DOCUMENT MANAGEMENT SYSTEM

Mid Term Exam

ASSIGNMENT 01

Group Members

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ABSTRACT

In the past, document management systems were used to replace manual paperwork, but now has become a necessity of every organization. Research and experiments have been carried out to test the performance and effectiveness of both methods and to decide which has preference over the other. Though going through paperwork to find a certain document is a cumbersome task and requires a lot of work and energy which is difficult for large industries and companies to maintain their documents. Companies store and mange their data on computers and server which are accessible to users any place at any time as long as they are permissible to view the documents. The need was raised when companies expanded their businesses and their documents were not accessible in that area. Dropbox is a common example of a DMS which allows its user to access, share files, make backup files and maintains the integrity of companies and small businesses. The system proposed in this document would help an organization maintain documents, reducing the workload of unnecessary tasks and reduce the wastage of disk space of the machine.

1. INTRODUCTION

Document management system (DMS) is an online platform designed to help aid small businesses and organizations in creating, storing and managing data flow by providing a centralized repository. The amount of people dealt by an organization or business on a daily basis makes it necessary to have a well-organized DMS. The system maintains groups to share data and gives the permission rights to the admin. Users may easily upload, share, download documents and maintain folders. This document further elaborates the software architecture document for DMS, the views and components and the stakeholders driven by it.

a) Purpose

The document is an extensive overview of the architectural system of DMS using different views and principles to elaborate the different aspects of the system. Furthermore it has different views of the system. It also includes the stakeholder and their concerns related to the requirements of the system. It further explains how data is retrieved or redirected from various groups, the rights an admin or a group member has.

b) Scope

By following the IEEE standards 1471, the scope of this document is to cover the different architectural aspects related to the system, identifying the stakeholders and their concerns, their views of the system. DMS uses the cloud based systems to retrieve, store and make backup of data files. Since the targeted audience for DMS is massive which covers all the organizations, companies and the day to day individual users hence our data is also present in large amounts.

Layer system is used for its architecture purposes as it provides ease of access to handle multiple processing, store backup and provides privacy and protection for which we need many servers. Our Stakeholders include the group members, admins and other admins.

c) Definitions, Acronyms, and Abbreviations

DMS – Document management system

GUI – Graphical User Interface
HTTP – Hyper Text Transfer protocol
TCP/IP – Transmission Control Protocol/Internet Protocol
SMB – Server Message Block
PHP – Hypertext Preprocessor

d) Overview

The report will present a detailed analysis of the architecture of DMS including various views of the system, the stakeholders defined. Files are requested from other group admins. DMS uses the cloud based systems to retrieve, store data files. Our Stakeholders include the group members, admins and other admins. We use layer system for its architecture.

e) References

1) IEEE Recommended Practice for Architectural Description for Software-Intensive Systems," in IEEE Std 1471-2000 , vol., no., pp.1-30, 9 Oct. 2000, doi: 10.1109/IEEESTD.2000.91944.

2) Helf, Christoph, and Edward Mutafungwa. *System Architecture and Design Specification*. 2015, www.thepreciousproject.eu/wp-content/uploads/2013/12/D4.1-System-architecture-and-design-specification_Final.pdf.

f) Stakeholders and their concerns

Attribute	content
Stakeholder	Group admin
Goal	To manage user and to handle group members activities.
Task	Task such as add them , rights to give them privilege and sharing of file and take control on all activities
Concern	How I will share files with them? How I add privileges? How I communicate with them? How I manage all files, folders and sub file and folders? How I download files? How I will make document on it?

attribute	content
Stakeholder	Group members
Goal	To share file and folders with group admin and group members
Task	Task to make file share file, music, videos. To communicate with group admin.
Concern	How I will share files, document? How I will share music and videos? How I will make document on it? How I download files?

Attribute	Content
Stakeholder	Owner of the file management (drop box)
Goal	To look out software (web software) or to check to find out errors for quality improvement.
Task	To test system all over functionalities and check or test each and every module is working and functioning properly.
Concern	How I send and share file and documents? How many files is sync? How I can check and see others activities? How can I group members and group admin activities? How I give privileges to others? How I can control others activities?

Attribute	Content
Stakeholders	Project manager
Goal	To efficiently manage all stuff regarding the project.
Task	To schedule meeting Plan and check budget Make teams to work on different modules. Assign Task to different people in different teams with proper deadlines. Is there any need to held meeting to take requirements again if any requirement is not fully explained? If requirement has changed so again review it (And do proper paper work) then approve it by customer
Concern	How to back up files How to give different rights to different people according to their use either they are admin of group, member of the group. How to share file and download and create them. How a person can sync file and documents. How can I know about different components, hardware

	and Software of the proposed system How a person can use it easily (to what extent it is user friendly)?

Attribute	Content
Stakeholder	Tester
Goal	To check bugs in the system. To check its efficiency, accuracy and performance.
Task	To test each and every test case and find out there working progress
Concern	By inserting valid values and testing it through stub or other function or by using driver. To check whether on clicking the file if it is opening or not, on share button output will successfully share file, on downloading if it is downloadable, on clicking if it opens. Is it starred or not etc.

Attribute	Content
Stakeholder	Designer
Goal	To convey all stakeholders what architecture is used and how to implement and how to do work according to the flow of requirement with the use proper architecture
Task	Make a proper detailed report or document on it with diagrams ,sequence and steps wise show architectural flow in accordance with the
Concern	How a group admin and group members interact with each other. How system response on a user action and how a user response on system actions. How a system answer when user want to access any file. Suppose if user want any backup file on user action system request backup cloud server for file to access then by following certain protocol and policy it does give system to access the file in response file shown to user on his request.

Attribute	content
Stakeholders	Deployment manager
Goal	To check and maintain system before and after deploying and also check the whole process of deploying any software.
Task	To provide user trouble shoot service and also provide different versions for update and also give provide different platform like web, android and desktop.
Concern	It comprises of different tier like application server, cloud server, database server, metadata server, block server, preview server etc. They are linked together using different ports and each server has different bandwidth and range. The communication occurs between servers through TCP/IP and HTTP use for internet service for transferring of data from one server to another. • Which tools are needed to be installed on different servers? • Which components of the application will be installed of different servers? How and where to install database server How man servers are there

Attribute	content
Stakeholder	Architect
Goal	To check that functional and non-functional requirement meets if a person opening file how much its taking
Task	To suggest such types of architecture which can satisfy stakeholders requirement in this layered type architecture use because there is a lot of server used.
Concern	

1) Overview Requirement:

It contains functional requirement that will help stakeholders to rectify their problem of losing files and their important data related to their different career fields. All Stakeholders will help each other to rectify this problem by getting into the right solution through many iterative discussions on requirements and also requirements analysis document.

a) Requirements:

In this we are trying to solve common problem of people which is related to every person life of managing documents and handling files which consists of large amount of data, we are providing a service or web based service which will help people to solve their problem through cloud based file management through which not even, can able to handle their file and documents but also they will help you to save it on the cloud based database system in which they can even able to make backup of their file.

In this people can update, share , download ,backup ,edit, create files on deleting it will not deleted permanently their backup present on the cloud and in the trash also. People not just edit ,create, download, share each other files and document, many people can share data big organizations group business companies all , universities can even use this types of technology.

Not just, create, edit, download and share simple files and documents it will help you to share music, videos and other types of files. It will help you to provide service for storing and sharing bits file and executable files. Not just keep track of these file it will also save, restore and backup those files which are uploaded through cameras. It has not just have one types of interface but also other types of interfaces Group admin and member can share, download, edit, create files and share it with anyone. Admin interface have privileges to give share, download, create, edit, view privileges to the members of the group.

b) Concerns related to stakeholders:

Requirements	Group admin	Group members	Other group leader/ Member	Owner	Developer/ designer
System should facilitate the group admin, group members to have a web interface for their work like sharing ,download, edit, create, starred, sync, view.	Admin have privileges to have a control on all privileges like share, download, edit, create, view etc. and also have a right to add a person	Members enjoy or uses these privileges which was given by Group admin.	other group member/leader can send file request to group leader for accessing certain file with name.	System would establish different interfaces, like privileges interface, adding, create, view. Share, download and Create interface. From both admin & member side.	
System should provide a web to mobile upload , download, edit, create, sharing, download And backing up files interface for Group members And group admin	Admin have privileges to have a control on all privileges like share, download, edit, create, view etc. and also have a right to add a person	Members enjoy or uses these privileges which was given by Group admin.	other group member/leader can send file request to group leader for accessing certain file with name.		
The interface of the system should be easy and friendly enough so as to be used by a general user.					The system would be user friendly means it has a front end design or interface is very easy to use such as create, view, update, delete, share,

