DEDICATION

Dedicated to my teachers and friends who rendered extreme cooperation and support in the course of completion of my project also Mr. Arjun K, developer at Kites Software Pvt. Ltd, Cochin for the full support until the end of the project.

ACKNOWLEDGEMENT

ACKNOWLEDGEMENT

I with my courteousness and gratitude submit or implacable praises to the Omnipotent **Almighty** for having bestowed his grace and blessing over me to accomplish this task of project dissertation.

I am grateful to **Rev. Dr. James Chelapurath VC,** Principal of DePaul Institute of Science &Technology, Angamaly for offering an opportunity to carry out this project.

With profound sense of indebtedness, I convey my sincere thanks to the management of **Kites Software private limited, Cochin** for providing all sorts of support and necessary facilities throughout the course of project**.**

I am grateful to Ms. Suja CK, Ms. Siji Jose and Mr. Joseph Paul. I owe sincere sense of thanks to **Mr. Jacob Thaliyan** (Course coordinator), **Mr. Denny P Francis** (Project Guide) for their cheerful and valuable guidance for my project work that led me to complete the project in a much determined way with in a stipulated time.

I thank my parents and friends for their moral support, suggestions and encouragements. I thank all who have directly or indirectly contribute towards the success of this project.

At the outset I express my heartfelt thanks to all who have provided me with a plethora of facilities to complete this project successfully.

Sebin Thomas

DECLARATION

I, Sebin Thomas with Reg.No. 400178 student of De Paul Institute of Science & Technology, Angamaly, hereby declare that the project work entitled **"Performance and Cost Analysis of Adaptive Encryption Architecture for Cloud Database"** is a work done at Kites Software Private Limited, in partial fulfillment of the requirement for the award of degree of Master of Computer Application by Mahatma Gandhi University under the guidance of **Mr. Denny P Francis.**

Place: **Sebin Thomas**

Date:

SYNOPSIS

SYNOPSIS

The cloud computing paradigm is successfully converging as the fifth utility, but this positive trend is partially limited by concerns about information confidentiality and unclear costs over a medium-long term. We are interested in the database as a service paradigm (DBaaS) that poses several research challenges in terms of security and cost evaluation from a tenant's point of view.

The project is meant to propose *a simple and portable solution for Security and Confidentiality over the user data* using different algorithms namely,

1. AES 256 (Password Based Encryption i.e., PBE)
2. RC4 256 (Password Based Encryption i.e., PBE)
3. TripleDES 168 (Password Based Encryption i.e., PBE)

AS the topic is a concept, it has to implement in a real time system. Therefore, the concept has been implemented in the Web Application **"iCloud"** which is an online file storage system meant to provide a secure storage system.

The application is *web based* and should be available for every people who have the possibility to

1. Connect to Internet access via Computer System.
2. Connect to Internet access via Tab or Smart Phone.

The iCloud system is made easy to store the valuable data in the cloud and access it anywhere if the user has internet access. It is designed as a directory structure which will feel like you are using an Operating System.

Here in the iCloud system the three different algorithms are evaluated based on the different factors such as,

1. Performance.
    i. Time.
    ii. Memory Conception.

2. Cost.

Most results concerning encryption for cloud-based services, are inapplicable to the database paradigm. Other encryption schemes that allow the execution of SQL operations over encrypted data either have performance limits or require the choice of which encryption scheme must be adopted for each database column and SQL operation. These latter proposals are fine when the set of queries can be statically determined at design time, while we are interested in other common scenarios where the workload may change after the database design. In this paper, we propose a novel architecture for adaptive encryption of public cloud databases that offers a proxy-free alternative to the system. The proposed architecture guarantees in an adaptive way the best level of data confidentiality for any database workload, even when the set of SQL queries dynamically changes.

Improving the confidentiality of information stored in cloud databases represents an important contribution to the adoption of the cloud as the fifth utility because it addresses most user concerns. Our proposal is characterized by two main contributions to the state of the art: architecture and cost model.

CONTENTS

INTRODUCTION

INTRODUCTION

1.1 PROJECT PROFILE

The main aim of the project is to design and develop a novel architecture for adaptive encryption of cloud databases that offers high security over the user data. The proposed architecture guarantees in an adaptive way to encrypt the data using three different encryption algorithms aids the file to improve the security as well as the confidentiality of the file.

The iCloud system is a designed like a directory structure where the users can arrange the files under folders. Every file operations can be performed in this web based application

The cloud database as a service is a novel paradigm that can support several Internet-based applications, but its adoption requires the solution of information confidentiality problems. iCloud has a novel architecture for adaptive encryption of cloud databases that offers an interesting alternative to the trade-off between the required data confidentiality level and the flexibility of the cloud database structures at design time. The application demonstrates the feasibility and performance of the proposed solution. Moreover, we propose an original cost model that is oriented to the evaluation of cloud database services in plain and encrypted instances and that takes into account the variability of cloud prices and tenant workload during a medium-term period.

1.2 ORGANIZATION OVERVIEW

KITES Software's Pvt. Ltd, is one of the fastest growing I.T Company with a vision of achieving new innovative heights in the field of Software Development, Consultancy, Services and Training.

In a short span of time we have established our credentials through our unique, highly customized service model that have enabled our clients reduce cost substantially, shorten lead times for processes, improve financial reporting and focus on their core businesses more efficiently. The timely software solutions provided through complex modules in Linux and Windows platforms, to our offshore clients in Singapore & UK is proof enough of our capabilities in this international arena and is a testimonial of the fact that we are second to none.

At KITES, we continuously strive to add and fine-tune our knowledge base in order to harness newer cutting edge technologies to our services. It is a matter of pride that nationally reputed scientific institutions like NIT Calicut have placed their faith in our abilities & provided us with all managerial & technical assistance for projects under the Technology Business Incubator (TBI) program. This program is initiated by the Govt. of India to harness & provide support to the best upcoming & promising organizations in the I.T field. In fact our Research and Development wing in the name of G2S Technologies is situated at NIT at Calicut & we get all technical and managerial assistance from NIT and IIM.

Our capabilities in the software development find synergies & echo in our Training division. We do have the latest technology and state of art infrastructure with highly sophisticated Lab & high spec systems but the difference lies in the invaluable exposure provided to the students by hardened, practicing software professionals. No wonder this is hugely popular amongst both I.T and Management students.

SYSTEM SPECIFICATION

2.1 SOFTWARE SPECIFICATION

Operating System	:	Windows 7 Service Pack 1
Development Kit	:	Net beans IDE.8.0.2
Web Technologies	:	HTML 5, CSS 3, JavaScript, JQuery v1.11.1, Bootstrap v3.3.1
Browser	:	Microsoft Internet Explorer 9.0 or greater, Google Chrome 40.0 or greater.
Language	:	JSP (Java Server pages).
Web Server	:	Apache Tomcat 8.0.15
Data Base	:	MySQL Server 5.6

2.2 HARDWHARE SPECIFICATION

Hardware	:	Pentium
Speed	:	1.1 GHz
RAM	:	1GB
Hard Disk	:	20 GB
Key Board	:	Standard Windows Keyboard
Mouse	:	Two or Three Button Mouse
Monitor	:	SVGA

DEVELOPING TOOL

3.1 FRONT END

3.1.1 Java (JSP)

Java is a simple and yet powerful object oriented programming language and it is in many respects similar to C++. Java originated at Sun Microsystems, Inc. in 1991. It was conceived by James Gosling, Patrick Naughton, Chris Warth, Ed Frank, and Mike Sheridan at Sun Microsystems, Inc. It was developed to provide a platform-independent programming language.

Platform independent

Unlike many other programming languages including C and C++ when Java is compiled, it is not compiled into platform specific machine, rather into platform independent byte code. This byte code is distributed over the web and interpreted by virtual Machine (JVM) on whichever platform it is being run.

Java Virtual Machine

Java was designed with a concept of 'write once and run everywhere'. Java Virtual Machine plays the central role in this concept. The JVM is the environment in which Java programs execute. It is software that is implemented on top of real hardware and operating system. When the source code (.java files) is compiled, it is translated into byte codes and then placed into (.class) files. The JVM executes these bytecodes. So Java byte codes can be thought of as the machine language of the JVM. A JVM can either interpret the bytecode one instruction at a time or the bytecode can be compiled further for the real microprocessor using what is called a just-in-time compiler. The JVM must be implemented on a particular platform before compiled programs can run on that platform.

Object Oriented Programming

Java is an object oriented programming language it has following features:

- ✓ Reusability of Code
- ✓ Emphasis on data rather than procedure

- ✓ Data is hidden and cannot be accessed by external functions
- ✓ Objects can communicate with each other through functions

Object Oriented Programming is a method of implementation in which programs are organized as cooperative collection of objects, each of which represents

Abstraction

Abstraction denotes the essential characteristics of an object that distinguish it from all other kinds of objects and thus provide crisply defined conceptual boundaries, relative to the perspective of the viewer.

Encapsulation is the process of compartmentalizing the elements of an abstraction that constitute its structure and behavior; encapsulation serves to separate the contractual interface of an abstraction and its implementation.

Inheritance

Inheritance is the process by which one object acquires the properties of another object.

Polymorphism

Polymorphism is the existence of the classes or methods in different forms or single name denoting different implementations.

Java is Distributed

With extensive set of routines to handle TCP/IP protocols like HTTP and FTP java can open and access the objects across net via URLs.

Java is Multithreaded

One of the powerful aspects of the Java language is that it allows multiple threads of execution to run concurrently within the same program .A single Java program can have many different threads executing independently and continuously. Multiple Java applets can run on the browser at the same time sharing the CPU time.

Java is secure

Java allows creation of virus-free, tamper free systems to be created. It ensures security in the following ways.

- ✓ Pointers and memory allocations are removed during compile time.
- ✓ The interpreter verifies all byte codes before executing.
- ✓ All java applets are treated as entrusted code executing in trusted environment.

Because Java was written to support distributed applications over the computer networks, it can be used with a variety of CPU and operating system architectures. To achieve this goal a compiler was created that produces architecture-neutral object files from Java code.

Java is Portable

Java byte code will be executed on any computer that has Java Runtime Environment. The portability is achieved in the following ways:

- ✓ Java primitive data types and the behavior of arithmetic operations on these data types are explicitly specified.
- ✓ The java libraries include portable interfaces for each platform on which the run time environment is available.
- ✓ The entire java system itself is portable.

Garbage collection

Automatic garbage collection is another great feature of Java with which it prevents inadvertent corruption of memory. Similar to C++, Java has a new operator to allocate memory on the heap for a new object. But it does not use delete operator to free the memory as it is done in C++ to free the memory if the object is no longer needed. It is done automatically with garbage collector.

KEY BENEFITS OF JAVA

Write Once, Run Anywhere

Sun identifies "Write once, run anywhere" as the core value proposition of the Java platform. Translated from business jargon, this means that the most important promise of Java technology is that you only have to write your application once--for the Java platform--and then you'll be able to run it *anywhere*.

Security

Another key benefit of Java is its security features. Both the language and the platform were designed from the ground up with security in mind. The Java platform allows users to download untrusted code over a network and run it in a secure environment in which it cannot do any harm: it cannot infect the host system with a virus, cannot read or write files from the hard drive, and so forth. This capability alone makes the Java platform unique.

Network-centric Programming

Sun's corporate motto has always been "The network is the computer." The designers of the Java platform believed in the importance of networking and designed the Java platform to be network-centric. From a programmer's point of view, Java makes it unbelievably easy to work with resources across a network and to create network-based applications using client/server or multitier architectures.

Programmer Efficiency and Time-to-Market

The final, and perhaps most important, reason to use Java is that programmers like it. Java is an elegant language combined with a powerful and well-designed set of APIs. Programmers enjoy programming in Java and are usually amazed at how quickly they can get results with it. Studies have consistently shown that switching to Java increases programmer efficiency.

3.1.2 NETBEANS

The NetBeans IDE is open source and is written in the Java programming language. It provides the services common to creating desktop applications -- such as window and menu management, settings storage -- and is also the first IDE to fully support JDK 5.0 features. The NetBeans platform and IDE are free for commercial and non-commercial use, and they are supported by Sun Microsystems. It can be downloaded from http://www.netbeans.org/

Features and Tools

The NetBeans IDE has many features and tools for each of the Java platforms. Those in the following list are not limited to the Java SE platform but are useful for building, debugging, and deploying applications and applets:

Source Code Editor

- ✓ Syntax highlighting for Java, JavaScript, XML, HTML, CSS, JSP, IDL
- ✓ Customizable fonts, colors, and keyboard shortcuts
- ✓ Live parsing and error marking
- ✓ Pop-up Javadoc for quick access to documentation
- ✓ Advanced code completion
- ✓ Automatic indentation, which is customizable
- ✓ Word matching with the same initial prefixes
- ✓ Navigation of current class and commonly used features
- ✓ Macros and abbreviations
- ✓ Goto declaration and Goto class
- ✓ Matching brace highlighting
- ✓ JumpList allows you to return the cursor to previous modification

GUI Builder

- ✓ Fully WYSIWYG designer with Test Form feature
- ✓ Support for visual and nonvisual forms
- ✓ Extensible Component Palette with preinstalled Swing and AWT components
- ✓ Component Inspector showing a component's tree and properties

- ✓ Automatic one-way code generation, fully customizable
- ✓ Support for AWT/Swing layout managers, drag-and-drop layout customization
- ✓ Powerful visual editor
- ✓ Support for null layout
- ✓ In-place editing of text labels of components, such as labels, buttons, and text fields
- ✓ JavaBeans support, including installing, using, and customizing properties, events, and customizers
- ✓ Visual JavaBean customization -- ability to create forms from any JavaBean classes
- ✓ Connecting beans using Connection wizard
- ✓ Zoom view ability

Database Support

- ✓ Database schema browsing to see the tables, views, and stored procedures defined in a database
- ✓ Database schema editing using wizards
- ✓ Data view to see data stored in tables
- ✓ SQL and DDL command execution to help you write and execute more complicated SQL or DDL commands
- ✓ Migration of table definitions across databases from different vendors
- ✓ Works with databases, such as MySQL, PostgreSQL, Oracle, IBM DB2, Microsoft SQL Server, PointBase, Sybase, Informix, Cloudscape, Derby, and more

The NetBeans IDE also provides full-featured refactoring tools, which allow you to rename and move classes, fields, and methods, as well as change method parameters. In addition, you get a debugger and an Ant-based project system.

3.1.3 HTML5

HTML5 is a markup language used for structuring and presenting content on the World Wide Web. It was finalized, and published, on 28 October 2014 by the World Wide Web Consortium (W3C). This is the fifth revision of the HTML standard since the inception of the World Wide Web. The previous version, HTML 4, was standardized in 1997.

Its core aims are to improve the language with support for the latest multimedia while keeping it easily readable by humans and consistently understood by computers and devices (web browsers, parsers, etc.). HTML5 is intended to subsume not only HTML 4, but also XHTML 1 and DOM Level 2 HTML.

HTML5 is also a potential candidate for cross-platform mobile applications. Many features of HTML5 have been built with the consideration of being able to run on low-powered devices such as smartphones and tablets. In December 2011, research firm Strategy Analytics forecast sales of HTML5 compatible phones would top 1 billion in 2013.

In particular, HTML5 adds many new syntactic features. These include,

- ✓ <video>
- ✓ <audio>
- ✓ <canvas>

Also the integration of scalable vector graphics (SVG) content (replacing generic <object> tags), and MathML for mathematical formulas. These features are designed to make it easy to include and handle multimedia and graphical content on the web without having to resort to proprietary plugins and APIs. Other new page tags include,

- ✓ <main>
- ✓ <section>
- ✓ <article>

- ✓ <header>
- ✓ <footer>
- ✓ <aside>
- ✓ <nav>
- ✓ <figure>,

These are designed to enrich the semantic content of documents. New attributes have been introduced, some elements and attributes have been removed and some elements, such as <a>, <cite>and <menu> have been changed, redefined or standardized.

In addition to specifying markup, HTML5 specifies scripting application programming interfaces (APIs) that can be used with JavaScript. Existing document object model (DOM) interfaces are extended and de facto features documented. There are also new APIs, such as:

- ✓ The canvas element for immediate mode 2D drawing. See Canvas 2D API Specification 1.0 specification.
- ✓ Timed media playback.
- ✓ Offline Web Applications
- ✓ Document editing.
- ✓ Drag-and-drop.
- ✓ Cross-document messaging.
- ✓ Browser history management.
- ✓ MIME type and protocol handler registration.
- ✓ Microdata.
- ✓ Web Storage, a key-value pair storage framework that provides behavior similar to cookies but with larger storage capacity and improved API.

3.1.4 CSS 3

CSS is the language for describing the presentation of Web pages, including colors, layout, and fonts. It allows one to adapt the presentation to different types of devices, such as large screens, small screens, or printers. CSS is independent of HTML and can be used with any XML-based markup language. The separation of HTML from CSS makes it easier to maintain sites, share style sheets across pages, and tailor pages to different environments. This is referred to as the separation of structure (or: content) from presentation.

CSS3 has been split into "modules". It contains the "old CSS specification" (which has been split into smaller pieces). In addition, new modules are added.

Some of the most important CSS3 modules are:

- ✓ Selectors
- ✓ Box Model
- ✓ Backgrounds and Borders
- ✓ Image Values and Replaced Content
- ✓ Text Effects
- ✓ 2D/3D Transformations
- ✓ Animations
- ✓ Multiple Column Layout
- ✓ User Interface

The media queries might well be the most important addition to CSS. What it does is simple: it allows certain conditions to be applied to different style sheets, making websites fluid and fit all kinds of screen sizes. Media queries allow developers to tailor to different resolutions without having to change or remove content.

3.1.5 JavaScript

JavaScript is an scripting language that is primarily used for creating interactive features on webpages. It can be used to create menus, validate forms, swap images, or just about anything else you can think of to do on a webpage. If you have ever taken a look at Google Maps or Google's GMail service, you have an idea of what JavaScript is capable of today.

Since JavaScript is currently the only scripting language supported by every major web browser (Internet Explorer, Firefox, Netscape, Safari, Opera, Camino, etc), it is very widely used. When code is rendered by your web browser, like JavaScript usually is, it is called a Client-Side script. JavaScript can also be run on a web server to generate HTML documents, thus running as a Server-Side script. Although its use is usually limited to client-side scripts, JavaScript can be a very powerful server language as well.

3.1.6 jQuery v1.11.1

jQuery is a lightweight, "write less, do more", JavaScript library.
The purpose of jQuery is to make it much easier to use JavaScript on your website.
jQuery takes a lot of common tasks that require many lines of JavaScript code to accomplish, and wraps them into methods that you can call with a single line of code. jQuery also simplifies a lot of the complicated things from JavaScript, like AJAX calls and DOM manipulation.
The jQuery library contains the following features:

- ✓ HTML/DOM manipulation
- ✓ CSS manipulation
- ✓ HTML event methods
- ✓ Effects and animations
- ✓ AJAX
- ✓ Utilities

3.1.7 AJAX

AJAX = Asynchronous JavaScript and XML.

AJAX is a technique for creating fast and dynamic web pages. AJAX allows web pages to be updated asynchronously by exchanging small amounts of data with the server behind the scenes. This means that it is possible to update parts of a web page, without reloading the whole page.

Classic web pages, (which do not use AJAX) must reload the entire page if the content should change. Examples of applications using AJAX: Google Maps, Gmail, YouTube, and Facebook.

3.1.8 Bootstrap v3.3.1

Bootstrap is a powerful front-end framework for faster and easier web development. It includes HTML and CSS based design templates for common user interface components like Typography, Forms, Buttons, Tables, Navigations, Dropdowns, Alerts, Modals, Tabs, Accordion, Carousel and many other as well as optional JavaScript extensions.

Bootstrap also gives you ability to create responsive layout with much less efforts.

Advantages of Bootstrap

The biggest advantage of using Bootstrap is that it comes with free set of tools for creating flexible and responsive web layouts as well as common interface components.

Additionally, using the Bootstrap data APIs you can create advanced interface components like Scrollspy and Typeaheads without writing a single line of JavaScript.

