SCALEABLE AND SECURE SHARING OF PERSONAL HEALTH RECORDS IN CLOUD COMPUTING USING ATTRIBUTE- BASED ENCRYPTION

submitted in partial fulfillment of the requirements
for the award of the degree in

BACHELOR OF COMPUTER APPLICATIONS

by

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DEPARTMENT OF COMPUTER APPLICATIONS

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University with Graded Autonomy Status
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April 2023

DECLARATION

We the students of III year BCA hereby declare that the Project Report entitled "**SCALEABLE AND SECURE SHARING OF PERSONAL HEALTH RECORDS IN CLOUD COMPUTING USING ATTRIBUTE- BASED ENCRYPTION**" is done by us under the guidance of Dr./Mr./Ms. **SRIVIDHYA SANTHI** (Assistant Professor) is submitted in partial fulfillment of the requirements for the award of the degree in BACHELOR OF COMPUTER APPLICATIONS.

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BONAFIDE CERTIFICATE

This is to certify that this Project Report is the bonafide work of Mr./Ms.

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Submitted for Viva Voce Examination held on__________________

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ABSTRACT

Personal health record (PHR) is an emerging patient-centric model of health information exchange, which is often outsourced to be stored at a third party, such as cloud providers. However, there have been wide privacy concerns as personal health information could be exposed to those third party servers and to unauthorized parties. To assure the patients' control over access to their own PHRs, it is a promising method to encrypt the PHRs before outsourcing. Yet, issues such as risks of privacy exposure, scalability in key management, flexible access and efficient user revocation, have remained the most important challenges toward achieving fine-grained, cryptographically enforced data access control. In this paper, we propose a novel patient-centric framework and a suite of mechanisms for data access control to PHRs stored in semi-trusted servers. To achieve fine-grained and scalable data access control for PHRs, we leverage attribute-based encryption (ABE) techniques to encrypt each patient's PHR file. Different from previous works in secure data outsourcing, we focus on the multiple data owner scenario, and divide the users in the PHR system into multiple security domains that greatly reduces the key management complexity for owners and users. A high degree of patient privacy is guaranteed simultaneously by exploiting multi-authority ABE. Our scheme also enables dynamic modification of access policies or file attributes, supports efficient on-demand user/attribute revocation and break-glass access under emergency scenarios. Extensive analytical and experimental results are presented which show the security, scalability and efficiency of our proposed scheme.

CHAPTER 1

INTRODUCTION

In recent years, personal health record (PHR) has emerged as a patient-centric model of health information exchange. A PHR service allows a patient to create, manage, and control her personal health data in one place through the web, which has made the storage, retrieval, and sharing of the medical information more efficient. Especially, each patient is promised the full control of her medical records and can share her health data with a wide range of users, including healthcare providers, family members or friends.

Recently, architectures of storing PHRs in cloud computing have been proposed in. While it is exciting to have convenient PHR services for everyone, there are many security and privacy risks which could impede its wide adoption. The main concern is about whether the patients could actually control the sharing of their sensitive personal health information (PHI), especially when they are stored on a third-party server which people may not fully trust. On the other hand, due to the high value of the sensitive PHI, the third party storage servers are often the targets of various malicious behaviors which may lead to exposure of the PHI. As a famous incident, a Department of Veterans Affairs database containing sensitive PHI of 26.5 million military veterans, including their social security numbers and health problems was stolen by an employee who took the data home without authorization.

To ensure patient-centric privacy control over their own PHRs, it is essential to have fine-grained data access control mechanisms that work with semi-trusted servers. A feasible and promising approach would be to encrypt the data before outsourcing. Basically, the PHR owner herself should decide how to encrypt her files and to allow which set of users to obtain access to each file. A PHR file should only be available to the users who are given the corresponding decryption key, while remain confidential to the rest of users.

In order to protect the personal health data stored on a semi-trusted server, we adopt attribute-based encryption (ABE) as the main encryption primitive. Using ABE, access policies are expressed based on the attributes of users or data, which enables a patient to selectively share her PHR among a set of users by encrypting the file under a set of attributes, without the need to know a complete list of users. The complexities per encryption, key generation, and decryption are only linear with the number of attributes involved.

We provide a thorough analysis of the complexity and scalability of our proposed secure PHR sharing solution, in terms of multiple metrics in computation, communication, storage, and key management. We also compare our scheme to several previous ones in complexity, scalability and security. Furthermore, we demonstrate the efficiency of our scheme by implementing it on a modern workstation and performing experiments/simulations.

CHAPTER 2

2. SYSTEM ANALYSIS

2.1 PROBLEM DEFINITION:

In order to protect the personal health data stored on a semi-trusted server, we adopt attribute-based encryption (ABE) as the main encryption primitive. Using ABE, access policies are expressed based on the attributes of users or data, which enables a patient to selectively share her PHR among a set of users by encrypting the file under a set of attributes, without the need to know a complete list of users. The complexities per encryption, key generation, and decryption are only linear with the number of attributes involved. However, to integrate ABE into a large-scale PHR system, important issues such as key management scalability, dynamic policy updates, and efficient on-demand revocation are nontrivial to solve, and remain largely open up-to-date.

We provide a thorough analysis of the complexity and scalability of our proposed secure PHR sharing solution, in terms of multiple metrics in computation, communication, storage, and key management. We also compare our scheme to several previous ones in complexity, scalability and security. Furthermore, we demonstrate the efficiency of our scheme by implementing it on a modern workstation and performing experiments/simulations

2.2 EXISTING SYSTEM:

Due to the high cost of building and maintaining specialized data centers, many PHR services are outsourced to or provided by third-party service providers, for example, Microsoft Health Vault. While it is exciting to have convenient PHR services for everyone, there are many security and privacy risks.

Which could impede its wide adoption? The main concern is about whether the patients could actually control the sharing of their sensitive personal health information (PHI), especially when they are stored on a third-party server which people may not fully trust.

2.2.1 DISADVANTAGES OF EXISTING SYSTEM:

- There have been wide privacy concerns as personal health information could be exposed to those third-party servers and to unauthorized parties.
- Department of Veterans Affairs database containing sensitive PHI of 26.5 million military veterans, including their social security numbers and health problems was stolen by an employee who took the data home without authorization.
- They usually assume the use of a single trusted authority (TA) in the system. This not only may create a load bottleneck, but also suffers from the key escrow problem since the TA can access all the encrypted files, opening the door for potential privacy exposure. In addition, it is not practical to delegate all attribute management tasks to one TA, including certifying all users' attributes or roles and generating secret keys.

2.3 PROPOSED SYSTEM

To assure the patients' control over access to their own PHRs, it is a promising method to encrypt the PHRs before outsourcing. In this paper, we propose a novel patient-centric framework and a suite of mechanisms for data access control to PHRs stored in semi-trusted servers. To achieve fine-grained and scalable data access control for PHRs, we leverage attribute based encryption (ABE) techniques to encrypt each patient's PHR file. To ensure patient-centric privacy control over their own PHRs, it is essential to have fine-grained data access control mechanisms that work with semi-trusted servers.

In order to protect the personal health data stored on a semi-trusted server, we adopt attribute-based encryption (ABE) as the main encryption primitive. Using ABE, access policies are expressed based on the attributes of users or data, which enables a patient to selectively share her PHR among a set of users by encrypting the file under a set of attributes, without the need to know a complete list of users.

2.3.1 ADVANTAGES OF PROPOSED SYSTEM:

- We focus on the multiple data owner scenario, and divide the users in the PHR system into multiple security domains that greatly reduces the key management complexity for owners and users. In this paper, we bridge the above gaps by proposing a unified security framework for patient-centric sharing of PHRs in a multi-domain, multi-authority PHR system with many users.

- The framework captures application level requirements of both public and personal use of a patient's PHRs, and distributes users' trust to multiple authorities that better reflects reality.
- Each owner's PHR file is encrypted both under a certain fine grained and role-based access policy for users from the PUD (Potential Utility Density) to access, and under a selected set of data attributes that allows access from users in the PSD(Photoshop Document). Only authorized users can decrypt the PHR files, excluding the server.

CHAPTER 3

3. REQUIREMENT SPECIFICATION:

3.1 HARDWARE SPECIFICATION:

- Processor - Intel Dual Core
- Speed - 2.5 GHz
- RAM - 2 GB
- Hard Disk - 500 GB
- Key Board - Standard Windows Keyboard
- Mouse - Two or Three Button Mouse
- Monitor - LCD

3.2 SOFTWARE SPECIFICATION:

- Operating system - Windows 7/ 10.
- Coding Language - ASP.Net with C#
- Front-End - Visual Studio 2010.
- Data Base - SQL Server 2008 R2.

3.2.1 LANGUAGE SPECIFICATION:

3.2.1.1 Dotnet technology:

THE .NET FRAMEWORK:

The .NET Framework is a new computing platform that simplifies application development in the highly distributed environment of the Internet.

OBJECTIVES OF. NET FRAMEWORK:

- To provide a consistent object-oriented programming environment whether object codes is stored and executed locally on Internet-distributed, or executed remotely.
- To provide a code-execution environment to minimizes software deployment and guarantees safe execution of code.
- Eliminates the performance problems.

3.2.2 COMPONENTS OF .NET FRAMEWORK:

3.2.2.1 THE COMMON LANGUAGE RUNTIME (CLR):

The common language runtime is the foundation of the .NET Framework. It manages code at execution time, providing important services such as memory management, thread management, and remoting and also ensures more security and robustness. The concept of code management is a fundamental principle of the runtime. Code that targets the runtime is known as managed code, while code that does not target the runtime is known as unmanaged code.

3.2.2.2 THE .NET FRAME WORK CLASS LIBRARY:

It is a comprehensive, object-oriented collection of reusable types used to develop applications ranging from traditional command-line or graphical user interface (GUI) applications to applications based on the latest innovations provided by ASP.NET, such as Web Forms and XML Web services.

3.2.3 FEATURES OF THE COMMON LANGUAGE RUNTIME:

The common language runtime manages memory; thread execution, code execution, code safety verification, compilation, and other system services these are all run on CLR.

- Security.
- Robustness.
- Productivity.
- Performance.

3.2.3.1 FEATURES OF ASP.NET:

- ASP.NET is 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, it also provides a new programming model and infrastructure for more secure, scalable, and stable applications.
- ASP.NET is a compiled, NET-based environment, we can author applications in any .NET compatible language, including Visual Basic .NET, C#, and JScript .NET. Additionally, the entire .NET Framework is available to any ASP.NET application. Developers can easily access the benefits of these technologies, which include the managed common language runtime environment (CLR), type safety, inheritance, and so on.

ADO.NET offers several advantages over previous versions of ADO:

- Interoperability
- Maintainability
- Programmability
- Performance Scalability

3.3.1. VISUAL STUDIO .NET:

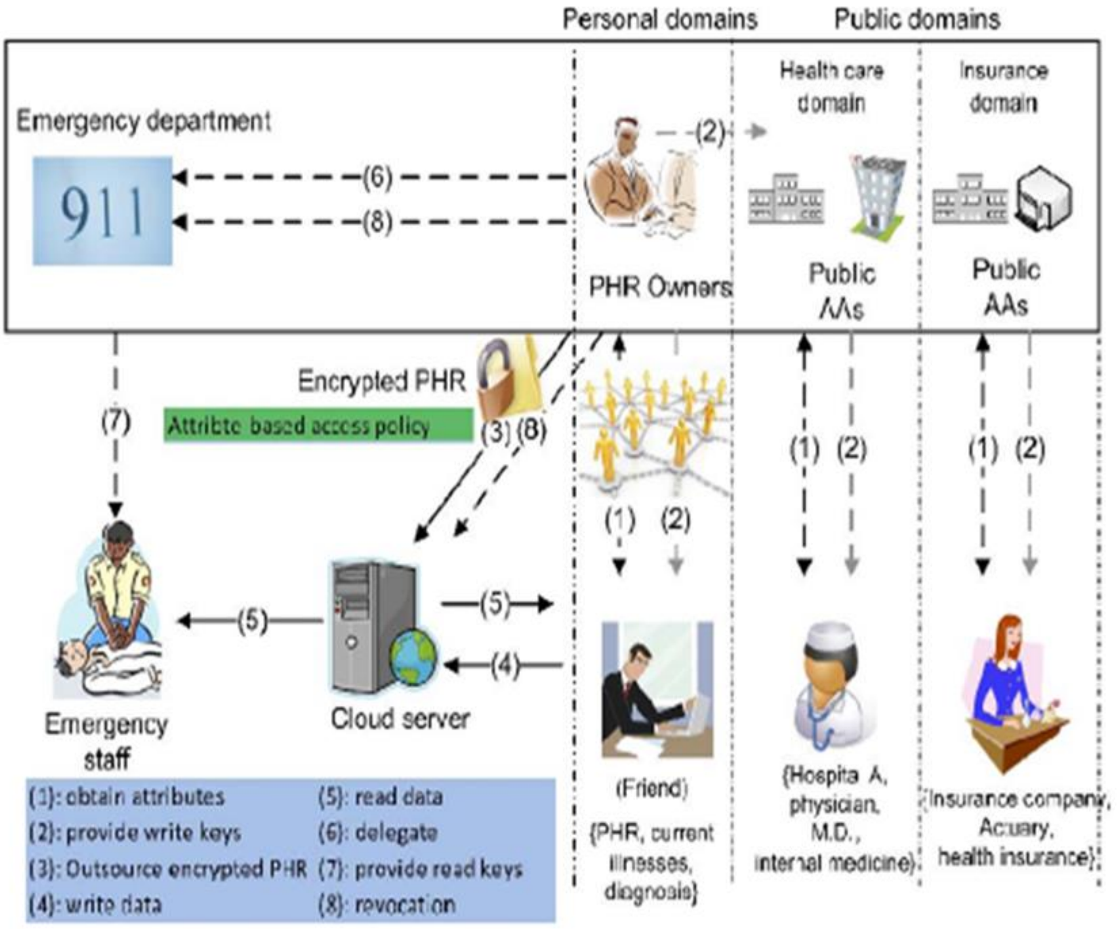
Visual Studio .NET is a complete set of development tools for building ASP Web applications, XML Web services, desktop applications, and mobile applications In addition to building high-performing desktop applications, you can use Visual Studio's powerful component-based development tools and other technologies to simplify team-based design, development, and deployment of Enterprise solutions. Visual Basic .NET, Visual C++ .NET, and Visual C# .NET all use the same integrated development environment (IDE), which allows them to share tools and facilitates in the creation of mixed-language solutions.

In addition, these languages leverage the functionality of the .NET Framework and simplify the development of ASP Web applications and XML Web services. Visual Studio supports the .NET Framework, which provides a common language runtime and unified programming classes; ASP.NET uses these components to create ASP Web applications and XML Web services. Also it includes MSDN Library, which contains all the documentation for these development tools.