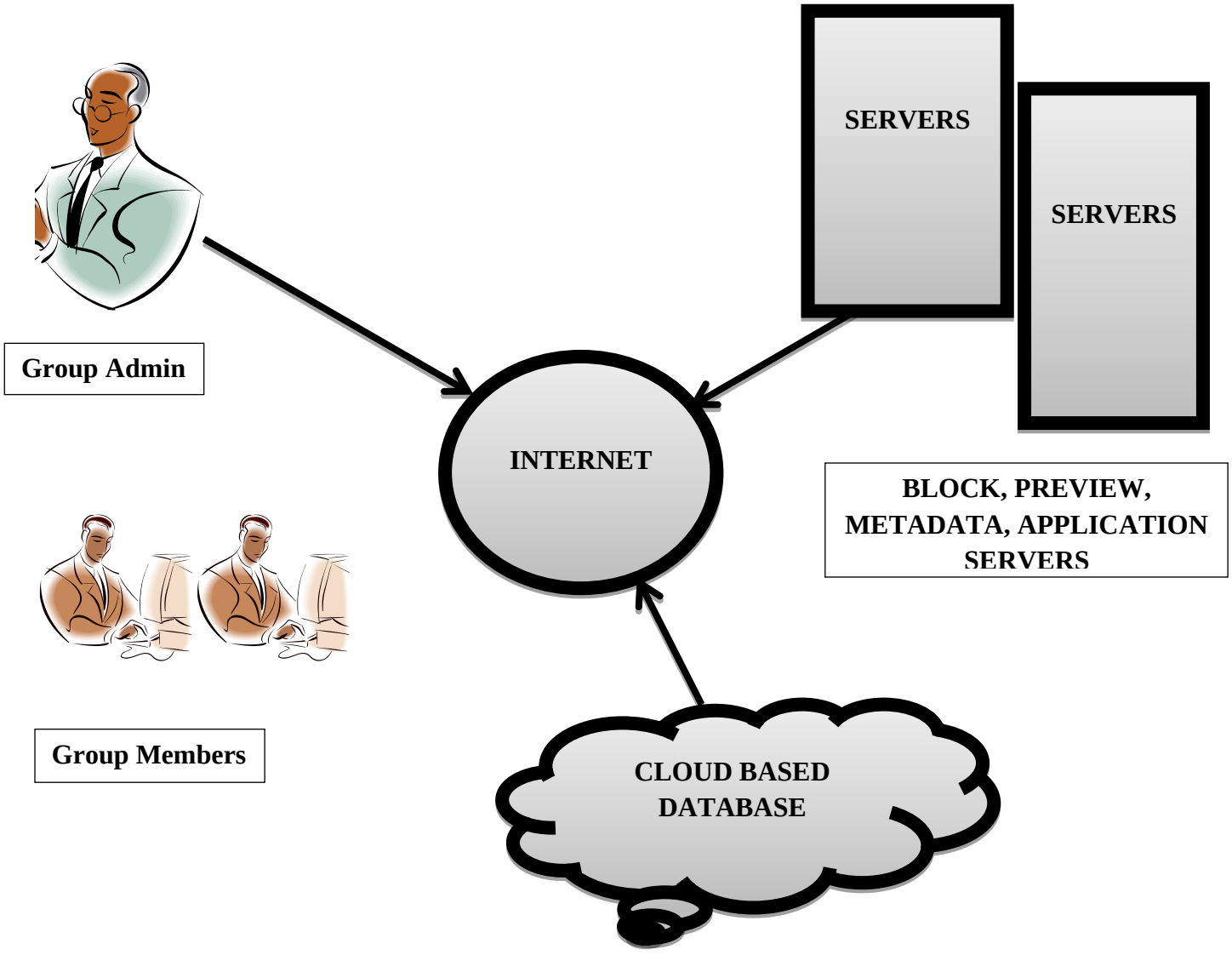
					download etc.

Requirements	**Group admin**	**Group members**	**Other group leader**	**Owner**	**Developer/designer**
System should be able to cop up with the intrusion attacks to secure the security of user And group member.					System should follow TCP/IP and HTTP rule for securing data and through alerts and detection it notifies us whenever such types of attacks occur & secure our data.
There should be a provision in the system that the record of updating, downloading, edit and view, sharing should be maintained and nobody can change it.	Personal data & files nobody can see edit, Delete and share without privileges.	Personal data & files can be seen by group admin And have all rights to do anything with it.	Nobody can intrude in others group if they want to access any file or folder they have to make file request from other group members.		

The system should be robust and provide a interrupt and error free sharing and managing of files, document and data with backup.					The communication establish between servers through connectors and services for the saving of files on cloud system.
System should be able to maintain history of the files for the purpose of future.					the files, documents, audio, video would whenever is added to system , update and download a history is maintained to which we can see its updating version date by using file history maintaining functioning

2) GENERAL ARCHITECTURE PRINCIPLES

In this we are using layered architecture because our whole data would be cloud based and can accessible with or without internet. So we are using the layered architecture or structure because it is done through the means the whole process depends upon different servers each server need another server for that process to retrieve files and then goes through full security whenever a data is retrieving or adding into it. And preview server which shows you a preview of file.



a) Selection of Programming Language and Rationale

Selection of programming languages is quite difficult for the given system but as you know that our system is cloud based system with web based and also mobile based because of that we have to use PHP for web based system because it is an open source language and free to use and also available in updated version time to time. As compare to java and .NET is easy to use for fetching data from database and for front end we can use JavaScript libraries, jQuery and Ajax for dynamic changes on runtime activity and Html for the building block of page and CSS for styling.

For mobile based we will use the same PHP because we are trying to make the hybrid app so through which we can easily convert web based code into the hybrid code. Using such platform which convert web based code into the android app. For front end we will simply use XML coding and for backend coding will use java and PHP is an open source so we will get full advantage of it.

b) Selection of Databases and Rationale

For file management system we will use the RDBMS in MySQL. In MySQL maintenance of Database is easy and no data loss. MySQL is very popular now day due to its features and can use it differently even in cloud based systems its really easy to use. It's simply a multi-user database system through which we can easy retrieve data from Database (DBMS).MySQL is also does have a backup of the whole data in the database management system (DBMS).

We can even use MS Access database but it's have less features to operate in such a big amount of data because our target audience is huge, it uses everywhere in the world

Excel data will also not help full in that case mostly can use in HR management system but now days HR management also upgraded.

c) Consideration of Servers:

In cloud based system we use layered architecture; here in cloud system we use many types of servers to provide you this type of service to store data with a sure guarantee for not losing it with backup system.

i. Cloud server (database server)
ii. Block server
iii. Preview server
iv. Application server
v. Metadata server

d) Description of architecture

In this cloud based database server have all the data where application server help to show or stream files on the client side where as the block server uses encryption for files and data security whereas metadata server uses as all files index where all file s kept in the cloud based database. Preview server will help to store and show preview of files.

Whenever user needs a file it help to metadata server help to retrieve files from cloud server whereas block server keep secure your files and preview give preview to the application server to show on the client side with protocols like HTTP, TCP/IP ,SMB (Server message block) protocol.

3) View Points and Views

a) Viewpoints

attribute	content
View title	Module view
Stakeholder	Project manager /designer
Concern	PM should know about it because it continuously check all the process which is running in the company and second from the requirement document. Communication done through via exchange of name objects with events and object manager.
Types of information	Representing the different modules diagram of the system such as admin , members, owner module etc.
presentation	Tree structure presents the diagram, show how one module connect to another one like admin connect to members.
Analysis techniques	Different scenario on drawings showing how Admin module communicates with or interacts with other module like members and other group members and owner.
Stakeholders oriented terms	Module like admin, members, owner sub module in admin like privileges, sharing, viewing and creating files. Add member etc.

attribute	content
View title	GUI view
Stakeholder	Admin, members, other group members/admin
Concern	Concern would be how I will share, download, view, create etc. (using of buttons , screen, download, share , view) types of things
Types of information	present front end features and design
presentation	Drawing in MS Visio , draw.io
Analysis techniques	
Stakeholders oriented terms	Share, delete, view, create, download, delete, history of files etc.
Stakeholders oriented graphics	Different buttons, screens, upload, download features or icon etc.

