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Digitized Engineering Notebook

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ABSTRACT

Digitized Engineering Notebook is a Website Application which allows users to perform same functionalities as a Paper Notebook in real-time such as, storing data in digital format where images, videos, animations can be inserted, and also retrieving the data in chronological way topic wise from the database. User can access the data from any part of the world through cloud technology that can be shared among the people easily. One can create and edit projects online directly inside the website and discuss about the projects through discussion board forums. Here data will be safe and reliable as it is stored in different places. Project will be highly safe and secure as admin can implement access rights to it.

Digitized Engineering Notebook Main Page includes tabs like Menu, Site Administration console, Creation of New Projects, List of existing projects, Table of Contents, and Media page. Some important features of this application are User Login, HTML to pdf conversion, uploading Function, Search Bar navigation.

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1 Project Description

This application is developed for the students and users who want to store and retrieve the information in a digitized format. As the application is digitized and is in a format which is very easy to access to anyone who want to use the application. If the information is stored in the electronic format, then searching and retrieval of the information becomes easy. This helps in reducing a lot of work strain for the user. Also for the admin the task is very easy to keep a track of all the projects and their relative information. This project has been developed to overcome all the hurdles that were being seen in a manual notebook. The Digitized Engineering Notebook will be an application that will help the users for making a project, answering questions, involving in the projects, uploading images, deleting data which is not required, also working on converting the log file into a pdf file.

1.1 Competitive Information

There are various editors that are available in the all over the world market which are useful in editing and storing the required data. The facilities which are required to the user to manage the project are not associated with the existing application. This was a reason for implementation of this application. All of the features that are implemented in the application will have needs that are highly required.

After doing a survey on this kind of application, there was no similar application available in the whole market. This is something new which we are working on and it will take a valiant effort to make this application implemented.

1.2 Relationship to Other Applications/Projects

On comparison to other applications this project will have few similar features of storing the information, editing and saving the data. On the other hand this application will have the ability and capability to:

- This application is having the facility to upload the images
- Edit documents
- Track log info of the student or user
- Creating a table of contents.
- Navigating through various sections
- To cover the log file into pdf and print it.
- Scheduling events.
- Forums for questions and answers.

1.3 Assumptions and Dependencies:

- This application provides scheduling the events based on the calendar.
- Chronological order for retrieving of information.
- Adding other members to a project.
- It is assumed that the information will be stored based on the user information.
- The same information can be retrieved as a log file of the application.

1.4 Future Enhancements

For the features that are discussed and implemented by using this software model, if there are any more requirements that are to be addressed this application then we can find them and also implement and develop them on the project. This project can always be enhanced with more features as time passes with more security and new feature updates.

2 Project Technical Description:

This application has been developed by using the java technology. Here we will be using net beans as IDE and will be using MySQL for data storage. After analyzing the needs of the user, the following requirements have been finalized to implement the application. These requirements will include:

- a. **User registration:** This is a web application, where there is a registration option for the users to register for the application. After Registering, the users can access the application for their needs and benefit with the features they get in the application.
- b. **Creation of the project:** The users can create a project. When the user navigates through the project section and selects create a project. The project can be saved and named as the user wants it to.
- c. **Content Creation:** In the project creation, the users have the options to add text via editor, upload images, add members, record of all of the logs. The users will have features that will help them in creating their project according to their needs.
- d. **Creation of log:** We can keep a track of all the user information. This data will be stored in the database.
- e. **Event Scheduling:** An Event can be scheduled.

f. **Forum for Questionnaire:** A forum is created for answering question by different users.

2.1 Application Architecture

The following is the architecture of the Engineering notebook. Here the application is a web application, which is having a graphical user interface at the front end also will also have the ability for creation of projects and various other operations. This application is highly secured as the only an authorized user can access the application. All the projects, other data that has been created in this project will be in the database in the form of tables. The application servers will be responsible for all the operations of the application.