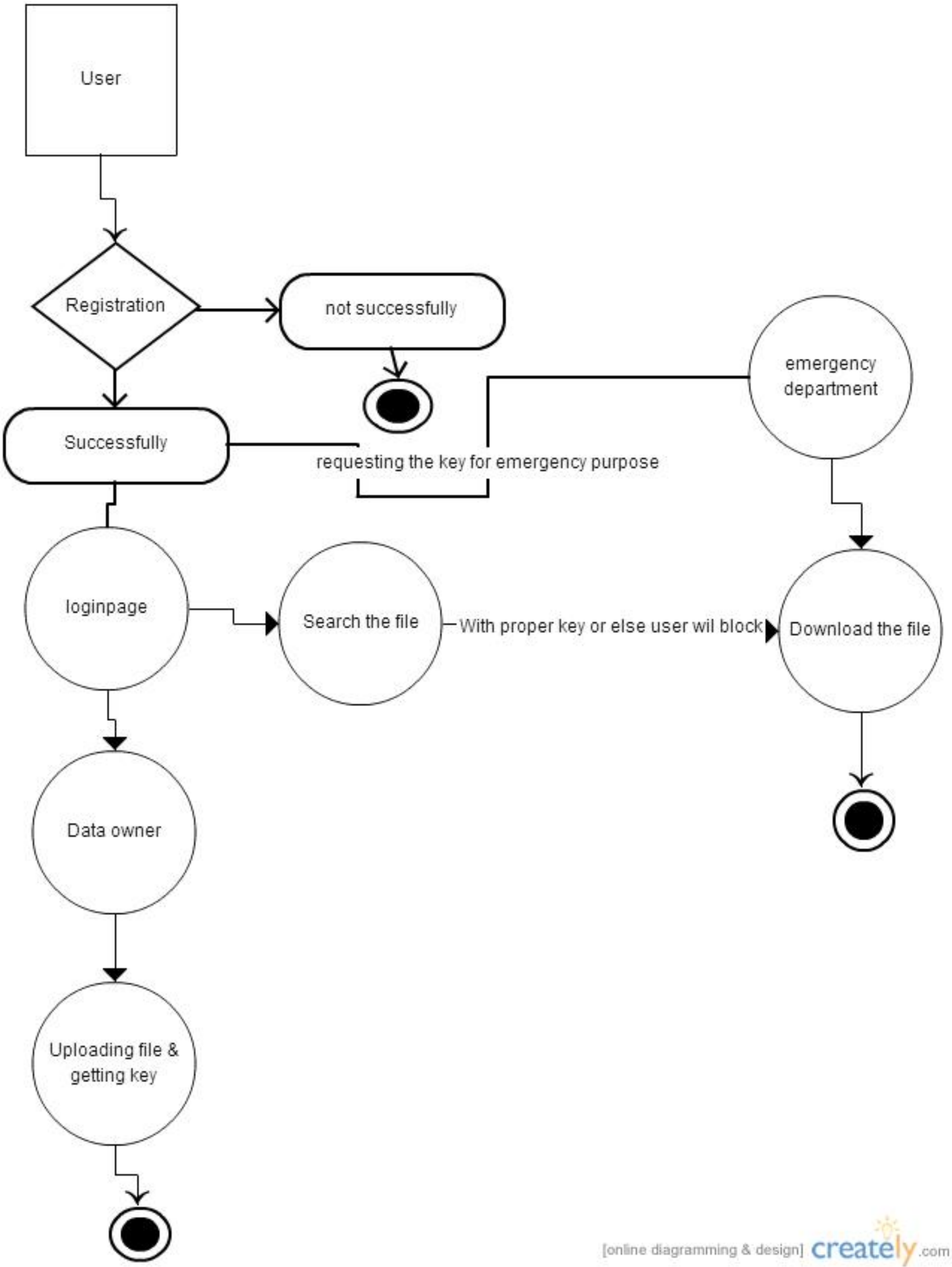
CHAPTER 4

4. DESIGN AND IMPLEMENTATION

4.1 SYSTEM ARCHITECTURE:



4.2 DATA FLOW DIAGRAM:


User
Registration
not successfully
emergency department
Successfully
requesting the key for emergency purpose
loginpage
Search the file
With proper key or else user wil block
Download the file
Data owner
Uploading file & getting key
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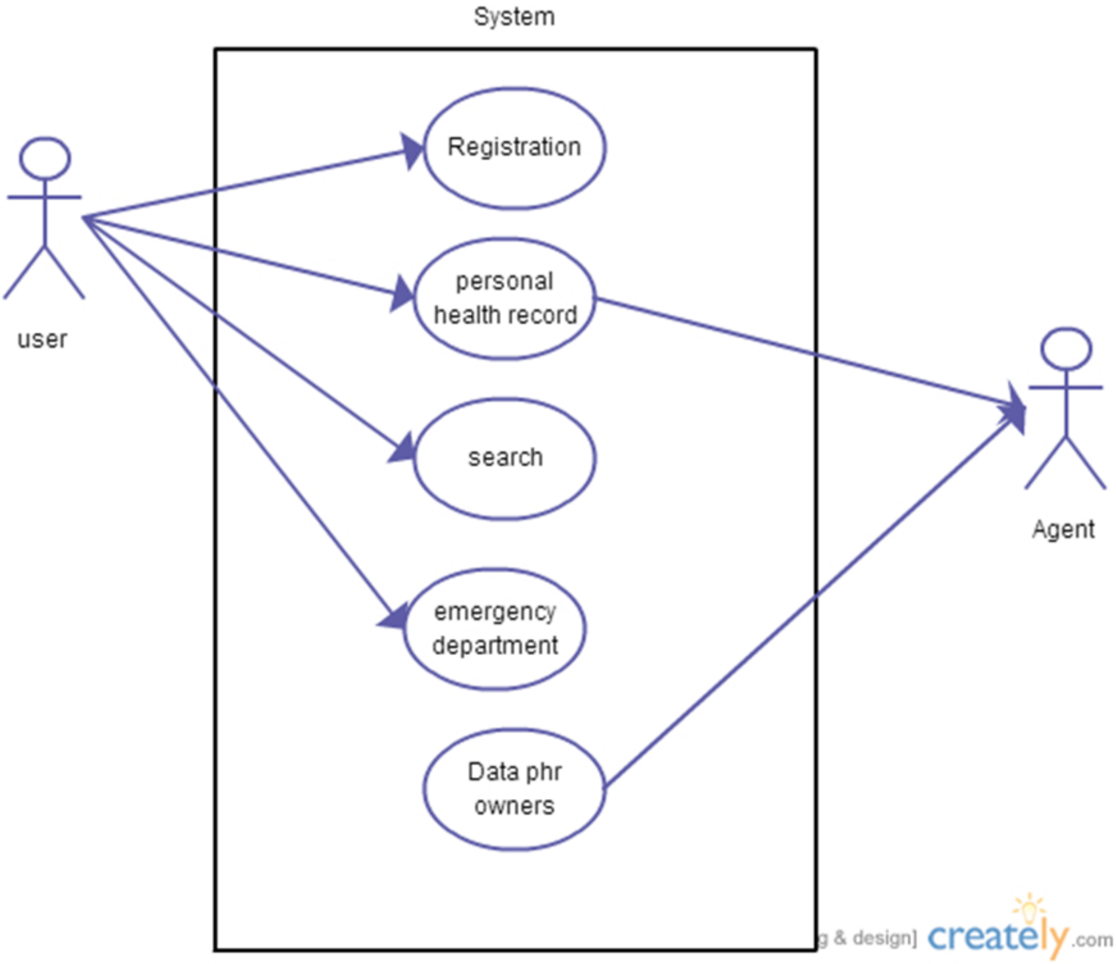
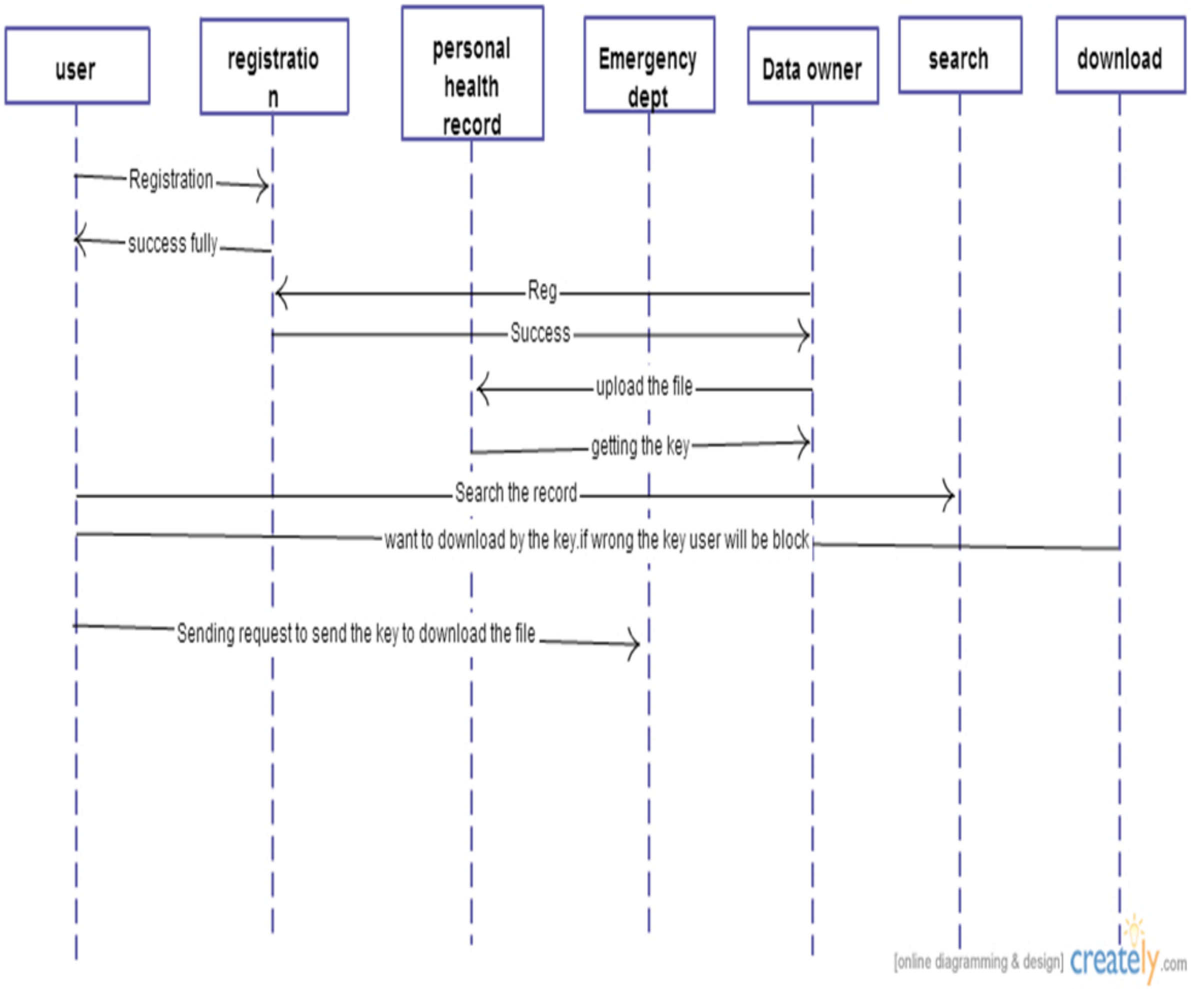
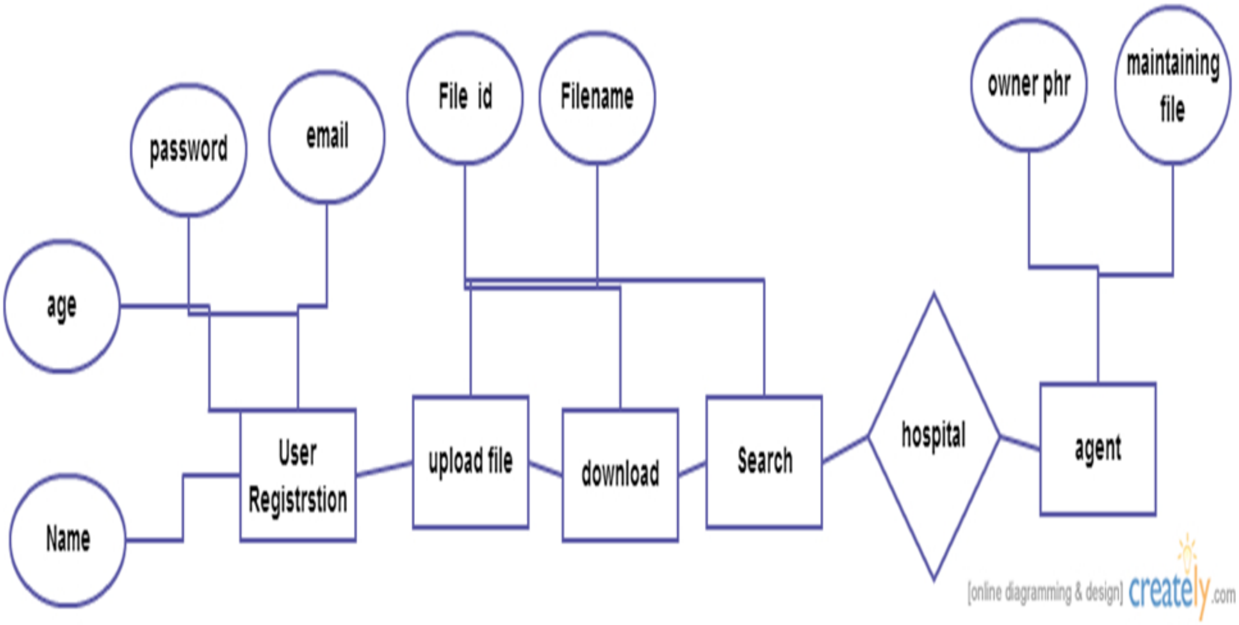
4.3 USE CASE DIAGRAM:



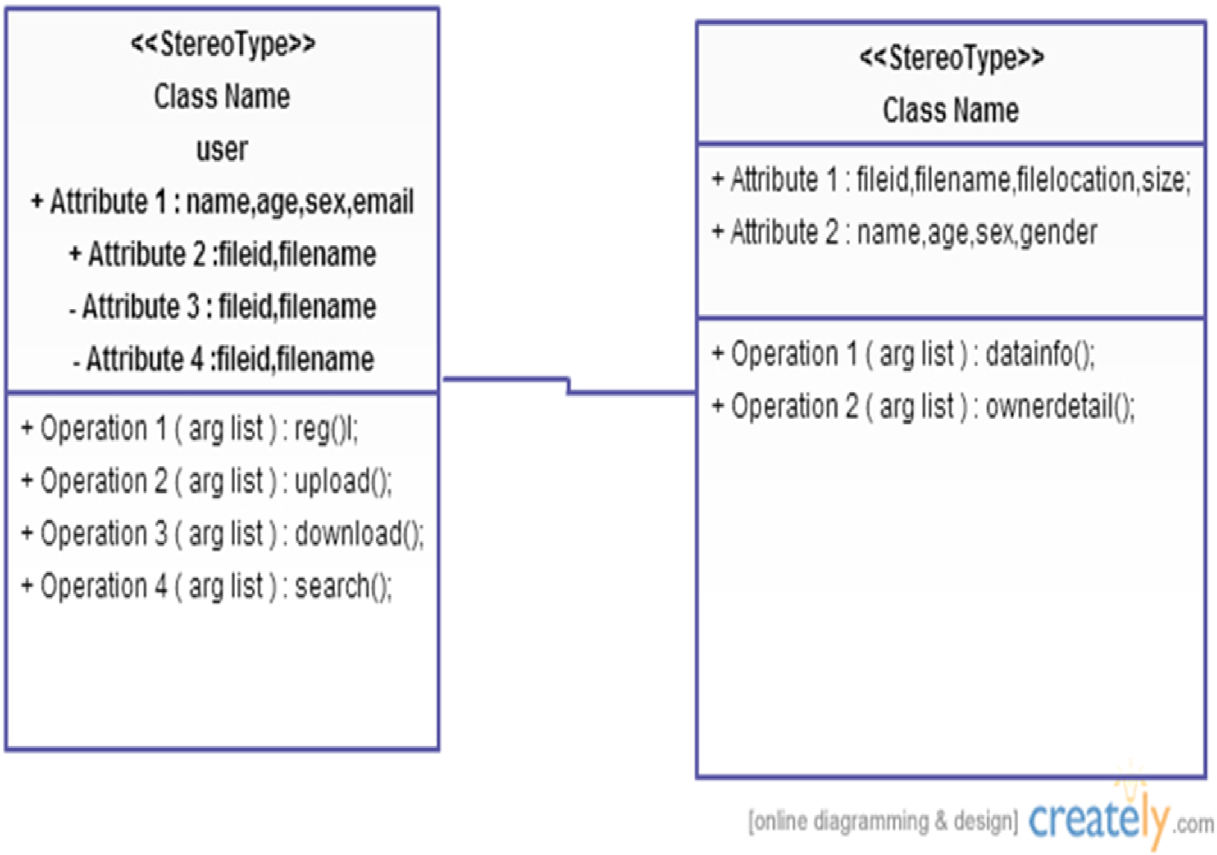
4.4 SEQUENCE DIAGRAM:



4.5 ER DIAGRAM:



4.6 CLASS DIAGRAM:



<<StereoType>>
Class Name
user
+ Attribute 1 : name,age,sex,email
+ Attribute 2 :fileid,filename
- Attribute 3 : fileid,filename
- Attribute 4 :fileid,filename
+ Operation 1 (arg list) : reg()l;
+ Operation 2 (arg list) : upload();
+ Operation 3 (arg list) : download();
+ Operation 4 (arg list) : search();
<<StereoType>>
Class Name
+ Attribute 1 : fileid,filename,filelocation,size;
+ Attribute 2 : name,age,sex,gender
+ Operation 1 (arg list) : datainfo();
+ Operation 2 (arg list) : ownerdetail();
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4.7 DATABASE DESIGN:

4.7.1 MS-SQL SERVER 2008R2:

4.7.1.1 Features of SQL-Server 2008R2:

The OLAP Services feature available in SQL Server version 7.0 is now called SQL Server 2008R2 Analysis Services. The term OLAP Services has been replaced with the term Analysis Services. Analysis Services also includes a new data mining component. The Repository component available in SQL Server version 7.0 is now called Microsoft SQL Server 2008R2 Meta Data Services. References to the component now use the term Meta Data Services. The term repository is used only in reference to the repository engine within Meta Data Services SQL-SERVER database consist of six type of objects,

They are,

- TABLE
- QUERY
- FORM
- REPORT
- MACRO

4.7.1.1.1 Table:

A database is a collection of data about a specific topic.

4.7.1.1.2 Views of tables:

We can work with a table in two types,

- Design View
- Datasheet View

4.7.1.1.3 Design View:

To build or modify the structure of a table we work in the table design view. We can specify what kind of data will be hold.

4.7.1.1.4 Datasheet View:

To add, edit or analyses the data itself we work in tables datasheet view mode.

4.7.1.2 QUERY:

A query is a question that has to be asked the data. Access gathers data that answers the question from one or more table. The data that make up the answer is either dynaset (if you edit it) or a snapshot (it cannot be edited). Each time we run a query, we get latest information in the dynaset. Access either displays the dynaset or snapshot for us to view or perform an action on it, such as deleting or updating.