Here are some more advantages, why one should opt for Bootstrap:

Save lots of time — you can save lots of time and efforts using the Bootstrap predefined design templates and classes and concentrate on other development work.

Responsive features — Using Bootstrap you can easily create responsive designs. Bootstrap responsive features make your web pages to appear more appropriately on different devices and screen resolutions without any change in markup.

Consistent design — All Bootstrap components share the same design templates and styles through a central library, so that the designs and layouts of your web pages are consistent throughout your development.

Easy to use — Bootstrap is very easy to use. Anybody with the basic working knowledge of HTML and CSS can start development with Bootstrap.

Compatible with browsers — Bootstrap is created with modern browsers in mind and it is compatible with all modern browsers such as Mozilla Firefox, Google Chrome, Safari, Internet Explorer, and Opera.

Open Source — And the best part is, it is completely free to download and use.

3.2 BACK END

3.2.1 MYSQL

MySQL is a multithreaded, multi-user SQL database management system (DBMS). It is written in C and C++. The SQL parser uses yacc and home-brewed lexer. MySQL is popular for web applications and acts as the database component of the LAMP, MAMP and WAMP platforms (Linux/Mac/Windows-Apache-MySQL-PHP/Perl/Python). MySQL works on many different platforms — including BSDi, FreeBSD, Linux, Mac OS X, NetBSD, Novell NetWare, OpenBSD, OS/2 Warp, IRIX, Solaris, SunOS, SCO UnixWare, Windows 95/98/ME/NT/2000/XP and the 32-bit version of Windows Vista (but not the 64-bit version).

The various distinguishing features of MySQL are-

1. Multiple storage engines, allowing you to choose the one which is most effective for each table in the application (in MySQL 5.0, storage engines must be compiled in; in MySQL 5.1, storage engines can be dynamically loaded at run time).
2. Native storage engines (Falcon, Merge, Memory (heap), Federated, Archive, CSV, Blackhole, Cluster, BDB, EXAMPLE), and Maria
3. Partner-developed storage engines (InnoDB, solidDB, NitroEDB, BrightHouse)
4. Community-developed storage engines (memcached, httpd, PBXT)
5. Custom storage engines
6. Commit grouping, gathering multiple transactions from multiple connections together to increase the number of commits per second.

3.3 SERVER

3.3.1 Apache Tomcat

Apache Tomcat, often referred to as Tomcat, is an open-source web server and servlet container developed by the Apache Software Foundation (ASF). Tomcat implements several Java EE specifications including Java Servlet, JavaServer Pages (JSP),Java EL, and WebSocket, and provides a "pure Java" HTTP web server environment for Java code to run in.

Tomcat is developed and maintained by an open community of developers under the auspices of the Apache Software Foundation, released under the Apache License 2.0 license, and is open-source software.

Benefits of Tomcat Server:

The foremost benefit to this is **flexibility**. For example, if you wanted to run Apache on one physical server but the Tomcat service and the actual tomcat JSP and servlets on another machine, you can. Some companies employ this method to offer an extra level of **security**, with the Tomcat server behind another firewall only accessible from the Apache server. **Stability** is one more advantage. If a significant failure within Tomcat caused it to fail completely, it would not render your entire Apache service unusable.

3.4 OPERATING SYSTEM

3.4.1 Windows 7 Service pack 1

Windows 7 Service Pack 1 (SP1) was announced on 18 March 2010. A beta was released on 12 July 2010. The final version was released to the public on 22 February 2011. At the time of release, it was not made mandatory. It was available via Windows Update, direct download, or by ordering the Windows 7 SP1 DVD. The service pack is on a much smaller scale than those released for previous versions of Windows, particularly Windows Vista.

Windows 7 Service Pack 1 adds support for Advanced Vector Extensions (AVX), a 256-bit instruction set extension for processors, and improves IKEv2 by adding additional identification fields such as E-mail ID to it. In addition, it adds support for Advanced Format 512e as well as additional Services. Windows 7 Service Pack 1 also resolves a bug related to HDMI audio and another related to printing XPS documents.

Some programs have compatibility issues with SP1 and some programs may experience a loss of functionality.

In Europe, the automatic nature of the BrowserChoice.eu feature was dropped in Windows 7 Service Pack 1 in February 2011 and remained absent for 14 months despite Microsoft reporting that it was still present, subsequently described by Microsoft as a "technical error". As a result, in March 2013 the European Commission fined Microsoft €561 million to deter companies from reneging on settlement promises.

New in Windows 7 Service Pack 1

Windows 7 Service Pack 1 (SP1) is an important update that includes previously released security, performance, and stability updates for Windows 7. SP1 also includes new improvements to features and services in Windows 7, such as improved reliability when connecting to HDMI audio devices, printing using the XPS Viewer, and restoring previous folders in Windows Explorer after restarting.

SYSTEM ANALYSIS

4.1 INTRODUCTION

"**Systems analysis** is a problem solving technique that decomposes a **system** into its component pieces for the purpose of the studying how well those component parts work and interact to accomplish their purpose".

4.2 EXISTING SYSTEM

Most results concerning encryption for cloud-based services are inapplicable to the database paradigm. Other encryption schemes that allow the execution of SQL operations over encrypted data either have performance limits or require the choice of which encryption scheme must be adopted for each database column and SQL operation. These latter proposals are fine when the set of queries can be statically determined at design time, while we are interested in other common scenarios where the workload may change after the database design.

4.3 LIMITATIONS OF EXISTING SYSTEM

There are limitations for the existing cloud encryption mechanism, they are as;

1. Less Performance.
2. Single Encryption method.
3. High Cost.
4. Time Conception.
5. Low Security.
6. Single Key Encryption.

4.4 FEASIBILITY STUDY

All projects are feasible when given unlimited resources and infinite time .It is both necessary and prudent to evaluate the feasibility of a project at the earliest possible time .A feasible study is not warranted for system in which economic justification is

observed, technical risk is low ,few legal problems are expected and no reasonable alternative exists. An estimate is made of whether the identified user needs may be satisfied using our recent software and hardware technologies. The study will decide if the proposed system will be cost effective, from the business point of view and it can be developed in the existing budgetary. The feasibility study should be relatively sharp and quick .The gesture should inform the decision of whether to go ahead with a more detailed analysis.

Feasibility study may be documented as a separated report to higher officials of the top level management and can be included as appendices to the system specification. Feasibility and risk analysis is detailed in many worries. If there is project risk then the feasibility of producing the quality software is reduced .The study is done in three phases.

1. Operational Feasibility
2. Technical Feasibility
3. Economic Feasibility

Operational Feasibility

Proposed projects are beneficial only if they can be turned into information systems that will meet the organization's operating requirements. Simply stated, the test feasibility asks if the system will work when it is developed and install .Are there any major barriers to implementations. Is there sufficient support for the project from the management? Are current business methods acceptable to the users? Have the users been involved in the planning and development of the project? Will the proposed system caused any harm?

The purpose of the operational feasibility study is to determine the whether the new system will be used if it is developed and installed. And whether there will be resistance from users that will undermine the possible application benefit.

In the proposed system named SWP the operational feasibility study is performed with the help of the users of the system and the management. The first challenge was

whether the system meets the organizational requirements. This is checked by the system requirement collected from the users and the management and the operational feasibility proved that the system is capable to meet its functional requirements.
During the operational feasibility study the proposed system is checked whether it can run with universal standards .All the business methods implemented in the system is selected according to increase the user acceptance.

There was no difficulty in implementing the software and the proposed system is so effective, user friendly, functionally reliable so that the users in the company will find that the new system reduces the hard steps.

Technical Feasibility

The technical feasibility study is a study of function, performances and constraints and improve the ability to create an acceptable system .Technical feasibility is frequently the most difficult are to achieve at the stage of product engineering process. Considering that are normally associated with the technical feasibility include

- ✓ Development risk
- ✓ Resource availability
- ✓ Technology

In the proposed system named SWP the technical feasibility study is conducted by considering the risk related to developing the system, the resources available to develop the system and the availability of the technology to develop the system .The development risk considered the factors like whether the system can implement using existing technology and the design of the system can run on the real environment. The resource availability checks the availability of resources like time, human, hardware etc. The technology using to implement the system is selected according to the technical feasibility study .The technical feasibility study on the technology found that it can implement all the functional requirements of the proposed system. The technology selected according to accept the system globally and the development of the system according to the universal standards.

Technical feasibility study of SWP covered the hardware as well as software requirements. The scope was whether the work for the project is done with the current equipment's and existing software technology has to be examined in the feasibility study. The outcome was found to be positive.

Economic Feasibility

The developed system or product .Economic justification is generally the "Bottom Line" consideration that includes cost benefit analysis, long term corporate income strategies, impact on other profit centers or products; cost of resources needed for development and potential market growth .When compared to the advantage obtained from implementing the system its cost is affordable. Also the system is designed to meet the modifications required in the future .Therefore most of the modifications can be done without much re-work.

The economic feasibility of the SWP is checked and accepted by both the users and the management of the organization. Since the SWP deal with sensitive data like the software codes of organization the economic feasibility proved that it is economical and it can help the organization to avoid financial disaster due to the loss of the data .Since SWP is developed using the available resources in the organization, it doesn't add any financial liabilities to the organization .Since cost input for the software is almost nil, and the output of the software is always a profit. Hence the economic feasibility study of SWP found that the system is economically feasible.

4.5 FACT FINDING TECHNIQES

To study any system the analyst needs to do collect facts and all relevant information. The facts when expressed in quantitative form are termed as data. The success of any project is depended upon the accuracy of available data. Accurate information can be collected with help of certain methods/ techniques. These specific methods for finding information of the system are termed as fact finding techniques. Interview, Questionnaire, Record View and Observations are the different fact finding techniques used by the analyst. The analyst may use more than one technique for

investigation.

Interview

This method is used to collect the information from groups or individuals. Analyst selects the people who are related with the system for the interview. In this method the analyst sits face to face with the people and records their responses. The interviewer must plan in advance the type of questions he/ she is going to ask and should be ready to answer any type of question. The information collected is quite accurate and reliable as the interviewer can clear and cross check the doubts there itself. This method also helps gap the areas of misunderstandings and help to discuss about the future problems. Structured and unstructured are the two sub categories of Interview. Structured interview is more formal interview where fixed questions are asked and specific information is collected whereas unstructured interview is more or less like a casual conversation where in-depth areas topics are covered.

Questionnaire

It is the technique used to extract information from number of people. This method can be adopted and used only by a skillful analyst. The Questionnaire consists of series of questions framed together in logical manner. The questions are simple, clear and to the point. This method is very useful for attaining information from people who are concerned with the usage of the system and who are living in different countries. The information related to the system is published in the sources like newspapers, magazines, journals, documents etc. This record review helps the analyst to get valuable information about the system and the organization.

Observation

Unlike the other fact finding techniques, in this method the analyst himself visits the organization and observes and understand the flow of documents, working of the existing system, the users of the system etc. For this method to be adopted it takes an analyst to perform this job as he knows which points should be noticed and highlighted. In analyst may observe the unwanted things as well and simply cause delay in the development of the new system.

4.6 PROPOSED SYSTEM

The proposed architecture guarantees in an adaptive way the best level of data confidentiality for any database workload, even when the set of SQL queries dynamically changes. The adaptive encryption scheme, which was initially proposed for applications not referring to the cloud, encrypts each plain column to multiple encrypted columns, and each value is encapsulated in different layers of encryption, so that the outer layers guarantee higher confidentiality but support fewer computation capabilities with respect to the inner layers. The outer layers are dynamically adapted at runtime when new SQL operations are added to the workload. Although this adaptive encryption architecture is attractive because it does not require to define at design time which database operations are allowed on each column, it poses novel issues in terms of applicability to a cloud context, and doubts about storage and network costs. We investigate each of these issues and we reach three original conclusions in terms of prototype implementation, performance evaluation, and cost evaluation.

4.7 ADVATAGES OF PROPOSED SYSTEM

From the existing system used for the analyzing the performance and cost of the adaptive encryption the current system has got a lot of improvements, they are,

1. High Performance.
2. Multiple Encryption method.
3. Optimized Cost.
4. Less Time Conception.
5. High Security.
6. Multi Key Encryption.

SYSTEM DESIGN

5.1 INTRODUCTION TO SYSTEM DESIGN

The most creative and challenging phase of the system development is system design, is a solution to how to approach to the creation of the proposed system. It refers to the technical specification that will be applied. It provides the understanding and procedural details necessary for implementing the system recommended in the feasibility study. Design goes through the logical and physical stages of development. At an early stage in designing a new system, the system analyst must have a clear understanding of the objectives, which the design is aiming to fulfill. The first step is to determine how the output is to be produced and in what format. Second input data and master files (database) have to be designed to meet the requirements of the proposed output. The operational (processing) phases are handled through program construction and testing.

5.2 OUTPUT DESIGN

One of the most important features of the system for users is the output it produces. Output design should improve the system relationship with the user it produces and helps in decision making. Considering the future use of the output required and depending on the nature, they are displayed on the monitor for immediate need or obtaining the hard copy as a report or summary.

The objective of output design is to define the control and formats of all printed, documented, reports and screens that will be produced by the system. Computer output is the most important and direct source of information to the user. For many end users output is the main reason for developing the system and the basis on which they will evaluate the usefulness of the application. Output generally refers to the results that are generated by the system. The output of the system is designed so as to include a number of reports. Reports reflect the output design.

The user must give a valid input to get an accurate output. The outputs are the total number of function points, total effort required, total time required for development and scheduling to develop that project.

5.3 DATABASE DESIGN

Data Base design is the logical form of design of data storage in the form of records in a particular structure in the form of tables with fields which is not transparent to the normal user but it actually act as the backbone of the system. As we know database is a collection of which helps the system to manage and store data is called database management system. Data base management system builds some form of constraints like integrity constraints, i.e., the primary key or unique key and referential integrity which help to keep data structure storage and access of data from tables efficiently and accurately and take necessary steps to concurrent access of data and avoid redundancy of data in tables by normalization criterions.

Normalization is the method of breaking down complex table structures into simple table structures by using certain rules thus reduce redundancy and inconsistency and disk space usage and thus increase the performance of the system or application which is directly linked to the database design and also solve the problems of anomalies.

There are different forms of normalization, some are:

- ✓ First normal form (1NF)
- ✓ Second normal form (2NF)
- ✓ Third normal form (3NF)
- ✓ Boyce codde normal form
- ✓ Forth normal form (4NF)
- ✓ Fifth normal form (5NF)

The data base design of the new system is in second normal form and every non key attribute is functionally depend only on the

primary key. The master and transaction tables and their structure are shown below.

1. Table name: tbl_icloud_user

Description: To store user information (Register).

Field Name	Data Type	Constraint	Description
ICLOUD_ID	INTEGER	PRIMARY KEY	USER IDENTIFICATION NUMBER
NAME	VARCHAR(45)	NOT NULL	NAME OF THE USER
EMAIL	VARCHAR(45)	NOT NULL	USERNAME/MAIL ID OF THE USER
PASS	VARCHAR(100)	NOT NULL	ENCRIPTED PASSWORD
ICLOUD_K	VARCHAR(100)	NOT NULL	KEY USED FOR ENCRIPTION
CREATED	DATETIME	NOT NULL	DATE CREATED
USERSTATUS	INTEGER	NOT NULL	DELETED / ACTIVE STATE
ROLE	INTEGER	NOT NULL	ADMIN / USER

2. Table name: tbl_icloud_user_profile

Description: To store profile user information.

Field Name	Data Type	Constraint	Description
ICLOUD_ID	INTEGER	FOREIGN KEY	USER IDENTIFICATION NUMBER
FNAME	VARCHAR(50)	NOT NULL	FIRST NAME OF THE USER

MNAME	VARCHAR(50)		MIDDLE NAME OF THE USER
LNAME	VARCHAR(50)		LAST NAME OF THE USER
GENDER	CHAR(1)	NOT NULL	GENDER OF THE USER
COUNTRY_ID	INTEGER	FOREIGN KEY	COUNTRY ID
STATE_ID	INTEGER	FOREIGN KEY	STATE ID
DOB	DATE	NOT NULL	DATE OF BIRTH OF THE USER
PHONE	VARCHAR(12)		PHONE NUMBER OF THE USER

3. Table name: tbl_icloud_file

Description: To store file and the information about the file.

Field Name	Data Type	Constraint	Description
ICLOUD_FILE_ID	INTEGER	PRIMARY KEY	FILE IDENTIFICATION NUMBER
ICLOUD_FILE_NAME	VARCHAR(100)	NOT NULL	NAME OF THE FILE
ICLOUD_FILE_TYPE	VARCHAR(100)	NOT NULL	TYPE OF THE FILE
ICLOUD_FILE_SIZE	BIGINT(20)	NOT NULL	SIZE OF THE FILE
ICLOUD_FILE_DATA	LONGBLOB	NOT NULL	ENCRYPTED DATA IN THE FILE
ICLOUD_FILE_KEY	LONGBLOB	NOT NULL	KEY USED FOR ENCRYPTION
ICLOUD_ENC_METHOD	INTEGER	NOT NULL	ENCRIPYTION METHOD

ICLOUD_FOLDER_ID	INTEGER	FOREIGN KEY	FOLDER ID UNDER WHICH THE FILE IS LOCATED
ICLOUD_USER_ID	INTEGER	FOREIGN KEY	USER IDENTIFICATION NUMBER
ICLOUD_DATE_UPLOAD	DATETIME	NOT NULL	DATE AND TIME OF FILE UPLOADED
ICLOUD_DELETE_FLAG	INTEGER	NOT NULL	FILE DELETED / ACTIVE

4. Table name: tbl_icloud_folder

Description: To store folder information and data.

Field Name	**Data Type**	**Constraint**	**Description**
ICLOUD_FOLDER_ID	INTEGER	PRIMARY KEY	FOLDER IDENTIFICATION NUMBER
ICLOUD_FOLDER_NAME	VARCHAR(100)	NOT NULL	NAME OF THE FOLDER
ICLOUD_FOLDER_CREATED	DATETIME	NOT NULL	DATE OF FOLDER CREATED
ICLOUD_USER_ID	INTEGER	FOREIGN KEY	USER IDENTIFICATION NUMBER
ICLOUD_PARENT_FOLDER_ID	INTEGER	FOREIGN KEY	ID OF THE PARENT FOLDER
ICLOUD_DELETE_FLAG	INTEGER	NOT NULL	FOLDER DELETED / ACTIVE

5. Table name: tbl_icloud_folder

Description: To store display image of the user.

Field Name	Data Type	Constraint	Description
ICLOUD_DP_ID	INTEGER	PRIMARY KEY	DISPLAY IMAGE IDENTIFICATION NUMBER
DP_DATA	LONGBLOB	NOT NULL	BINARY DATA OF THE IMAGE
DP_UPLOADED	DATETIME	NOT NULL	DATE OF IMAGE UPLOADED
ICLOUD_USER_ID	INTEGER	FOREIGN KEY	USER IDENTIFICATION NUMBER

6. Table name: tbl_icloud_share

Description: To store shared file information.

Field Name	Data Type	Constraint	Description
ICLOUD_SHARE_ID	INTEGER	PRIMARY KEY	SHARE IDENTIFICATION NUMBER
ICLOUD_SHARED_BY_ID	INTEGER	FOREIGN KEY	ID OF THE USER WHO SHARED THE FILE
ICLOUD_SHARED_TO_ID	INTEGER	FOREIGN KEY	ID OF THE USER TO WHOM THE FILE IS SHARED
ICLOUD_FILE_ID	INTEGER	FOREIGN KEY	FILE IDENTIFICATION NUMBER

7. Table name: tbl_icloud_active

Description: To store Active user information.

Field Name	Data Type	Constraint	Description
ICLOUD_ACTIVE_ID	INTEGER	PRIMARY KEY	ACTIVE USER IDENTIFICATION NUMBER
ICLOUD_USER_ID	INTEGER	FOREIGN KEY	USER IDENTIFICATION NUMBER
ICLOUD_LOGIN_DATETIME	DATETIME	NOTNULL	DATE AND TIME OF LOGIN
ICLOUD_LOGOUT_DATETIME	DATETIME		DATE AND TIME OF LOGOUT

8. Table name: tbl_icloud_country

Description: To store country details.