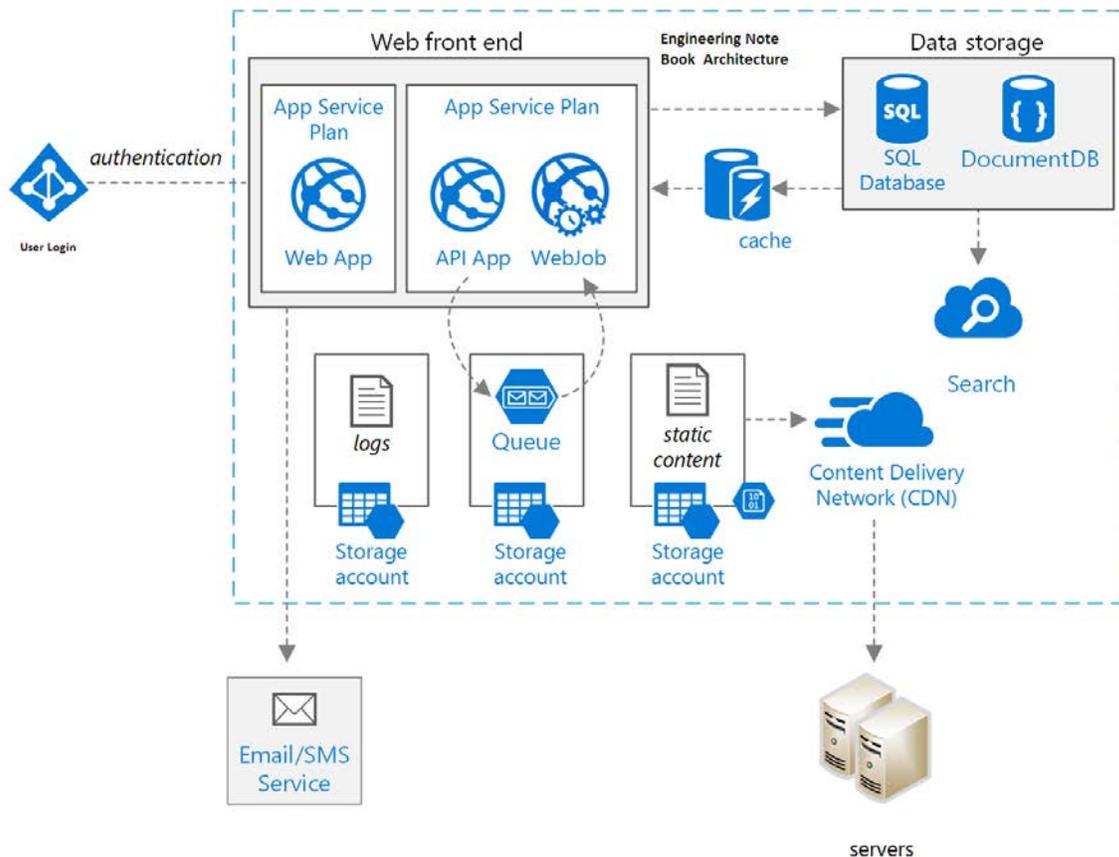


Figure 1: Digitized Engineering Notebook

2.2 Application Information flows

The application is executed after the operations are performed one after the other. To be able to use this application the user has to register with the application, only then the user can access the application and its features. Once entering the application, the user has the access to create projects, upload images, convert log into .pdf, schedule events, and answer questions. All the above data will be stored in the database with the given name of the project.

All the operations by the user are recorded and we also get to know of all the modifications that have been made. All of these are recorded and stored as a log file in chronological order. This application has the capability to store images, videos, .doc files in a given project.

2.3 Interactions with other Projects (if Any):

This application is a stand-alone application, it does not need any interaction with any other application or a project. This is a individual stand-alone application with no dependency with any other. There is no role of any external third-party in this application.

2.4 Capabilities

The following are Capabilities which are done by the application:

- a. User Registration can be done by this application.
- b. Authentication of a user makes the application secure.
- c. Ability for a user to create their own project.
- d. User can store and retrieve the data.
- e. Users can add members to project.
- f. Users can schedule events.
- g. The users can answer questions in the forum.

- h. Admin and Users are the two-main people in this project.
- i. Admin can view all the activities that are going in the application.
- j. Admin can view all the projects allocated.
- k. Admin can able to delete a project.
- l. Admin is responsible for the working of the application.

2.5 Risk Assessment and Management

Risks are involved in any project we take over. The risks that were involved in this project where:

- a. The embedding of multimedia content in the application.
- b. Creating the required sections for the application.
- c. Creation of a log record of the user.
- d. Creating the log record of the user.
- e. Safety and Security measures.

As technical and functional concepts were clearly analyzed, it was easy to implement the requirements in the application. The application development was really hectic but once we were done, it made us more confident and comfortable with implementation of projects.

3 Project Requirements

3.1 This project is mainly designed for two different types of users. They are

- a. User.

- b. Admin.

- a. User Functionalities: This application has been majorly developed to automate, digitize the functionality of the traditional note book. It was a big task to keep records of a notebook for

long time. To fix this we had to come up with the brilliant idea of digitizing it, so that all the data can be easily stored and retrieved. So this application will make the burden of notebook less, as all the data will be easily available and retrievable.