4.7.1.3 FORMS:

A form is used to view and edit information in the database record by record .A form displays only the information we want to see in the way we want to see it. Forms use the familiar controls such as textboxes and checkboxes.

4.7.1.3.1 Views of Form:

We can work with forms in several primarily there are two views:

- Design View
- Form View

4.7.1.3.2 Design View:

To build or modify the structure of a form, we work in forms design view. We can add control to the form that are bound to fields in a table or query, includes textboxes, option buttons, graphs and pictures.

4.7.1.3.3 Form View:

The form view which display the whole design of the form.

4.7.1.4 REPORT:

A report is used to vies and print information from the database. The report can ground records into many levels and compute totals and average by checking values from many records at once. Also the report is attractive and distinctive because we have control over the size and appearance of it.

4.7.1.5 MACRO:

A macro is a set of actions. Each action in macros does something. Such as opening a form or printing a report. We write macros to automate the common tasks the work easy and save the time.

CHAPTER 5

5.TESTING

5.1 INTRODUCTION:

5.1.1 System Testing and Maintenance:

Testing is vital to the success of the system. System testing makes a logical assumption that if all parts of the system are correct, the goal will be successfully achieved. In the testing process we test the actual system in an organization and gather errors from the new system operates in full efficiency as stated. System testing is the stage of implementation, which is aimed to ensuring that the system works accurately and efficiently.

In the testing process we test the actual system in an organization and gather errors from the new system and take initiatives to correct the same. All the front-end and back-end connectivity are tested to be sure that the new system operates in full efficiency as stated. System testing is the stage of implementation, which is aimed at ensuring that the system works accurately and efficiently.

The main objective of testing is to uncover errors from the system. For the uncovering process we have to give proper input data to the system. So we should have more conscious to give input data. It is important to give correct inputs to efficient testing.

Testing is done for each module. After testing all the modules, the modules are integrated and testing of the final system is done with the test data, specially designed to show that the system will operate successfully in all its aspects conditions. Thus the system testing is a confirmation that all is correct and an opportunity to show the user that the system works. Inadequate testing or non-testing leads to errors that may appear few months later.

This will create two problems, Time delay between the cause and appearance of the problem. The effect of the system errors on files and records within the system. The purpose of the system testing is to consider all the likely variations to which it will be suggested and push the system to its limits.

The testing process focuses on logical intervals of the software ensuring that all the statements have been tested and on the function intervals (i.e.,) conducting tests to uncover errors and ensure that defined inputs will produce actual results that agree with the required results. Testing has to be done using the two common steps Unit testing and Integration testing. In the project system testing is made as follows:

The procedure level testing is made first. By giving improper inputs, the errors occurred are noted and eliminated. This is the final step in system life cycle. Here we implement the tested error-free system into real-life environment and make necessary changes, which runs in an online fashion. Here system maintenance is done every months or year based on company policies, and is checked for errors like runtime errors, long run errors and other maintenances like table verification and reports.

5.2 TYPES OF TESTING:

5.2.1 Unit Testing

5.2.2 Integration Testing

5.2.3 Functional Testing

5.2.4 System Testing

5.2.5 White Box Testing

5.2.6 Black Box Testing

5.2.1 Unit Testing:

Unit testing verification efforts on the smallest unit of software design, module. This is known as “Module Testing”. The modules are tested separately. This testing is carried out during programming stage itself. In these testing steps, each module is found to be working satisfactorily as regard to the expected output from the module.

5.2.2 Integration Testing:

Integration testing is a systematic technique for constructing tests to uncover error associated within the interface. In the project, all the modules are combined and then the entire programmer is tested as a whole. In the integration-testing step, all the error uncovered is corrected for the next testing steps.

5.2.3 Functional Testing:

Functional tests provide a systematic demonstration that functions tested are available as specified by the business and technical requirements, system documentation, and user manuals.

Functional testing is centered on the following items:

- Valid Input : identified classes of valid input must be accepted.
- Invalid Input : identified classes of invalid input must be rejected.
- Functions : identified functions must be exercised.
- Output : identified classes of application outputs must be exercised.

Systems/Procedures: interfacing systems or procedures must be invoked.

Organization and preparation of functional tests is focused on requirements, key functions, or special test cases. In addition, systematic coverage pertaining to identify.

Business process flows; data fields, predefined processes, and successive processes must be considered for testing. Before functional testing is complete, additional tests are identified and the effective value of current tests is determined.

5.2.4 System Testing:

System testing ensures that the entire integrated software system meets requirements. It tests a configuration to ensure known and predictable results. An example of system testing is the configuration oriented system integration test. System testing is based on process descriptions and flows, emphasizing pre-driven process links and integration points.

5.2.5 White Box Testing:

White Box Testing is a testing in which in which the software tester has knowledge of the inner workings, structure and language of the software, or at least its purpose. It is purpose. It is used to test areas that cannot be reached from a black box level.

5.2.6 Black Box Testing:

Black Box Testing is testing the software without any knowledge of the inner workings, structure or language of the module being tested. Black box tests, as most other kinds of tests, must be written from a definitive source document, such as specification or requirements document, such as specification or requirements document. It is a testing in which the software under test is treated, as a black box .you cannot "see" into it. The test provides inputs and responds to outputs without considering how the software works.

5.3 TEST DATA:

5.3.1 SYSTEM STUDY:

5.3.1.1 Feasibility Study:

The feasibility of the project is analyzed in this phase and business proposal is put forth with a very general plan for the project and some cost estimates. During system analysis the feasibility study of the proposed system is to be carried out. This is to ensure that the proposed system is not a burden to the company. For feasibility analysis, some understanding of the major requirements for the system is essential.

Three key considerations involved in the feasibility analysis are

- ECONOMICAL FEASIBILITY
- TECHNICAL FEASIBILITY
- SOCIAL FEASIBILITY

5.3.1.1.1 Economical Feasibility:

This study is carried out to check the economic impact that the system will have on the organization. The amount of fund that the company can pour into the research and development of the system is limited. The expenditures must be justified. Thus the developed system as well within the budget and this was achieved because most of the technologies used are freely available. Only the customized products had to be purchased.

5.3.1.1.2 Technical Feasibility:

This study is carried out to check the technical feasibility, that is, the technical requirements of the system. Any system developed must not have a high demand on the available technical resources. This will lead to high demands on the available technical resources. This will lead to high demands being placed on the client. The developed system must have a modest requirement, as only minimal or null changes are required for implementing this system.

5.3.1.1.3 Social Feasibility:

The aspect of study is to check the level of acceptance of the system by the user. This includes the process of training the user to use the system efficiently. The user must not feel threatened by the system, instead must accept it as a necessity.

CHAPTER 6

6. SYSTEM IMPLEMENTATION

6.1 MODULES DESCRIPTION:

6.1.1 MODULES:

1. USER AND OWNER REGISTRATION

2. FILE UPLOAD

3. ATTRIBUTE BASED ENCRYPTION

4. SECCURE SHARING:

6.1.1.1 User and Owner Registration:

The user and owner must be registered with cloud. The registered information will be stored in the cloud. Unique ID will be generated for every registered user. Then the registered owner can do file uploading and securely store their files in the multi-cloud and they can efficiently download the required files which they uploaded.

6.1.1.2 File Upload:

In this module the data owner upload the file into the cloud. Owner maintain some data like health records, etc., The data owner has to encrypt the file while uploading. The owner can also view their uploaded files.

6.1.1.3 Attribute based encryption:

In order to protect the personal health data stored on a semi-trusted server, we adopt attribute-based encryption (ABE) as the main encryption primitive. Using ABE, access policies are expressed based on the attributes of users or data, which enables a patient to selectively share her PHR among a set of users by encrypting the file under a set of attributes, without the need to know a complete list of users. The complexities per encryption, key generation, and decryption are only linear with the number of attributes involved.

6.1.1.4 Secure Sharing:

In File Download module the cloud user can download the file which they saved in the multi-cloud. The file will be downloading with the secret key. If the key is wrongly given more times the user will be blocked. Otherwise the user can download and view the original file successfully.

6.2 ALGORTHIM/ TECHNIQUES:

Attribute-based encryption is a type of public-key encryption in which the secret key of a user and the ciphertext are dependent upon attributes (e.g. the country in which they live, or the kind of subscription they have). In such a system, the decryption of a ciphertext is possible only if the set of attributes of the user key matches the attributes of the ciphertext. A crucial security aspect of attribute-based encryption is collusion-resistance: An adversary that holds multiple keys should only be able to access data if at least one individual key grants access. In key-policy attribute based encryption, ciphertexts are associated with sets of descriptive attributes, and users' keys are associated with policies (the reverse of our situation).

We stress that in key policy ABE, the encryptor exerts no control over who has access to the data she encrypts, except by her choice of descriptive attributes for the data. Rather, she must trust that the key-issuer issues the appropriate keys to grant or deny access to the appropriate users. In other words, in the "intelligence" is assumed to be with the key issuer, and not the encryptor. In our setting, the encryptor must be able to intelligently decide who should or should not have access to the data that she encrypts. As such, the techniques of do not apply to our setting, and we must develop new techniques.

CHAPTER 7

7.1 CONCLUSION:

In this project, we have proposed a novel framework of secure sharing of personal health records in cloud computing. Considering partially trustworthy cloud servers, we argue that to fully realize the patient-centric concept, patients shall have complete control of their own privacy through encrypting their PHR files to allow fine-grained access. The framework addresses the unique challenges brought by multiple PHR owners and users, in that we greatly reduce the complexity of key management while enhance the privacy guarantees compared with previous works. We utilize ABE to encrypt the PHR data, so that patients can allow access not only by personal users, but also various users from public domains with different professional roles, qualifications, and affiliations. Furthermore, we enhance an existing MA-ABE scheme to handle efficient and on-demand user revocation, and prove its security. Through implementation and simulation, we show that our solution is both scalable and efficient.

7.2 FUTURE ENHANCEMENT:

The main goal of our framework is to provide secure patient-centric PHR access and efficient key management at the same time. The key idea is to divide the system into multiple security domains (namely, public domains and personal domains) according to the different users' data access requirements. The PUDs consist of users who make access based on their professional roles, such as doctors, nurses, and medical researchers.

In practice, a PUD can be mapped to an independent sector in the society, such as the health care, government, or insurance sector. For each PSD, its users are personally associated with a data owner (such as family members or close friends), and they make accesses to PHRs based on access rights assigned by the owner. In both types of security domains, we utilize ABE to realize cryptographically enforced, patient-centric PHR access. Especially, in a PUD multiauthority ABE is used, in which there are multiple "attribute authorities" (AAs), each governing a disjoint subset of attributes. Role attributes are defined for PUDs, representing the professional role or obligations of a PUD user. Users in PUDs obtain their attribute-based secret keys from the AAs, without directly interacting with the owners.

To control access from PUD users, owners are free to specify role-based fine-grained access policies for her PHR files, while do not need to know the list of authorized users when doing encryption. Since the PUDs contain the majority of users, it greatly reduces the key management overhead for both the owners and users. Each data owner (e.g., patient) is a trusted authority of her own PSD, who uses a KP-ABE system to manage the secret keys and access rights of users in her PSD.

Since the users are personally known by the PHR owner, to realize patient centric access, the owner is at the best position to grant user access privileges on a case-by-case basis. For PSD, data attributes are defined which refer to the intrinsic properties of the PHR data, such as the category of a PHR file. For the purpose of PSD access, each PHR file is labeled with its data attributes, while the key size is only linear with the number of file categories a user can access. Since the number of users in a PSD is often small, it reduces the burden for the owner. When encrypting the data for PSD, all that the owner needs to know is the intrinsic data properties. The multidomain approach best models different user types and access requirements in a PHR system. The use of ABE makes the encrypted PHRs self-protective, i.e., they can be accessed by only authorized users even when storing on a semi-trusted server, and when the owner is not online. In addition, efficient and on-demand user revocation is made possible via our ABE enhancements.

CHAPTER 8

8. APPENDICES:

8.1 CODINGS:

8.1.1 ABE Encrypt:

```
<%@ Page Language="C#" MasterPageFile="~/owner.master" AutoEventWireup="true"
CodeFile="abeencrypt.aspx.cs" Inherits="abeencrypt" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">

        <div align="center">
            <b><span style="color: #3399FF">FILE UPLOAD ENCRYPTION</span><span
style="font-size: medium"><br />
            <br />
            <br />
            File Name :</span></b>&nbsp;&nbsp;
            <asp:Label ID="Label1" runat="server" Text="Label"></asp:Label>
            &nbsp;&nbsp;
            <br />
            <br />
            <b><span style="font-size: medium">&nbsp;File Type :&nbsp;&nbsp;&nbsp;
</span></b>
            &nbsp;<asp:Label ID="Label2" runat="server" Text="Label"></asp:Label>
            &nbsp;&nbsp;
            <br />
            <br />
            <b><span style="font-size:
medium">&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp; File Content :</span></b>&nbsp;&nbsp;
            <asp:TextBox ID="TextBox1" runat="server" Height="90px"
TextMode="MultiLine"
                Width="167px"></asp:TextBox>
            <br />
            <br />
            <asp:Button ID="Button1" runat="server" onclick="Button1_Click"
                Text="Encrypt" />
        </div>
   </asp:Content>
```

8.1.2 Admin:

```
<%@ Master Language="C#" AutoEventWireup="true" CodeFile="admin.master.cs"
Inherits="admin" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Sclable Project</title>
<link href="styles.css" rel="stylesheet" type="text/css" /><!--[if IE 5]>
<style type="text/css">
/* place css box model fixes for IE 5* in this conditional comment */
#sidebar1 { width: 230px; }
```

```
</style>
<![endif]--><!--[if IE]>
<style type="text/css">
/* place css fixes for all versions of IE in this conditional comment */
#sidebar1 { padding-top: 30px; }
#mainContent { zoom: 1;
        width: 604px;
    }
/* the above proprietary zoom property gives IE the hasLayout it needs to avoid
several bugs */
    .style1
    {
        float: left;
        color: #00b0e4;
        font-size: x-large;
        padding: 10px 0 0 20px;
        height: 63px;
        width: 911px;
        font-weight: bold;
    }
</style>
<![endif]-->
</head>
<body>
    <form id="form1" runat="server">
<!-- begin #container -->
<div id="container">
       <!-- begin #header -->
    <div id="header">
              <div class="headerTop">
              <div class="style1">
              SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING
ATTRIBUTE
                BASED ENCRYPTION</div>
        <div class="mainMenu">
              <ul>
              <li><a href="owndet.aspx">Owner Details</a></li>
                <li><a href="recdet.aspx">File Details</a></li>
                <li><a href="emerallow.aspx">Emergency</a></li>
                <li><a href="logout.aspx">Logout</a></li>
            </ul>
        </div>
        <div class="headerPic">
              <div class="pics">
            </div>
    <div class="Content">
      <center> <asp:ContentPlaceHolder ID= "ContentPlaceHolder1" runat= "server">
           <p>
               <br />
           </p>
        </asp:ContentPlaceHolder></center>
    <div id="footer">
       <p>Copyright © 2014. Designed by SVKING</p></div>
    </div>
        </div>
    </div>
    <!-- end #header -->
    <!-- This clearing element should immediately follow the #mainContent div in order
to force the #container div to contain all child floats --><br class="clearfloat" />
    <!-- begin #footer -->
    <!-- end #footer -->
</div>
<!-- end #container -->
</form>
```

```
</body>
</html>
```

8.1.3 Admin Home:

```
<%@ Page Language="C#" MasterPageFile="~/admin.master" AutoEventWireup="true"
CodeFile="adminhome.aspx.cs" Inherits="adminhome" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">
    <p style="font-size: xx-large; text-align: center">
    ADMINSTRATOR PAGE</p>
</asp:Content>
```

8.1.4 Admin Login:

```
<%@ Page Language="C#" MasterPageFile="~/home.master" AutoEventWireup="true"
CodeFile="adminlogin.aspx.cs" Inherits="adminlogin" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">
    <table style="width: 100%; height: 141px;" bgcolor="#00CCFF">
    <tr>
        <td colspan="2"
            style="text-align: center; font-size: x-large; color: #0099FF;"
            bgcolor="#66FFFF">
            <b>&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp; ADMIN LOGIN</b></td>
    </tr>
    <tr>
        <td style="text-align: right; width: 458px; font-size: medium;">
            USER NAME :</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; width: 458px; font-size: medium;">
            PASSWORD :</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox2" runat="server"
TextMode="Password"></asp:TextBox>
            &nbsp;</td>
    </tr>
    <tr>
        <td colspan="2" style="text-align: center" bgcolor="#66FFFF">

&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&n
bsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
            <asp:Button ID="Button1" runat="server" Text="Login" Font-Bold="True"
onclick="Button1_Click"
                 />
            &nbsp;&nbsp;&nbsp;&nbsp;
            <input id="Reset1" style="text-align: center" type="reset" value="Reset"
/>&nbsp;&nbsp;&nbsp;
            <b>&nbsp;</b><asp:Label ID="Label1" runat="server"
Text="Label"></asp:Label>
        </td>
    </tr>
</table>
</asp:Content>
```