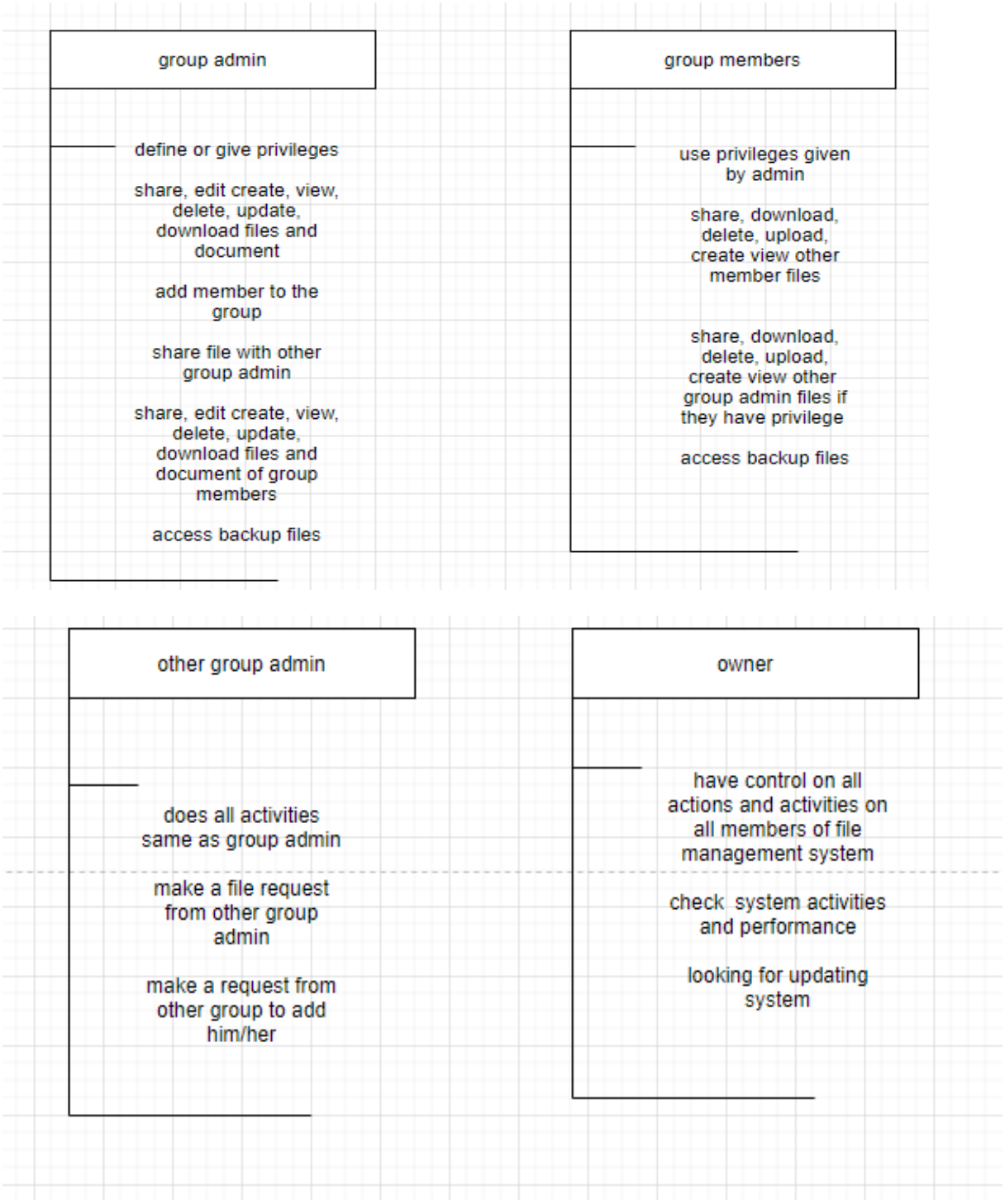
attribute	content
View title	Protocol view
Stakeholder	Deployment Engineer , Project Manager , Maintenance Engineer
Concern	In this layered architecture use so client and server exchange the messages and responses a client server protocol serves in the application layer.
Types of information	A Modeling diagram shows different protocol of that system.
presentation	UML Diagram show communication between servers and clients.
Analysis techniques	Studies for different communication protocols and block ,preview ,metadata serv.er
Stakeholders oriented terms	Communication Server, Protocols and Services.

attribute	content
View title	Input/output view
Stakeholder	Designer, Tester
Concern	In this different module have different types of input sharing of files and things , download ,create , view mostly same as group members but group admin have sub module which is of privileges have different input like enable disable button of sharing files etc.
Types of information	Show input/output of different modules.
presentation	Input/output diagram of different interfaces.
Analysis techniques	Execute situations and scenarios of the system and check them by inputting different things on different scenarios like share button (click) what will be the output shown.
Stakeholders oriented terms	Screens, Input, Output, Decisions, Server, process. Clients, Communication services, valid values and valid conditions.

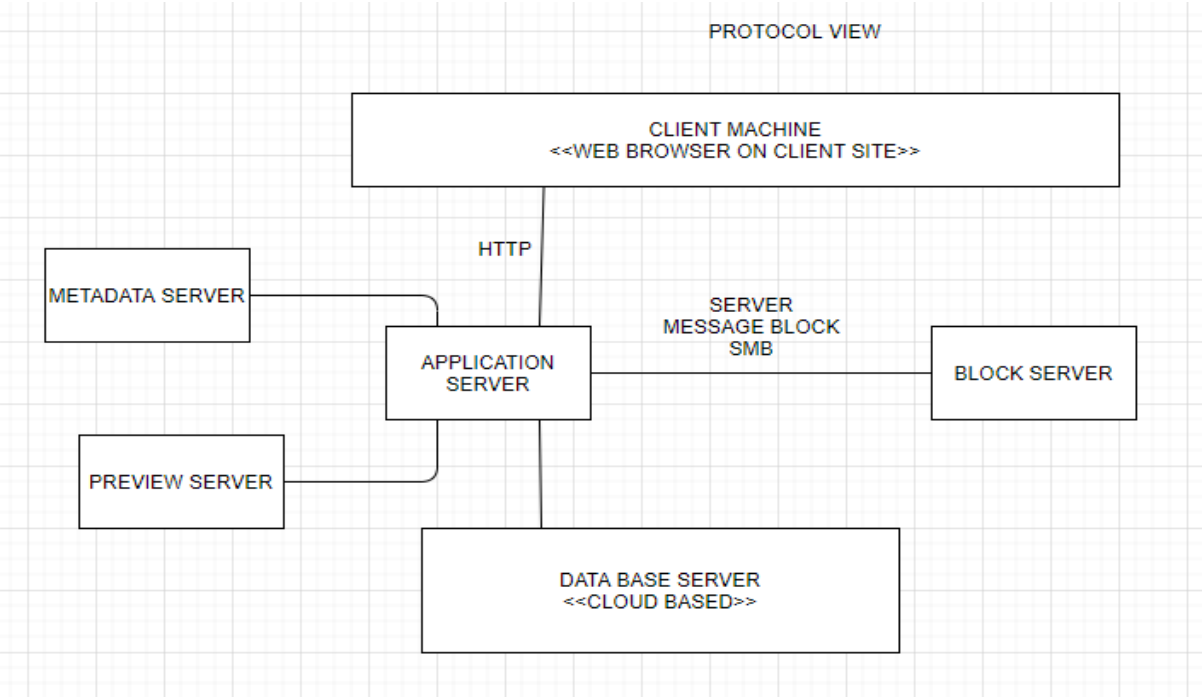
b) Views:

The following are the views for our system.

i) Module view:



ii) Protocol view:



iii) GUI view:

a. GUI for Login

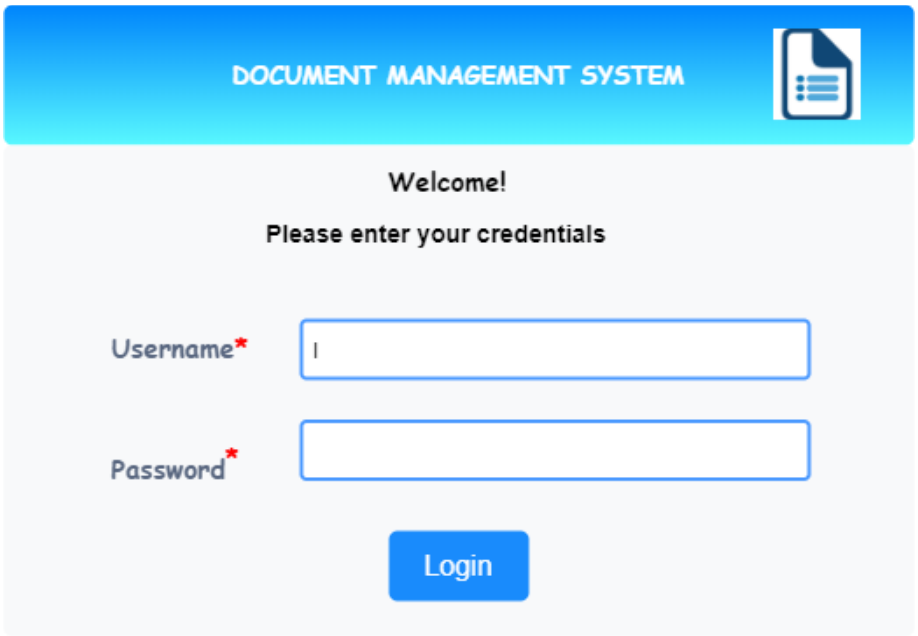


Figure 01: Login

b. GUI for uploading document

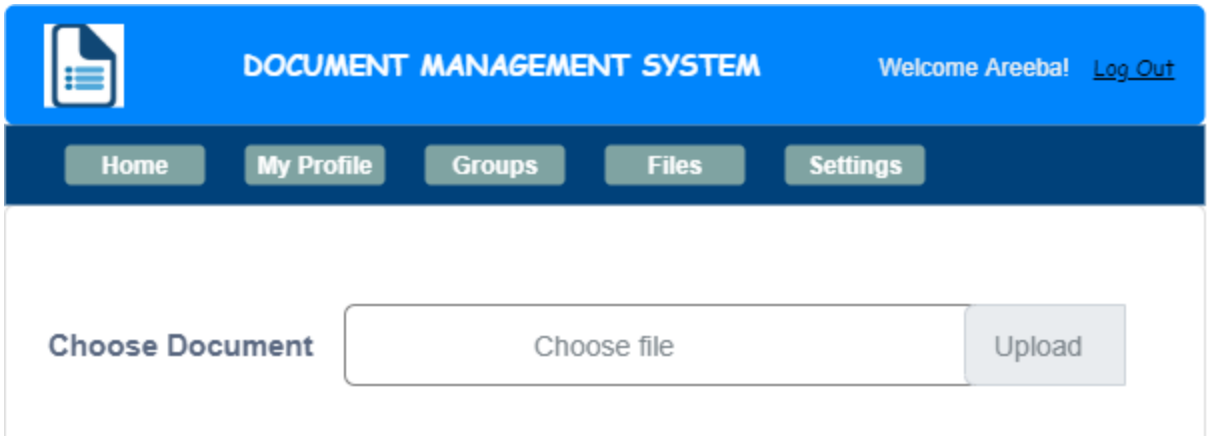


Figure 2: Upload Document by a user

c. GUI for Admin

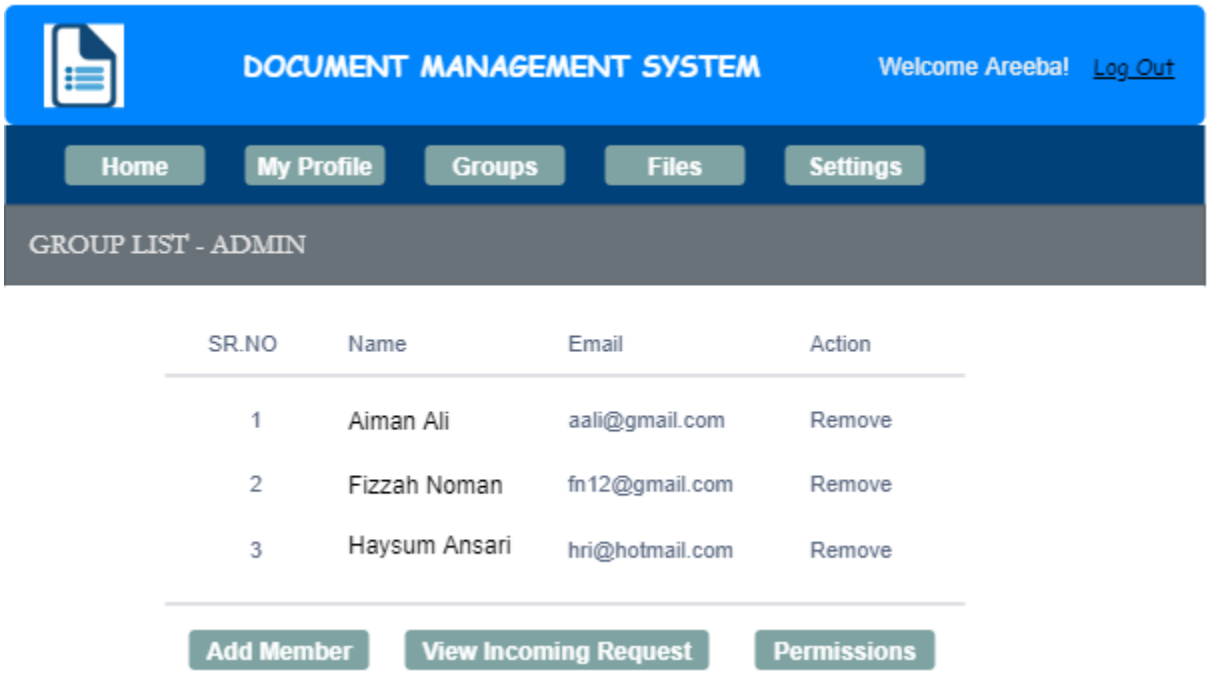


Figure 3: Add/Remove Group Members by admin

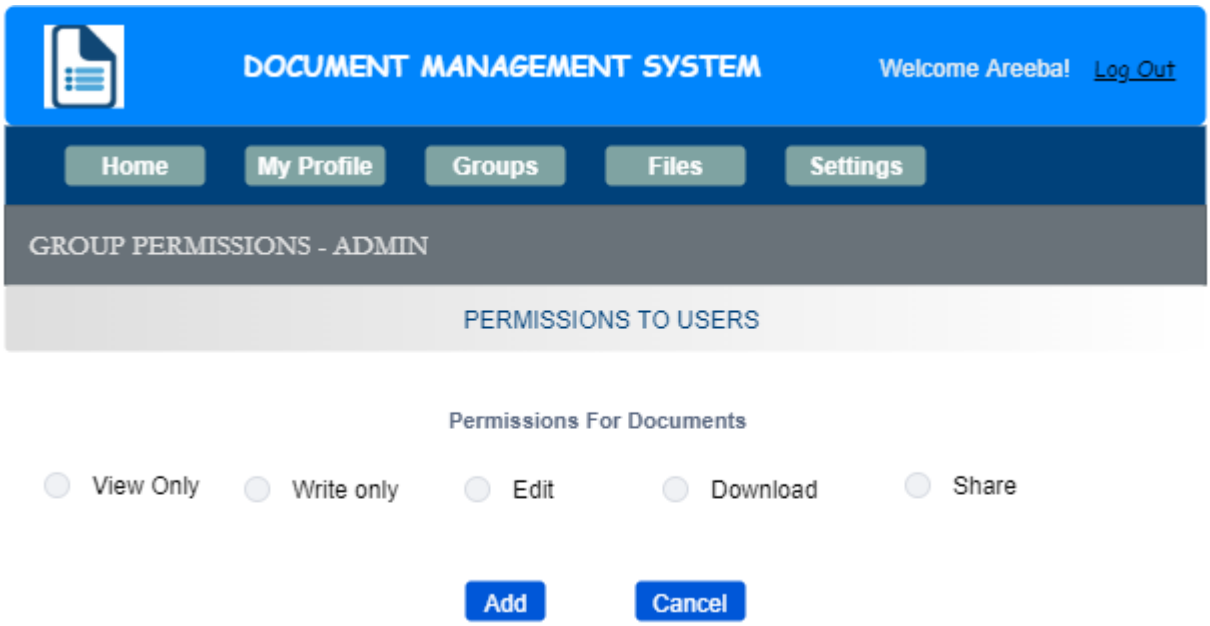


Figure 4: Give/Take rights by admin

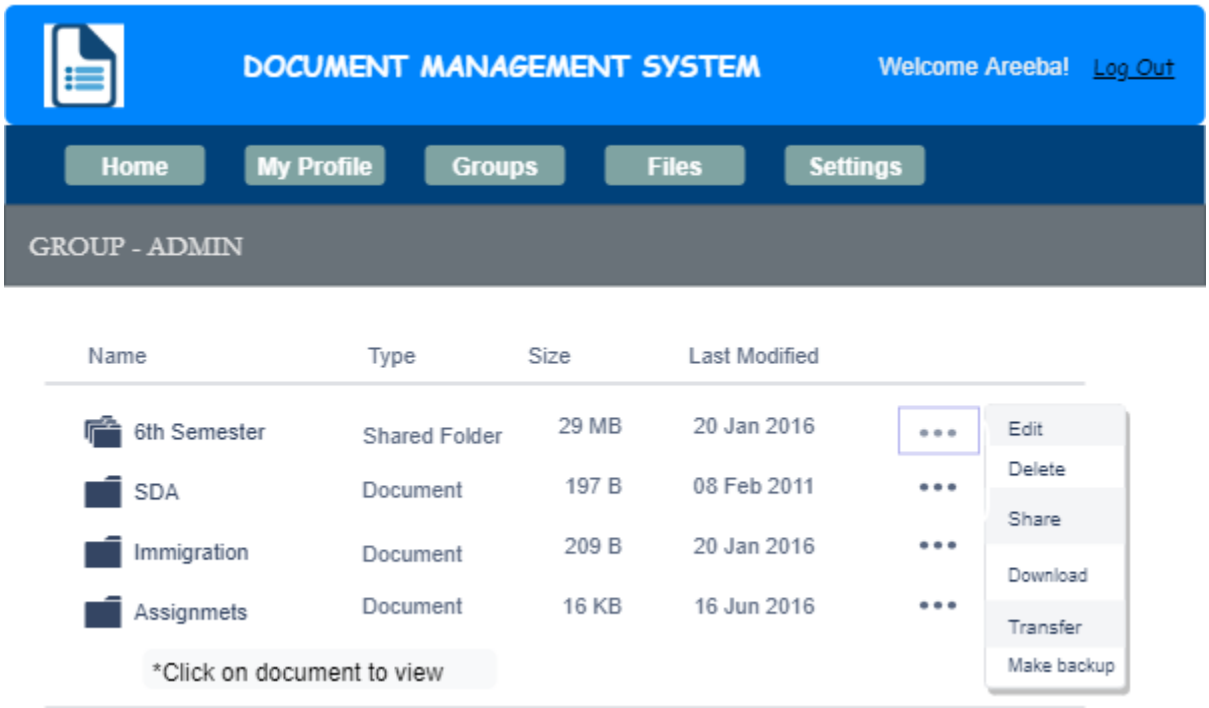


Figure 5: Crud operations, transfer, make backup option available to admin

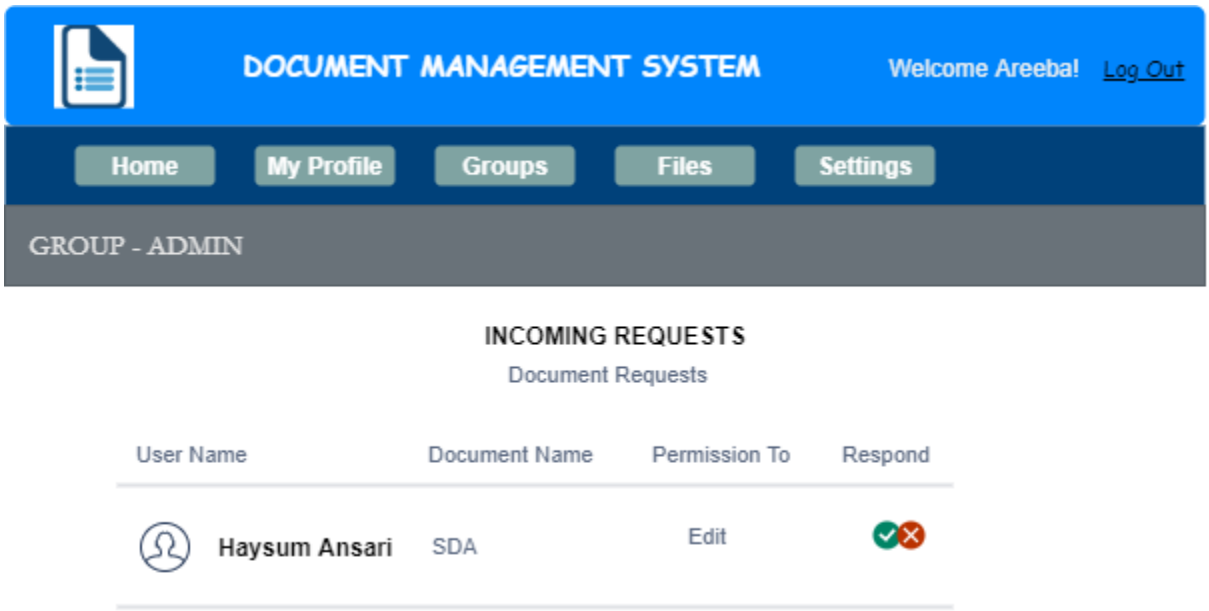


Figure 6: Accept/ Reject Incoming Group requests

d. GUI for Group Members

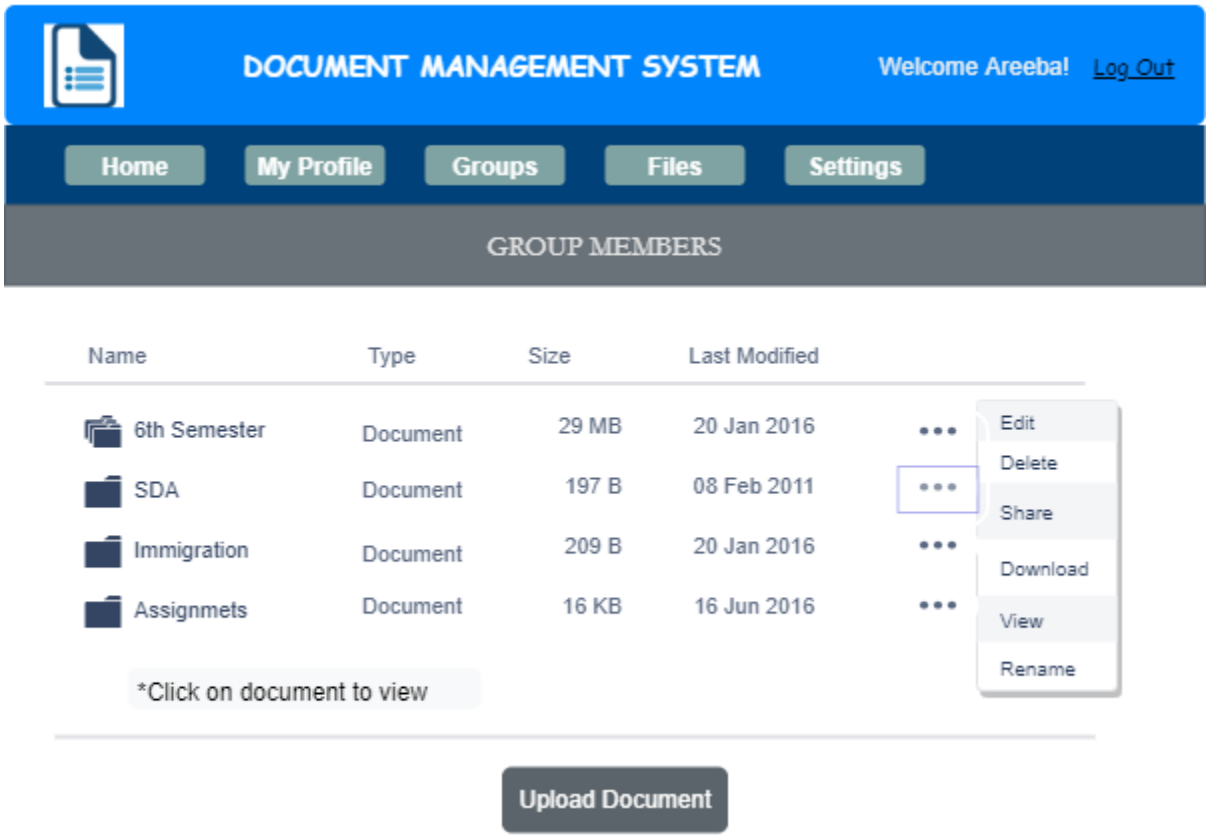