Field Name	Data Type	Constraint	Description
ICLOUD_COUNTRY_ID	INTEGER	PRIMARY KEY	COUNTRY IDENTIFICATION NUMBER
ICLOUD_COUNTRY_CODE	VARCHAR(2)	NOTNULL	COUNTRY CODE
ICLOUD_COUNTRY_NAME	VARCHAR(100)	NOTNULL	NAME OF THE COUNTRY

8. Table name: tbl_icloud_state

Description: To store state details.

Field Name	Data Type	Constraint	Description
ICLOUD_STATE_ID	INTEGER	PRIMARY KEY	STATE IDENTIFICATION NUMBER
ICLOUD_STATE_NAME	VARCHAR(100)	NOTNULL	STATE NAME
ICLOUD_COUNTRY_ID	INTEGER	FOREIGN KEY	ID OF THE COUNTRY

5.4 INPUT DESIGN

In the input design, user oriented inputs are converted into a computer based system format. It also includes determining the record media, method of input, speed of capture and entry on to the screen. The major approach to input design is the menu and prompts design. The quality of system determines the quality of system outputs. All the data entry screens should be of interactive nature so that the user can directly input data according to prompt messages. The input design determines whether the user can interact directly with the computer. Interactive input screens ensure the reliability and accuracy of the system.

Input design is the link that ties the information system into the world of its users. It is the process of converting user originated inputs into a computer based format. Input data are collected and organized into a group of similar data. Data are entered through the keyboard and also the user can use mouse for selecting options. Errors entered by data entry operators can be controlled by input design.

In this project all the input data are validated in the order and if any data violates any conditions the user is warned by a message and asks to reenter data. If the data satisfies all the conditions then appropriate operations will take

place. The goal of designing input data is to make it free from logical errors. The input data is also used for easy calculation of necessary functions.

The important factor is in developing efficient and user friendly pages. For inputting data, attractive forms are designed.

5.5 SYSTEM MODULES

1. User Interface.
2. Adaptive encryption.
3. Metadata structure.
4. Encrypted database management.
5. Cost Estimation of cloud database services.
6. Cost model.
7. Cloud pricing models.
8. Usage Estimation.

SUMMARY OF MODULES

Adaptive Encryption.

- ✓ The proposed system supports adaptive encryption methods for public cloud database service, where distributed and concurrent clients can issue direct SQL operations.
- ✓ This software module is accessed by external user applications through the encrypted database interface.
- ✓ The proposed architecture manages five types of information.
    - Plain data is the tenant information;
    - Encrypted data is stored in the cloud database;
    - Plain metadata represent the additional information that is necessary to execute SQL operations on encrypted data;

Metadata Structure.

- ✓ Metadata include all information that allows a legitimate client knowing the master key to execute SQL operations over an encrypted database.
- ✓ Describes the structure of a table metadata .Table metadata includes the correspondence between the *plain table name* and the *encrypted table name* because each encrypted table name is randomly generated.

Cost Estimation of the Cloud Database Services.

- ✓ In this module the database administrator generates a *master key*, and uses it to initialize the architecture metadata.
- ✓ The master key is distributed to legitimate clients.
- ✓ For each table creation, the administrator adds a column by specifying the column name, data type and confidentiality parameters.
- ✓ If the administrator does not specify the confidentiality parameters of a column, then they are automatically chosen by the client with respect to a tenant's policy.

Showing the Received Mail Details.

- ✓ A tenant that is interested in estimating the cost of porting its database to a cloud platform.
- ✓ Creates a model that includes the overhead of encryption schemes and variability of database workload and cloud prices.
- ✓ Usage of the Web Services.

Cost Model.

- ✓ The cost of a cloud database service can be estimated as a function of three main parameters.
  1) Time.
  2) Price.
  3) Usage.

Cloud Pricing Models.

- ✓ Uses two different billing functions.
  - *1)* linear L
  - *2)* tiered T

Usage Estimation.

- ✓ Defines sp, se, sa as the storage usage in the plaintext, encrypted, and adaptively encrypted databases for one billing period.
- ✓ Defines np, ne, na to represent network usage of the three configurations.
- ✓ By denoting as vpa the average storage size of each plaintext value stored in column a, we estimate the storage of the plaintext database.

DESIGN TOOLS

6.1 UML DIAGRAMS

6.1.1 Use Case Diagrams

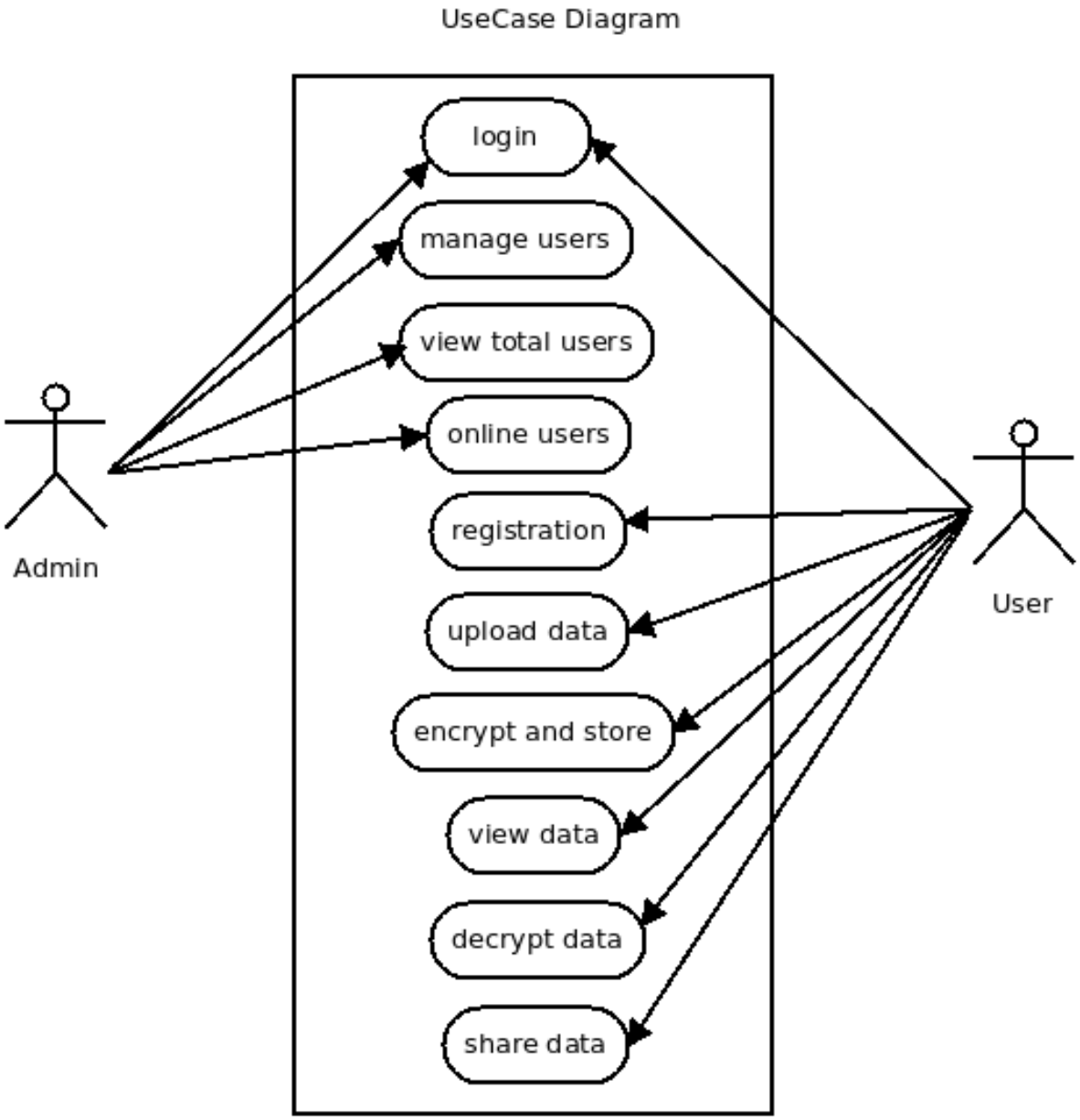

Figure 1.1 Use Case Diagram

6.1.2 Class Diagrams

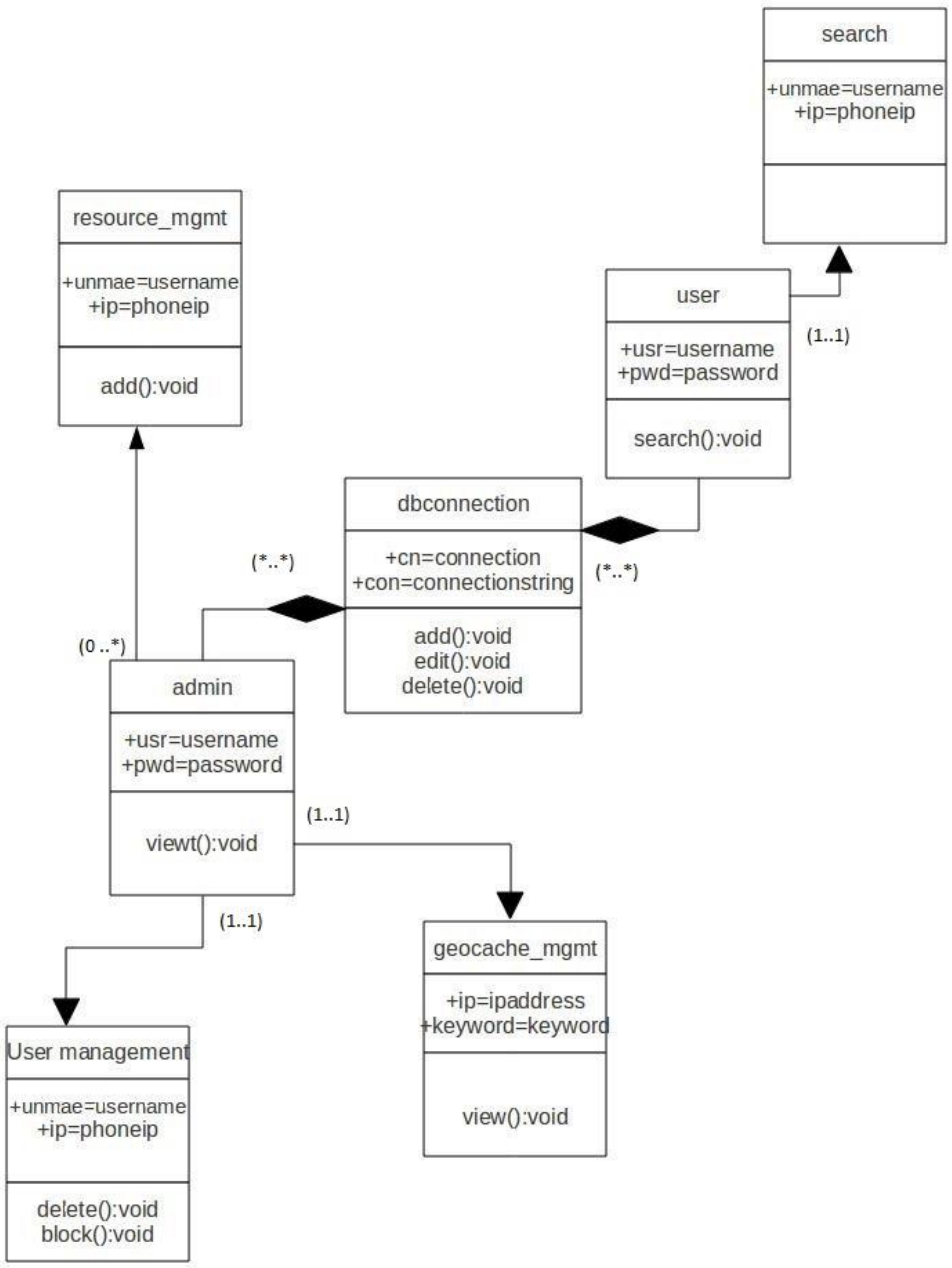

Figure 1.2 Class Diagram

6.1.3 Sequence Diagrams (Admin)

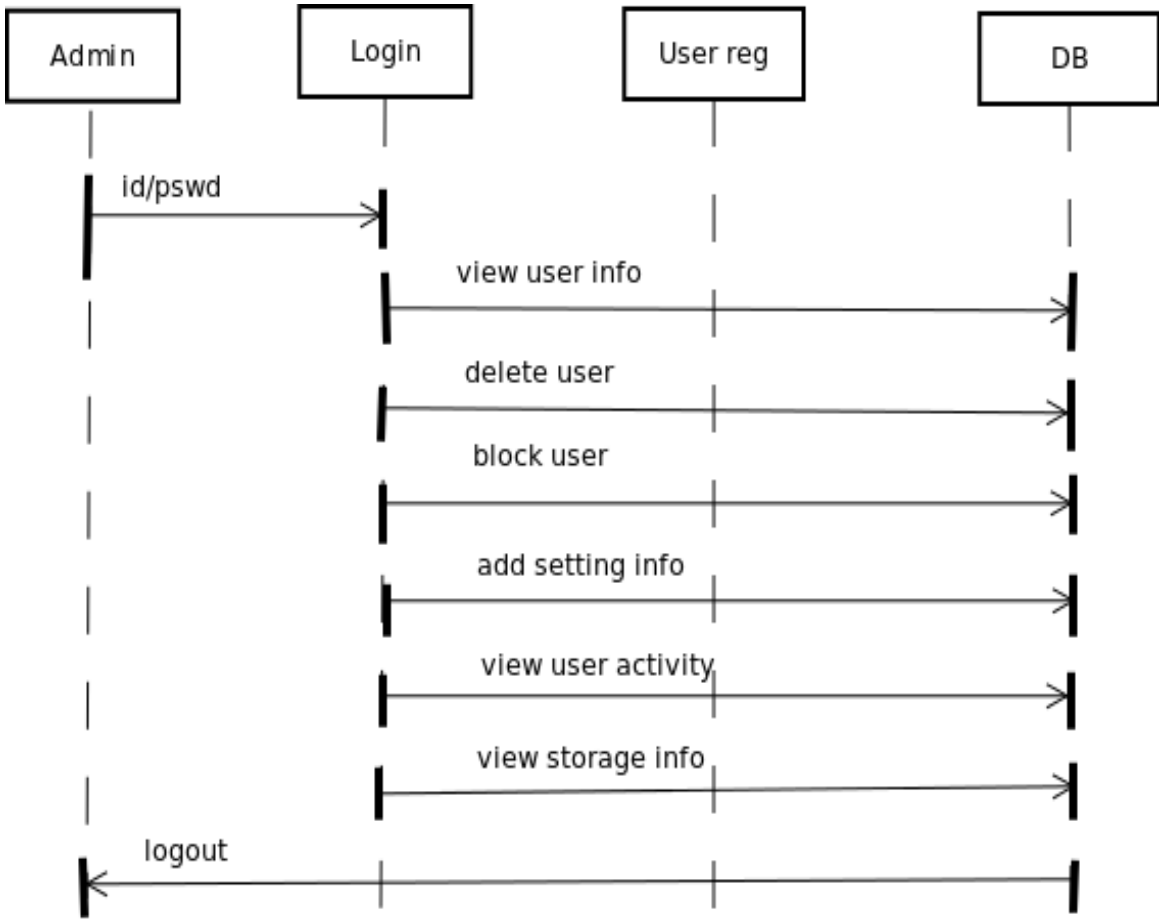

Figure 1.3 Sequence Diagram (Admin).

6.1.4 Sequence Diagrams (User)

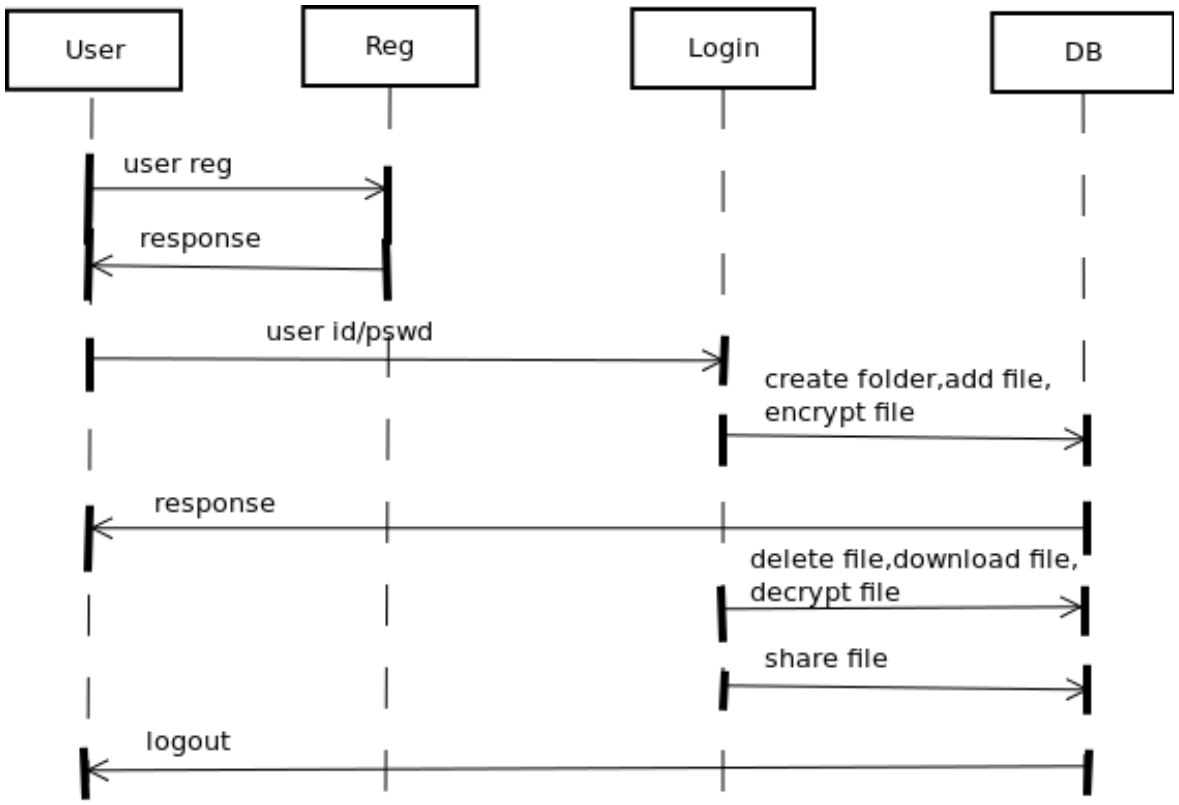

Figure 1.3 Sequence Diagram (User).