8.1.5 Download:

```
<%@ Page Language="C#" MasterPageFile="~/user.master" AutoEventWireup="true"
CodeFile="download.aspx.cs" Inherits="download" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">

    <script type="text/javascript" language="javascript">
     function DisableBackButton() {
       window.history.forward()
      }
     DisableBackButton();
     window.onload = DisableBackButton;
     window.onpageshow = function(evt) { if (evt.persisted) DisableBackButton() }
     window.onunload = function() { void (0) }
 </script>
<script language="javascript" type="text/javascript">
// <!CDATA[



// ]]>

</script>
    <table style="width: 100%">
        <tr>
            <td colspan="2" style="font-size: x-large; text-align: center">
                <b>DOWNLOAD FILE</b></td>
        </tr>
        <tr>
            <td style="font-size: medium; text-align: left" colspan="2">
                UserName :
                <asp:Label ID="Label5" runat="server" Text="Label"></asp:Label>
            </td>
        </tr>
        <tr>
            <td style="width: 459px; font-size: medium; text-align: right">
                &nbsp;File Name :</td>
            <td style="text-align:left">
                <asp:Label ID="Label2" runat="server" Text="Label"></asp:Label>
            &nbsp;
                <asp:Label ID="Label12" runat="server" Text="Label"
Visible="False"></asp:Label>
            </td>
        </tr>
        <tr>
            <td align="center" colspan="2">
                <asp:Button ID="Button2" runat="server" Text="VIEW"
onclick="Button2_Click" />
            </td>
        </tr>
        <tr>
            <td align="center" colspan="2">
            <asp:TextBox ID="TextBox1" runat="server" Height="90px"
TextMode="MultiLine"
                Width="167px"></asp:TextBox>
            </td>
        </tr>
        <tr>
```

```
            <td style="width: 459px; font-size: medium; text-align: right">
                <asp:Label ID="Label3" runat="server" Text="Enter the Key 
:"></asp:Label>
            </td>
            <td>
                <asp:TextBox ID="TextBox2" runat="server"></asp:TextBox>
                &nbsp;&nbsp;
                <asp:Label ID="Label4" runat="server" Text="The key will  sent your 
Mail_Id"></asp:Label>
            </td>
        </tr>
        <tr>
            <td style="width: 459px">
                &nbsp;</td>
            <td>
                &nbsp;</td>
        </tr>
        <tr>
            <td align="center" colspan="2">
                
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&n
bsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs
p;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
&nbsp;&nbsp;&nbsp;
                <asp:Button ID="Button1" runat="server" onclick="Button1_Click" 
Text="ENTER" />
                &nbsp;&nbsp;
                <asp:Label ID="Label6" runat="server" Text="Label"></asp:Label>
                &nbsp;&nbsp;&nbsp;
                <asp:Button ID="Button4" runat="server" onclick="Button4_Click" 
Text="CLICK" />
            </td>
        </tr>
        <tr>
            <td align="center" colspan="2">
                &nbsp;</td>
        </tr>
        <tr>
            <td  style="width: 459px; font-size: medium; text-align: right">
                <asp:Label ID="Label7" runat="server" Text="Patient 
Name:"></asp:Label>
            </td>
            <td>
                <asp:TextBox ID="TextBox3" runat="server" 
BackColor="#99FFCC"></asp:TextBox>
            </td>
        </tr>
        <tr>
            <td  style="width: 459px; font-size: medium; text-align: right">
                <asp:Label ID="Label8" runat="server" Text="Age:"></asp:Label>
            </td>
            <td>
                <asp:TextBox ID="TextBox4" runat="server" Height="17px" Width="63px" 
                    BackColor="#99FFCC"></asp:TextBox>
            </td>
        </tr>
        <tr>
            <td  style="width: 459px; font-size: medium; text-align: right">
                <asp:Label ID="Label9" runat="server" Text="Disease:"></asp:Label>
            </td>
            <td style="height: 23px">
                <asp:TextBox ID="TextBox5" runat="server" 
BackColor="#99FFCC"></asp:TextBox>
            </td>
        </tr>
        <tr>
            <td  style="width: 459px; font-size: medium; text-align: right">
                <asp:Label ID="Label10" runat="server" Text="Doctor 
Name:"></asp:Label>
            </td>
            <td>
                <asp:TextBox ID="TextBox6" runat="server" 
BackColor="#99FFCC"></asp:TextBox>
            </td>
        </tr>
        <tr>
            <td  style="width: 459px; font-size: medium; text-align: right">
                <asp:Label ID="Label11" runat="server" Text="Status:"></asp:Label>
            </td>
            <td>
                <asp:TextBox ID="TextBox7" runat="server" 
BackColor="#99FFCC"></asp:TextBox>
            </td>
        </tr>
        <tr>
            <td style="width: 459px">
                &nbsp;</td>
            <td>
                &nbsp;</td>
        </tr>
        <tr>
            <td colspan="2">
                <asp:Button ID="Button5" runat="server" onclick="Button5_Click" 
                    Text="DOWNLOAD" />
            </td>
        </tr>
        <tr>
            <td colspan="2">
                <asp:Button ID="Button3" runat="server" onclick="Button3_Click" 
                    Text="DOWNLOAD" />
            </td>
        </tr>
        <tr>
            <td style="width: 459px">
                &nbsp;</td>
            <td>
                &nbsp;</td>
        </tr>
    </table>
</asp:Content>
```

8.1.6 Emerge:

```
<%@ Master Language="C#" AutoEventWireup="true" CodeFile="emer.master.cs" 
Inherits="emer" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" 
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Sclable Project</title>
<link href="styles.css" rel="stylesheet" type="text/css" /><!--[if IE 5]>
<style type="text/css"> 
/* place css box model fixes for IE 5* in this conditional comment */
#sidebar1 { width: 230px; }
</style>
```

```
<![endif]--><!--[if IE]>
<style type="text/css">
/* place css fixes for all versions of IE in this conditional comment */
#sidebar1 { padding-top: 30px; }
#mainContent { zoom: 1;
        width: 604px;
    }
/* the above proprietary zoom property gives IE the hasLayout it needs to avoid
several bugs */
    .style1
    {
        float: left;
        color: #00b0e4;
        font-size: x-large;
        padding: 10px 0 0 20px;
        height: 63px;
        width: 911px;
        font-weight: bold;
    }
    .style2
    {
        width: 100%;
        height: 99px;
    }
    .style3
    {
        text-align: center;
        font-weight: bold;
        font-size: x-large;
    }
    .style4
    {
        font-size: medium;
        font-weight: bold;
        width: 484px;
        text-align: right;
    }
    .style5
    {}
</style>
<![endif]-->
</head>
<body>
    <form id="form1" runat="server">
<!-- begin #container -->
<div id="container">
       <!-- begin #header -->
    <div id="header">
              <div class="headerTop">
              <div class="style1">
              SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING
ATTRIBUTE
                BASED ENCRYPTION</div>
        <div class="mainMenu">
              <ul>
              <li><a href="emersearch1.aspx">SEARCH</a></li>
                <li><a href="logout.aspx">LOGOUT</a></li>
                <li><a href=""></a></li>
                <%--<li><a href="adminlogin.aspx">ADMIN</a></li>
                <li><a href="emerlogin.aspx">EMERGENCY</a></a></li>--%>
            </ul>
        </div>
        <div class="headerPic">
              <div class="pics">
            </div>

    <div class="content">
       <asp:ContentPlaceHolder ID= "ContentPlaceHolder1" runat= "server">



        </asp:ContentPlaceHolder>
    <div id="footer">
       <p>Copyright © 2014. Designed by SVKING</p></div>
    </div>

    </div>
    <!-- end #header -->
    <!-- This clearing element should immediately follow the #mainContent div in order
to force the #container div to contain all child floats --><br class="clearfloat" />
    <!-- begin #footer -->
    <!-- end #footer -->
</div>
<!-- end #container -->
</form>
</body>
</html>
```

8.1.7 Emerge Login:

```
<%@ Page Language="C#" MasterPageFile="~/home.master" AutoEventWireup="true"
CodeFile="emerlogin.aspx.cs" Inherits="emerlogin" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">



    <table style="width: 100%">
        <tr>
            <td colspan="2"
                style="text-align:center; height: 17px; font-size: x-large; color:
#3399FF;">
                EMERGENCY SIGNUP</td>
        </tr>
        <tr>
            <td style="text-align:right; font-size: medium;">
                                Enter your Name :</td>
            <td  style="text-align:left;">

                <asp:TextBox ID="TextBox2" runat="server" Width="186px"></asp:TextBox>
                <asp:RequiredFieldValidator ID="RequiredFieldValidator1"
runat="server"
                    ControlToValidate="TextBox2" ErrorMessage="Enter your name
"></asp:RequiredFieldValidator>
            </td>
        </tr>
        <tr>
            <td  style="text-align:right; font-size: medium;" style="width: 455px;
height: 46px; font-size: medium;"
               >
                Enter Your Mailid :</td>
            <td style="text-align: left;" style="height: 46px">
                <asp:TextBox ID="TextBox1" runat="server" Width="188px"></asp:TextBox>
                <asp:RegularExpressionValidator ID="RegularExpressionValidator1"
runat="server"
                    ControlToValidate="TextBox1" Display="Dynamic"
                    ErrorMessage="Enter valid Mail_Id" SetFocusOnError="True"
                    ValidationExpression="\w+([-+.']\w+)*@\w+([-.]\w+)*\.\w+([-.]\w+)*"></asp:RegularExpressionValidator>
                &nbsp;<asp:RequiredFieldValidator ID="RequiredFieldValidator2" runat="server"
                    ControlToValidate="TextBox1" ErrorMessage="Enter email must"></asp:RequiredFieldValidator>
                </td>
        </tr>
        <tr>
            <td style="text-align:right; font-size: medium;" style="width: 455px; height: 46px; font-size: medium;"
                >
                Enter Key :</td>
            <td style="text-align:left" >
                <asp:TextBox ID="TextBox3" runat="server" TextMode="Password"></asp:TextBox>
                &nbsp;<asp:RequiredFieldValidator ID="RequiredFieldValidator3" runat="server"
                    ControlToValidate="TextBox3" ErrorMessage="Enter your Key "
                    SetFocusOnError="True"></asp:RequiredFieldValidator>
                </td>
        </tr>
        <tr>
            <td style="width: 455px">
                &nbsp;</td>
            <td>
                &nbsp; &nbsp;</td>
        </tr>
        <tr>
            <td colspan="2">
                <asp:Button ID="Button1" runat="server" onclick="Button1_Click1" Text="ENTER" />
            </td>
        </tr>
    </table>



</asp:Content>
```

8.1.8 File Upload:

```
<%@ Page Language="C#" MasterPageFile="~/owner.master" AutoEventWireup="true" CodeFile="fileupload.aspx.cs" Inherits="fileupload" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">
 <script type="text/javascript">

            function isNumericKey(e) {

                var key = e.which ? e.which : e.keyCode;
                //enter key  //backspace //tabkey      //escape key
                if ((key >= 48 && key <= 57) || key == 13 || key == 8 || key == 9 || key == 27) {
                    return true;
                }
                else {
                    alert("Please Enter Number Only");
                    return false;
                }

            }
</script>
```

```
    <table style="width: 100%" bgcolor="#66CCFF">
    <tr>
        <td style="text-align: center;" bgcolor="#66FFFF" colspan="2">
            <asp:Label ID="Label1" runat="server" Font-Bold="True" Font-Size="X-Large"
                Text="UPLOAD FILENAME" ForeColor="#3399FF"></asp:Label>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; font-size: medium; width: 432px; height: 21px;">
            <b>User Name :</b></td>
        <td style="text-align: left; height: 21px;">
            <asp:Label ID="Label5" runat="server" Text="Label" Font-
Size="Medium"></asp:Label>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; font-size: medium; width: 432px;">
            Patient Name:</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; font-size: medium; width: 432px;">
            Age:</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox2" runat="server" Height="20px" MaxLength="3"
                Width="56px" onkeypress="return isNumericKey(event)"></asp:TextBox>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; font-size: medium; width: 432px;">
            Disease:</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox3" runat="server"></asp:TextBox>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; font-size: medium; width: 432px;">
            Doctor name:</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox4" runat="server"></asp:TextBox>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; font-size: medium; width: 432px;">
            Prescription:</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox5" runat="server"></asp:TextBox>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; font-size: medium; width: 432px;">
            Status:</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox6" runat="server"></asp:TextBox>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; width: 432px;">
            <asp:Label ID="Label3" runat="server" Font-Bold="True" Font-Size="Medium"
                Text="Subject :"></asp:Label>
        </td>
        <td style="text-align: left;">
```

```
            <asp:DropDownList ID="DropDownList1" runat="server" Height="16px"
Width="129px">
                <asp:ListItem>----Select----</asp:ListItem>
                <asp:ListItem Value="Heart"></asp:ListItem>
                <asp:ListItem Value="Brain"></asp:ListItem>
                <asp:ListItem Value="Stomac"></asp:ListItem>
                <asp:ListItem Value="Eye"></asp:ListItem>
                <asp:ListItem Value="HIV"></asp:ListItem>
            </asp:DropDownList>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; width: 432px;">
            <asp:Label ID="Label4" runat="server" Font-Bold="True" Font-Size="Medium"
                Text="Upload Medical Details :"></asp:Label>
        </td>
        <td style="text-align: left;">
            <asp:FileUpload ID="FileUpload1" runat="server" />
        </td>
    </tr>
    <tr>
        <td style="text-align: center;" bgcolor="#99CCFF" colspan="2">
            <asp:Button ID="Button1" runat="server" Font-Bold="True"
                onclick="Button1_Click" Text="SUBMIT"  />
            <asp:Label ID="Lbl_msg" runat="server" Font-Bold="True" Font-
Size="Small"></asp:Label>
        </td>
    </tr>
</table>
</asp:Content>
```

8.1.9 File View:

```
<%@ Page Language="C#" MasterPageFile="~/owner.master" AutoEventWireup="true"
CodeFile="fileview.aspx.cs" Inherits="fileview" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">
    <asp:Panel ID="Panel1" runat="server" Height="254px">
    <asp:GridView ID="GridView1" runat="server" AllowPaging="True"
        AutoGenerateColumns="False" DataSourceID="SqlDataSource1"
            style="table-layout:fixed;" Width="950px"
        onselectedindexchanged="GridView1_SelectedIndexChanged" PageSize="3"
            Height="222px" BackColor="White" BorderColor="#3366CC" BorderStyle="None"
            BorderWidth="1px" CellPadding="4">
        <RowStyle BackColor="White" ForeColor="#003399" />
        <Columns>
            <asp:BoundField DataField="Filename" HeaderText="Filename"
                SortExpression="Filename" >
                <HeaderStyle Font-Bold="True" Font-Size="Medium" />
            </asp:BoundField>
            <asp:BoundField DataField="Encryptfile" HeaderText="Encryptfile"
                SortExpression="Encryptfile" ItemStyle-CssClass="Shorter">



                <ItemStyle CssClass="Shorter" />



            </asp:BoundField>
            <asp:BoundField DataField="Ownername" HeaderText="Ownername"
                SortExpression="Ownername" />
        </Columns>
        <FooterStyle BackColor="#99CCCC" ForeColor="#003399" />
        <PagerStyle BackColor="#99CCCC" ForeColor="#003399" HorizontalAlign="Left" />
        <SelectedRowStyle BackColor="#009999" Font-Bold="True" ForeColor="#CCFF99" />
        <HeaderStyle BackColor="#003399" Font-Bold="True" ForeColor="#CCCCFF" />
    </asp:GridView>
<asp:SqlDataSource ID="SqlDataSource1" runat="server"
    ConnectionString="<%$ ConnectionStrings:scalableConnectionString4 %>"
    SelectCommand="SELECT [Filename], [Encryptfile], [Ownername] FROM [encrypt] WHERE
([Ownername] = @Ownername)">
    <SelectParameters>
        <asp:SessionParameter Name="Ownername" SessionField="USER NAME" Type="String"
/>
    </SelectParameters>
</asp:SqlDataSource>
</asp:Panel>

</asp:Content>
```

8.1.10 Home:

```
<%@ Page Language="C#" MasterPageFile="~/home.master" AutoEventWireup="true"
CodeFile="home.aspx.cs" Inherits="home" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">
    <p style="font-size: xx-large; color: #3399FF">
    WELCOME</p>
</asp:Content>
```

8.1.11 home.aspx.cs:

```
using System;
using System.Collections;
using System.Configuration;
using System.Data;
using System.Linq;
using System.Web;
using System.Web.Security;
using System.Web.UI;
using System.Web.UI.HtmlControls;
using System.Web.UI.WebControls;
using System.Web.UI.WebControls.WebParts;
using System.Xml.Linq;

public partial class home : System.Web.UI.Page
{
    protected void Page_Load(object sender, EventArgs e)
    {

    }
}
```

8.1.12 Logout:

```
%@ Page Language="C#" AutoEventWireup="true" CodeFile="logout.aspx.cs"
Inherits="logout" %>

<%--<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">--%>
```

