**First Progress Report**

**Cloud Systems**

**Abstract :**

* A cloud storage system, consisting of a collection of storage servers, provides long-term storage services over the Internet. Storing data in a third party’s cloud system causes serious concern over data confidentiality.
* General encryption schemes protect data confidentiality, but also limit the functionality of the storage system because a few operations are supported over encrypted data Cloud storage is defined as "*the storage of data online in the*cloud," wherein a individual's data is stored in and accessible from multiple distributed and connected resources that comprise a cloud.
* Cloud storage can provide the benefits of greater accessibility and reliability; rapid deployment; strong protection for data backup, archival and disaster recovery purposes; and lower overall storage costs as a result of not having to purchase, manage and maintain expensive hardware.
* There are many benefits to using cloud storage, however, cloud storage does have the potential for security and compliance concerns that are not associated with traditional storage system.
* **Objective of Project**

**Main objective:**

The major objective is to develop an operational Online Cloud storage system .

**Specific Objective:**

* To Store Data Online
* User can store and download data from website.
* User can view File details and can add other files like .doc, .pdf and etc.
* User can view the overall report through generated pie charts from the given details.
* Helps user to search files.
* It is easy to use and understand.
* Encryption .
* Share a files.
* Chats with other users.
* Graph Reports.
* Pie chart generation.
* **Scope of The Project**
* Designing a cloud storage system for robustness, confidentiality and functionality. This Online Storage provides a lot of services to users which includes;
  + Daily usage of users,
  + keep records about the files,
  + graph of usage of data,
  + availability of data.
* We construct a secure cloud storage system that supports the function of secure data forwarding by using a threshold proxy re-encryption scheme.
* The encryption scheme supports decentralized erasure codes over encrypted messages and forwarding operations over encrypted and encoded messages.
* This system is highly distributed where storage servers independently encode and forward messages and key servers independently perform partial decryption.
* **Process Description :**
* This project Cloud System is a system that is build to solve the problems that users face while using the third party cloud storage devices.
* In this system each user has a separate account. To create an account the user first has to register using the email id and phone number.
* Once the user has registered the user can login using the email id and password.
* After login in the user gets to see the his/her dashboard.
* The dashboard contains the several options and the user gets to see the and use all of them.
* The user can upload the file on the cloud. While uploading the user is asked to give the name of the file by which that file should be uploaded. The user is also asked whether if he/she wants to keep the file public or private. The main feature is the encryption.
* In this proposed system we address the problem of forwarding data to another user by storage servers directly under the command of the data owner.
* We consider the system model that consists of distributed storage servers and key servers.
* Since storing cryptographic keys in a single device is risky, a user distributes his cryptographic key to key servers that shall perform cryptographic functions on behalf of the user.
* These key servers are highly protected by security mechanisms.
* The distributed systems require independent servers to perform all operations.
* We propose a new threshold proxy re-encryption scheme and integrate it with a secure decentralized code to form a secure distributed storage system.
* The encryption scheme supports encoding operations over encrypted messages and forwarding operations over encrypted and encoded messages.
* The users can even share the files with other users which allow the other users to easily view the files.
* The users can also chat or send messages to other users.
* On the dashboard the user is displayed with any of the pending message from other users, the files which he/she has kept on the cloud.
* The system also shows the disk space via a pia chart. This chart shows how much each type of file has occupied the disk space and the total free space available for each user.
* **Resources:**
* **Hardware Requirements :**

1. Processor             - Pentium –III
2. Speed                    -    2.0 Ghz
3. RAM                    -    512 MB(min)
4. Hard Disk            -    20 GB
5. Key Board            -    Standard Windows Keyboard
6. Mouse                  -    Two or Three Button Mouse
7. Monitor                -    SVGA

* **Software Requirements:-**

1. Operating System          : Windows XP/7/8/8.1/10
2. Application  Server       : GlassFish Server 4.X
3. Front End                      : Java, JSP
4. Script                            : JavaScript.
5. Server side Script          : Java Server Pages.
6. Database                        : Microsoft SQL Server 2012
7. IDE USED : NETBEANS 8.2

* **Limitations :**
* The user can perform more computation and communication traffic between the user and storage servers is high.
* The user has to manage his cryptographic keys otherwise the security has to be broken.
* The data storing and retrieving, it is hard for storage servers to directly support other functions.
* **Duration :**

The project Cloud System took 37 days to complete right from deciding the topic project, identifying the problems, solving the problem logically, analyzing the techniques or business architecture for the problem and developing a viable solution for that.

* **References:**
* Java : <https://docs.oracle.com/en/java/>
* Java Tutorials : <https://docs.oracle.com/javase/tutorial/java/TOC.html>
* SQL server : [https://docs.microsoft.com/en-us/previous-versions/sql/sql-server-2008-r2/ms130214(v=sql.105)](https://docs.microsoft.com/en-us/previous-versions/sql/sql-server-2008-r2/ms130214(v=sql.105)%20)
* JSP : <https://www.javatpoint.com/jsp-tutorial>
* Servlet : <https://www.javatpoint.com/servlet-tutorial>
* Bootstrap : <https://getbootstrap.com/docs/3.3/>

**Literature Survey :**

* A cloud storage system, consisting of a collection of storage servers, provides long-term storage services over the Internet.
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* There are many benefits to using cloud storage, however, cloud storage does have the potential for security and compliance concerns that are not associated with traditional storage system.
* These system also shows the total storage and available space to add or upload files.
* Sharing of files among users are also possible.
* It is a medium through which task such as sharing, uploading can take place easily.

**Domain Knowledge** :

* Cloud computing is an information technology (IT) paradigm that enables ubiquitous access to shared pools of configurable system resources and higher-level services that can be rapidly provisioned with minimal management effort, often over the Internet.
* Cloud computing relies on sharing of resources to achieve coherence and economies of scale, similar to a public utility.
* Benefits of Cloud Computing :
  1. **Cost :** Cloud computing eliminates the capital expense of buying hardware and software and setting up and running on-site datacentersóthe racks of servers, the round-the-clock electricity for power and cooling, the IT experts for managing the infrastructure. It adds up fast.
  2. **Speed :** Most cloud computing services are provided self service and on demand, so even vast amounts of computing resources can be provisioned in minutes, typically with just a few mouse clicks, giving businesses a lot of flexibility and taking the pressure off capacity planning.
  3. **Global scale :** The benefits of cloud computing services include the ability to scale elastically. In cloud speak, that means delivering the right amount of IT resourcesófor example, more or less computing power, storage, bandwidthóright when its needed and from the right geographic location.
  4. **Productivity :** On-site datacenters typically require a lot of ìracking and stackingîóhardware set up, software patching and other time-consuming IT management chores. Cloud computing removes the need for many of these tasks, so IT teams can spend time on achieving more important business goals.
  5. **Performance :** The biggest cloud computing services run on a worldwide network of secure datacenters, which are regularly upgraded to the latest generation of fast and efficient computing hardware. This offers several benefits over a single corporate datacenter, including reduced network latency for applications and greater economies of scale.
  6. **Reliability :** Cloud computing makes data backup, disaster recovery and business continuity easier and less expensive, because data can be mirrored at multiple redundant sites on the cloud providerís network.