6.1.5 Activity Diagrams

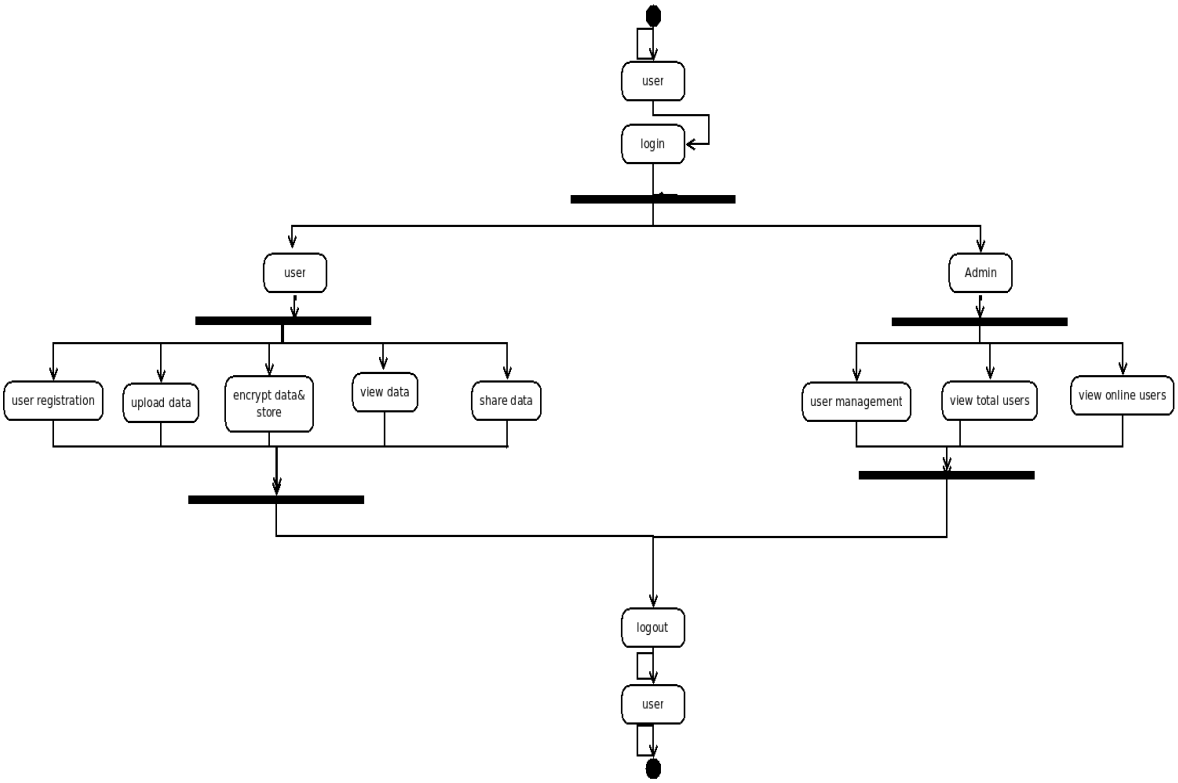

Figure 1.3 Activity Diagram.

6.2 UML SPECIFICATION

6.2.1 Use Case Diagram

There are 2 actors involved in this system. The user has different operations such as uploading a file, creating a folder, and other operations. The user is permitted to use the unlimited storage space on iCloud System.

The second actor is Admin, he can monitor the user information, and file information and other overviews related to the application.The admin is the ultimate user of the system with complete functionality. Admin also can manage the users of the system.

6.2.2 Class Diagram

There are 6 classes in the system. They are User, Admin, user Management, File management, Database Operation, and the Security providing. User class involves member creation, updation and deletion. Admin class involves manage user, overview of the system. The user management class involves the deletion, suspend, evaluate create log of the user etc. And the file management involves the uploading and downloading also the common operations on file like rename, delete, property view etc.

6.2.3 Sequence Diagram

A sequence diagram is an interaction diagram that details how operations are carried out according to time. The system contains 2 sequence diagrams which are related to Administrator of the system, and the common user. The administrator has specific task that to be controlled and maintained. The user has different file operations.

6.2.4 Activity Diagram

The activity diagram associated with member registration, login, file operations, administrator tasks, and manage user and report. Activity diagram for member registration describes various activities take place when user enters their details.

SYSTEM TESTING

7.1 INTRODUCTION TO SYSTEM TESTING

Software Testing is the process of executing a program or system with the intent of finding errors. Testing involves any activity aimed at evaluating an attribute or capability of a program or system and determining that it meets its required results. The scope of software testing includes examination of code as well as execution of that code in various environments and conditions as well as examining the quality aspects of code: does it do what it is supposed to do and do what it needs to do. Testing helps not only to uncover errors introduced during coding, but also locates errors committed during the previous phases. Thus the aim of testing is to uncover requirements, design or coding errors in the program.

7.2 UNIT TESTING

Unit testing is a method of testing that verifies the individual units of source code are working properly. Rather than initially testing the program as a whole each units in my system are tested separately. In Entry form, the inserted values are displayed in the grid at the time of page load. Here unit testing is done by checking whether the grid is appearing and the values inside grid are correct. On the create button click the section entry form is displayed and also test the values are inserted to the table properly .The checking of duplicate entry is also validated and appropriate error message will be displayed. This testing is also done in the conference, affiliation, member forms. In the login form test the users go to their appropriate home page and also in the information sending form test whether the data are delivered properly.

7.3 INTEGRATION TESTING

Integration testing is the systematic testing to uncover the errors within the interface. This testing is done with sample data and the developed system has run successfully with this sample data. While developing the system each module is developed separately and integrated it later. In my system development is based on

each menu. The each menu is tested by setting it as start page. After that, linked some of the menu and check whether the transferring of data is happened between each form and also check intended forms and results is acquired. In my system creation of section and affiliation was first tested. Then the viewing of stored information is tested. In the next phase updation of information part and also extraction of information is tested. The sending of stored information to the web portal is tested and at last test the information is properly received from web portal .Finally the whole thing is integrated and tested.

7.4 VALIDATION TESTING

Validation testing is defined with a simple definition that validation succeeds when the system function in a manner that can be reasonably accepted by the customer. The required fields validation, regular expression and compare validator are the ingredient of common rules. The mandatory fields are validated by putting required field validator control to the corresponding fields. The data inserted to the tables only when required data are filled. This validation testing is applied in all entry forms. Using custom rules date checking or validation like start date, end date, email and phone number are done. The duplicate data storing also validated using check duplicity methods in the SWP.

7.5 ALPHA TESTING

The alpha phase of the release life cycle is the first phase to begin software testing (alpha is the first letter of the Greek alphabet, used as the number 1). In this phase, developers generally test the software using white-box techniques. Additional validation is then performed using black-box or gray-box techniques, by another testing team. Moving to black-box testing inside the organization is known as alpha release.

Alpha software can be unstable and could cause crashes or data loss. In general, external availability of alpha software is uncommon in proprietary software,

while open source software often has publicly available alpha versions. The alpha phase usually ends with a feature freeze, indicating that no more features will be added to the software. At this time, the software is said to be feature complete.

7.6 BETA TESTING

Beta, named after the second letter of the Greek alphabet, is the software development phase following alpha. Software in the beta stage is also known as betaware. Beta phase generally begins when the software is feature complete but likely to contain a number of known or unknown bugs. Software in the beta phase will generally have many more bugs in it than completed software, as well as speed/performance issues and may still cause crashes or data loss. The focus of beta testing is reducing impacts to users, often incorporating usability testing. The process of delivering a beta version to the users is called beta release and this is typically the first time that the software is available outside of the organization that developed it. Beta version software is often useful for demonstrations and previews within an organization and to prospective customers. Some developers refer to this stage as a preview, prototype, technical preview / technology preview (TP), or early access. Some software is kept in perpetual beta, where new features and functionality are continually added to the software without establishing a firm "final" release.

Beta testers are people who actively report issues of beta software. They are usually customers or representatives of prospective customers of the organization that develops the software. Beta testers tend to volunteer their services free of charge but often receive versions of the product they test, discounts on the release version, or other incentives.

7.7 TEST CASES

PROJECT TITLE : Performance and Cost Analysis of Adaptive Encryption Architecture for Cloud Database.

SOFTWARE TOOL : JAVA (JSP).

Test Case No:	Test Data	DB Table Name(s) influenced	Form(s)/ Report(s) involved	Expected Result	Actual Result	Remarks
1	User Register Name : Sebin Thomas Email : mails4sebin @gmail.com Password: Sebin@123	Icloud_user	/user-home/index.jsp	Load User Home Page	User Home page loaded	Login Successfully
2	User Login : mails4sebin@gmail.com Password : Sebin@123	Icloud_user	/user-home/index.jsp	Load User Home Page	User Home page loaded	Login Successfully
3	Folder Name : MyFolder	Icloud_folder	/user-home/index.jsp	New folder creation	Folder Created	Folder created successfully
4	File Name : nature.jpg	Icloud_file	/user-home/index.jsp	Upload new file	File uploaded	File successfully uploaded
5	First name: Sebin Last name: Thomas Gender: male Country: India State :Kerala Birthday : 26-12-1988	Icloud_ user_ profile_	/user-home/ user_profile.jsp	User profile updation	Profile updated	Updation successful

	Phone no:7126712671					
6	Delete folder	Icloud_folder	/user-home/index.jsp	Deletion of created folder	Folder Deleted	Deletion successful
7	Rename Folder	Icloud_folder	/user-home/index.jsp	Rename of the created folder	Folder renamed	Rename successful
8	Delete File	Icloud_file	/user-home/index.jsp & /user-home/view.jsp	Deletion of the uploaded file	File deleted	Deletion successful
8	Move file	Icloud_file	/user-home/index.jsp	Move file to different folder	File moved	Moved successfully
9	Share file	Icloud_share	/user-home/index.jsp	Share a file	File shared	Sharing successful
10	Manage account	Icloud_user	/user-home/Manama.jsp	Manage account deatils	Acccout deatails managed	Updation successful
11	File encryption	Icloud_file	/user-home/index.jsp & /user-home/view.jsp	File Encrypted with three different algorithms and analysed	File Encryption	Encryption successful
12	Delete account	Icloud_user	/user-home/Manama.jsp	Delete user account	Account deletion	Deletion successful
13	logout	Icloud_user	/user/Index.jsp	Logout the session	Session removed and logged out	Logout successful

SYSTEM IMPLEMENTATION

8.1 INTRODUCTION TO SYSTEM IMPLEMENTATION

A crucial phase in the system life cycle is the successful implementation of the new system design. Implementation simply means converting a new system design into operation. This involves creating computer compatible files, training, and telecommunication network before the system is up and running. A crucial factor in conversion is not disrupting the functioning of organization. Actual data were input into the program and the working of the system was closely monitored. It is a process of converting a new or revised system into an operational one. It is the essential stage in achieving a successful new system because usually it involves a lot of upheaval in the user. It must therefore be carefully planned and controlled to avoid problems.

The implementation phase involves the following tasks:

1. Careful planning.
2. Investigation
3. Design of methods
4. Training of the staff in the changeover phase.
5. Evaluation of changeover.

We implemented this new system in parallel run plan without making any disruptions to the ongoing system ,but only computerizing the whole system to make the work, evaluation and retrieval of data easier, faster and reliable.

8.1 TRAININIG

System implementation is the process of making the newly designed system fully operational and consistent in performance. After the initial design, the system is made published on the internet and the end user can do demonstration. The logical miss-working the system can be identified if any. Various combinations of

test data were feed. Each process accuracy/reliability checking was made. After the approval, the system was implemented in the user department.

The preparation of implementation of documentation process is often viewed as total sum of the software documentation process. In a well-defined software development environment, however the presentation of implementation documents is essentially an interactive process that synthesis and recognizes document items that were produced during the analysis and design phase for the presentation to user.

Training guidelines

1. Consider who will be the trainer and trainee
2. Establish measurable objectives
3. Use appropriate training methods
4. Select suitable training site
5. Use understandable training materials

Training topics

1. Use of the system
2. Computer concepts
3. IS concepts
4. Organizational concepts
5. System management
6. System installation

Training methods

1. Local experts: 51%
2. Computer-aided instruction: 17%
3. On-line help: 10%
4. Course: 10%
5. Tutorial: 7%
6. External sources: 5%

8.2 CONVERTION METHODS

Once the system is ready and tested, it has to be implemented. The new system could be a replacement of an old computer system or of a set of manual procedures, or a shifting of a system form another environment. It could be a system developed to perform a function not being performed previously.

To implement a new system that requires changing from one system to another-conversion is required. Conversion is the changing of one system to another.it is the last step before the new system starts being used and provides the benefits.

Conversion involves several activities like:

1. Converting the files and databases from the old system to the new system
2. User training.
3. Converting forms.
4. Converting physical facilities
5. Converting administrative procedures.

6. Checking the result of the new system with the data, etc.

The conversions method as follows;-

1. Parallel System
2. Direct Conversion
3. Pilot System.
4. Phase-in Method

Strategy	**Pros and cons**
Direct/abrupt/ cold-turkey	✓ risky ✓ least expensive
Parallel	✓ less risky ✓ expensive ✓ confusing to users
Gradual/Phased/staged	✓ more manageable ✓ requires careful version control
Modular/Pilot/single location	✓ middle-of-road approach ✓ limits potential damage and cost

8.3 POST IMPLEMENTATION REVIEW

A Post-Implementation Review (PIR) is an assessment and review of the completed working solution. It will be performed after a period of live running, sometime after the project is completed.

There are three purposes for a Post-Implementation Review:

- To ascertain the degree of success from the project, in particular, the extent to which it met its objectives, delivered planned levels of benefit, and addressed the specific requirements as originally defined.
- To examine the efficacy of all elements of the working business solution to see if further improvements can be made to optimize the benefit delivered.
- To learn lessons from this project, lessons which can be used by the team members and by the organization to improve future project work and solutions.

In some cases, the first of these objectives can be a contractual issue. Where that is the case, it may be safer to run separate reviews - one focused on contractual compliance and the other seeking to derive further benefit from a no-blame review.

The PIR should be timed to allow the final improvements to be made in order to generate optimum benefit from the solution. There is no point in waiting too long as the results are intended to generate that final benefit for the organization and team.

SYSTEM MAINTENANCE

9.1 TYPES OF MAINTENANCE

Maintenance is making adaptation of the software for external changes (requirements changes or enhancements) and internal changes (fixing bugs). When changes are made during the maintenance phase all preceding steps of the model must be revisited. There are three types of maintenance:

1. Corrective (Fixing Bugs / Errors)
2. Adaptive
3. Perfective

Corrective maintenance is a **maintenance** task performed to identify, isolate, and rectify a fault so that the failed equipment, machine, or system can be restored to an operational condition within the tolerances or limits established for in-service operations.

Adaptive maintenance: Modification of a software product performed after delivery to keep a software product usable in a changed or changing environment.

Perfective maintenance: Modification of a software product after delivery to improve performance or maintainability.

SYSTEM EVALUATION

The objective of a software system evaluation framework is to assess the quality and sophistication of software from different points of view. The framework explicitly links process and product aspects with the ultimate utility of systems and it provides a basic set of attributes to characterize the important dimensions of software systems. We describe such a framework and its levels of categorization, and we analyze examples of project classifications. Then we draw some conclusions and present ideas for further research. This evaluation framework assesses a software system's quality by consolidating the viewpoints of producers, operators, users, managers, and stakeholders

Evaluation factors

- ✓ costs of hardware and software - will vary despite identical functionality
- ✓ speed and capacity of hardware
- ✓ quality and costs of support
- ✓ supplier's background
  - ➢ in addition to system capabilities, it is also necessary to evaluate suppliers on:
    - financial stability
    - position in the marketplace
    - reports from other users about quality of support
  - ➢ references are a useful way of obtaining this information
    - appropriate customer references should be supplied by each vendor

CONCLUSION

There are two main tenant concerns that may prevent the adoption of the cloud as the fifth utility: data confidentiality and costs. This paper addresses both issues in the case of cloud database services. These applications have not yet received adequate attention by the academic literature, but they are of utmost importance if we consider that almost all important services are based on one or multiple databases. We address the data confidentiality concerns by proposing a novel cloud database architecture that uses adaptive encryption techniques with no intermediate servers. This scheme provides tenants with the best level of confidentiality for any database workload that is likely to change in a medium-term period. We investigate the feasibility and performance of the proposed architecture through a large set of experiments based on a software prototype subject to the TPC-C standard benchmark. Our results demonstrate that the network latencies that are typical of cloud database environments hide most overheads related to static and adaptive encryption.

APPENDIX

12.1 SAMPLE CODE

Security_Enc.java

```
package iCloud_Pack;
import java.io.ByteArrayInputStream;
import java.io.ByteArrayOutputStream;
import java.io.InputStream;
import java.security.Key;
import java.security.SecureRandom;
import javax.crypto.Cipher;
import javax.crypto.CipherInputStream;
import javax.crypto.KeyGenerator;
import javax.crypto.SecretKey;
import javax.crypto.SecretKeyFactory;
import javax.crypto.spec.PBEKeySpec;
import javax.crypto.spec.PBEParameterSpec;
import javax.crypto.spec.SecretKeySpec;
public class Security_Enc {
private static final int ITERATIONS = 65536;
DBConnect dbcon = new DBConnect();
Runtime runtime = Runtime.getRuntime();
Key key;
String algorithm = null;
int keySize;
String fileName = null;
String fileType = null;
long fileSize;
int folderid;
int userid;
int method;
```

```
boolean status;
public Security_Enc(String algorithm, int keySize, boolean status) {
this.algorithm = algorithm;
this.keySize = keySize;
this.status = status;
}
public Security_Enc(String algorithm, int keySize, String fileName, String fileType,
long fileSize, int folderid, int userid, int method, boolean status) {
this.algorithm = algorithm;
this.keySize = keySize;
this.fileName = fileName;
this.fileType = fileType;
this.fileSize = fileSize;
this.folderid = folderid;
this.userid = userid;
this.status = status;
this.method = method;
}
public Security_Enc(String algorithm) {
this.algorithm = algorithm;
}
private ByteArrayOutputStream generateKey(char[] pass) {
try {
KeyGenerator keyGenerator = KeyGenerator.getInstance(algorithm);
keyGenerator.init(keySize);
key = keyGenerator.generateKey();
byte[] salt = new byte[8];
SecureRandom random = new SecureRandom();
random.nextBytes(salt);
```

```
PBEKeySpec pbeKeySpec = new PBEKeySpec(pass);
SecretKeyFactory keyFactory =
SecretKeyFactory.getInstance("PBEWithSHA1AndRC2_40");
SecretKey pbeKey = keyFactory.generateSecret(pbeKeySpec);
PBEParameterSpec pbeParamSpec = new PBEParameterSpec(salt, ITERATIONS);
Cipher cipher = Cipher.getInstance("PBEWithSHA1AndRC2_40");
cipher.init(Cipher.ENCRYPT_MODE, pbeKey, pbeParamSpec);
byte[] encryptedKeyBytes = cipher.doFinal(key.getEncoded());
ByteArrayOutputStream RCSalt = new ByteArrayOutputStream();
RCSalt.write(salt);
RCSalt.write(encryptedKeyBytes);
return RCSalt;
} catch (Exception ex) {
ex.printStackTrace();
}
return null;
}
private Key loadKey(char[] password, InputStream keyInStream) {
try {
ByteArrayOutputStream keyOutStream = new ByteArrayOutputStream();
int i = 0;
while ((i = keyInStream.read()) != -1) {
keyOutStream.write(i);
}
keyInStream.close();
byte[] saltAndKeyBytes = keyOutStream.toByteArray();
keyOutStream.close();
byte[] salt = new byte[8];
System.arraycopy(saltAndKeyBytes, 0, salt, 0, 8);
```

```
int length = saltAndKeyBytes.length - 8;
byte[] encryptedKeyBytes = new byte[length];
System.arraycopy(saltAndKeyBytes, 8, encryptedKeyBytes, 0, length);
PBEKeySpec pbeKeySpec = new PBEKeySpec(password);
SecretKeyFactory keyFactory =
SecretKeyFactory.getInstance("PBEWithSHA1AndRC2_40");
SecretKey pbeKey = keyFactory.generateSecret(pbeKeySpec);
PBEParameterSpec pbeParamSpec = new PBEParameterSpec(salt, ITERATIONS);
Cipher cipher = Cipher.getInstance("PBEWithSHA1AndRC2_40");
cipher.init(Cipher.DECRYPT_MODE, pbeKey, pbeParamSpec);
byte[] decryptedKeyBytes = cipher.doFinal(encryptedKeyBytes);
SecretKeySpec key = new SecretKeySpec(decryptedKeyBytes, algorithm);
return key;
} catch (Exception ex) {
ex.printStackTrace();
}
return null;
}
public long[] encryptFile(InputStream file, String pass) {
int get = 0;
try {
runtime.gc();
long membefore = runtime.totalMemory() - runtime.freeMemory();
long starttime = System.currentTimeMillis();
ByteArrayOutputStream encryptedFile = new ByteArrayOutputStream();
ByteArrayOutputStream bstrem = generateKey(pass.toCharArray());
byte[] temp = bstrem.toByteArray();
InputStream encKey1 = new ByteArrayInputStream(temp);
```

```
Cipher cipher = Cipher.getInstance(algorithm);
cipher.init(Cipher.ENCRYPT_MODE, key);
byte[] input = new byte[file.available()];
int bytesRead;
while ((bytesRead = file.read(input)) != -1) {
byte[] output = cipher.update(input, 0, bytesRead);
if (output != null) {
encryptedFile.write(output);
}}
byte[] output = cipher.doFinal();
if (output != null) {
encryptedFile.write(output);
}
long stoptime = System.currentTimeMillis();
long usedmem = runtime.totalMemory() - runtime.freeMemory();
byte[] enc = encryptedFile.toByteArray();
InputStream encData = new ByteArrayInputStream(enc);
if (status) {
get = dbcon.storeFile(encData, encKey1, fileName, fileType, fileSize, folderid,
userid, method);
}
encryptedFile.flush();
encryptedFile.close();
long[] result = new long[2];
if (status) {
result[0] = get;
return result;
} else {
result[0] = stoptime - starttime;
```

```
result[1] = ((usedmem - membefore) / 1024);
return result;
}} catch (Exception ex) {
ex.printStackTrace();
}return null;
}
public ByteArrayOutputStream decryptFile(InputStream file, String passPharse,
InputStream keyStream) {
try {
ByteArrayOutputStream decryptedFile = new ByteArrayOutputStream();
Key keyD = loadKey(passPharse.toCharArray(), keyStream);
Cipher cipher = Cipher.getInstance(algorithm);
cipher.init(Cipher.DECRYPT_MODE, keyD);
CipherInputStream cis = new CipherInputStream(file, cipher);
byte[] buffer = new byte[file.available()];
int theByte = cis.read(buffer);;
while (theByte != -1) {
decryptedFile.write(buffer, 0, theByte);
theByte = cis.read(buffer);
}
cis.close();
decryptedFile.close();
return decryptedFile;
} catch (Exception ex) {
ex.printStackTrace();
}
return null;
}
}
```