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head runat="server">
    <title>Untitled Page</title>
    <style type="text/css">
        .style1
        {
            font-weight: bold;
        }
        .style2
        {
            font-weight: bold;
            font-size: x-large;
            color: #0099FF;
        }
        #form1
        {
            height: 409px;
            width: 1067px;
        }
        .style3
        {
            background-color: #00CCFF;
        }
    </style>
</head>
    <form id="form1" runat="server">
<div id="container">
       <!-- begin #header -->
    <div id="header">
              <div class="headerTop">
              <div class="style1">
                <div class="style2" align="center">
                <span class="style3">SCALABLE SECURE SHARING OF PERSONAL HEALTH
RECORDDS IN CLOUD USING ATTRIBUTE
                BASED ENCRYPTION</span></div>

        </div>
<body>
    <div>

        <asp:Image ID="Image1" runat="server" Height="158px" Width="1100px"
            ImageUrl="headerBackground.jpg" BackColor="#33CCFF" ImageAlign="Middle" />

    </div>
    </div>
    <p>
        &nbsp;</p>
    <p>
        &nbsp;</p>
    <p>
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&n
bsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs
p;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&n
bsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbs
p;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;

        <asp:Label ID="Label1" runat="server" style="font-weight: 700; color: #FF3300"
            Text="U Want LogOut  :"></asp:Label>
        &nbsp;
    <script type="text/javascript" language="javascript">
```

```
     function DisableBackButton() {
       window.history.forward()
      }
     DisableBackButton();
     window.onload = DisableBackButton;
     window.onpageshow = function(evt) { if (evt.persisted) DisableBackButton() }
     window.onunload = function() { void (0) }
 </script>
<script language="javascript" type="text/javascript">
// <!CDATA[



// ]]>

</script>
        <asp:Button ID="Button1" runat="server" PostBackUrl="~/home.aspx"
            style="font-weight: 700; color: #0099FF" Text="CLICK" Width="107px"
            onclick="Button1_Click" />
            </p>
    </form>
</body>
</html>
```

8.1.13 Owner:

```
<%@ Master Language="C#" AutoEventWireup="true" CodeFile="owner.master.cs"
Inherits="owner" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Sclable Project</title>
<link href="styles.css" rel="stylesheet" type="text/css" />
<link href="StyleSheet.css" rel="stylesheet" type="text/css" /><!--[if IE 5]>
<style type="text/css">
/* place css box model fixes for IE 5* in this conditional comment */
#sidebar1 { width: 230px; }
</style>
<![endif]--><!--[if IE]>
<style type="text/css">
/* place css fixes for all versions of IE in this conditional comment */
#sidebar1 { padding-top: 30px; }
#mainContent { zoom: 1;
        width: 604px;
    }
/* the above proprietary zoom property gives IE the hasLayout it needs to avoid
several bugs */
    .style1
    {
        float: left;
        color: #00b0e4;
        font-size: x-large;
        padding: 10px 0 0 20px;
        height: 63px;
        width: 911px;
        font-weight: bold;
    }
</style>
<![endif]-->
</head>
```

```
<body>
    <form id="form1" runat="server">
<!-- begin #container -->
<div id="container">
       <!-- begin #header -->
    <div id="header">
              <div class="headerTop">
              <div class="style1">
              SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING
ATTRIBUTE
                BASED ENCRYPTION</div>
        <div class="mainMenu">
              <ul>
              <li><a href="fileupload.aspx">FILE UPLOAD</a></li>
                <li><a href="fileview.aspx">FILE VIEW</a></li>
                <li><a href="requst.aspx">REQUST</a></li>
                <li><a href="logout.aspx">LOGOUT</a></li>
                <%--<li><a href="adminlogin.aspx">ADMIN</a></li>
                <li><a href="emerlogin.aspx">EMERGENCY</a></a></li>--%>
            </ul>
        </div>
        <div class="headerPic">
              <div class="pics">
            </div>
    <div class="Content" style="width: 900px">

       <asp:ContentPlaceHolder ID= "ContentPlaceHolder1" runat= "server">
           <p>
               <br />
           </p>
        </asp:ContentPlaceHolder>
          </div>
    <div id="footer">
       <p>Copyright © 2014. Designed by SVKING</p></div>
    </div>
        </div>
    </div>
    <!-- end #header -->
    <!-- This clearing element should immediately follow the #mainContent div in order
to force the #container div to contain all child floats --><br class="clearfloat" />
    <!-- begin #footer -->
    <!-- end #footer -->
</div>
<!-- end #container -->
</form>
</body>
</html>
```

8.1.14 Owner Login:

```
<%@ Page Language="C#" MasterPageFile="~/home.master" AutoEventWireup="true"
CodeFile="ownerlogin.aspx.cs" Inherits="ownerlogin" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">
    <table style="width: 100%; height: 141px;" bgcolor="#00CCFF">
    <tr>
        <td colspan="2"
            style="text-align: center; font-size: x-large; color: #0099FF;"
            bgcolor="#66FFFF">
            <b>&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp; OWNER LOGIN</b></td>
    </tr>
    <tr>
        <td style="text-align: right; font-size: medium; width: 507px;">
```

```
            USER NAME :</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox1" runat="server"></asp:TextBox>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; font-size: medium; width: 507px;">
            PASSWORD :</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox2" runat="server" 
TextMode="Password"></asp:TextBox>
            &nbsp;</td>
    </tr>
    <tr>
        <td colspan="2" style="text-align: center" bgcolor="#66FFFF">
            
&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&n
bsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
            <asp:Button ID="Button1" runat="server" Text="Login" Font-Bold="True" 
onclick="Button1_Click" 
                 />
            &nbsp;&nbsp;&nbsp;&nbsp;
            <input id="Reset1" style="text-align: center" type="reset" value="Reset" 
/>&nbsp;&nbsp;&nbsp;
            <b>&nbsp;</b><asp:LinkButton ID="LinkButton1" runat="server" Font-
Size="Medium" 
                PostBackUrl="~/ownerreg.aspx">NEW OWNER</asp:LinkButton>
            &nbsp; <span style="font-size: medium">(Register Here)</span></td>
    </tr>
</table>
</asp:Content>
```

8.1.15 User:

```
<%@ Master Language="C#" AutoEventWireup="true" CodeFile="user.master.cs" 
Inherits="user" %>

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN" 
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<title>Sclable Project</title>
<link href="styles.css" rel="stylesheet" type="text/css" /><!--[if IE 5]>
<style type="text/css"> 
/* place css box model fixes for IE 5* in this conditional comment */
#sidebar1 { width: 230px; }
</style>
<![endif]--><!--[if IE]>
<style type="text/css"> 
/* place css fixes for all versions of IE in this conditional comment */
#sidebar1 { padding-top: 30px; }
#mainContent { zoom: 1;
        width: 604px;
    }
/* the above proprietary zoom property gives IE the hasLayout it needs to avoid 
several bugs */
    .style1
    {
        float: left;
        color: #00b0e4;
        font-size: x-large;
        padding: 10px 0 0 20px;
        height: 63px;
        width: 911px;
        font-weight: bold;
    }
    .style2
    {
        width: 100%;
        height: 99px;
    }
    .style3
    {
        text-align: center;
        font-weight: bold;
        font-size: x-large;
    }
    .style4
    {
        font-size: medium;
        font-weight: bold;
        width: 484px;
        text-align: right;
    }
    .style5
    {}
</style>
<![endif]-->
</head>
<body>
    <form id="form1" runat="server">
<!-- begin #container -->
<div id="container">
       <!-- begin #header -->
    <div id="header">
              <div class="headerTop">
              <div class="style1">
              SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING 
ATTRIBUTE
                BASED ENCRYPTION</div>
        <div class="mainMenu">
              <ul>
              <li><a href="userhome.aspx">USER HOME</a></li>
                <li><a href="logout.aspx">LOGOUT</a></li>
                <li><a href=""></a></li>
                <%--<li><a href="adminlogin.aspx">ADMIN</a></li>
                <li><a href="emerlogin.aspx">EMERGENCY</a></a></li>--%>
            </ul>
        </div>
        <div class="headerPic">
              <div class="pics">
            </div>

    <div class="content">
       <asp:ContentPlaceHolder ID= "ContentPlaceHolder1" runat= "server">



        </asp:ContentPlaceHolder>
    <div id="footer">
       <p>Copyright © 2014. Designed by SVKING</p></div>
    </div>

    </div>
    <!-- end #header -->
    <!-- This clearing element should immediately follow the #mainContent div in order
to force the #container div to contain all child floats --><br class="clearfloat" />
    <!-- begin #footer -->
    <!-- end #footer -->
</div>
<!-- end #container -->
</form>
</body>
</html>
```

8.1.16 User Login:

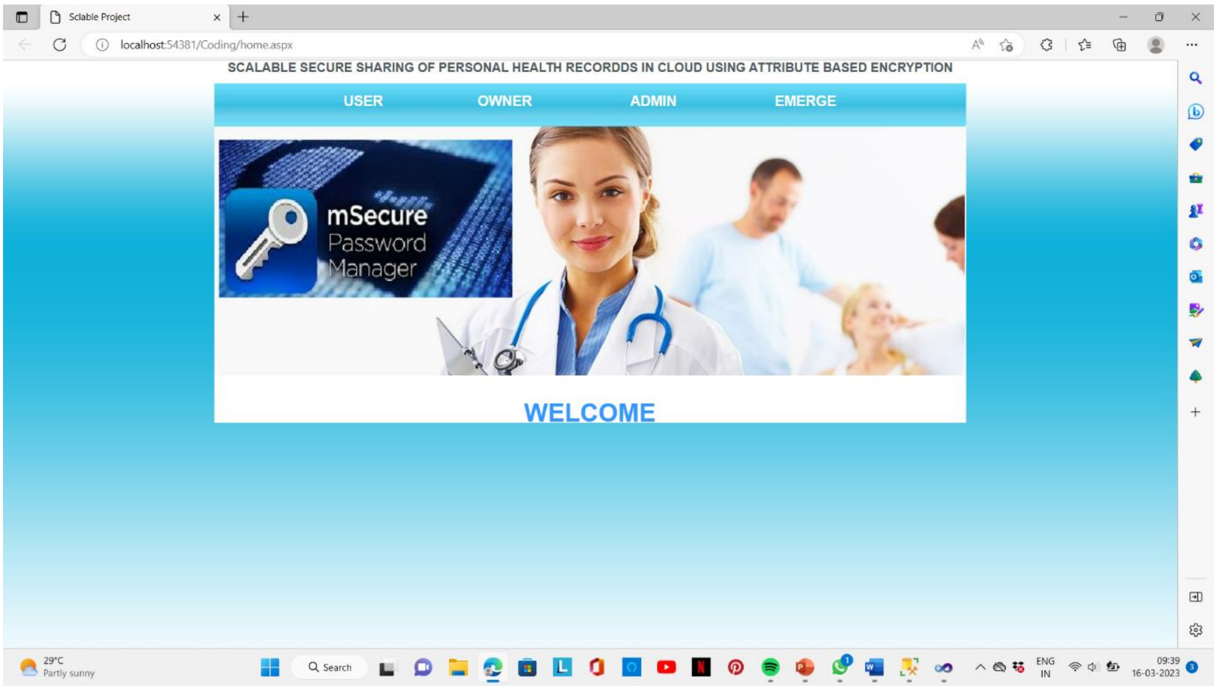
```
<%@ Page Language="C#" MasterPageFile="~/home.master" AutoEventWireup="true"
CodeFile="userlogin.aspx.cs" Inherits="userlogin" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">
    <table style="width: 100%; height: 141px;" bgcolor="#00CCFF">
    <tr>
        <td colspan="2"
            style="text-align: center; font-size: x-large; color: #0099FF;"
            bgcolor="#66FFFF">
            <b>&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp; USER LOGIN</b></td>
    </tr>

    <tr>
        <td style="text-align: right; width: 475px; font-size: medium;">
            USER NAME :</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox1" runat="server" ></asp:TextBox>
        </td>
    </tr>
    <tr>
        <td style="text-align: right; width: 475px; font-size: medium;">
            PASSWORD :</td>
        <td style="text-align: left;">
            <asp:TextBox ID="TextBox2" runat="server"
TextMode="Password"></asp:TextBox>
            &nbsp;</td>
    </tr>
    <tr>
        <td colspan="2" style="text-align: center" bgcolor="#66FFFF">

&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
            <asp:Button ID="Button1" runat="server" Text="Login" Font-Bold="True"
onclick="Button1_Click1"
                 />
            &nbsp;&nbsp;&nbsp;&nbsp;
            <input id="Reset1" style="text-align: center" type="reset" value="Reset"
/>&nbsp;&nbsp;&nbsp;
            <b>&nbsp;</b><asp:LinkButton ID="LinkButton1" runat="server" Font-
Size="Medium"
                PostBackUrl="~/userreg.aspx">NEW USER</asp:LinkButton>
            &nbsp;<span style="font-size: medium"> (Register Here)</span></td>
    </tr>
</table>
</asp:Content>
```

8.1.17 User Registration:

```
<%@ Page Language="C#" MasterPageFile="~/home.master" AutoEventWireup="true"
CodeFile="userreg.aspx.cs" Inherits="userreg" Title="Untitled Page" %>

<asp:Content ID="Content1" ContentPlaceHolderID="ContentPlaceHolder1" Runat="Server">

    <script type="text/javascript">

            function isNumericKey(e) {

                var key = e.which ? e.which : e.keyCode;
                //enter key  //bacserverpace //tabkey      //escape key
                if ((key >= 48 && key <= 57) || key == 13 || key == 8 || key == 9 ||
key == 27) {
                    return true;
                }
                else {
                    alert("Please Enter Number Only");
                    return false;
                }