- b. Admin functionalities: Admin will be the one who has the right to view the application, its features. The admin is responsible for deleting a project, viewing a project, allocating more members for a project. Admin is also responsible for the security of the project. Admin can always keep a check on all the projects and stay in contact with other members or users. Admin will be responsible for any issue with the application.

3.1.1 Identification of Requirements

Given are the requirements which have been identified. Here all the requirements are framed based on the SMART guidelines given.

The following are the different examples for the requirements.

<CT001-“User Registration - R01”>

User Registration

The application will allow the user to register for the application.

<CT001-“User Authentication – R02”>

User Authentication

The user will have to use their login credentials for using the application.

<CT001-“Project Creation - R03”>

Project Creation

After getting into the application user can able to create the project. In the created project user can add the data, images, edit documents.

<CT001-“Image upload - R04”>

Image Upload

The user can upload images into the application. The user can upload images in the created project too.

<CT001-“To view the status - R05”>

Viewing the Status

This will let the user and admin know how much percentage of work has been completed.

<CT001-“Creation of Log Record - R06”>

Creation of Log Record

This requirement will help the user and the admin to when the operations has been performed by the user. What is the login and logout times will be stored chronologically in the database. Based on this information user can able to create the log record

<CT001-“Event Scheduling- R07”>

Event Scheduling

The users can schedule events according to their needs and dates.

<CT001-“Adding Members - R08”>

Adding Members

The users can add members to the project.

<CT001-“Posting Questions - R09”>

Posting Questions

A user can post questions regarding to the subject, project or any other technical question.

<CT001-“Answering the Questions – R10”>

Answering the Questions

Any user can answer the questions put up by another user/student.

CT001-“Printing of the .pdf file – R11”>

Printing of the .pdf file

The user log file can be printed.

CT001-“Project Deletion – R12”>

Project Deletion

The user can always delete the project whenever they like to.

3.1.2 Operations, Administration, Maintenance and Provisioning (OAM&P)

The below are the following screens which will show the operations that are performed by the application.

The application will show the user interface and the operations that are done by the application.

The screenshots are taken from the application. These screenshots are the front – end view that will be shown to the user or the viewer.

Digitized Engineering Notebook

Student Login form

Student Id:

Student Pssword:

Student Login



New Student Registration form

Email:

First Name :

Last Name :

Course Name :

Student Id :

Mobile Number :

Password:

Registration Page

My Profile

Name	bhanu b
Course	cs
Student Id	1234
Email	bhanu@gmail.com
Mobile	9876543210

To view the user profile



Create an Event

Event Name	Event Description	Event Date	Created On	delete
project review	first project review	03/08/2017	Fri Mar 03 20:01:14 IST 2017	<input type="button" value="delete"/>

To create an event

Existing projects

Create New Project

Project Name :

Project Description :

Clear

Create

To create new project

About the projects

Id	Project Name	Description	Date of created	Members
20170501172437	abc	graduate project	Mon May 01 17:24:37 CDT 2017	

Delete this project

Delete

Select Member :

1166796 | bunny u

Add Member

Pages

Upload Document

Browse... No file selected.

Uplaod

Upload Media

About image Browse... No file selected.

Uplaod

Add Page

Create new Page

create

Media
Documents

To have the project preview

Discuss Board

Enter Any Questions Here:

posted by : bhanu b

posted on : Fri Mar 03 20:51:14 IST 2017

what is java?

Your Answer Here :

Previous Answers

To have the discussion board

Logs of 1234 bhanu b

print

Id	Date and Time	Description
1	Fri Mar 03 20:48:35 IST 2017	Project project 1 is created
2	Fri Mar 03 20:51:14 IST 2017	Question posted on Discusion board(what is java?)
3	Fri Mar 03 20:52:06 IST 2017	logged out
4	Mon May 01 15:16:15 CDT 2017	logged in
5	Mon May 01 15:18:34 CDT 2017	logged out
6	Mon May 01 15:19:27 CDT 2017	logged in
7	Mon May 01 15:19:44 CDT 2017	logged out
8	Mon May 01 15:24:59 CDT 2017	logged in
9	Mon May 01 15:27:19 CDT 2017	logged out
10	Mon May 01 15:30:21 CDT 2017	logged in
11	Mon May 01 15:30:36 CDT 2017	logged out
12	Mon May 01 16:05:34 CDT 2017	logged in

To view the log information

The above given interfaces provide the user interaction to have the communication with the user.

3.1.3 Fraud Prevention

To protect itself from any unauthorized user or hacker this application will be provided with the security of login system. Also, all the information of the user and the operations performed by the user are recorded as a log file. The application is secure with a authentication system.