File_Enc_on_Data.java

```
package iCloud_Controller_Servelt;
import iCloud_Main.Main_Class;
import iCloud_Pack_modelClasses.Model_class;
import java.io.IOException;
import java.io.InputStream;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.MultipartConfig;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
import javax.servlet.http.Part;
@WebServlet(name = "File_enc_on_data", urlPatterns = {"/user/user-
home/File_enc_on_data"})
@MultipartConfig(maxFileSize = 524288000) // upload file up to 500MB
public class File_enc_on_data extends HttpServlet {
private static final long serialVersionUID = -1623656324694499109L;
String constPass = null;
String constPassTDES = null;
InputStream inputstreamTDES = null;
InputStream inputstreamAES = null;
InputStream inputstreamRC4 = null;
String fname = null;
long fsize;
String ftype = null;
```

```
int folder_id;
@Override
protected void doPost(HttpServletRequest request, HttpServletResponse response)
throws ServletException, IOException {
Main_Class m_in = new Main_Class();
HttpSession session = request.getSession(false);
int user_id = Integer.parseInt(session.getAttribute("iCloud_user_id").toString());
PrintWriter out = response.getWriter();
try {
Part file = request.getPart("upload_file");
if (file != null) {
inputstreamTDES = file.getInputStream();
inputstreamAES = file.getInputStream();
inputstreamRC4 = file.getInputStream();
constPass = getServletContext().getInitParameter("staticValueKey");
constPassTDES = getServletContext().getInitParameter("staticValue3DES");
if (request.getParameter("fder_id") != null) {
String referer = request.getHeader("Referer");
int method = Integer.parseInt(request.getParameter("iCheck"));
folder_id = Integer.parseInt(request.getParameter("fder_id"));
fname = file.getSubmittedFileName();
ftype = file.getContentType();
fsize = file.getSize();
switch (method) {
case 1:
//3DES
Model_class mc1 = new Model_class();
mc1.setFile(inputstreamTDES);
mc1.setConstPassValue(constPassTDES);
```

```
mc1.setAlgorithm("DESede");
mc1.setKeysize(168);
mc1.setId(user_id);
mc1.setFilename(fname);
mc1.setFiletype(ftype);
mc1.setFilesize(fsize);
mc1.setFolderid(folder_id);
mc1.setMethod(method);
mc1.setStatus(true);
long TDESresult[] = m_in.fileEncryption(mc1);
if (TDESresult[0] != 0) {

//response.sendRedirect(request.getContextPath() + "/user/user-home/");
response.sendRedirect(referer);
} else {
response.sendRedirect(referer+"?sucess=false");
//response.sendRedirect(request.getContextPath() + "/user/user-
home/index.jsp?sucess=false");
}
break;
case 2:
//RC4
Model_class mc2 = new Model_class();
mc2.setFile(inputstreamRC4);
mc2.setConstPassValue(constPass);
mc2.setKeysize(256);
mc2.setAlgorithm("RC4");
mc2.setId(user_id);
mc2.setFilename(fname);
```

```
mc2.setFiletype(ftype);
mc2.setFilesize(fsize);
mc2.setFolderid(folder_id);
mc2.setMethod(method);
mc2.setStatus(true);
long RCFresult[] = m_in.fileEncryption(mc2);
if (RCFresult[0] != 0) {
response.sendRedirect(referer);
//response.sendRedirect(request.getContextPath() + "/user/user-home/");
} else {
response.sendRedirect(referer+"?sucess=false");
//response.sendRedirect(request.getContextPath() + "/user/user-
home/index.jsp?sucess=false");
}
break;
case 3:
//AES
Model_class mc = new Model_class();
mc.setFile(inputstreamAES);
mc.setKeysize(256);
mc.setAlgorithm("AES");
mc.setConstPassValue(constPass);
mc.setId(user_id);
mc.setFilename(fname);
mc.setFiletype(ftype);
mc.setFilesize(fsize);
mc.setFolderid(folder_id);
mc.setMethod(method);
mc.setStatus(true);
```

```
long AESresult[] = m_in.fileEncryption(mc);
if (AESresult[0] != 0) {
response.sendRedirect(referer);
//response.sendRedirect(request.getContextPath() + "/user/user-home/");
} else {
response.sendRedirect(referer+"?sucess=false");
//response.sendRedirect(request.getContextPath() + "/user/user-
home/index.jsp?sucess=false");
}
break;
}

} else {
//3DES
Model_class mc1 = new Model_class();
mc1.setFile(inputstreamTDES);
mc1.setConstPassValue(constPassTDES);
mc1.setAlgorithm("DESede");
mc1.setKeysize(168);
mc1.setStatus(false);
long TDESresult[] = m_in.fileEncryption(mc1);
//AES
Model_class mc = new Model_class();
mc.setFile(inputstreamAES);
mc.setKeysize(256);
mc.setAlgorithm("AES");
mc.setConstPassValue(constPass);
mc.setStatus(false);
long AESresult[] = m_in.fileEncryption(mc);
```

```
//RC4
Model_class mc2 = new Model_class();
mc2.setFile(inputstreamRC4);
mc2.setConstPassValue(constPass);
mc2.setKeysize(256);
mc2.setAlgorithm("RC4");
mc2.setStatus(false);
long RC4result[] = m_in.fileEncryption(mc2);

String time_p = TDESresult[0] + "," + RC4result[0] + "," + AESresult[0];
String mem_p = TDESresult[1] + "," + RC4result[1] + "," + AESresult[1];
out.println(time_p + " " + mem_p);
}
}
} catch (Exception ex) {
ex.printStackTrace();
}
}
}
```