Figure 7: Download, CRUD operations on group documents

e. GUI for Users

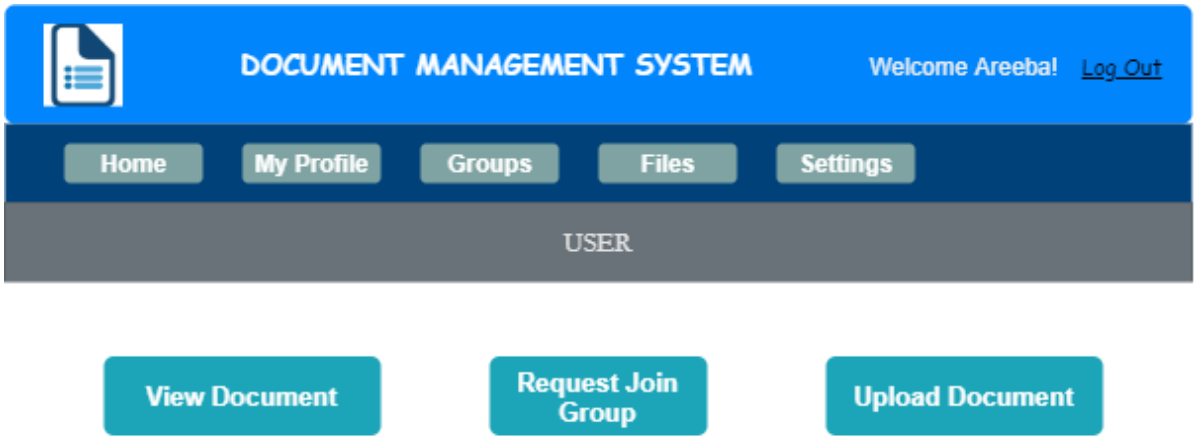


Figure 8: User view

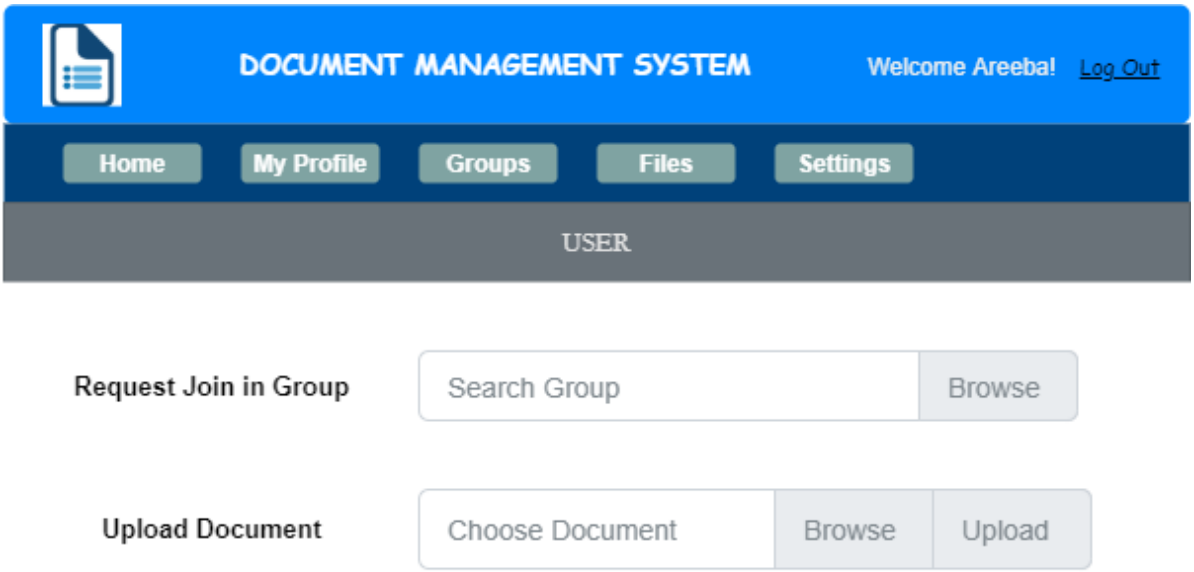


Figure 8: Request to join group and uploading of documents by user

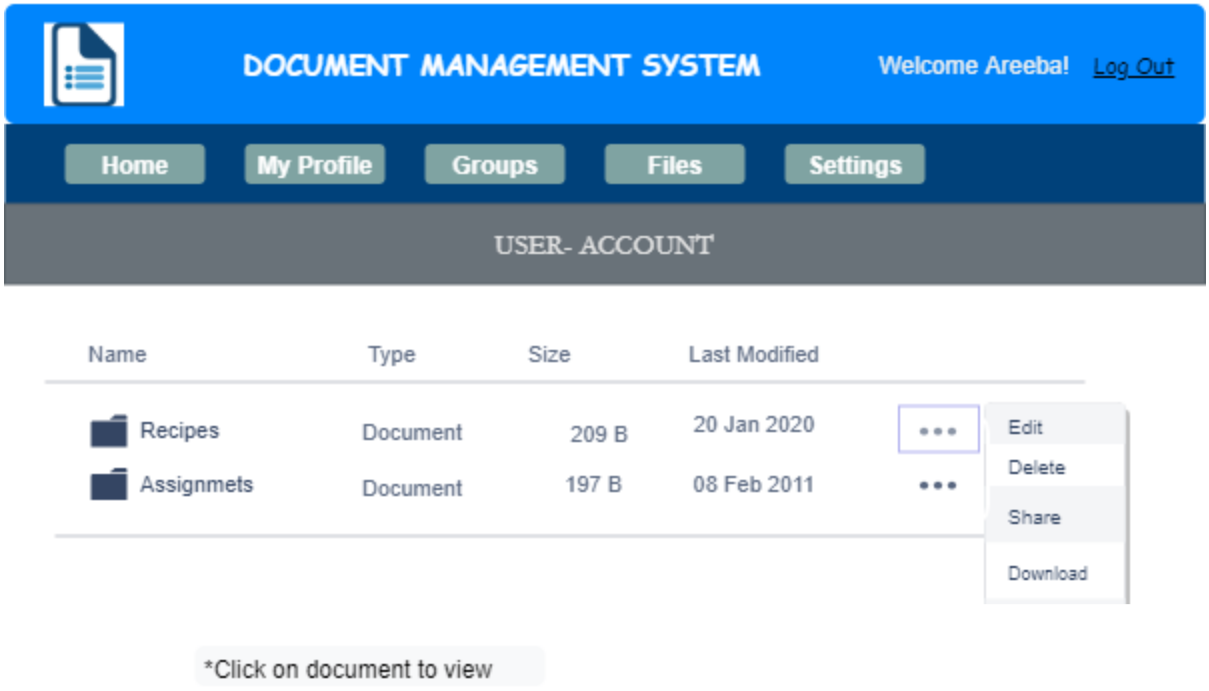


Figure 9: CRUD operations by user on his account

iv) Process View

(i) System sequence diagrams

When the user enters the ID and password, the system validates it for its matching records. If the user enters the correct password, he is redirected to the homepage from where he can choose from a multiple set of operations to be done i.e. view group, view or share or upload document or folders. If the user fails to enter the correct password within 3 tries, then he is logged out of the system. But if he does not have an account then the system provides the option of creating a new one. Group members can view, update, delete, rename, share and pin documents and folders but the changes made by the members can be withdrawn or reverted back by the admin. Users can request to join the group to the admin while the admin can also remove people from the group and give permission to user on who shall see what document and limit their options of sharing or downloading.