3.1.4 Release and Transition Plan

This project has been developed using Java language and the database that is used is the MySQL. MySQL. Initially, all the software which are required to execute this application has to get installed in the client system or it may be hosted on the internet by taking any of the hosting package. Till now the project is completed totally and it is ready to execute. While executing this application we can know if any changes are required to meet the requirements of the user,

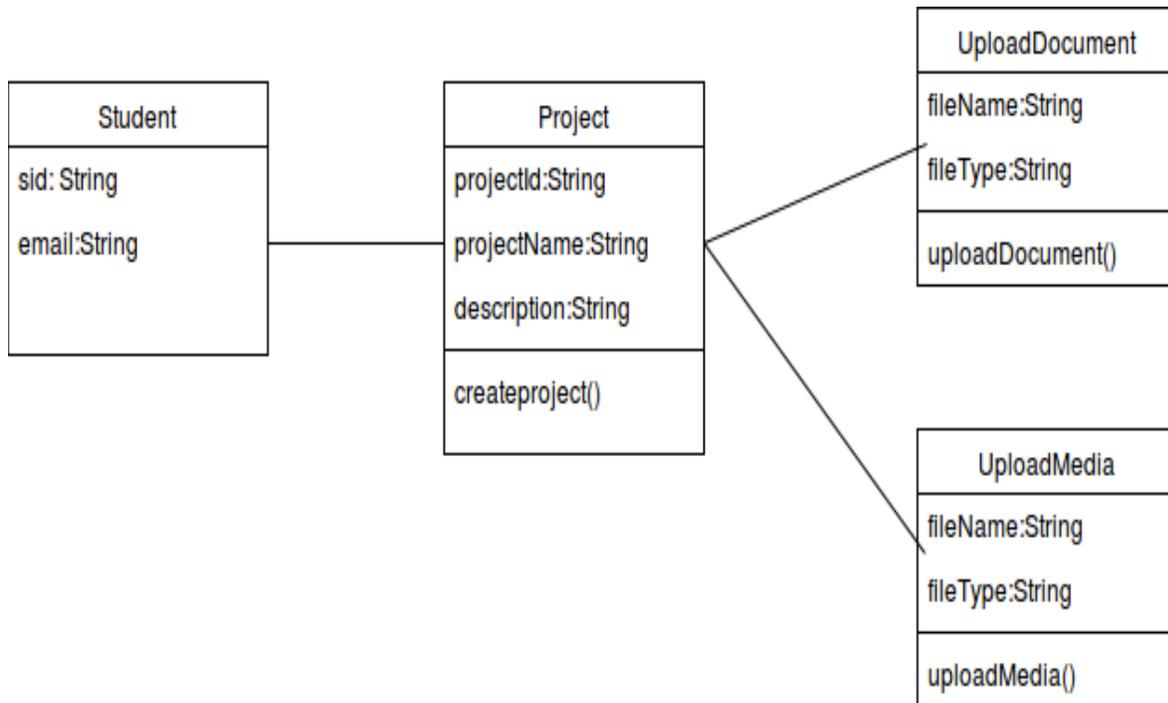
then we can have those changes at the client end only. These kinds of implementation of changes will come under the maintenance phase.