Index.jsp

```
<%@page import="java.text.SimpleDateFormat"%>
<%@page import="java.sql.Blob"%>
<%@page import="java.util.Date"%>
<%@page import="java.sql.ResultSet"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@page import="iCloud_Pack.DBConnect" %>
```

```
<%@page import="iCloud_Pack.Icloud_main" %>
<!DOCTYPE html>
<html lang="en">
<head>
<%
response.setHeader("Cache-Control", "no-cache"); //Forces caches to obtain a new copy of the page from the origin server
response.setHeader("Cache-Control", "no-store"); //Directs caches not to store the page under any circumstance
response.setDateHeader("Expires", 0); //Causes the proxy cache to see the page as "stale"
response.setHeader("Pragma", "no-cache"); //HTTP 1.0 backward compatibility
%>
<title>Home</title>
<!-- Bootstrap core CSS -->
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<link href="../css/bootstrap.min.css" rel="stylesheet">
<link href="../css/font-awesome.min.css" rel="stylesheet">
<link href="../css/animate.min.css" rel="stylesheet">
<!-- Custom styling plus plugins -->
<link href="../css/custom.css" rel="stylesheet">
<script src="../js/jquery.min.js" type="text/javascript"></script>
<link href="../css/green.css" rel="stylesheet" type="text/css"/>
<link href="../css/thumbnail-iCloud.css" rel="stylesheet" type="text/css"/>
</head>
<body>
<% if (request.getParameter("pfolder_id") != null &&
request.getParameter("action").equals("delete")) {%>
<script>
```

```
window.onload = function () {
$('#myModal').modal('show');
};
</script>
<%
}
if (request.getParameter("pfolder_id") != null &&
request.getParameter("action").equals("rename")) { %>
<script>
window.onload = function () {
$('#Rename').modal('show');
};
</script>
<%
}
%>
<%
int id = Integer.parseInt(session.getAttribute("iCloud_user_id").toString());
DBConnect dbc = new DBConnect();
Icloud_main im = new Icloud_main();
ResultSet rs;
String name = null;
String uname = null;
String created = null;
String gtfid = null;
rs = dbc.get_User_Info(id);
while (rs.next()) {
name = rs.getString(2);
uname = rs.getString(3);
```

```
created = rs.getString(6);
}
ResultSet rsFile = null;
ResultSet rsFolder = dbc.getData("{call icloud_proc_get_folder(?,?)}", id, 0);
rsFile = dbc.getFile(0, id);
int[] filecount = dbc.file_Count(id);
int[] othercount = dbc.other_Count(id);
%>
<!-- top navigation -->
<%@include file="../_pages/_header.jsp" %>
<!-- /top navigation -->

<!-- page content -->
<div class="right_col" role="main">
<div class="">
<div class="page-title">
<div class="title_left">
<h3></h3>
</div>

<div class="title_right">
<div class="col-md-5 col-sm-5 col-xs-12 form-group pull-right top_search">
<div class="input-group">
<input type="text" class="form-control" placeholder="Search for...">
<span class="input-group-btn">
<button class="btn btn-default" type="button">Go!</button>
</span>
</div>
</div>
```

```
</div>
</div>
<div class="clearfix"></div>
<div class="row">
<div class="col-md-12 col-sm-12 col-xs-12">
<div class="x_panel">
<div class="x_content">
<div class="col-md-3 col-sm-3 col-xs-12 profile_left">
<div class="profile_img">
<!-- end of image cropping -->
<div id="crop-avatar">
<!-- Current avatar -->
<div class="avatar-view" title="Change the Display Picture">
<img src="ImageRetrieveServlet?icloud_id=<%=id%>" alt="Avatar"
onerror="this.src='../images/picture.jpg';"/>
</div>
<!-- Cropping modal -->
<div class="modal fade" id="avatar-modal" aria-hidden="true" aria-
labelledby="avatar-modal-label" role="dialog" tabindex="-1">
<div class="modal-dialog modal-lg">
<div class="modal-content">
<div class="modal-header">
<button class="close" data-dismiss="modal" type="button">&times;</button>
<h4 class="modal-title" id="avatar-modal-label">Change Display Image</h4>
</div>
<form method="post" action="fileUpload" enctype="multipart/form-data"
class="avatar-form">
<div class="modal-body">
<div class="avatar-body">
```

```
<!-- Upload image and data -->
<div class="avatar-upload">
<input class="avatar-src" name="avatar_src" type="hidden">
<input class="avatar-data" name="avatar_data" type="hidden">
<label for="avatarInput">Local upload</label>
<input class="avatar-input" id="avatarInput" name="avatar_file" type="file"
accept="image/jpeg,image/png">
</div>
<!-- Crop and preview -->
<div class="row">
<div class="col-md-9">
<div class="avatar-wrapper"></div>
</div>
<div class="col-md-3">
<div class="avatar-preview preview-lg"></div>
<div class="avatar-preview preview-md"></div>
<div class="avatar-preview preview-sm"></div>
</div>
</div>

<div class="row avatar-btns">
<div class="col-md-9">
</div>
<div class="col-md-3">
<input class="btn btn-default" data-dismiss="modal" type="button" value="Cancel"
/>
<input class="btn btn-primary avatar-save" type="submit" name="img_save"
value="Done"/>
</div>
```

```
</div>
</div>
</div>
</form>
</div>
</div>
</div>
<!-- /.modal -->
<!-- Loading state -->
<div class="loading" aria-label="Loading" role="img" tabindex="-1"></div>
</div>
<!-- end of image cropping -->
</div>
<h4><i class="fa fa-user"></i><%=" " + name%></h4>
<ul class="list-unstyled user_data">
<li><i class="fa fa-envelope"></i> <%=uname%><a class=" btn btn-default
home_dir"><i class="fa fa-home"></i></a>
</li>
</ul>
<a class="btn btn-default user_custom" onclick="window.location =
'profile_user.jsp'"><i class="fa fa-edit m-right-xs"></i> Edit Profile</a>
<br />
<!-- /.panel-heading -->
<div class="panel-body">
<div class="list-group">
<a href="javascript:;" class="list-group-item" onclick="loadData(1)">
<i class="fa fa-file-text fa-fw"></i> Documents
<span class="pull-right text-muted small">
<%
```

```
if (filecount[0] > 0) {
out.print("<em><span class='badge bg-blue'>"+filecount[0]+"</span></em>");
}
%>
</span>
</a>
<a href="javascript:;" class="list-group-item" onclick="loadData(2)">
<i class="fa fa-book fa-fw"></i> Compressed
<span class="pull-right text-muted small">
<%
if (filecount[1] > 0) {
out.print("<em><span class='badge bg-green'>"+filecount[1]+"</span></em>");
}
%>
</span>
</a>
<a href="javascript:;" class="list-group-item" onclick="loadData(3)">
<i class="fa fa-camera fa-fw"></i> Images
<span class="pull-right text-muted small">
<%
if (filecount[2] > 0) {
out.print("<em><span class='badge bg-purple'>"+filecount[2]+"</span></em>");
}
%>
</span>
</a>
<a href="javascript:;" class="list-group-item" onclick="loadData(4)">
<i class="fa fa-video-camera fa-fw"></i> Videos
<span class="pull-right text-muted small">
```

```
<%
if (filecount[3] > 0) {
out.print("<em><span class='badge bg-aero'>"+filecount[3]+"</span></em>");
}
%>
</span>
</a>
<a href="javascript:;" class="list-group-item" onclick="loadData(5)">
<i class="fa fa-music fa-fw"></i> Music
<span class="pull-right text-muted small">
<%
if (filecount[4] > 0) {
out.print("<em><span class='badge bg-warning'>"+filecount[4]+"</span></em>");
}
%>
</span>
</a>
<a href="#" class="list-group-item">
<i class="fa fa-file fa-fw"></i> Others
<span class="pull-right text-muted small">
<%
if ((filecount[5] - (filecount[4] + filecount[3] + filecount[2] + filecount[1] +
filecount[0])) > 0) {
out.print("<em><span class='badge bg-red'>"+(filecount[5] - (filecount[4] +
filecount[3] + filecount[2] + filecount[1] + filecount[0]))+"</span></em>");
}
%>
</span>
</a>
```

```
<a href="#" class="list-group-item">
<i class="fa fa-trash fa-fw"></i> Recycle Bin
<span class="pull-right text-muted small">
<%
if (othercount[0] > 0) {
out.print("<em><span class='badge bg-orange'>"+othercount[0]+"</span></em>");
}
%>
</span>
</a>
<a href="#" class="list-group-item">
<i class="fa fa-share-alt fa-fw"></i> Shared
<span class="pull-right text-muted small"><em><span class="badge bg-blue-sky">0</span></em>
</span>
</a>
<a href="#" class="list-group-item">
<i class="fa fa-heart fa-fw"></i> Favorite
<span class="pull-right text-muted small"><em><span class="badge bg-green">23</span></em>
</span>
</a>
</div>
<!-- /.list-group -->
<a href="manage_account.jsp" class="btn btn-default btn-block"><i class="fa fa-lock m-right-xs"></i>   Manage Account</a>
</div>
<!-- /.panel-body -->
</div>
```

```
<div class="col-md-9 col-sm-9 col-xs-12">
<!-- Main Page Header Starts-->
<div class="mail-toolbar clearfix">
<div class="float-left">
<%
String url = request.getRequestURL().toString();
%>
<a href="<% out.print(url); %>" title=""><div class="btn btn_1 btn-default mrg5R"
data-toggle="tooltip" data-placement="top" title="Refresh">
<i class="fa fa-refresh"> </i>
</div></a>
<div class="clearfix"> </div>
</div>
<div class="float-right">
<!--                    <span class="text-muted m-r-sm">Showing 20 of 346
</span>-->
<div class="btn-group m-r-sm mail-hidden-options" style="display: inline-block;">
<div class="btn-group" data-toggle="tooltip" data-placement="top" title="Upload
File">
<a class="btn btn-primary" data-toggle="modal" data-target=".bs-example-modal-
sm"><i class="fa fa-cloud-upload"></i> <span class=""></span></a>
<!--Model Small for Uploading File Starts -->
<form action="File_enc_on_data?fder_id=0" method="post"
enctype="multipart/form-data">
<div class="modal fade bs-example-modal-sm" tabindex="-1" role="dialog" aria-
hidden="true" id="fileupload">
<div class="modal-dialog modal-sm">
<div class="modal-content">
<div class="modal-header">
```

```
<button type="button" class="close" data-dismiss="modal" aria-
label="Close"><span aria-hidden="true">×</span>
</button>
<h4 class="modal-title" id="myModalLabel2">Upload to iCloud Storage</h4>
</div>
<div class="modal-body">
Choose files to upload to your iCloud Storage.
<div class="fileUpload btn btn-danger">
<span>Choose File</span>
<input type="file" class="upload" id="uploadBtn" name="upload_file"
onchange="ajaxLoader()" />
<input type="hidden" id="hval" name="hval">
</div>
</div>
<div class="modal-footer">
<img id="uploading" width="200" class="left" alt=""><p class="left"
id="wait"></p>
<button type="button" class="btn btn-default" data-
dismiss="modal">Cancel</button>
<button type="submit" class="btn btn-primary">Upload File</button>
</div>
</div>
</div>
</div>
<!--Model Small for Uploading File Ends -->
<div class="modal fade bs-fileupload2-modal-sm" tabindex="-1" role="dialog" aria-
hidden="true" id="fileupload2">
<div class="modal-dialog modal-sm">
```

```
<div class="modal-content">
<div class="modal-header">
<button type="button" class="close" data-dismiss="modal" aria-label="Close"
onclick="window.location = 'index.jsp'"><span aria-hidden="true">×</span>
</button>
<h4 class="modal-title" id="myModalLabel2">Upload to iCloud Storage</h4>
</div>
<div class="modal-body">
<div>
Selected File Name : <b><h5 id="filename" ></h5></b>
<input type="hidden" id="hval" name="hval">
</div>
<div class="divider"></div>
<div class="row">
<div class="col-md-6 col-sm-6 col-xs-12">
<div class="x_panel">
<div class="x_title">
<h2>Time<small>usage</small></h2>
<ul class="nav navbar-right panel_toolbox">
<li><a class="collapse-link"><i class="fa fa-chevron-up"></i></a>
</li>
<li class="dropdown">
<a href="#" class="dropdown-toggle" data-toggle="dropdown" role="button" aria-
expanded="false"><i class="fa fa-wrench"></i></a>
<ul class="dropdown-menu" role="menu">
<li><a href="#">Settings 1</a>
</li>
<li><a href="#">Settings 2</a>
</li>
```

```
</ul>
</li>
<li><a class="close-link"><i class="fa fa-close"></i></a>
</li>
</ul>
<div class="clearfix"></div>
</div>
<div class="x_content">
<canvas id="canvas_bar" width="400" height="400"></canvas>
</div>
</div>
</div>
<div class="col-md-6 col-sm-6 col-xs-12">
<div class="x_panel">
<div class="x_title">
<h2>Memory<small>usage</small></h2>
<ul class="nav navbar-right panel_toolbox">
<li><a class="collapse-link"><i class="fa fa-chevron-up"></i></a>
</li>
<li class="dropdown">
<a href="#" class="dropdown-toggle" data-toggle="dropdown" role="button" aria-
expanded="false"><i class="fa fa-wrench"></i></a>
<ul class="dropdown-menu" role="menu">
<li><a href="#">Settings 1</a>
</li>
<li><a href="#">Settings 2</a>
</li>
</ul>
</li>
```

```
<li><a class="close-link"><i class="fa fa-close"></i></a>
</li>
</ul>
<div class="clearfix"></div>
</div>
<div class="x_content">
<canvas id="canvas000" width="400" height="400"></canvas>
</div>
</div>
</div>
</div>
<div class="clearfix"></div>
</div>
<div class="modal-footer">
<div class="left">
<div class="radio">
<label>SELECT :
<input type="radio" class="flat" checked name="iCheck" value="1"> Method I
</label>
<label>
<input type="radio" class="flat" name="iCheck" value="2"> Method II
</label>
<label>
<input type="radio" class="flat" name="iCheck" value="3"> Method III
</label>
</div>

</div>
```

```
<button type="button" class="btn btn-default" data-
dismiss="modal">Cancel</button>
<button type="submit" class="btn btn-primary">Upload File</button>
</div>
</div>
</div>
</div>
</form>
</div>
<div class="btn-group" data-toggle="tooltip" data-placement="top" title="Create
Folder">
<a class="btn btn-default" data-toggle="modal" data-target=".bs-example1-modal-
sm" ><i class="fa fa-folder"></i></a>
<div class="modal fade bs-example1-modal-sm" tabindex="-1" role="dialog" aria-
hidden="true">
<div class="modal-dialog modal-sm">
<form action="Create_Folder?pfolder_id=0" method="post">
<div class="modal-content">
<div class="modal-header">
<button type="button" class="close" data-dismiss="modal" aria-
label="Close"><span aria-hidden="true">×</span>
</button>
<h4 class="modal-title" id="myModalLabel2">Create New Folder</h4>
</div>
<div class="modal-body">
<p>What's the Name of your Folder?</p>

<span class="fa fa-folder form-control-feedback left" aria-hidden="true"></span>
```

```
<input type="text" id="folder_name" name="folder_name" class="form-control has-feedback-left" placeholder="Folder Name">
</div>
<div class="modal-footer">
<button type="button" class="btn btn-default" data-dismiss="modal">Cancel</button>
<button type="submit" class="btn btn-primary">Create</button>
</div>
</div>
</form>
</div>
</div>
</div>
</div>
<div class="btn-group">
<a href="javascript:;" class="btn btn-default" data-toggle="tooltip" data-placement="top" title="Grid View" onclick="changeView()"><i class="fa fa-th-large"></i></a>
<a href="javascript:;" class="btn btn-default" data-toggle="tooltip" data-placement="top" title="Tile View" onclick="changeViewList()"><i class="fa fa-th-list"></i></a>
</div>
</div>
</div>
<!--content Starts-->
<div class="row">
<div class="col-md-12">
<div class="x_panel">
<div class="x_content">
```

```
<!-- start project list -->
<table class="table project table-hover" id="dataTable">
<thead>
<tr>
<th style="width: 1%"></th>
<th style="width: 35%">Name</th>
<th>File Count</th>
<th>Size</th>
<th style="width: 20%">Action</th>
</tr>
</thead>
<tbody>
<%
while (rsFolder.next()) {
String[] encriptId = im.encrypt(rsFolder.getString("icloud_folder_id"));
%>
<tr id="dataFolder">
<td><a
href="view_files.jsp?f_name=<%=rsFolder.getString("icloud_folder_name")%>&f_
id=<% out.print(encriptId[0]);
session.setAttribute(encriptId[0], encriptId[1]);%>" ><i class="fa fa-folder big
custom_color_folder"></i></a></td>
<td>
<a
href="view_files.jsp?f_name=<%=rsFolder.getString("icloud_folder_name")%>&f_
id=<% out.print(encriptId[0]);
session.setAttribute(encriptId[0], encriptId[1]); %>"><%
out.print(rsFolder.getString("icloud_folder_name")); %></a>
<br />
```

```
<small>created : <%
out.print(im.formatDate(rsFolder.getDate("icloud_folder_created")));
out.print(" " + im.formatTime(rsFolder.getTime("icloud_folder_created")));
%></small>

</td>
<td>
<% out.print(dbc.getFileCount(Integer.parseInt(im.decrypt(encriptId[0],
encriptId[1])))); %>
</td>
<td>
<%
out.print(im.formatFileSize(dbc.getFolderSize(Integer.parseInt(im.decrypt(encriptId
[0], encriptId[1])))));%>
</td>
<td>
<div class="btn-group">
<button type="button" class="btn btn-default custom" onclick="window.location =
'view_files.jsp?f_name=<%=rsFolder.getString("icloud_folder_name")%>&f_id=<
% out.print(encriptId[0]);
session.setAttribute(encriptId[0], encriptId[1]);%>'">Open</button>
<button type="button" class="btn btn-primary dropdown-toggle" data-
toggle="dropdown" aria-expanded="false">
<span class="caret"></span>
<span class="sr-only">Toggle Dropdown</span>
</button>
<ul class="dropdown-menu animated fadeInDown pull-right" role="menu">
<li class="space-top"><a href="#"><i class="fa fa-cloud-download fa-
fw"></i>Download</a>
```

```
</li>
<li><a href="#"><i class="fa fa-share-alt fa-fw"></i>Share</a>
</li>
<li><a
href="<%=request.getRequestURL()%>?action=delete&pfolder_id=<%=im.singleK
eyEncrypt(rsFolder.getString("icloud_folder_id"),
getServletContext().getInitParameter("staticValueKey"))%>"><i class="fa fa-trash
fa-fw"></i>Delete</a>
</li>
<li><a
href="<%=request.getRequestURL()%>?action=rename&pfolder_id=<%=im.single
KeyEncrypt(rsFolder.getString("icloud_folder_id"),
getServletContext().getInitParameter("staticValueKey"))%>"><i class="fa fa-pencil
fa-fw"></i>Rename</a>
</li>
<li><a href="#"><i class="fa fa-repeat fa-fw"></i>Move</a>
</li>
<li class="divider"></li>
<li><a href="#">Separated link</a>
</li>
</ul>
</div>
</td>
</tr>
<%
}
String fa = null;
while (rsFile.next()) {
fa = im.setFileImage(rsFile.getString("icloud_file_type"));
```

```
%>
<tr id="dataFile">
<td><a href="#" ><i class="fa <%out.print(fa);%> big
custom_color_file"></i></a></td>
<td>
<a href="javascript:;"
onclick="openFile('<%=rsFile.getString("icloud_file_type")%>',
'<%=rsFile.getString("icloud_file_id")%>')"><%out.print(rsFile.getString("icloud_fi
le_name")); %></a>
<br />
<small>created : <%
out.print(im.formatDate(rsFile.getDate("icloud_date_upload")));
out.print(" " + im.formatTime(rsFile.getTime("icloud_date_upload"))); %></small>
</td>
<td>
---
</td>
<td>
<% out.print(im.formatFileSize(rsFile.getLong("icloud_file_size")));%>
</td>

<td>
<div class="btn-group">
<button type="button" class="btn btn-default custom">Download</button>
<button type="button" class="btn btn-primary dropdown-toggle" data-
toggle="dropdown" aria-expanded="false">
<span class="caret"></span>
<span class="sr-only">Toggle Dropdown</span>
</button>
```

```
<ul class="dropdown-menu animated fadeInDown pull-right" role="menu">
<!--                                    <li class="space-top"><a
href="File_download?pfile_id=<%=im.singleKeyEncrypt(rsFile.getString("icloud_f
ile_id"), getServletContext().getInitParameter("staticValueKey"))%>"><i class="fa
fa-cloud-download fa-fw"></i>Download</a>
</li>-->
<li class="space-top"><a
href="File_download?pfile_id=<%=im.singleKeyEncrypt(rsFile.getString("icloud_f
ile_id"), getServletContext().getInitParameter("staticValueKey"))%>"><i class="fa
fa-star fa-fw"></i>Favorite</a>
</li>
<li><a href="#"><i class="fa fa-share-alt fa-fw"></i>Share</a>
</li>
<li><a href="javascript:;"
onclick="getDetails('<%=im.singleKeyEncrypt(rsFile.getString("icloud_file_id"),
getServletContext().getInitParameter("staticValueKey"))%>', 'delete')"><i class="fa
fa-trash fa-fw"></i>Delete</a>
</li>
<li><a href="javascript:;"
onclick="getDetails('<%=im.singleKeyEncrypt(rsFile.getString("icloud_file_id"),
getServletContext().getInitParameter("staticValueKey"))%>', 'rename')"><i
class="fa fa-pencil fa-fw"></i>Rename</a>
</li>
<li><a href="#"><i class="fa fa-repeat fa-fw"></i>Move</a>
</li>
<li class="divider"></li>
<li><a href="javascript:;"
onclick="getDetails('<%=im.singleKeyEncrypt(rsFile.getString("icloud_file_id"),
```

```
getServletContext().getInitParameter("staticValueKey"))%>', 'properties')"><i
class="fa fa-cog fa-fw"></i>Properties</a>
</li>
</ul>
</div>
</td>
</tr>
<% }%>
</tbody>
</table>
<!-- end project list -->
<!--Pop up for Folder Delete Starts-->
<div class="modal fade bs-delete-modal-sm" tabindex="-1" role="dialog" aria-
hidden="true" id="myModal">
<div class="modal-dialog modal-sm">
<form
action="Delete_Folder?pfolder_id=<%=request.getParameter("pfolder_id")%>"
method="post">
<div class="modal-content delete">

<div class="modal-header">
<button type="button" class="close" data-dismiss="modal" aria-
label="Close"><span aria-hidden="true">×</span>
</button>
<h4 class="modal-title" id="myModalLabel2">Delete Folder</h4>
</div>
<div class="modal-body">
<p>Do you really wanna Delete "<span style="color: #0C7E88; font-weight: 600;"
><% try {
```

```
out.print(dbc.getFolderName(Integer.parseInt(im.singleKeydecrypt(request.getPara
meter("pfolder_id"), getServletContext().getInitParameter("staticValueKey")))));
} catch (Exception e) {
e.printStackTrace();
}%></span>"?<br> The Contents inside will also be Deleted! Continue?</p>
</div>
<div class="modal-footer">
<button type="button" class="btn btn-default" data-dismiss="modal"
onclick="window.location = 'index.jsp'">Cancel</button>
<button type="submit" class="btn btn-primary">Delete</button>
</div>
</div>
</form>
</div>
</div>
<!--Pop up for Folder Delete Ends-->
<!--pop up for Folder rename Starts-->
<div class="modal fade bs-delete-modal-sm" tabindex="-1" role="dialog" aria-
hidden="true" id="Rename">
<div class="modal-dialog modal-sm">
<form action="Action?pfolder_id=<%=request.getParameter("pfolder_id")%>"
method="post">
<div class="modal-content delete">
<div class="modal-header">
<button type="button" class="close" data-dismiss="modal" aria-label="Close"
onclick="window.location = 'index.jsp'"><span aria-hidden="true">×</span>
</button>
<h4 class="modal-title" id="myModalLabel2">Rename Folder</h4>
</div>
```

```
<div class="modal-body">
<p>Rename "<span><% try {
out.print(dbc.getFolderName(Integer.parseInt(im.singleKeydecrypt(request.getPara
meter("pfolder_id"), getServletContext().getInitParameter("staticValueKey")))));
} catch (Exception e) {
e.printStackTrace();
} %></span>" To </p>
<span class="fa fa-folder form-control-feedback left" aria-hidden="true"></span>
<input type="text" id="r_folder_name" name="r_folder_name" class="form-control
has-feedback-left" placeholder="New Folder Name">
</div>
<div class="modal-footer">
<button type="button" class="btn btn-default" onclick="window.location =
'index.jsp'">Cancel</button>
<button type="submit" class="btn btn-primary">Rename</button>
</div>

</div>
</form>
</div>
</div>
<!--pop up for Folder rename Ends-->
<!--pop up for file_properties Starts-->
<div class="modal fade bs-properties-modal-sm" tabindex="-1" role="dialog" aria-
hidden="true" id="file_properties">
<div class="modal-dialog modal-sm">
<div class="modal-content properties">
<div class="modal-header">
```

```
<button type="button" class="close" data-dismiss="modal" aria-label="Close"
onclick="window.location = 'index.jsp'"><span aria-hidden="true">×</span>
</button>
<h4 class="modal-title" id="myModalLabel2"><i class="fa fa-file fa-
fw"></i><span id="file_name_properties"></span>Properties</h4>
<input type="hidden" name="encFileId_properties" id="encFileId_properties">
</div>
<div class="modal-body">
<!--                                                    <i class="fa fa-share-alt fa-
fw"></i><p></p>-->
<div class="panel panel-default">
<!-- /.panel-heading -->
<div class="panel-body">
<!-- Nav tabs -->
<ul class="nav nav-tabs">
<li class="active"><a href="#home" data-toggle="tab">General</a>
</li>
<li><a href="#profile" data-toggle="tab">Security</a>
</li>
</ul>
<!-- Tab panes -->
<div class="tab-content">
<div class="tab-pane fade in active" id="home">
<%
try {
ResultSet userInfo =
dbc.getFileProperties(Integer.parseInt(im.singleKeydecrypt(request.getAttribute("js
dbviub893hdsnj").toString(),
getServletContext().getInitParameter("staticValueKey"))));
```

```
while (userInfo.next()) {
%>
<h5><i class="fa <%=im.setFileImage(userInfo.getString("icloud_file_type"))%>
fa-2x"></i><p><% try {
out.print("      " +
dbc.getFileName(Integer.parseInt(im.singleKeydecrypt(request.getAttribute("jsdbvi
ub893hdsnj").toString(), getServletContext().getInitParameter("staticValueKey"))))
+ " ");
} catch (Exception e) {
e.printStackTrace();
}%></p></h5>
<div class="divider"></div>
<p> Type of File        
:     <%=" " +
userInfo.getString("icloud_file_type")%></p>
<p> File
Size           
;  :     <%=" " +
im.formatFileSize(userInfo.getLong("icloud_file_size")) + "
"%>(<%=userInfo.getLong("icloud_file_size") + " "%> Bytes)</p>
<p> Date Uploaded     :    <%
out.print(im.formatDate(userInfo.getDate("icloud_date_upload")));
out.print(" " + im.formatTime(userInfo.getTime("icloud_date_upload"))); %></p>
<p>Created By :<%%></p>
<%
}
} catch (Exception ex) {
ex.printStackTrace();
}
```

```
%>
</div>
<div class="tab-pane fade" id="profile">
<h4>Profile Tab</h4>
<p>nim id est laborum.</p>
</div>
<div class="tab-pane fade" id="messages">
<h4>Messages Tab</h4>
<p> culpa qui officia deserunt mollit anim id est laborum.</p>
</div>
<div class="tab-pane fade" id="settings">
<h4>Settings Tab</h4>
<p> anim id est laborum.</p>
</div>
</div>
</div>
<!--                                                    /.panel-body -->
</div>
<!-- /.panel -->
</div>
<div class="modal-footer">
<button type="button" class="btn btn-default" onclick="window.location =
'index.jsp'">Cancel</button>
<button type="submit" class="btn btn-
primary">  OK  </button>
</div>
</div>
</div>
</div>
```

```
<!--pop up for file_properties Ends-->
<!--Pop up for File Delete Starts-->
<div class="modal fade bs-delete-modal-sm" tabindex="-1" role="dialog" aria-
hidden="true" id="fileDelete">
<div class="modal-dialog modal-sm">
<form action="Delete_File" method="post">
<div class="modal-content delete">
<div class="modal-header">
<button type="button" class="close" data-dismiss="modal" aria-
label="Close"><span aria-hidden="true">×</span>
</button>
<h4 class="modal-title" id="myModalLabel2">Delete File</h4>
</div>
<div class="modal-body">
<input type="hidden" name="encFileId_delete" id="encFileId_delete">
<p>Do you really wanna Delete "<span id="file_name_delete" style="color:
#0C7E88; font-weight: 600;" ></span>"?</p>
</div>
<div class="modal-footer">
<button type="button" class="btn btn-default" data-dismiss="modal"
onclick="window.location = 'index.jsp'">Cancel</button>
<button type="submit" class="btn btn-primary">Delete</button>
</div>
</div>
</form>
</div>
</div>
<!--Pop up for File Delete Ends-->
<!--pop up for File rename Starts-->
```

```
<div class="modal fade bs-delete-modal-sm" tabindex="-1" role="dialog" aria-hidden="true" id="filerename">
<div class="modal-dialog modal-sm">
<form action="Rename_file" method="post">
<div class="modal-content delete">
<div class="modal-header">
<button type="button" class="close" data-dismiss="modal" aria-label="Close" onclick="window.location = 'index.jsp'"><span aria-hidden="true">×</span>
</button>
<h4 class="modal-title" id="myModalLabel2">Rename File</h4>
</div>
<div class="modal-body">
<input type="hidden" name="encFileId_rename" id="encFileId_rename">
<p>Rename "<span id="file_name_rename" style="color: #0C7E88; font-weight: 600;"></span>" to :</p>
<span class="fa fa-folder form-control-feedback left" aria-hidden="true"></span>
<input type="text" id="r_file_name" name="r_file_name" class="form-control has-feedback-left" placeholder="New File Name">
</div>
<div class="modal-footer">
<button type="button" class="btn btn-default" onclick="window.location = 'index.jsp'">Cancel</button>
<button type="submit" class="btn btn-primary">Rename</button>
</div>
</div>
</form>
</div>
</div>
<!--pop up for File rename Ends-->
```

```
<!--pop up for File rename Starts-->
<div class="modal fade bs-delete-modal-sm" tabindex="-1" role="dialog" aria-
hidden="true" id="imgView">
<div class="modal-dialog modal-sm">
<div class="modal-content view_image">
<div id="imgsh" style="background-color: transparent;">
<!--<img id="imgsh" src="images/wxp (3).jpg" width="720" height="480" >-->
</div>

</div>
</div>
</div>
<!--pop up for File rename Ends-->
</div>
</div>
</div>
</div>
</div>
<!--content ends-->
</div>
</div>
</div>
</div>
<!-- footer content -->
<%@include file="../_pages/_footer.jsp" %>
<!-- /footer content -->
</div>
</div>
<div id="custom_notifications" class="custom-notifications dsp_none">
```

```
<ul class="list-unstyled notifications clearfix" data-tabbed_notifications="notif-group">
</ul>
<div class="clearfix"></div>
<div id="notif-group" class="tabbed_notifications"></div>
</div>
<div id="contextMenu" class="dropdown clearfix">
<ul class="dropdown-menu" role="menu" aria-labelledby="dropdownMenu" style="display:block;position:static;bottom:5px;">
<li><a tabindex="-1" href="#"><i class="fa fa-folder fa-fw"></i> Add Folder</a>

</li>
<li><a tabindex="-1" href="#"><i class="fa fa-file-text fa-fw"></i> Add File</a>

</li>
<li><a tabindex="-1" href="#">Something else here</a>

</li>
<li class="divider"></li>
<li><a tabindex="-1" href="#">Separated link</a>

</li>
</ul>
</div>
<script src="../js/bootstrap.min.js"></script>
<script src="../js/Chart/chart.min.js" type="text/javascript"></script>
<script src="../js/Chart/jquery.nicescroll.min.js" type="text/javascript"></script>
<script src="../js/custom.js" type="text/javascript"></script>
<script src="../js/icheck.min.js" type="text/javascript"></script>
```

```
<!-- image cropping -->
<script src="../js/cropping/cropper.min.js"></script>
<script src="../js/cropping/main.js"></script>

<script src="../js/data_thumbnail/thumbnail_icloud.js"
type="text/javascript"></script>

<!--       <script>
$(function () {

var $contextMenu = $("#contextMenu");
var $rowClicked;

$("body").on("contextmenu", "table tr", function (e) {
$rowClicked = $(this)

var pageWidth = $(window).width();
var menuWidth = $contextMenu.width();
var leftPosition = e.pageX + menuWidth > pageWidth ? e.pageX - menuWidth :
e.pageX;

$contextMenu.css({
display: "block",
left: leftPosition,
top: e.pageY
});
return false;
});
```

```
$contextMenu.on("click", "a", function () {
var message = "You clicked on the row '" +
$rowClicked.children("*")[1].innerHTML + "'\n"
message += "And selected the menu item '" + $(this).text() + "'"
alert(message);
$contextMenu.hide();
});

$(document).click(function () {
$contextMenu.hide();
});
});

</script>-->
<script>
var strarr, timep, memp;
function ajaxLoader() {
$("#uploading").attr('src', '../images/uploading.gif');
document.getElementById("wait").innerHTML = "Please wait..";
var xmlhttp;

var formData = new FormData();
formData.append("upload_file", document.getElementById("uploadBtn").files[0]);
if (window.XMLHttpRequest)
{
xmlhttp = new XMLHttpRequest();
}
else
{
```

```
xmlhttp = new ActiveXObject("Microsoft.XMLHTTP");
}
xmlhttp.onreadystatechange = function ()
{
if (xmlhttp.readyState == 4 && xmlhttp.status == 200)
{
var filename = document.getElementById("uploadBtn").files[0].name;
val = document.getElementById("hval").value = xmlhttp.responseText;
strarr = val.split(" ");
timep = strarr[0].split(",");
memp = strarr[1].split(",");
//window.location = "index.jsp?enc_performance=" + val;
$('#fileupload').modal('hide');
$('#fileupload2').modal('show');
var randomScalingFactor = function () {
return Math.round(Math.random() * 100);
};
var barChartData = {
labels: ["Method I", "Method II", "Method III"],
datasets: [
{
fillColor: "#26B99A", //rgba(220,220,220,0.5)
strokeColor: "#26B99A", //rgba(220,220,220,0.8)
highlightFill: "#36CAAB", //rgba(220,220,220,0.75)
highlightStroke: "#36CAAB", //rgba(220,220,220,1)
data: [timep[0], timep[1], timep[2]]
}
]
};
```

```
$('#fileupload2').on('shown.bs.modal', function () {
new Chart($("#canvas_bar").get(0).getContext("2d")).Bar(barChartData, {
tooltipFillColor: "rgba(51, 51, 51, 0.55)",
responsive: true,
barDatasetSpacing: 6,
barValueSpacing: 5
});
document.getElementById("filename").innerHTML = filename;
});
var lineChartData = {
labels: ["Method I", "Method II", "Method III"],
datasets: [
{
label: "My First dataset",
fillColor: "rgba(38, 185, 154, 0.31)", //rgba(220,220,220,0.2)
strokeColor: "rgba(38, 185, 154, 0.7)", //rgba(220,220,220,1)
pointColor: "rgba(38, 185, 154, 0.7)", //rgba(220,220,220,1)
pointStrokeColor: "#fff",
pointHighlightFill: "#fff",
pointHighlightStroke: "rgba(220,220,220,1)",
data: [memp[0], memp[1], memp[2]]
}
]

};
$('#fileupload2').on('shown.bs.modal', function () {
new
Chart(document.getElementById("canvas000").getContext("2d")).Line(lineChartDa
ta, {
```

```
responsive: true,
tooltipFillColor: "rgba(51, 51, 51, 0.55)"
});
});



}
}
xmlhttp.open("POST", "File_enc_on_data", true);
xmlhttp.send(formData);
}

</script>
<script>
function getDetails(fileid, action) {
var xmlhttp;
if (window.XMLHttpRequest)
{
xmlhttp = new XMLHttpRequest();
}
else
{
xmlhttp = new ActiveXObject("Microsoft.XMLHTTP");
}
xmlhttp.onreadystatechange = function ()
{
if (xmlhttp.readyState == 4 && xmlhttp.status == 200)
{
var output = xmlhttp.responseText;
```

```
if (action == 'delete') {
document.getElementById("file_name_delete").innerHTML = output;
document.getElementById("encFileId_delete").value = fileid;
$('#fileDelete').modal('show');
}
if (action == 'rename') {
document.getElementById("file_name_rename").innerHTML = output;
document.getElementById("encFileId_rename").value = fileid;
$('#filerename').modal('show');
}
if (action == 'properties') {
document.getElementById("file_name_properties").innerHTML = output;
document.getElementById("encFileId_properties").value = fileid;
$('#file_properties').modal('show');
}
}
}
xmlhttp.open("POST", "PopupInfo?fileid=" + fileid + "&action=" + action);
xmlhttp.send();
}
</script>
<script>
function openFile(fileType, fileId) {
var type = fileType.split('/');
if (type[0] == 'image') {

var xmlhttp;
if (window.XMLHttpRequest)
{
```

```
xmlhttp = new XMLHttpRequest();
}
else
{
xmlhttp = new ActiveXObject("Microsoft.XMLHTTP");
}
xmlhttp.onreadystatechange = function ()
{
if (xmlhttp.readyState == 4 && xmlhttp.status == 200)
{
document.getElementById("imgsh").innerHTML = xmlhttp.responseText;
$('#imgView').modal('show');
}
}
xmlhttp.open("POST", "gtImg.jsp?fileid=" + fileId);
xmlhttp.send();
}
}
</script>
<script>
function loadData(type){
var xmlhttp;
if (window.XMLHttpRequest)
{
xmlhttp = new XMLHttpRequest();
}
else
{
xmlhttp = new ActiveXObject("Microsoft.XMLHTTP");
```

```
}
xmlhttp.onreadystatechange = function ()
{
if (xmlhttp.readyState == 4 && xmlhttp.status == 200)
{
document.getElementById("imgsh").innerHTML = xmlhttp.responseText;
$('#imgView').modal('show');
}
}
xmlhttp.open("POST", "Sort_Files?filetype=" + type);
xmlhttp.send();
}
</script>
</body>

</html>
```