            }
</script>
    <table style="width: 100%">
        <tr>
            <td colspan="3" style="font-size: x-large; color: #0099FF; text-align:
center">
                <b>VISITER REGISTRATION</b></td>
        </tr>
        <tr>
            <td style="text-align: right; width: 340px; font-size: medium;">
                Name :</td>
            <td style="text-align: left;" style="width: 244px">
                <asp:TextBox ID="TextBox1" runat="server" Width="191px"></asp:TextBox>
            </td>
            <td style="text-align: left;" style="width: 331px">
                <asp:RequiredFieldValidator ID="RequiredFieldValidator1"
runat="server"
                    ErrorMessage="Enter the Name"
ControlToValidate="TextBox1"></asp:RequiredFieldValidator>
            </td>
        </tr>
        <tr>
            <td style="text-align: right; width: 340px; font-size: medium;">
                Category:</td>
            <td style="text-align: left;" style="width: 244px">
                <asp:DropDownList ID="DropDownList2" runat="server" Height="16px"
Width="159px">
                    <asp:ListItem>Select</asp:ListItem>
                    <asp:ListItem>Medical</asp:ListItem>
                    <asp:ListItem>Insurance</asp:ListItem>
                    <asp:ListItem>Others</asp:ListItem>
                </asp:DropDownList>
            </td>
            <td style="text-align: left;" style="width: 331px">
                <asp:RequiredFieldValidator ID="RequiredFieldValidator8"
runat="server"
                    ErrorMessage="Select the type"
ControlToValidate="DropDownList2"></asp:RequiredFieldValidator>
            </td>
        </tr>
        <tr>
            <td style="text-align: right; width: 340px; font-size: medium;">
                UserName :</td>
            <td style="text-align: left;" style="width: 244px">
```

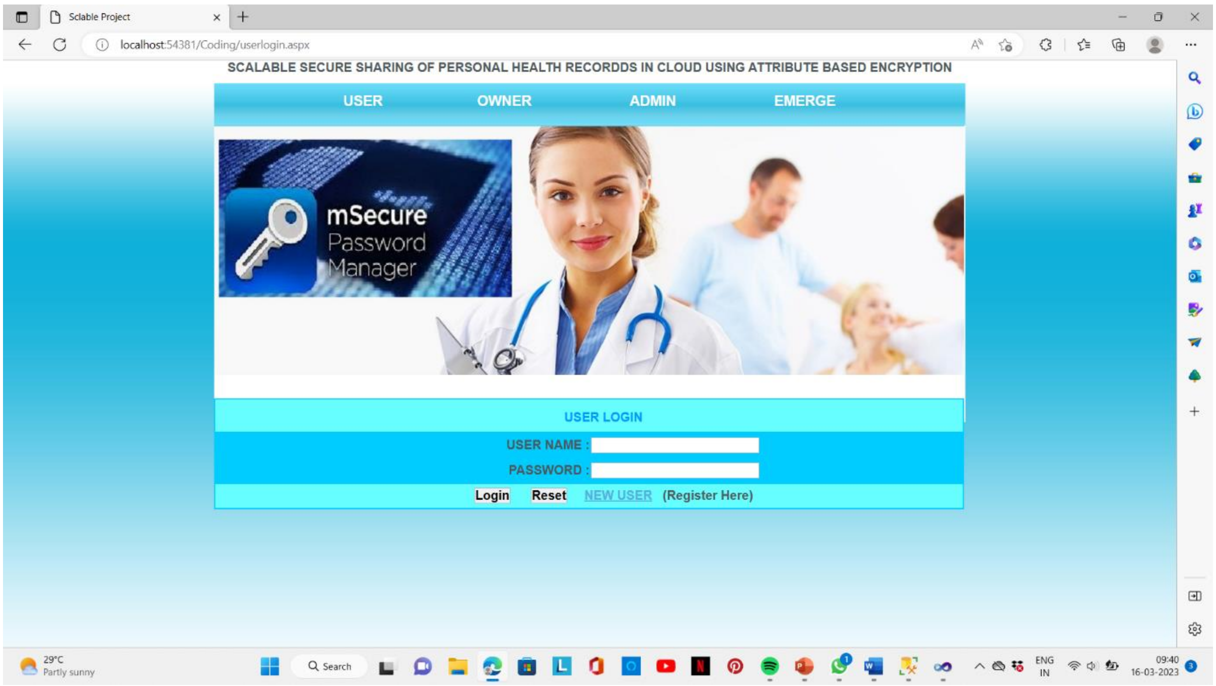
```
                <asp:TextBox ID="TextBox2" runat="server" Width="190px"></asp:TextBox>
            </td>
            <td style="text-align: left;" style="width: 331px">
                <asp:RequiredFieldValidator ID="RequiredFieldValidator2"
runat="server"
                    ErrorMessage="Enter the UserName"
ControlToValidate="TextBox2"></asp:RequiredFieldValidator>
            </td>
        </tr>
        <tr>
            <td style="text-align: right; width: 340px; font-size: medium;">
                Email_ID :</td>
            <td style="text-align: left;" style="width: 244px">
                <asp:TextBox ID="TextBox3" runat="server" Width="189px"></asp:TextBox>
            </td>
            <td style="text-align: left;" style="width: 331px">
                <asp:RequiredFieldValidator ID="RequiredFieldValidator3"
runat="server"
                    ErrorMessage="Enter the Email_ID"
ControlToValidate="TextBox3"></asp:RequiredFieldValidator>
                <asp:RegularExpressionValidator ID="RegularExpressionValidator1"
runat="server"
                    ControlToValidate="TextBox3" Display="Dynamic"
                    ErrorMessage="Enter Proper[Ex:x@gmail.com]" SetFocusOnError="True"
                    ValidationExpression="\w+([-+.']\w+)*@\w+([-.]\w+)*\.\w+([-
.]\w+)*"></asp:RegularExpressionValidator>
            </td>
        </tr>
        <tr>
            <td style="text-align: right; width: 340px; font-size: medium;">
                Password :</td>
            <td style="text-align: left;" style="width: 244px">
                <asp:TextBox ID="TextBox4" runat="server" Width="155px"
TextMode="Password"></asp:TextBox>
            </td>
            <td style="text-align: left;" style="width: 331px">
                <asp:RequiredFieldValidator ID="RequiredFieldValidator4"
runat="server"
                    ErrorMessage="Enter the Password"
ControlToValidate="TextBox4"></asp:RequiredFieldValidator>
            </td>
        </tr>
        <tr>
            <td style="text-align: right; width: 340px; font-size: medium;">
                ConformPassword :</td>
            <td style="text-align: left;" style="width: 244px">
                <asp:TextBox ID="TextBox5" runat="server" Width="155px"
TextMode="Password"></asp:TextBox>
            </td>
            <td style="text-align: left;" style="width: 331px">
                <asp:RequiredFieldValidator ID="RequiredFieldValidator5"
runat="server"
                    ErrorMessage="Enter the Correct Password"
ControlToValidate="TextBox5"></asp:RequiredFieldValidator>
                &nbsp;<asp:CompareValidator ID="CompareValidator1" runat="server"
Display="Dynamic"
                    ErrorMessage="Enter Correct password" ControlToCompare="TextBox4"
                    ControlToValidate="TextBox5"></asp:CompareValidator>
            </td>
        </tr>
        <tr>
            <td style="text-align: right; width: 340px; font-size: medium;">
                Gender :&nbsp;</td>
                   <td style="text-align: left;" style="width: 244px">
                <asp:DropDownList ID="DropDownList1" runat="server">
                    <asp:ListItem>Select</asp:ListItem>
                    <asp:ListItem>Male</asp:ListItem>
                    <asp:ListItem>Female</asp:ListItem>
                </asp:DropDownList>
            </td>
            <td style="width: 331px">
                &nbsp;</td>
        </tr>
        <tr>
            <td style="text-align: right; width: 340px; font-size: medium;">
                D.O.B :</td>
            <td style="text-align: left;" style="width: 244px">
                <asp:TextBox ID="TextBox6" runat="server" ></asp:TextBox>
                <span style="font-size: small">[dd/mm/yy]</span></td>
            <td style="text-align: left;" style="width: 331px">
                <asp:RequiredFieldValidator ID="RequiredFieldValidator7"
runat="server"
                    ErrorMessage="Enter the DOB"
ControlToValidate="TextBox6"></asp:RequiredFieldValidator>
            </td>
        </tr>
        <tr>
            <td colspan="3" style="text-align: center">
                <asp:Button ID="Button1" runat="server" onclick="Button1_Click"
                    Text="Register" />
                &nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
                <input id="Reset1" style="width: 60px" type="reset" value="Reset"
/>&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;&nbsp;
                <asp:Label ID="Label1" runat="server" Text="Label"
ForeColor="Red"></asp:Label>
            </td>
        </tr>
    </table>

