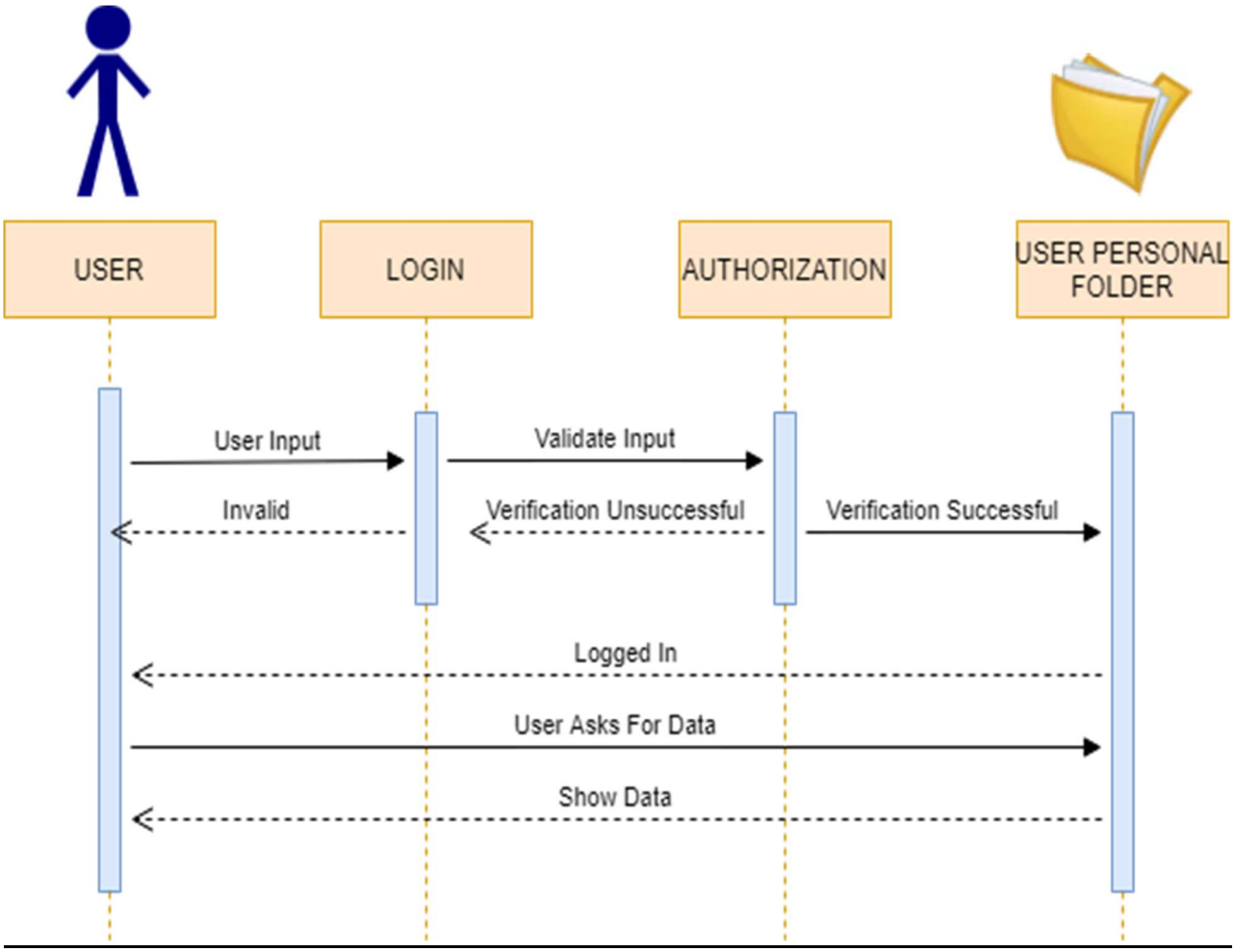

Figure 1.8: Sequence Diagram for Document Extraction by User

Data Update By Developer

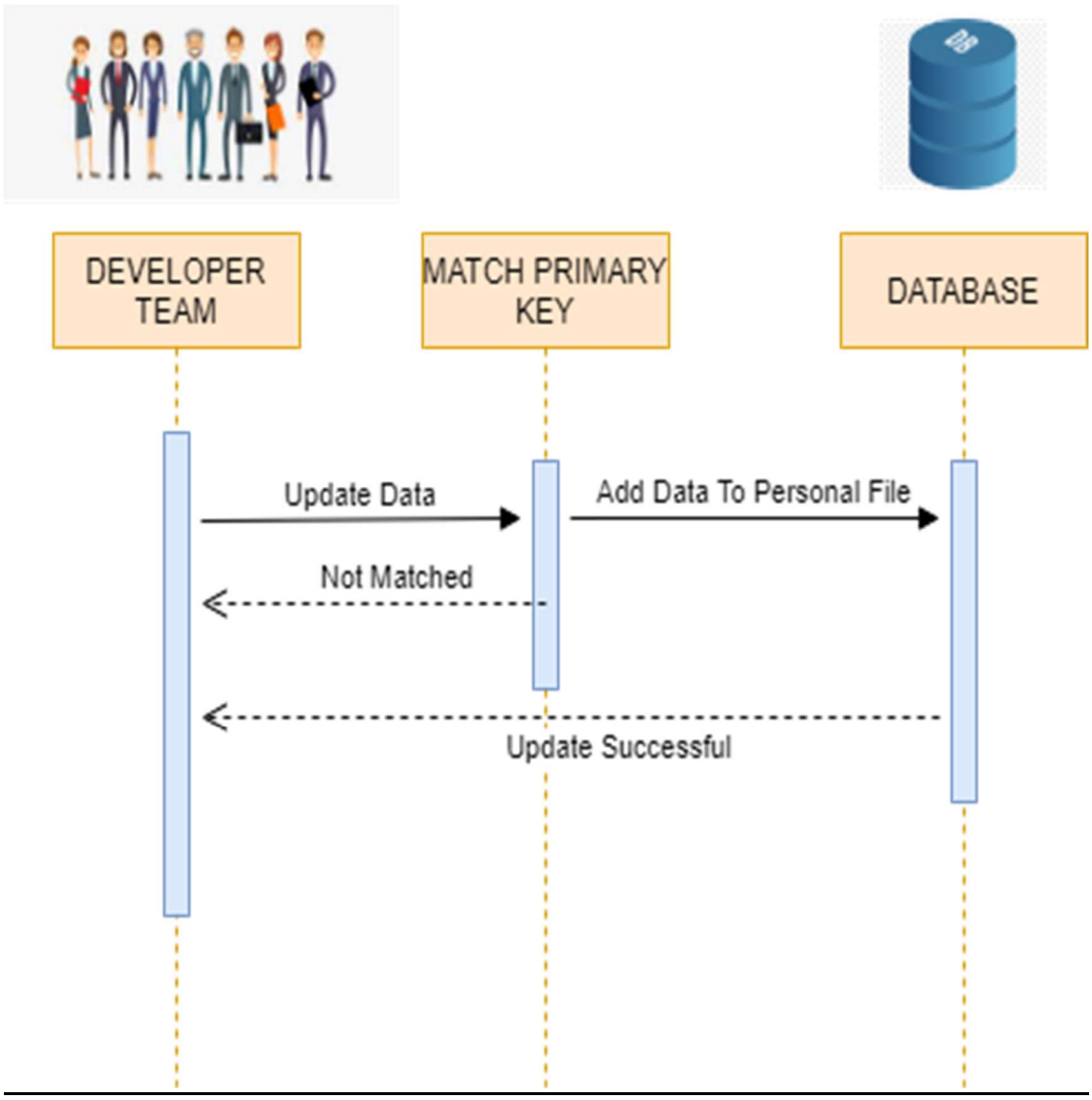

Figure 1.9: Sequence Diagram for Data Upload by Developer Team

9. System Evolution

9.1 We might have a situation where the user is unable to access his/her phone, but he/she needs to access some of the information from the mobile application. For this situation, we might opt for a website with the user individual access where the user can access his documents from any browser at any time.

9.2 There might be a situation where a user is not getting any notification or any updated documents. But he is sure that there must have been an update . So, there can be a feature where one user can ask for any particular documents from the server with proper authentication. And he/she will receive the document from the server if it belongs to him/her.

9.3 Initially we are planning to include only the Officers Of Bangladesh Army under our domain, but we plan to further extend it to our Arms and Services if the project becomes a success by

10. Appendices

10.1 For our convenience, we have taken few interviews regarding the requirement of users, a short video clip of one of the interview is attached below:-

Requirement Discovery Interview_9

10.2 Sample questionnaire and general answers of the interview is given below: -

10.2.1 As a young officer, can you tell me some of the problems you have faced related to preservation of personal documents?

Ans. It happens that most of us aren't careful about our personal documents. We can't preserve those due to staying engrossed at work. As most of the documents don't have duplicate copies, it's hard to collect those.

10.2.2 What can be the probable solution to this problems according to your opinion?

Ans. If there was a way to Automatically store these documents in some secure place, from where it is easily accessible, it could be a solution.

10.2.3 If there was an application to preserve all the necessary files for Army officers, how would it benefit you?

Ans. If there was such an application, then I wouldn't need to worry about losing my documents or not finding them when I need them.

10.2.4 Have you used any existing software related to this issue before?

Ans. No, I haven't used any software quite like this before, which can offer me all the necessary documents I need in one place.

10.2.5 If we can provide some application to you like this, what are your expectations and required specifications out of the application?

Ans. I have few expectations which should be a must for this application. This are :-

a. Will have a mobile platform.

b. Will be always up-to-date.

c. Will have highest level of security measures possible.

d. The application will be available 24/7.

10.3 References

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[2] Barreau, D., & Nardi, B. A. Finding and reminding: file organization from the desktop. ACM SigChi Bulletin, 27(3) (1995) 39--43.

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