12.2 SCREEN SHOTS

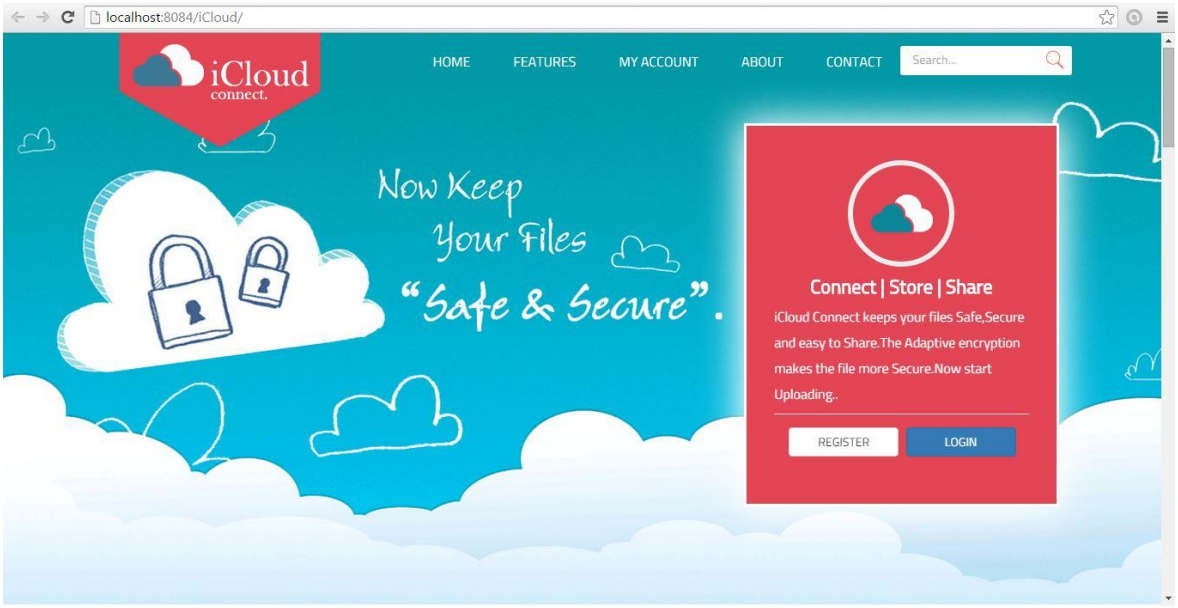

Figure 2.1 Home Page

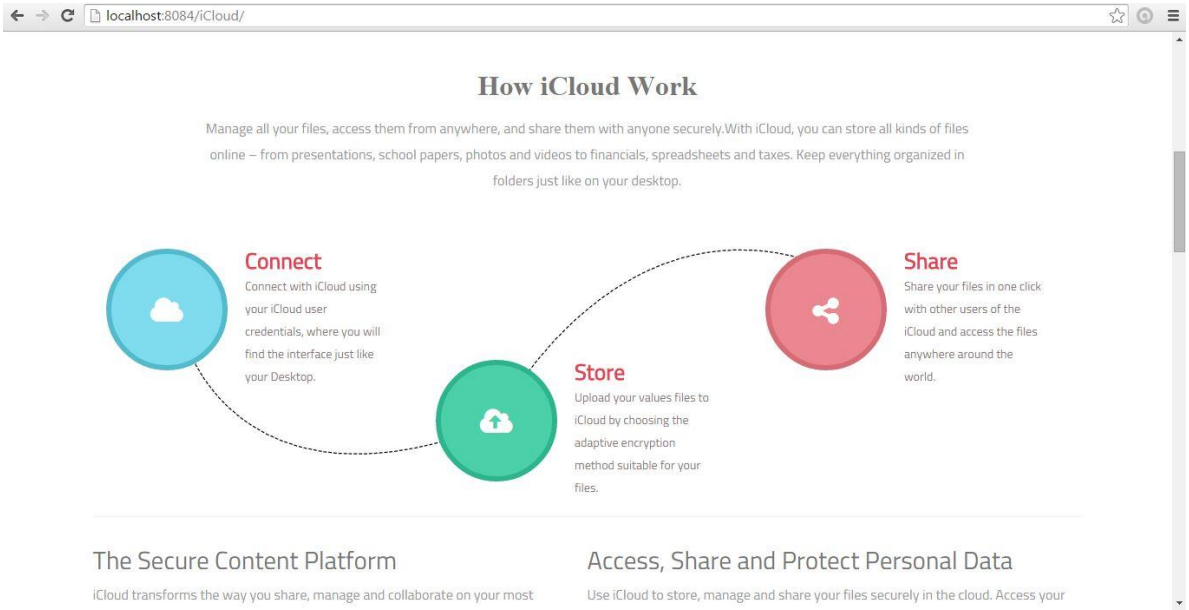

Figure 2.2 Home Page

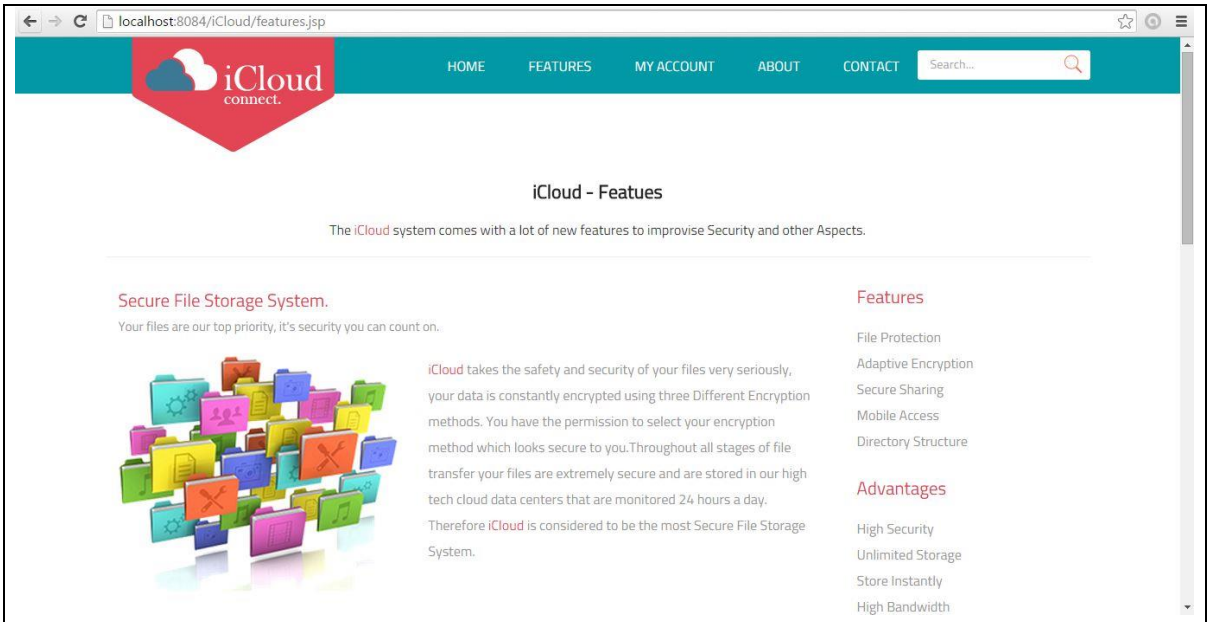

Figure 2.3 Features Page

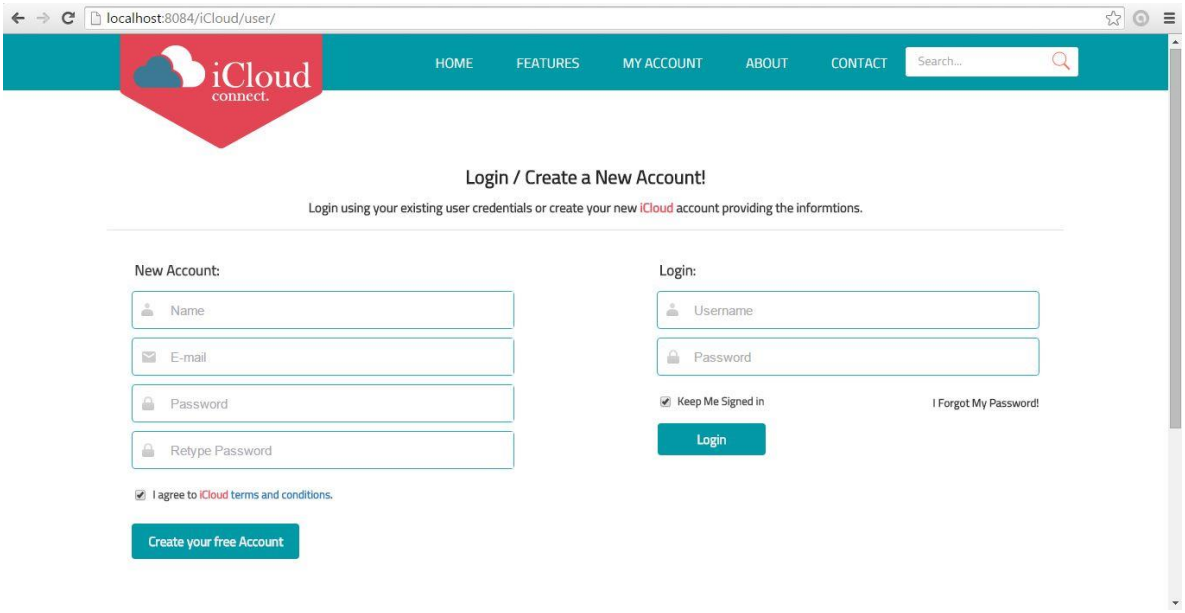

Figure 2.4 Login and Registration Page

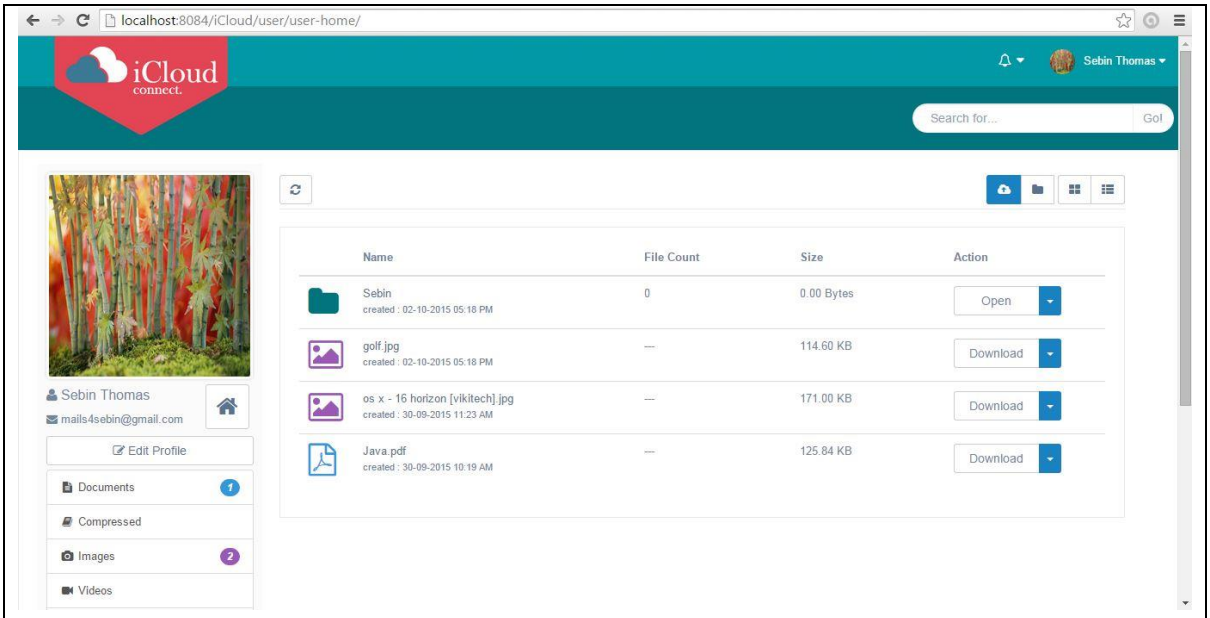

Figure 2.5 User Home Page (Tile View)

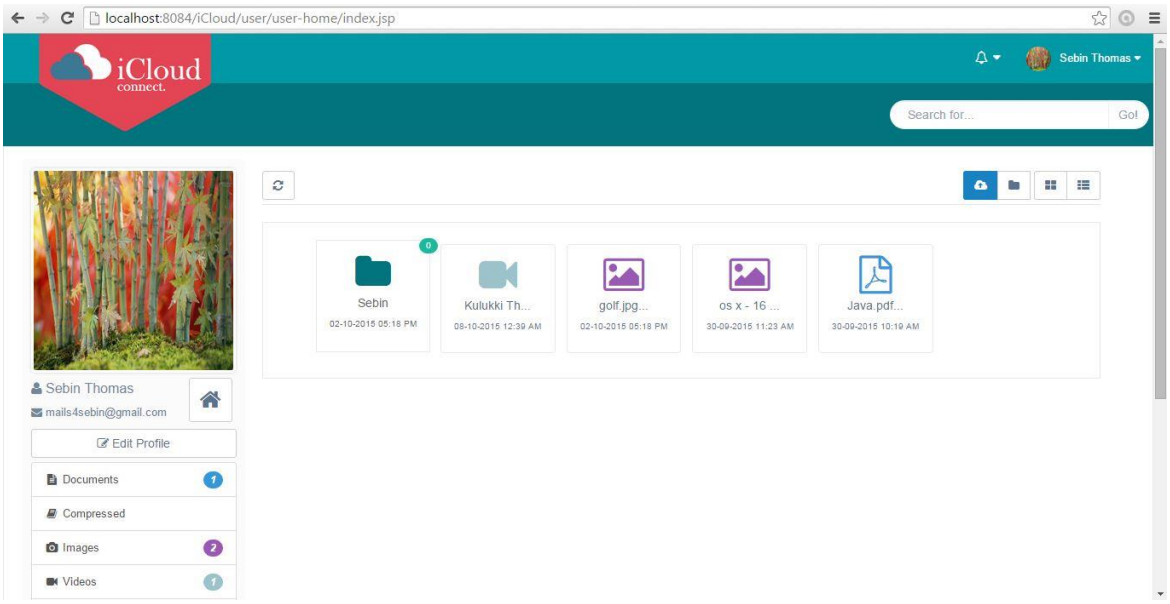

Figure 2.6 User Home Page (Grid View)