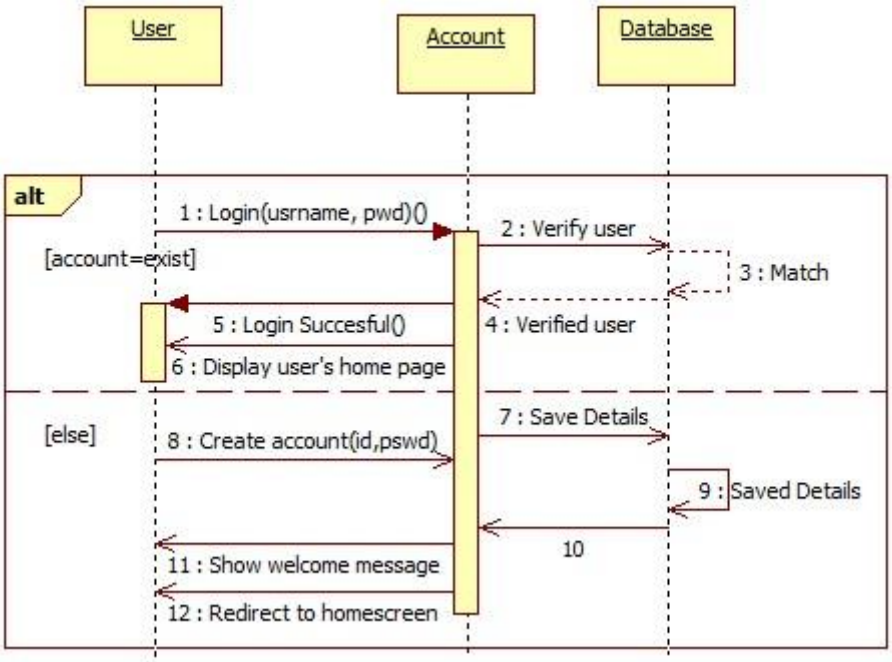


Figure 1: When user logs into the system

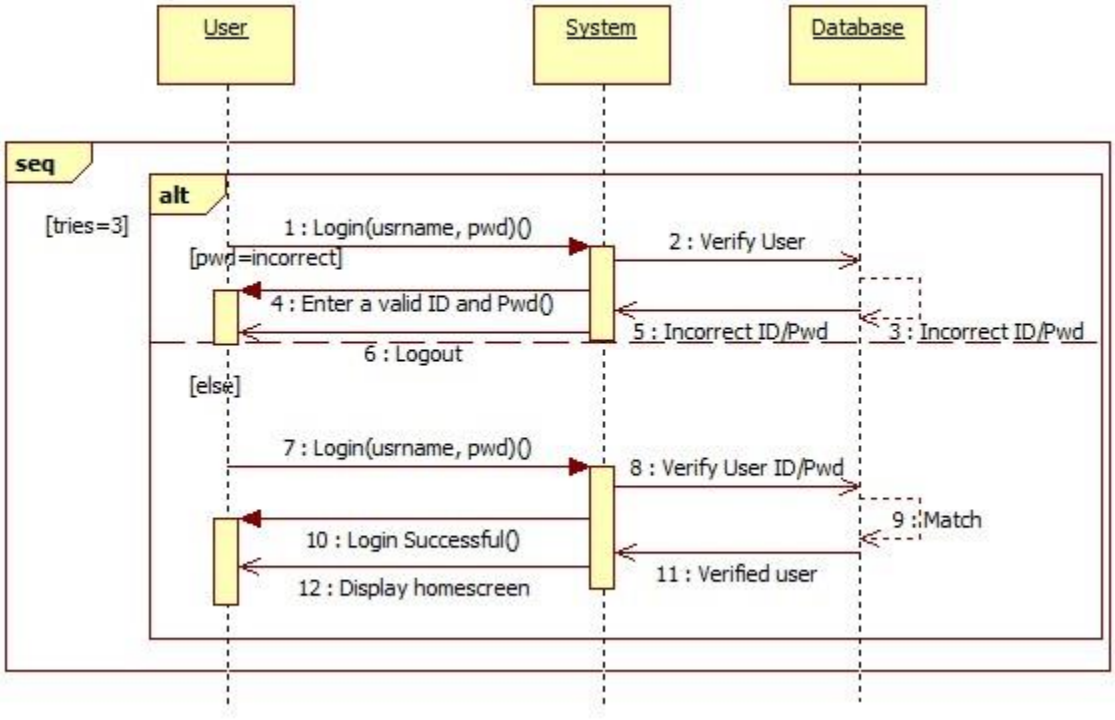


Figure 2: When user types the wrong password

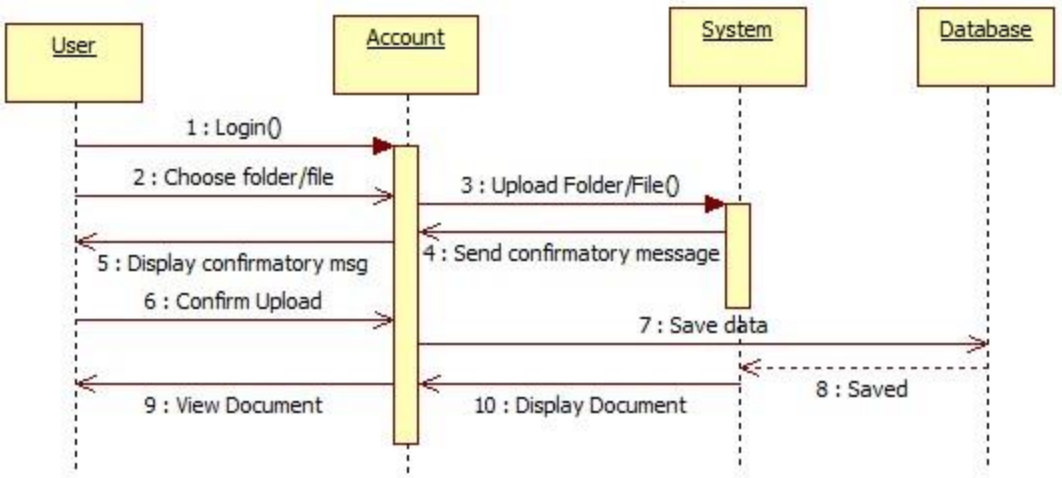


Figure 3: When user uploads a folder

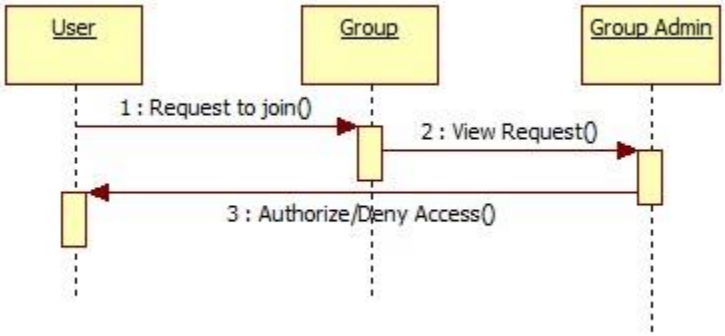


Figure 4: Accept or deny group request by admin

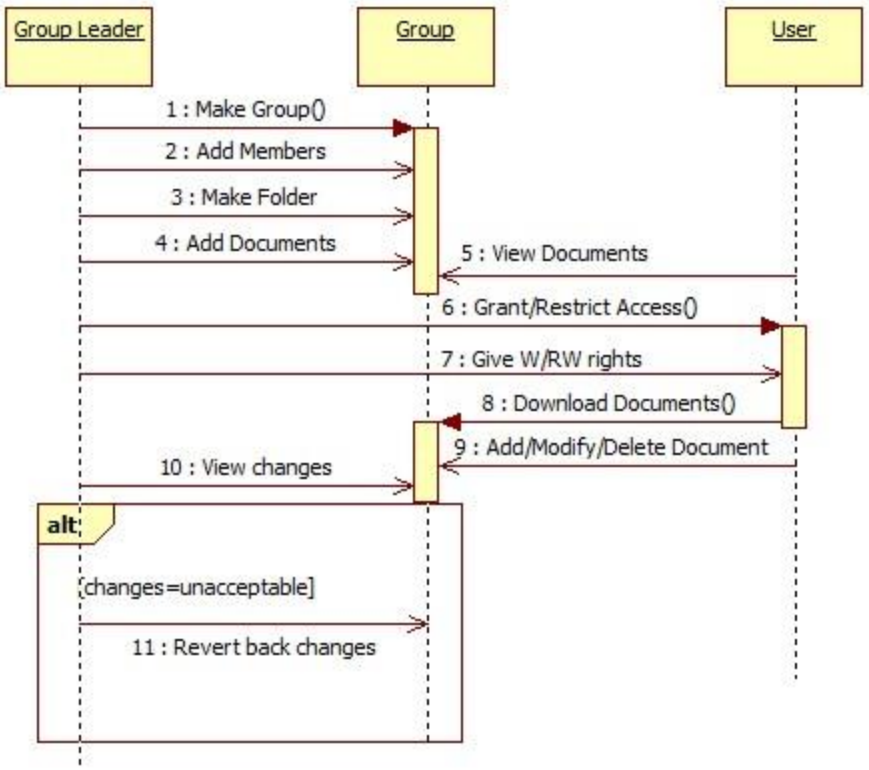


Figure 5: Add docs and view changes

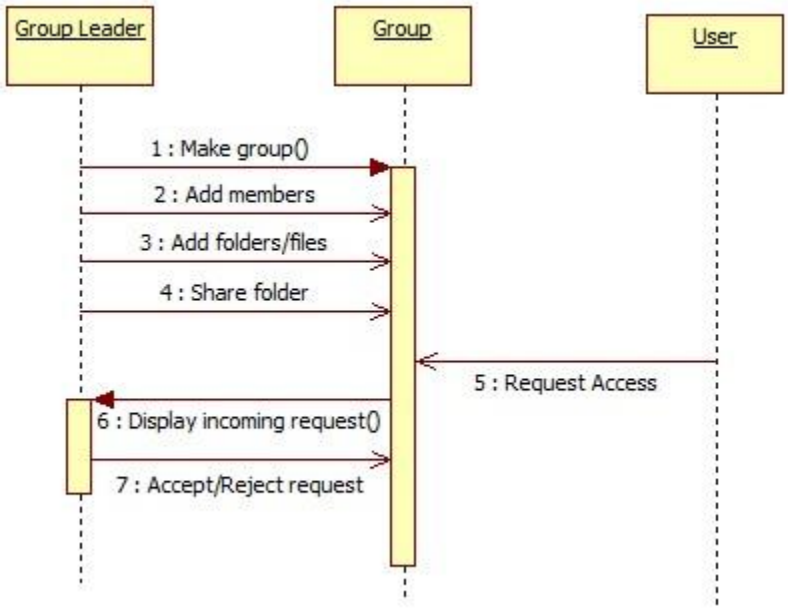


Figure 6: Accept/ Reject Request to share document by admin

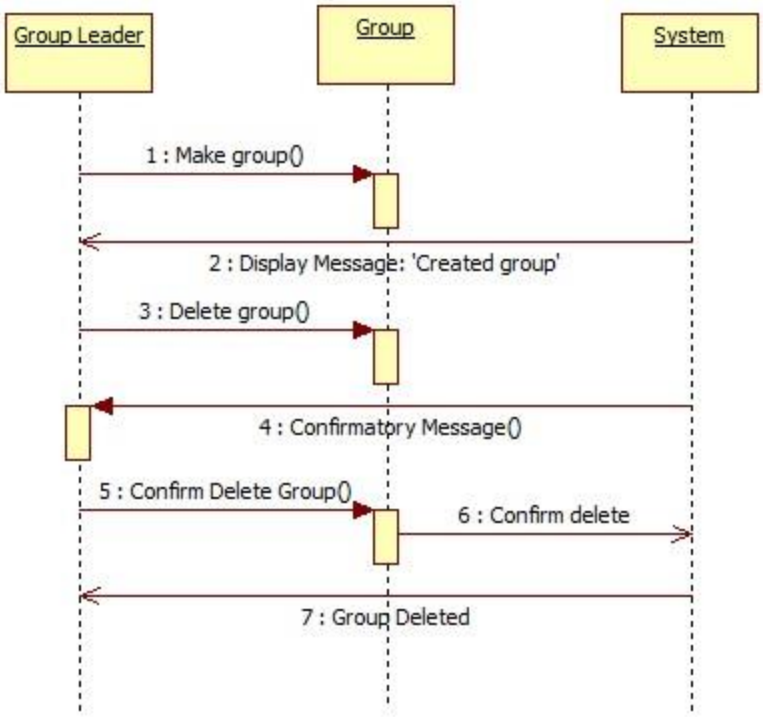


Figure 7: Creating Group

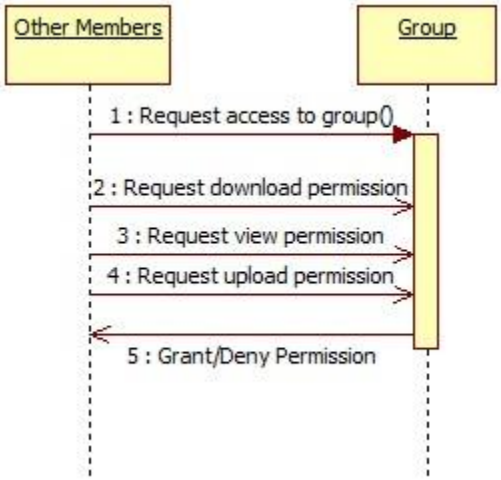
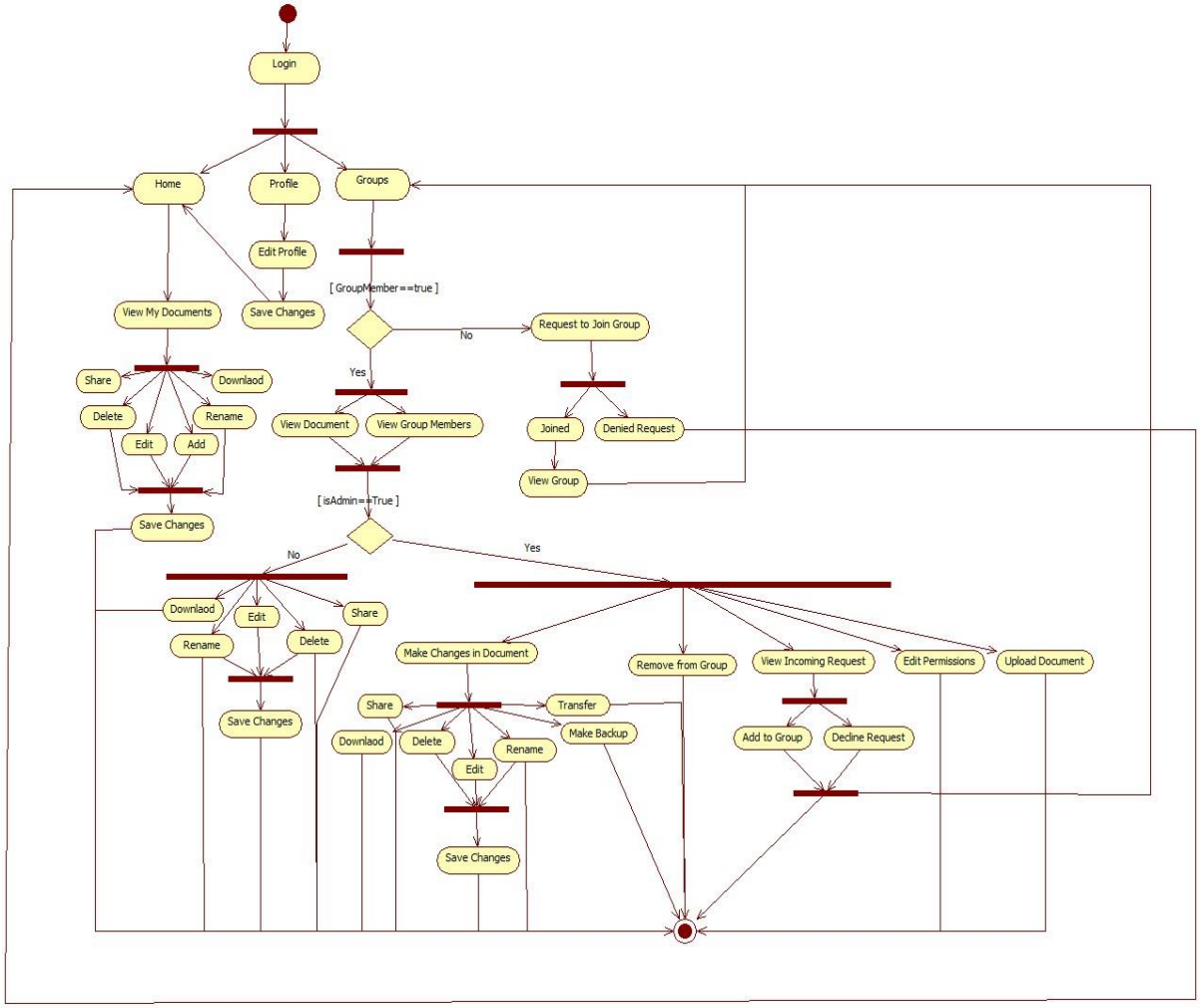


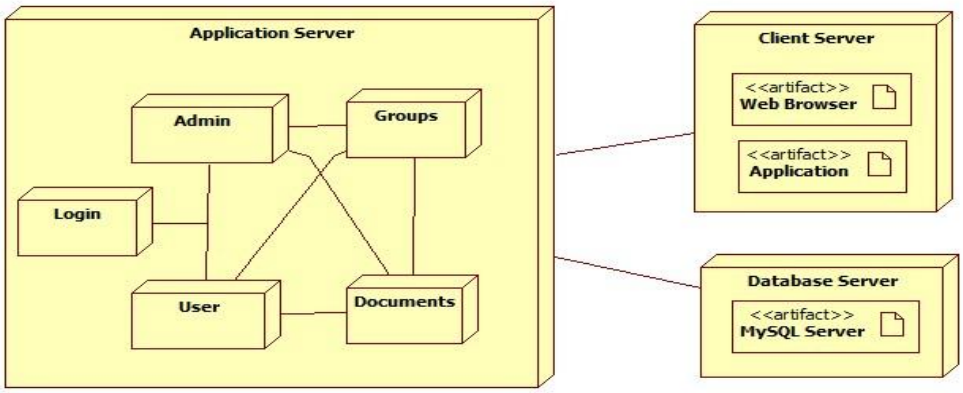
Figure 8: Permission by other members to share or view documents

(ii) Activity Diagram

The activity diagram for the entire system is given as below:



v) Deployment view:



vi) Input/output view:

Group admin	inputs	system	outputs	members
• Group admin • Other group admin • Owner	• Define privileges • Share files, document, video, audio • Create files • Download files • Insert files • Update files • Take backup • Starred files • See other group member file request • See group members files • Edit , view, download and share members files and documents.	System process and shows all action, activities of all people like group member, group admin, other group admin and members & owner to each other.	Files can be shown to the other members Stored in file management system cloud server. They can see and use their privileges given by group admin.	• Share files, document, video, audio • Create files • Download files • Insert files • Update files • Take backup • Starred files • See group members files and group admin. • Edit , view, download and share members files and documents.

4) Quality attributes:

a) File editing:

We can edit our file other members file and admin file and documents if admin give us privileges.

b) File creating:

we can create any type of file pdf, word (doc) , power point (ppt), excel(xlsx).

c) Backup files:

Backup of files in file management system occurs automatically in the cloud but also in our directory we can access it easily in the loss of the data.

d) Third party interactions:

Third party integration and interaction occurs with Google and others access files from Google drive and data also.

e) Sharing of documents:

Sharing of documents occur you can share you're your files with any one anybody can see them if admin give privilege than it can be sharable to group members.

f) Downloadable:

Downloading of documents occur you can download you're your files with any one anybody can see them if admin give privilege than it can be downloadable to group members.

g) Creating trash:

If mistakenly file was deleted it goes to the trash with permanently deleting files they give thid feature also.

h) Usability:

System available in desktop app, web, and mobile app also available for MacOS, system should be friendly and easy to use complicated system doesn't attract audience or stakeholders.

i) Reliability:

I a system is not recovering from power failure such as when power goes turn off system should restart from there suppose if I download a file so power failure occur so my file should start from there, also file pages or file is not taking so much time to open.

j) Security:

Middle attacks cannot be possible while using this file management system due to the security of the system and using protocols no one intrude in the system activities or no can play with your data because everything is present on cloud server.

k) Scalability:

App or web app or system should be easy to use, so it can attract users to their apps that not enough just have cloud based system additional features also attract users.

5) Appendix A

a) Functional requirements:

1. Group admin can hold the authorities like which file should be seen, who can join the group system authenticate group admin to add person with real account.
2. Group admin can easily share file, documents, videos, music etc. which can be shown by group members and other members file can be shown by a group members and also group admin.
3. Group admin and group members can edit each other's file, documents and share with another person.
4. Historical record maintain such who upload this file ,when its uploaded and last time when it is edit by someone in the group and group admin also can see it.
5. It also has features or built in function of creating all types of documents such as word, pdf, power point etc.
6. It has a features of notification when somebody added or uploaded some document ,share anything such as document, report and posted an assignment it notified by a system even when somebody delete it or edit it and added it again after deleting it System notifies about each and every activity.
7. Each and every file and document is downloadable until it has restricted by group admin or any group member and it also send through to someone through Dropbox, Gmail etc.
8. Each and everything present on cloud and downloadable, sharable and accessible in the presence of internet even you can send and receive file request.
9. Security of the document another group member cannot see other group members document not even edit it because until and unless he/she has been added in the group by group admin.
10. Only one person can hold the group activities (group admin) until it is allowed by a admin to any other person to hold the authorities to add someone in the group and all the group members information and privacy kept secure until and hacked by someone user and admin accounts privacy kept secure.

b) Non-functional requirements:

1. Pages and files doesn’t take so much time to open
2. Available at more than one type such as desktop app, web and mobile application
3. Couldn’t lose its previous state in absence of power failure and internet failure
4. Maintain historical record of person when it was active and all its activities

c) Quality attributes according to the nature of software system

1. Tracking synced files
2. Syncing tags, stars, and colors marked in MacOS Finder
3. Keeping track of files uploaded via camera uploads (on desktop and mobile)
4. Supporting less-common file-system features, like executable bits on POSIX and resource forks on MacOS