</asp:Content>
```

8.2 SCREEN SHOTS:


SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

WELCOME

Fig 8.2.1: Home Page



SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

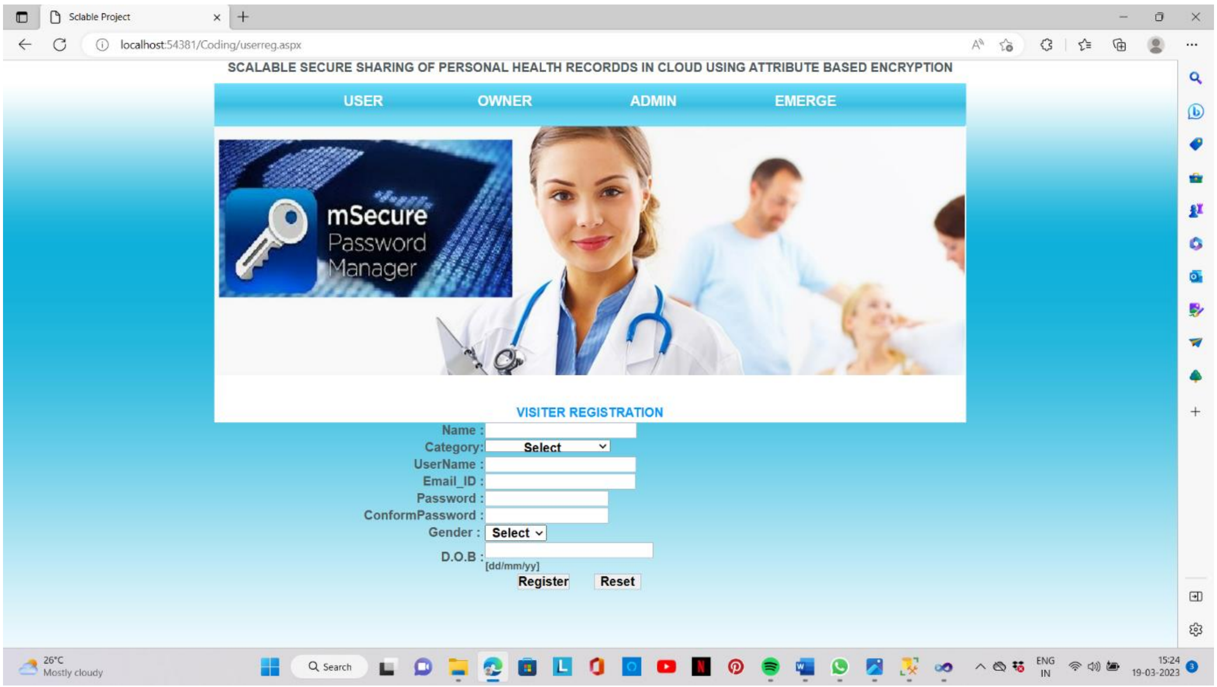
USER LOGIN

USER NAME :

PASSWORD :

(Register Here)

Fig 8.2.2: User



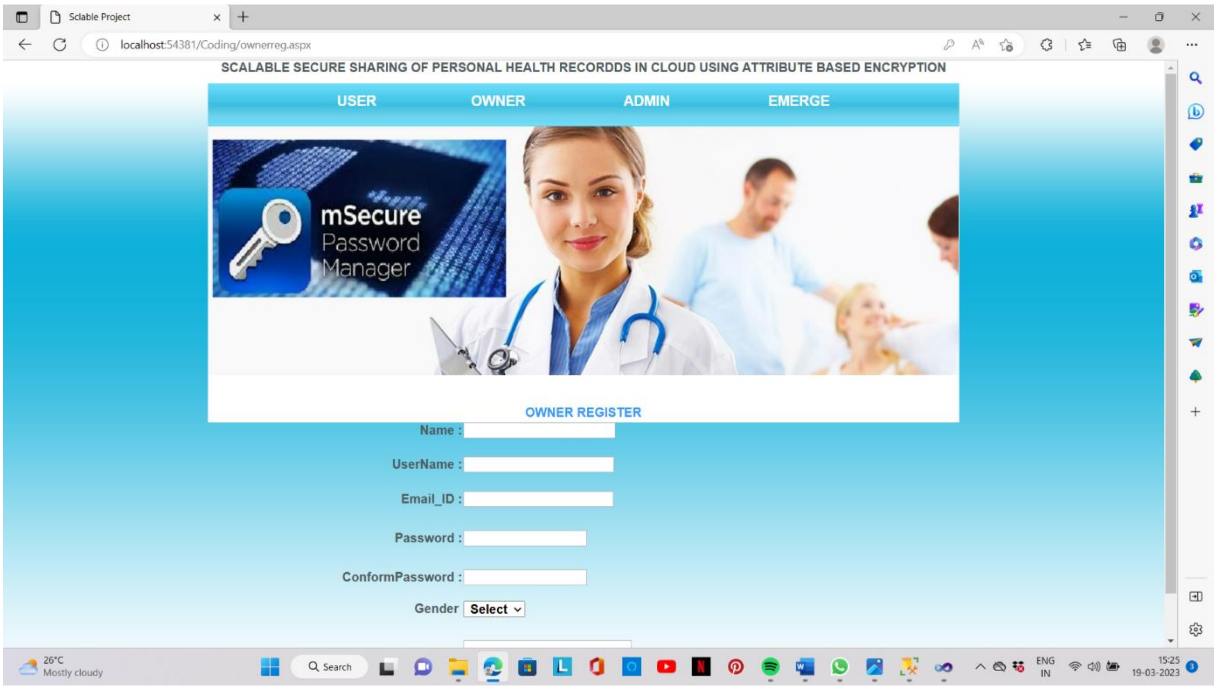
SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

VISITER REGISTRATION

Name :
Category: Select
UserName :
Email_ID :
Password :
ConformPassword :
Gender : Select
D.O.B : [dd/mm/yy]

Register Reset

Fig 8.2.3: User Registration



SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

OWNER REGISTER

Name :

UserName :

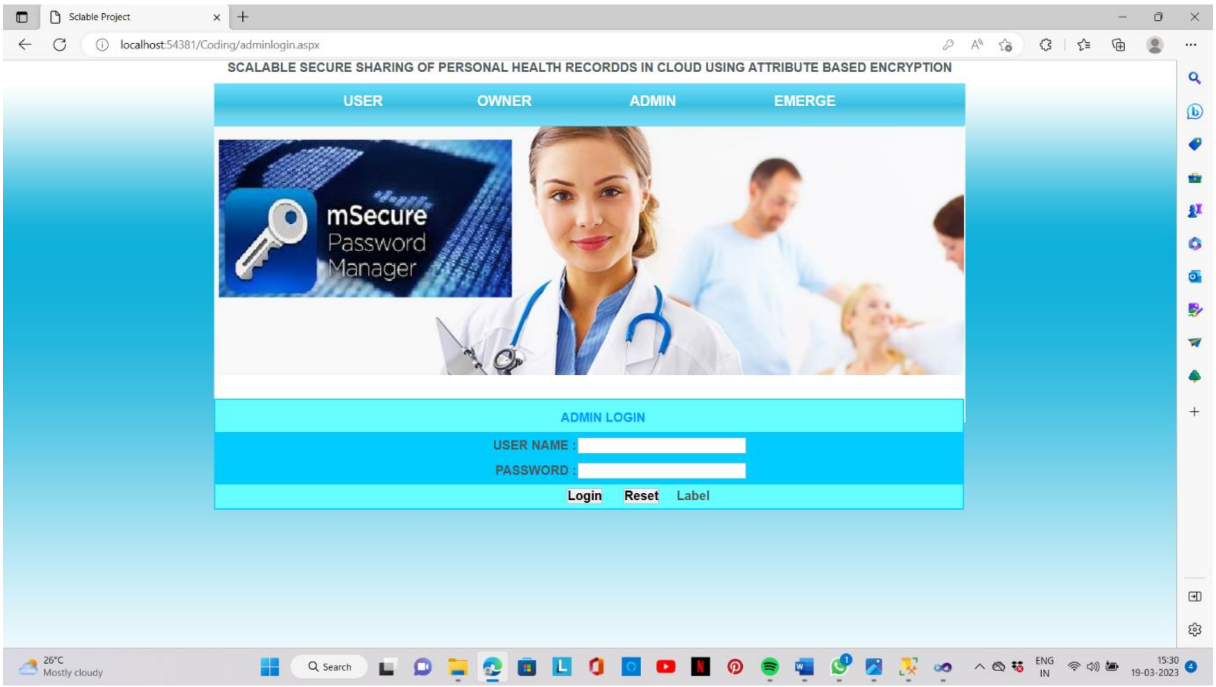
Email_ID :

Password :

ConformPassword :

Gender Select

Fig 8.2.4: Owner Registration



Sclable Project

localhost:54381/Coding/adminlogin.aspx

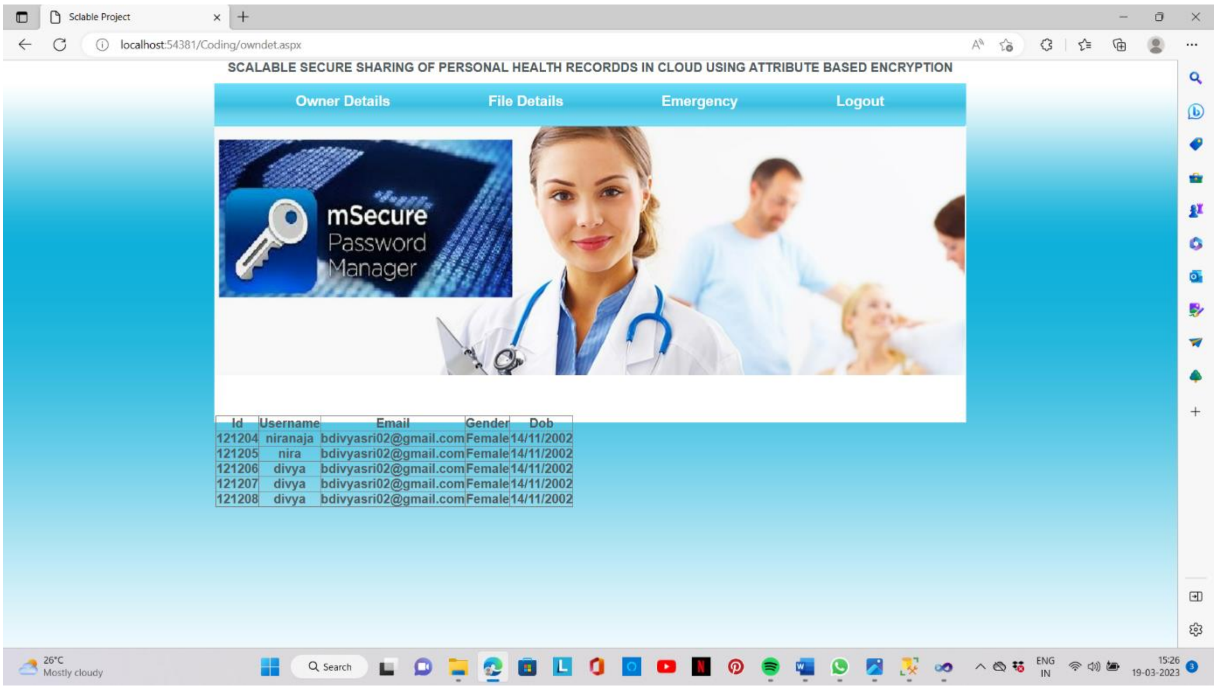
SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

ADMIN LOGIN

USER NAME :

PASSWORD :

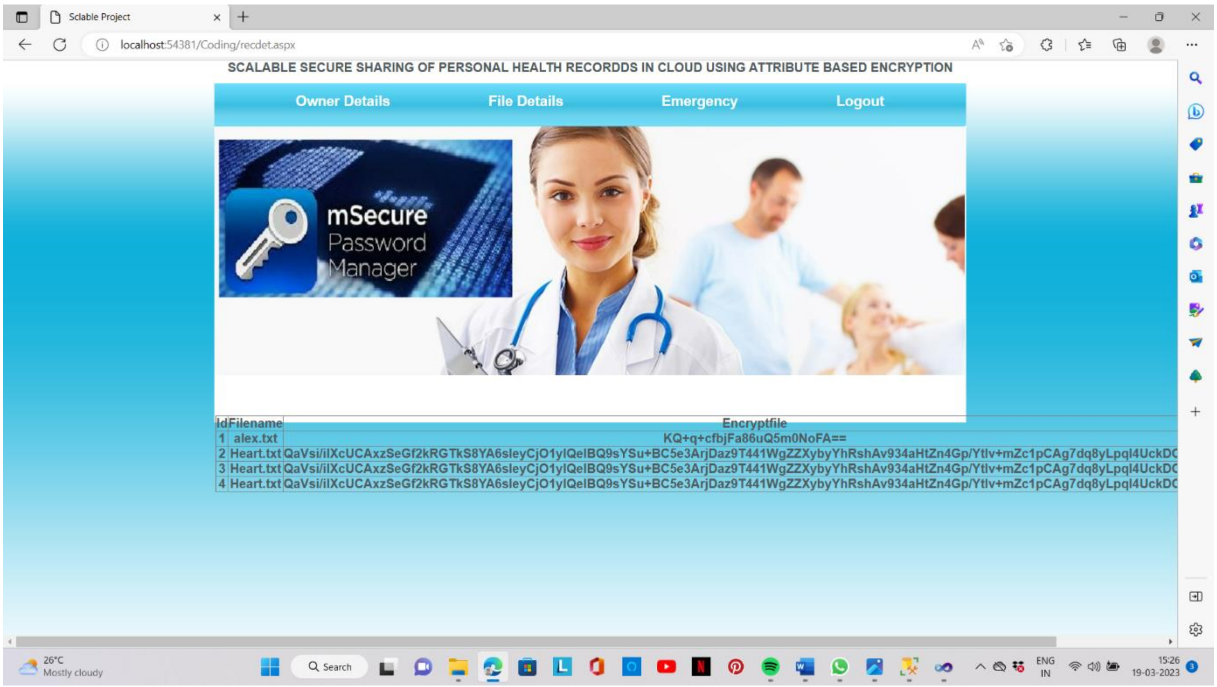
Fig 8.2.5: Admin Page



SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

Id	Username	Email	Gender	Dob
121204	niranaja	bdivyasri02@gmail.com	Female	14/11/2002
121205	nira	bdivyasri02@gmail.com	Female	14/11/2002
121206	divya	bdivyasri02@gmail.com	Female	14/11/2002
121207	divya	bdivyasri02@gmail.com	Female	14/11/2002
121208	divya	bdivyasri02@gmail.com	Female	14/11/2002

Fig 8.2.6: Owner Details

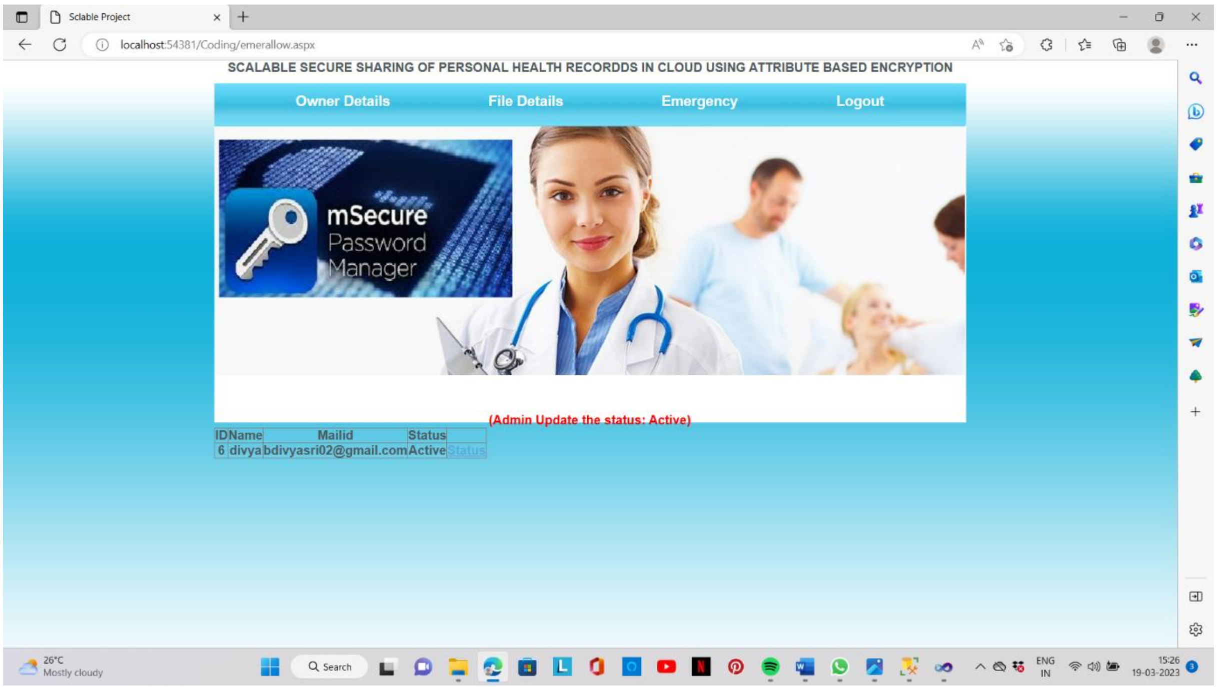


SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

Owner Details File Details Emergency Logout

Id	Filename	Encryptfile
1	alex.txt	KQ+q+cfbjFa86uQ5m0NoFA==
2	Heart.txt	QaVsi/ilXcUCAxzSeGf2kRGTkS8YA6sleyCjO1ylQelBQ9sYSu+BC5e3ArjDaz9T441WgZZXybyYhRshAv934aHtZn4Gp/Ytlv+mZc1pCAg7dq8yLpql4UckDC
3	Heart.txt	QaVsi/ilXcUCAxzSeGf2kRGTkS8YA6sleyCjO1ylQelBQ9sYSu+BC5e3ArjDaz9T441WgZZXybyYhRshAv934aHtZn4Gp/Ytlv+mZc1pCAg7dq8yLpql4UckDC
4	Heart.txt	QaVsi/ilXcUCAxzSeGf2kRGTkS8YA6sleyCjO1ylQelBQ9sYSu+BC5e3ArjDaz9T441WgZZXybyYhRshAv934aHtZn4Gp/Ytlv+mZc1pCAg7dq8yLpql4UckDC

Fig 8.2.7: Owner File Details

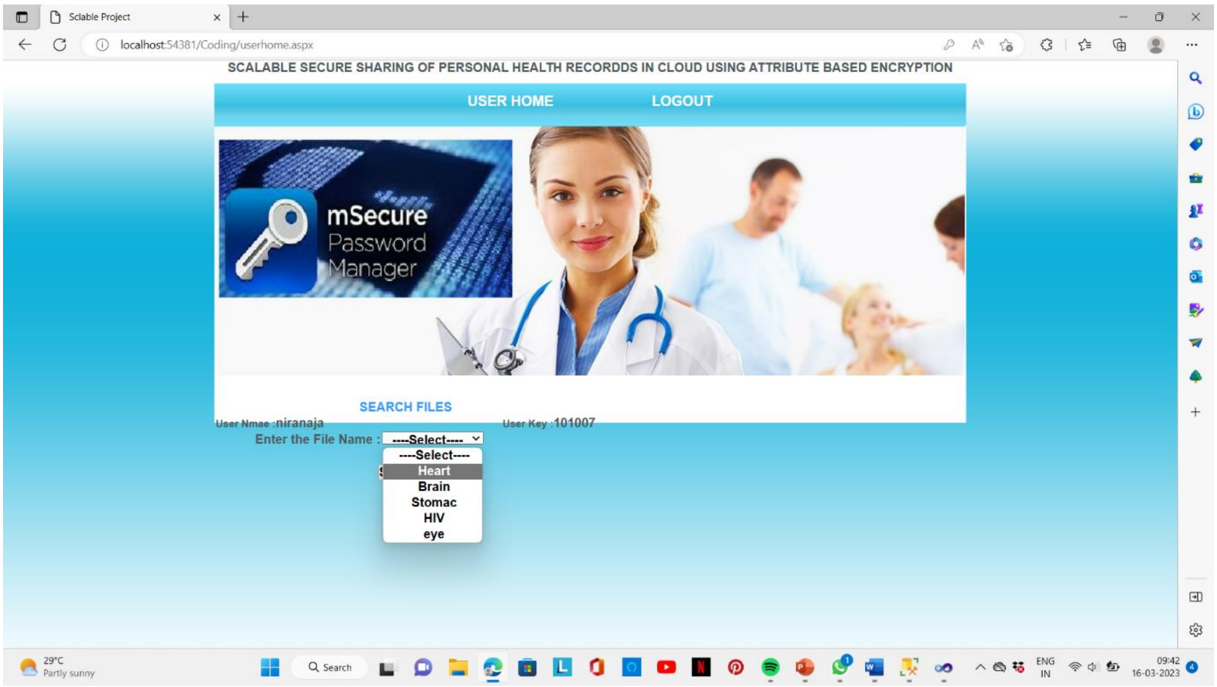


SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

(Admin Update the status: Active)

ID	Name	Mailid	Status	
6	divya	bdivyasri02@gmail.com	Active	Status

Fig 8.2.7: User Emergency



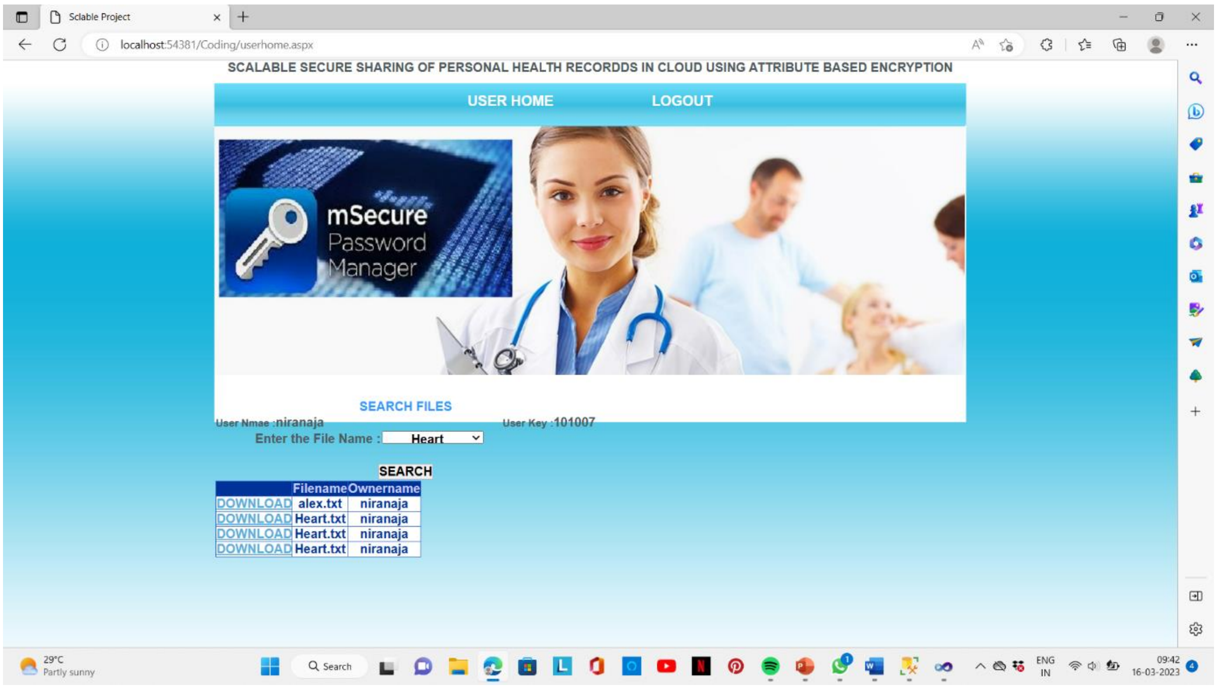
SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

User Nmae :niranaja

User Key :101007

Enter the File Name : ----Select----

Fig 8.2.8: User Homepage



SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

SEARCH FILES

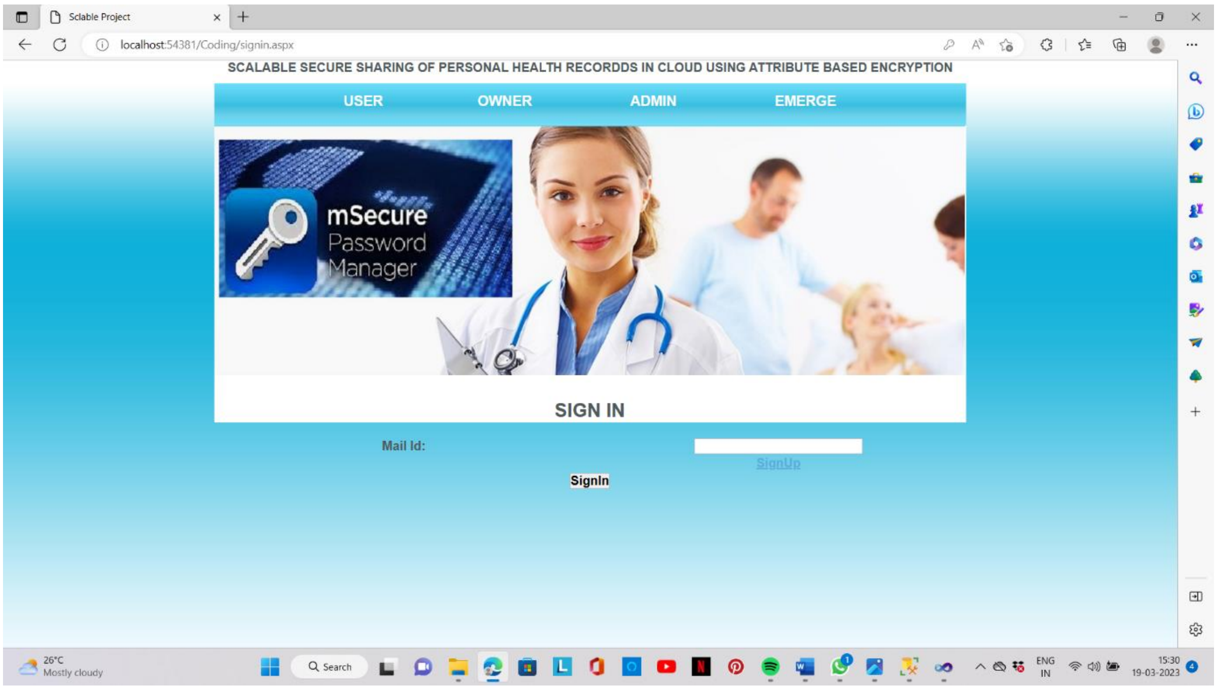
User Nmae :niranaja

User Key :101007

Enter the File Name : Heart

	Filename	Ownername
DOWNLOAD	alex.txt	niranaja