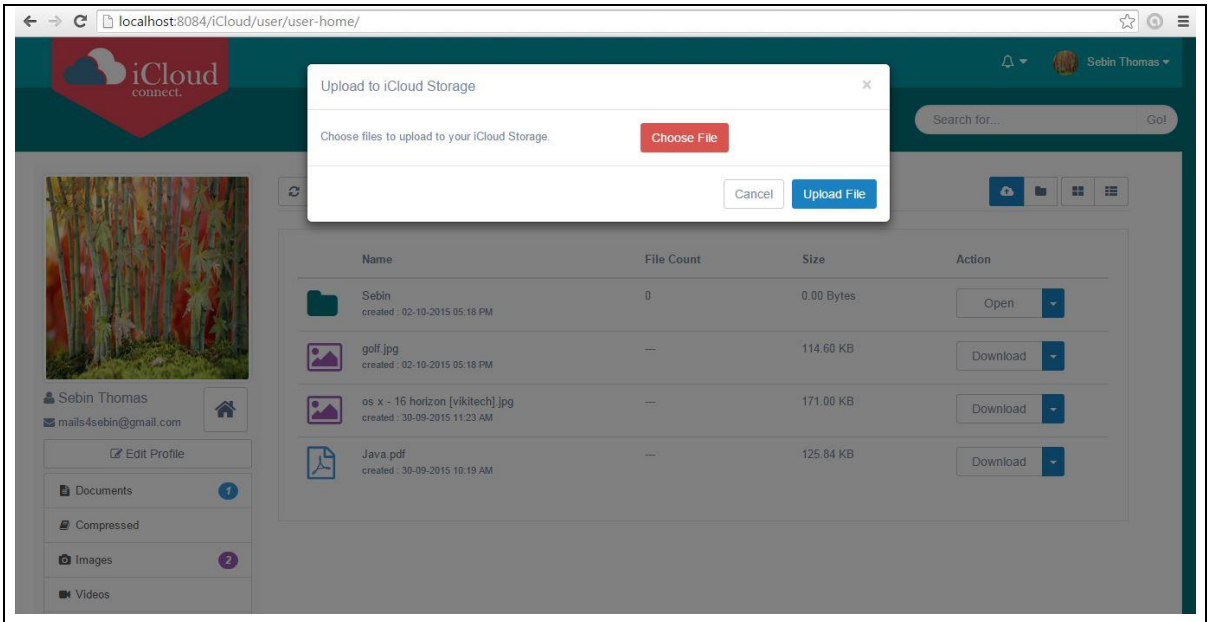

Figure 2.7 Upload File Page

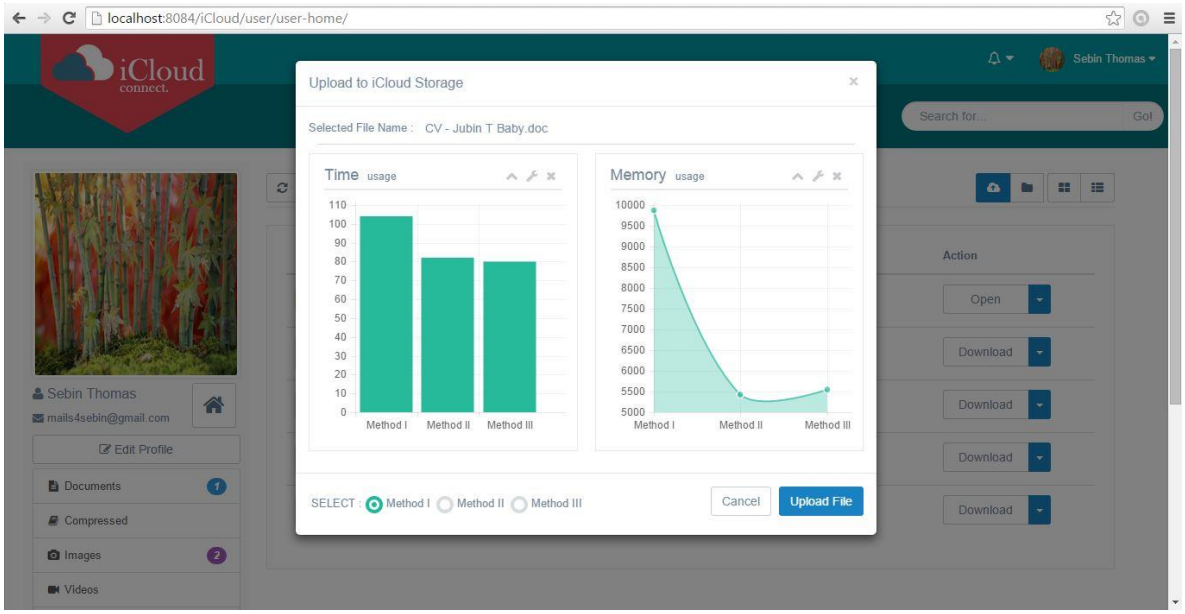

Figure 2.8 Analysis Page

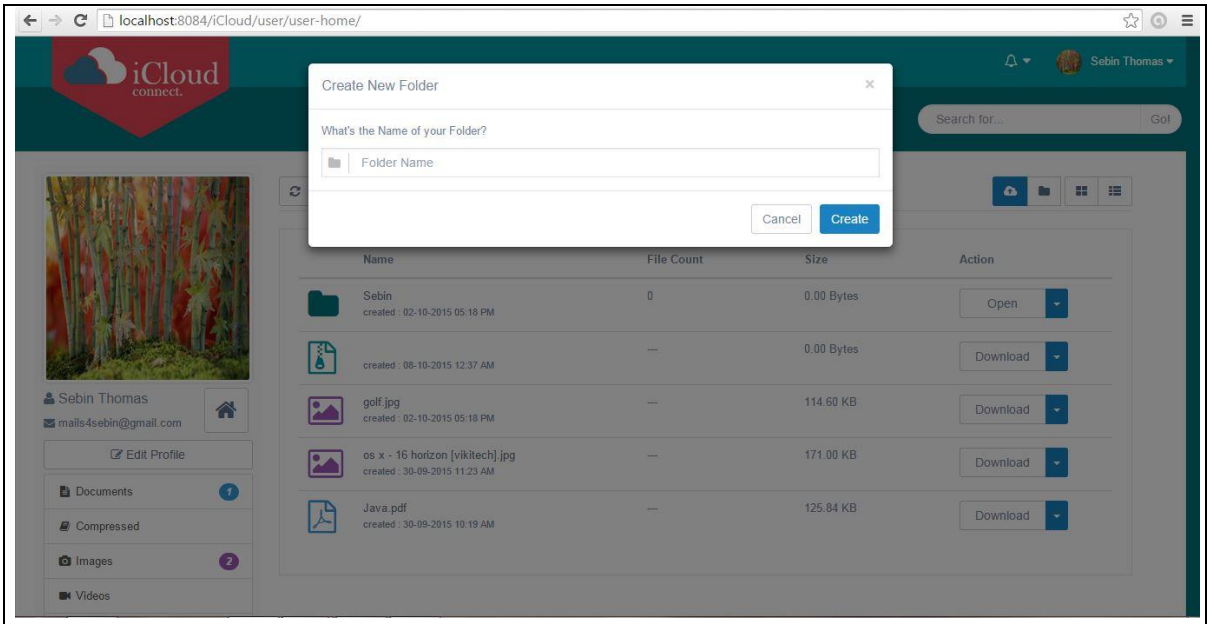

Figure 2.9 Create Folder

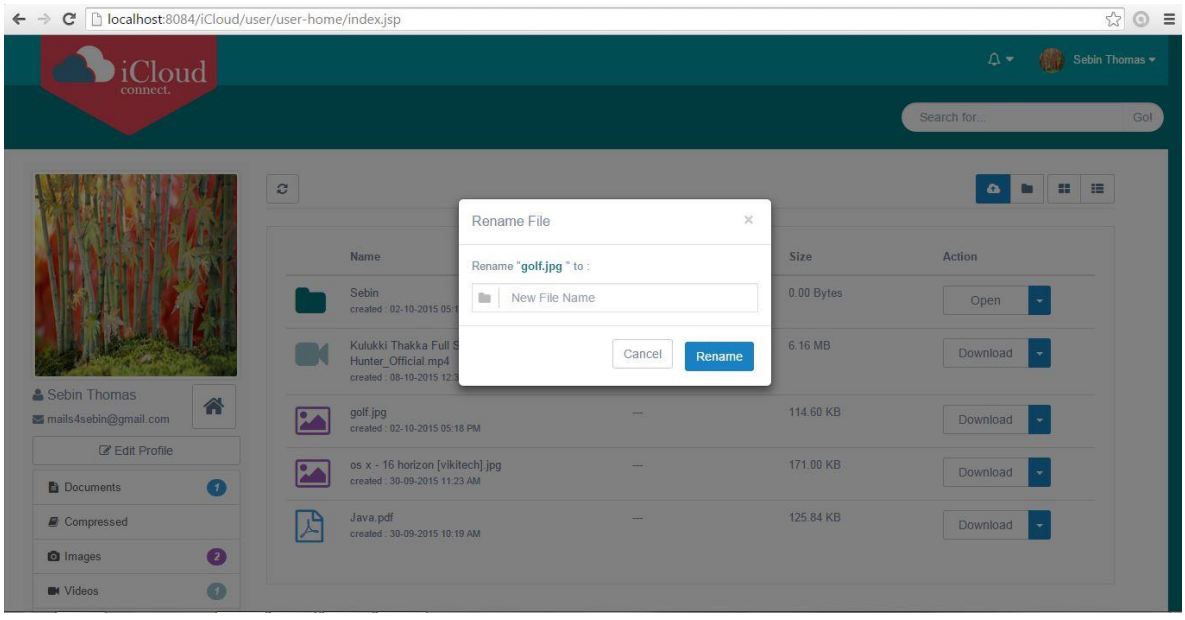

Figure 2.10 Rename File

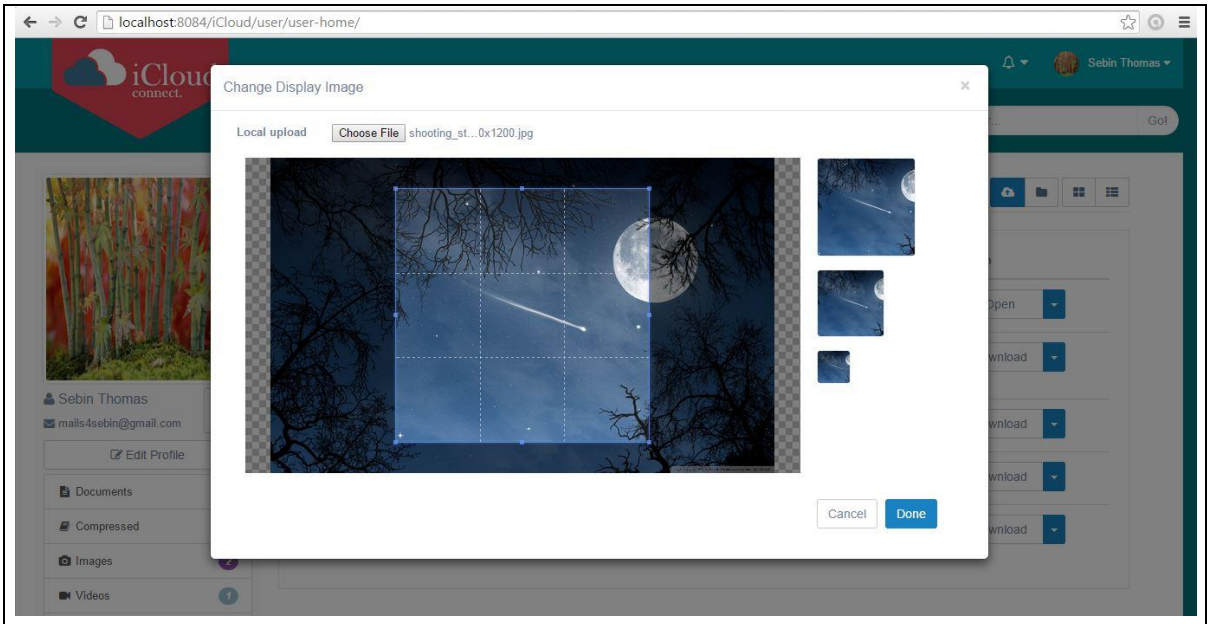

Figure 2.11 Change user Display Image.

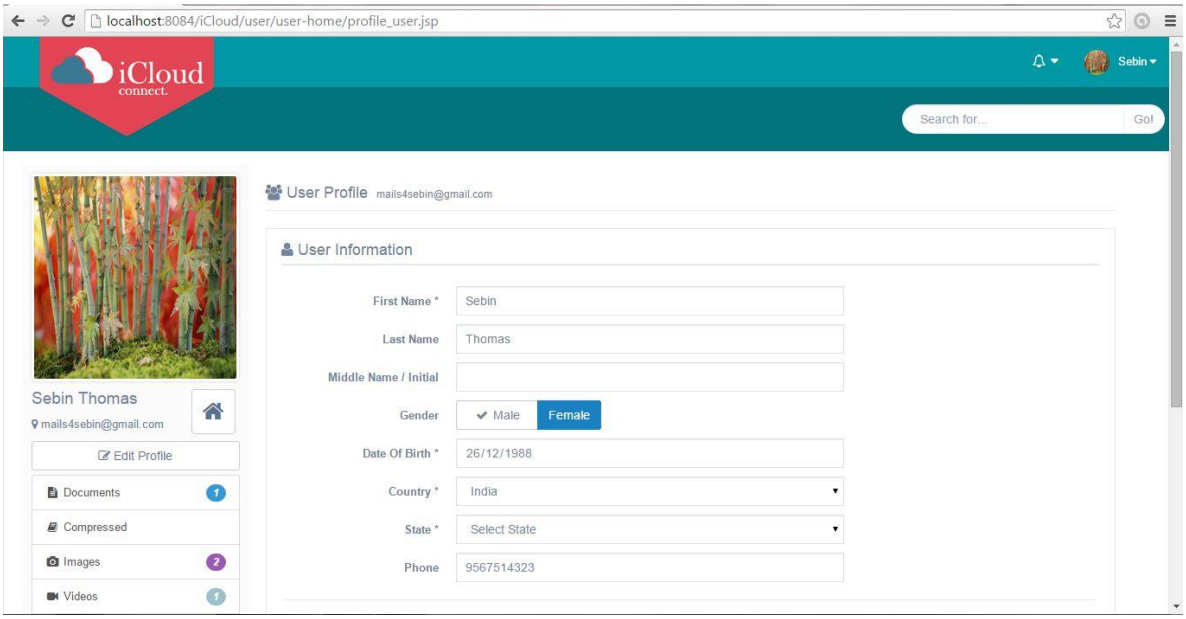

Figure 2.12 Edit Profile

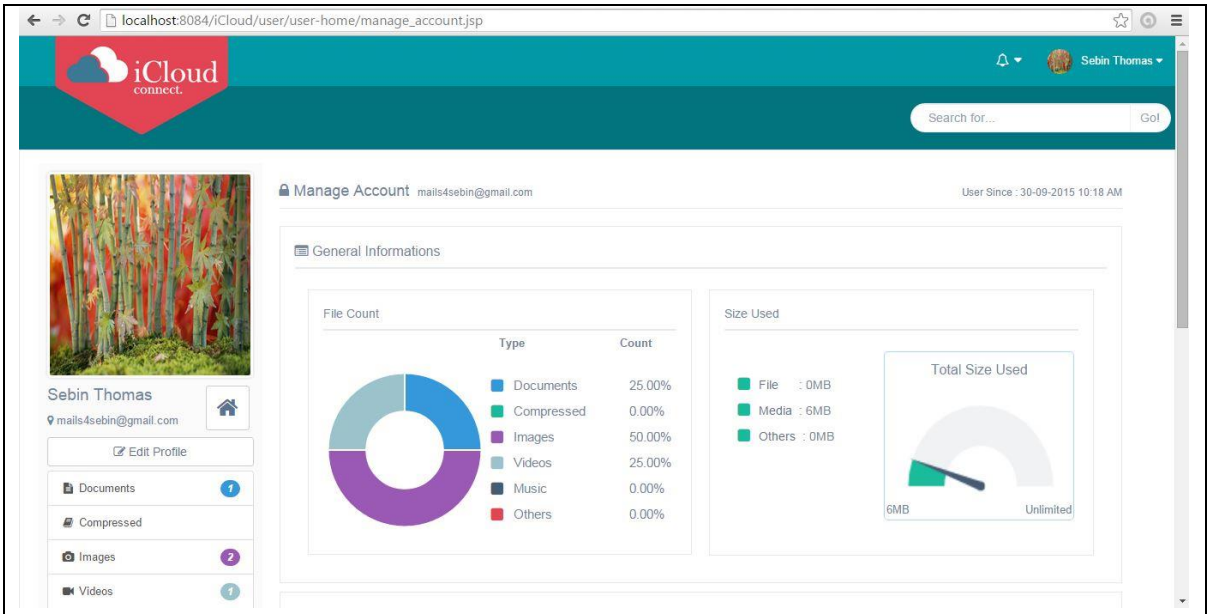

Figure 2.13 Manage Account

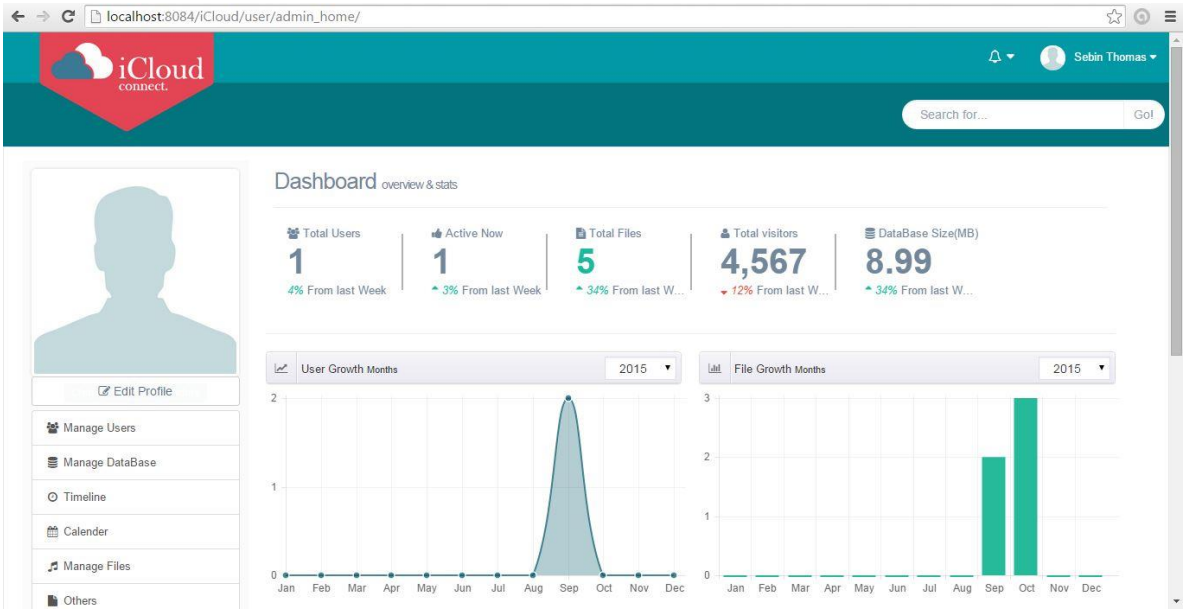

Figure 2.14 Administrator Dashboard

12.3 ACRONYMS

UI - User Interface

IIS - Internet Information system

OS - Operating System

GB - Giga Byte

MB - Mega Byte

GHz - Giga Hertz

GUI - Graphical User Interface

HTML - Hyper Text Markup Language

UML - Unified Modelling Language

SQL - Structured Query Language

CSS – Cascading Style Sheet

XML - Extensible MarkUp Language

PBE - Password Based Encryption

AES – Advanced Encryption Standards

DES – Data Encryption Standards

RC4 - Rivest Cipher 4

12.4 BIBLIOGRAPHY

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