DOWNLOAD	Heart.txt	niranaja
DOWNLOAD	Heart.txt	niranaja
DOWNLOAD	Heart.txt	niranaja

Fig 8.2.9: File Download

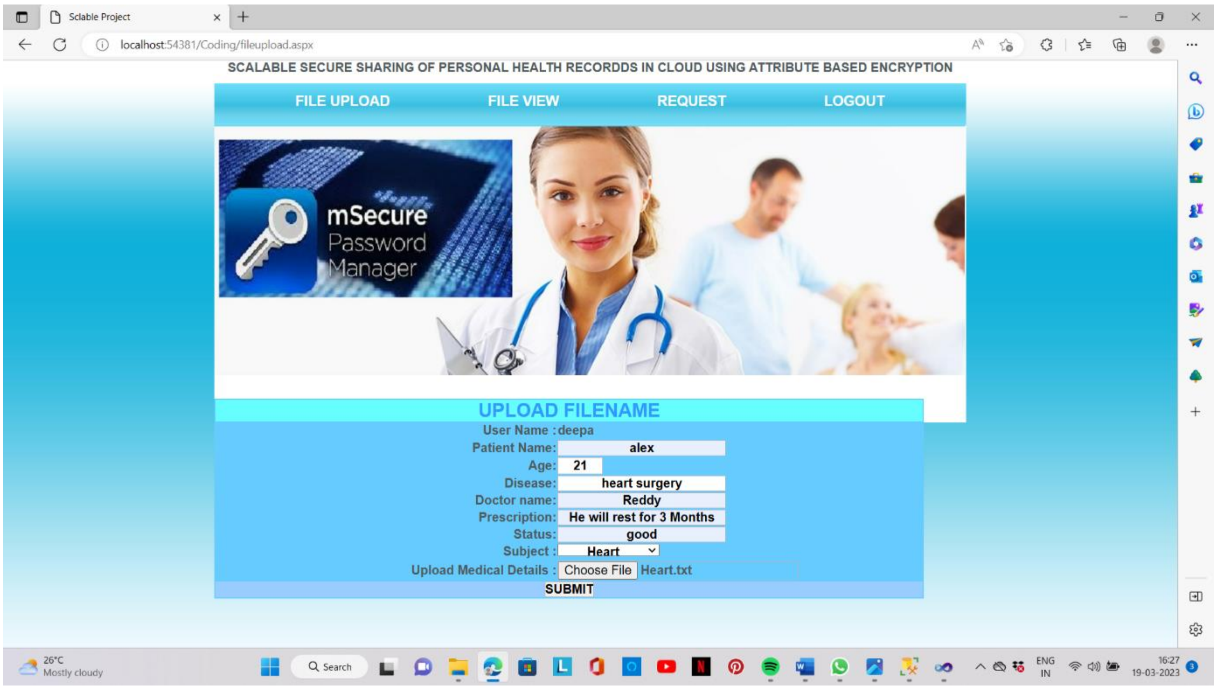


SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

SIGN IN

Mail Id:

Fig 8.2.10: Emerge



Sclable Project
localhost:54381/Coding/fileupload.aspx
SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION
FILE UPLOAD
FILE VIEW
REQUEST
LOGOUT
mSecure Password Manager
26°C Mostly cloudy
Search
ENG IN
16:27 19-03-2023

UPLOAD FILENAME

User Name :deepa

Patient Name: alex

Age: 21

Disease: heart surgery

Doctor name: Reddy

Prescription: He will rest for 3 Months

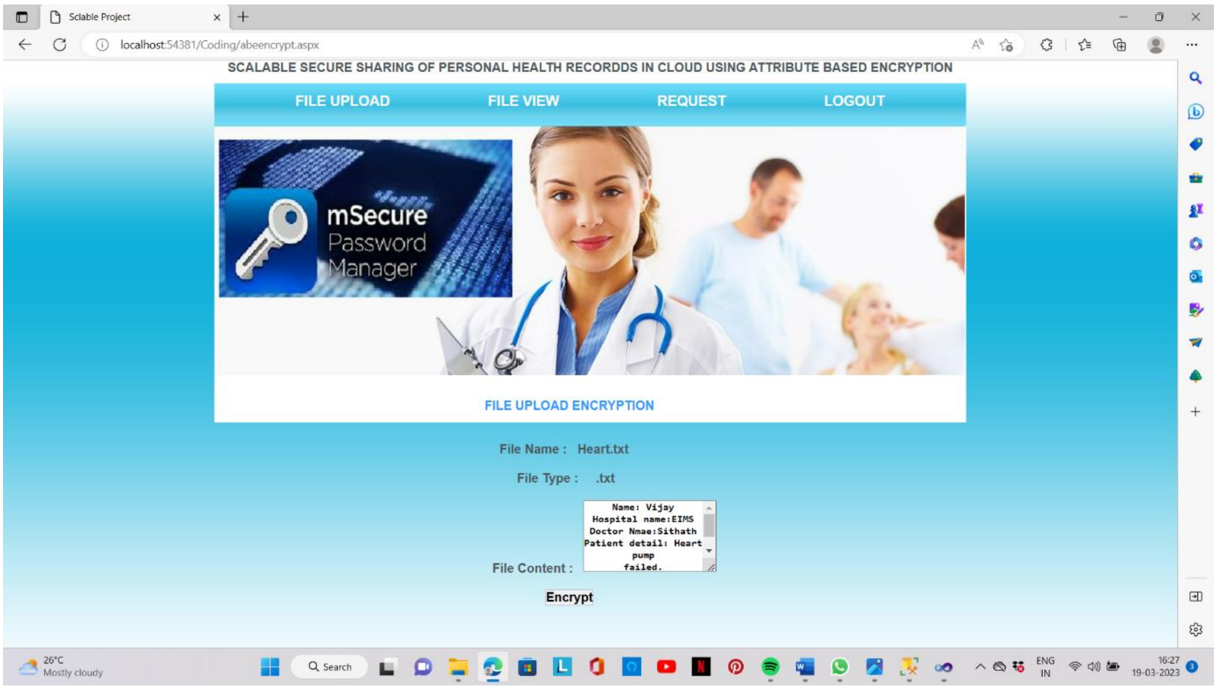
Status: good

Subject : Heart

Upload Medical Details : Choose File Heart.txt

SUBMIT

Fig 8.2.11: Upload Filename



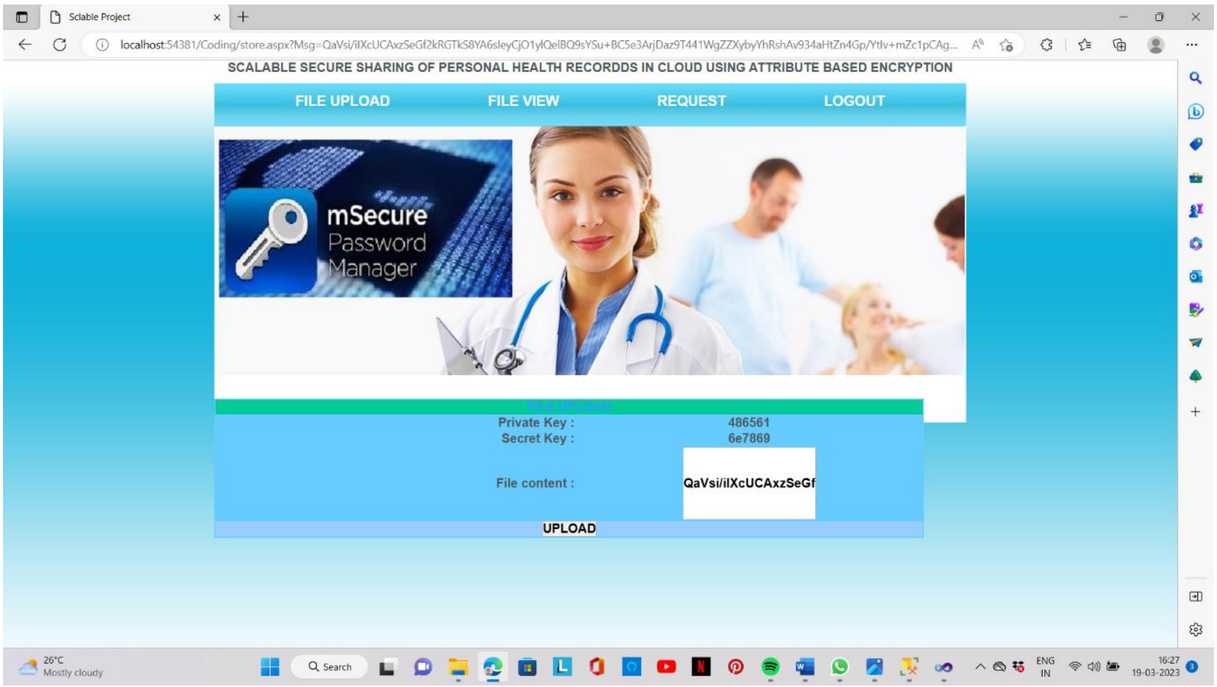
File Name : Heart.txt

File Type : .txt

File Content :

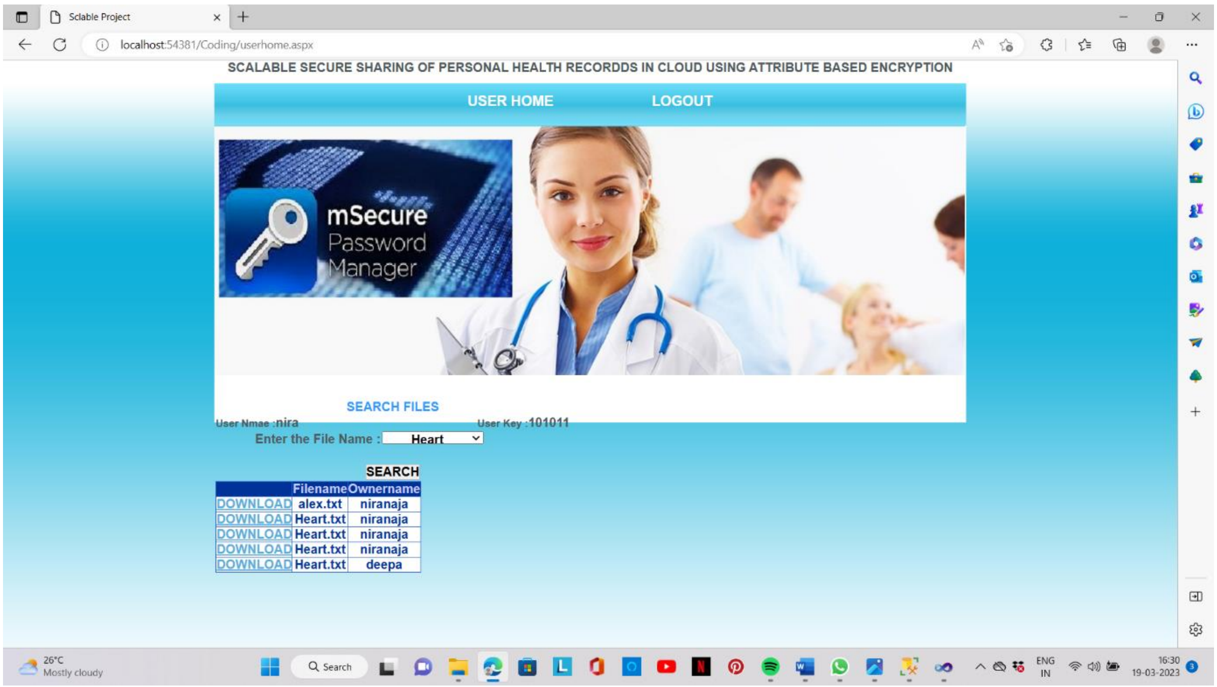
```
Name: Vijay
Hospital name:EIMS
Doctor Nmae:Sithath
Patient detail: Heart
pump
failed.
```

Fig 8.2.12: File Upload Encrypt


Sclable Project
localhost:54381/Coding/store.aspx?Msg=QaVsi/iIXcUCAxzSeGf2kRGTkS8YA6sleyCjO1ylQelBQ9sYSu+BC5e3ArjDaz9T441WgZZXybyYhRshAv934aHtZn4Gp/Ytlv+mZc1pCAg...
SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION
FILE UPLOAD
FILE VIEW
REQUEST
LOGOUT
mSecure Password Manager
FILE UPLOAD
UPLOAD
26°C Mostly cloudy
Search
ENG IN
16:27 19-03-2023

Private Key : 486561
Secret Key : 6e7869
File content : QaVsi/iIXcUCAxzSeGf

Fig 8.2.13: Encrypted File Uploaded



Sclable Project
localhost:54381/Coding/userhome.aspx
SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION
USER HOME
LOGOUT
mSecure
Password
Manager
26°C
Mostly cloudy
Search
ENG
IN
16:30
19-03-2023

SEARCH FILES

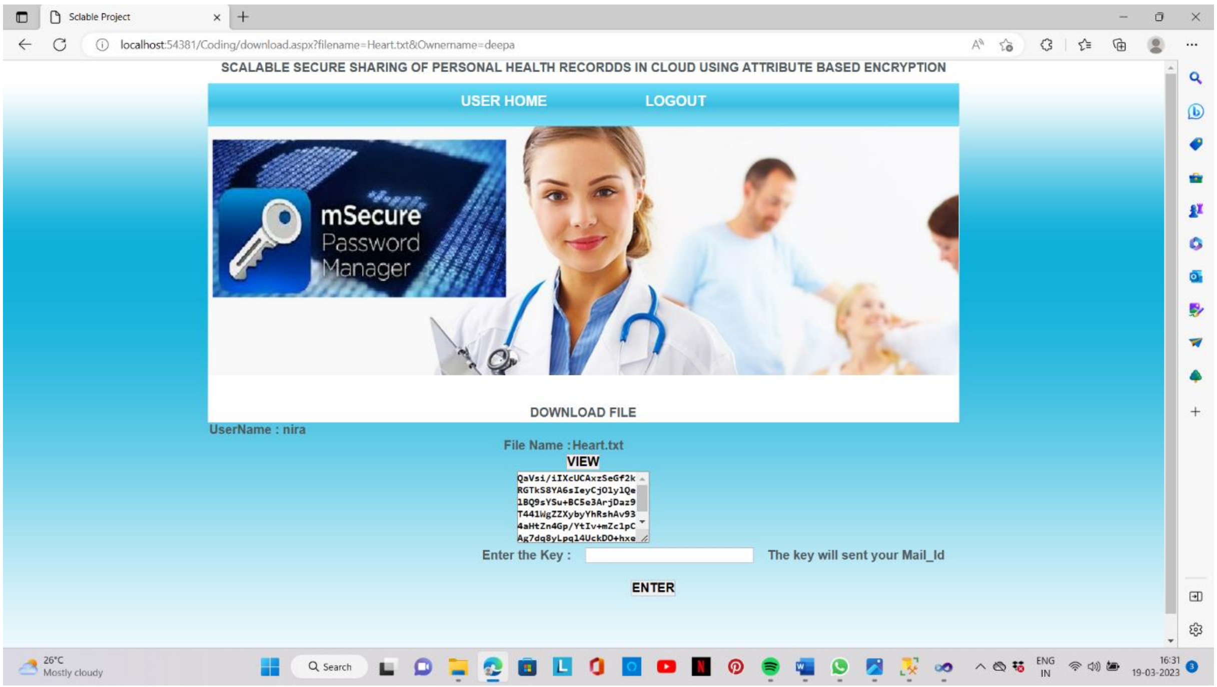
User Nmae :nira User Key :101011

Enter the File Name : Heart

SEARCH

	Filename	Ownername
DOWNLOAD	alex.txt	niranaja
DOWNLOAD	Heart.txt	niranaja
DOWNLOAD	Heart.txt	niranaja
DOWNLOAD	Heart.txt	niranaja
DOWNLOAD	Heart.txt	deepa

Fig 8.2.14: Search patient file



Sclable Project
localhost:54381/Coding/download.aspx?filename=Heart.txt&Ownername=deepa

SCALABLE SECURE SHARING OF PERSONAL HEALTH RECORDDS IN CLOUD USING ATTRIBUTE BASED ENCRYPTION

DOWNLOAD FILE

UserName : nira

File Name :Heart.txt

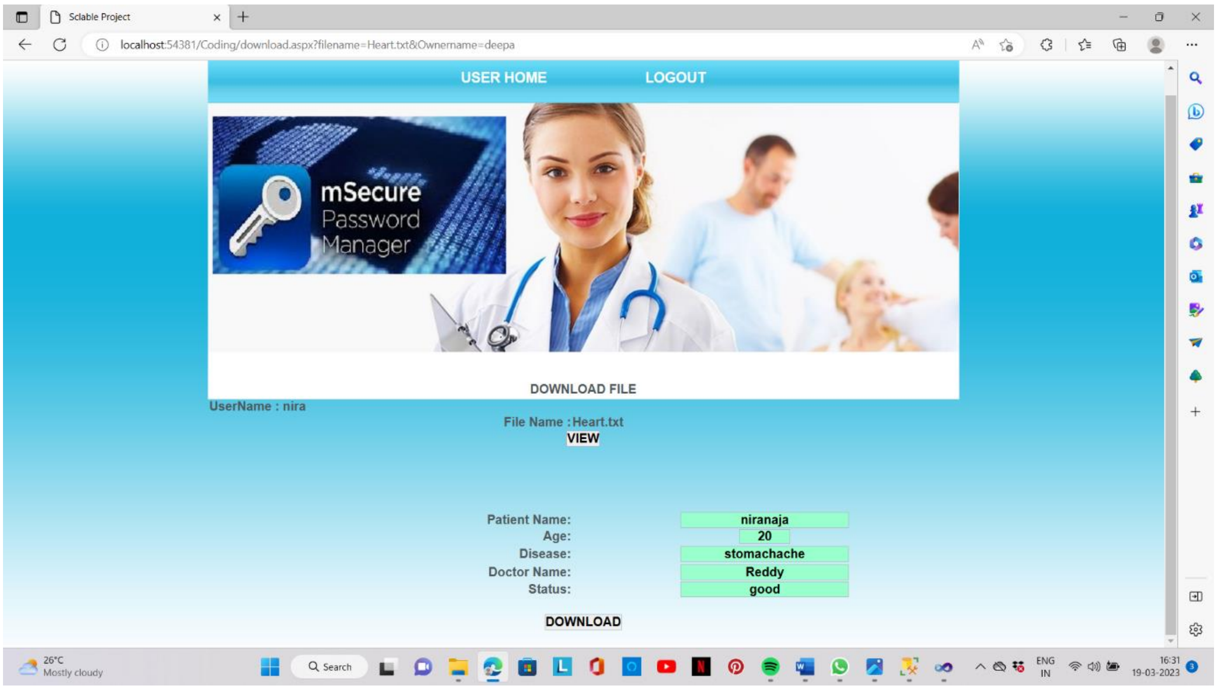
VIEW

```
QaVsi/iIXcUCAxzSeGf2k
RGTkS8YA6sIeyCjO1ylQe
lBQ9sYSu+BC5e3ArjDaz9
T441WgZZXybyYhRshAv93
4aHtZn4Gp/YtIv+mZclpC
Ag7dq8yLpql4UckDO+hxe
```

Enter the Key : The key will sent your Mail_Id

ENTER

Fig 8.2.15: Download File



UserName : nira

File Name :Heart.txt

Patient Name:	niranaja
Age:	20
Disease:	stomachache
Doctor Name:	Reddy
Status:	good

Fig 8.2.16: Patient Details

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