4 Project Design Description:

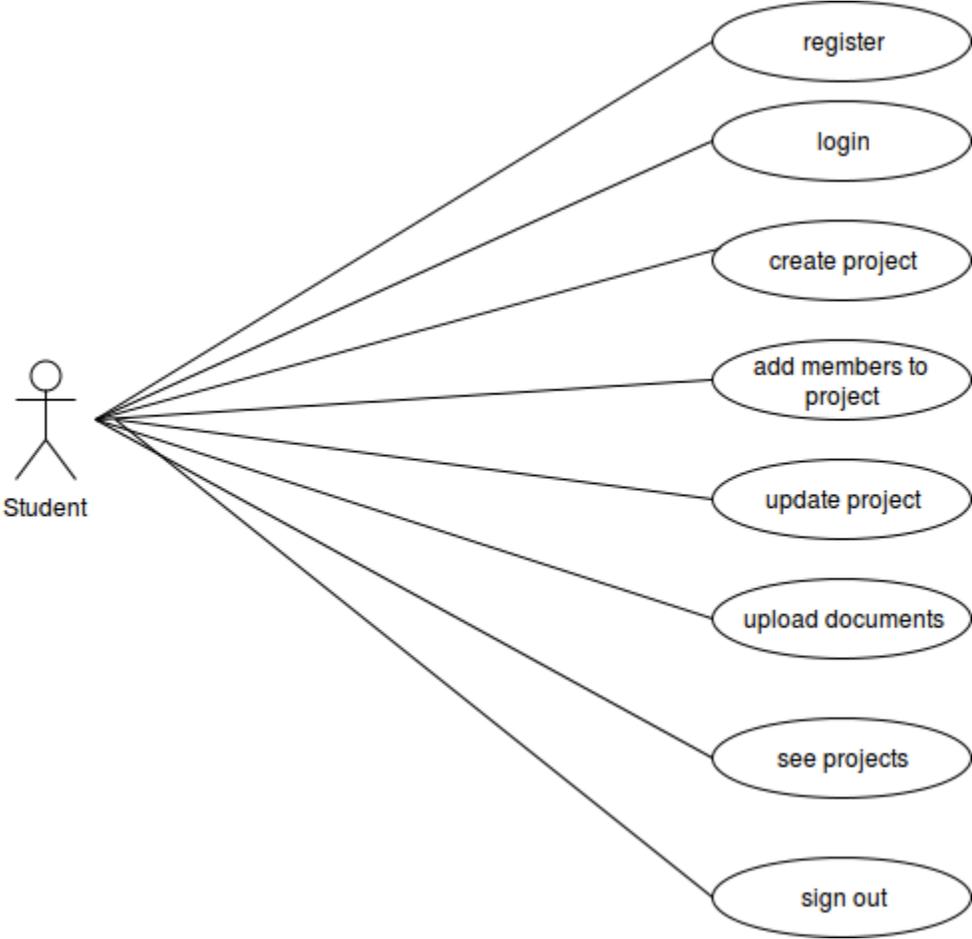
The application is designed by UML diagrams. These include use case diagrams, Sequence diagrams and Activity diagrams. These diagrams help us in the overall flow of information of the project.

Unified Module Language is a language that will help in modelling a project into the activities it does. There are various diagrams in a UML. They are the Class diagrams, Sequence Diagrams, Activity Diagrams and Use -Case diagrams.

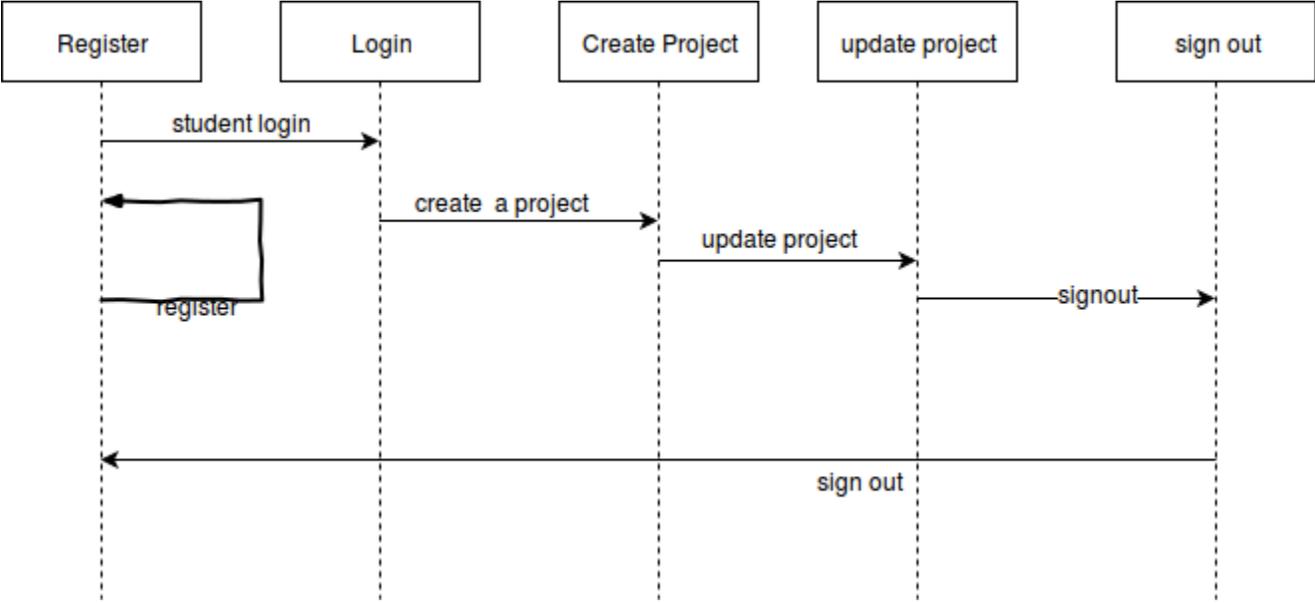
Class Diagram



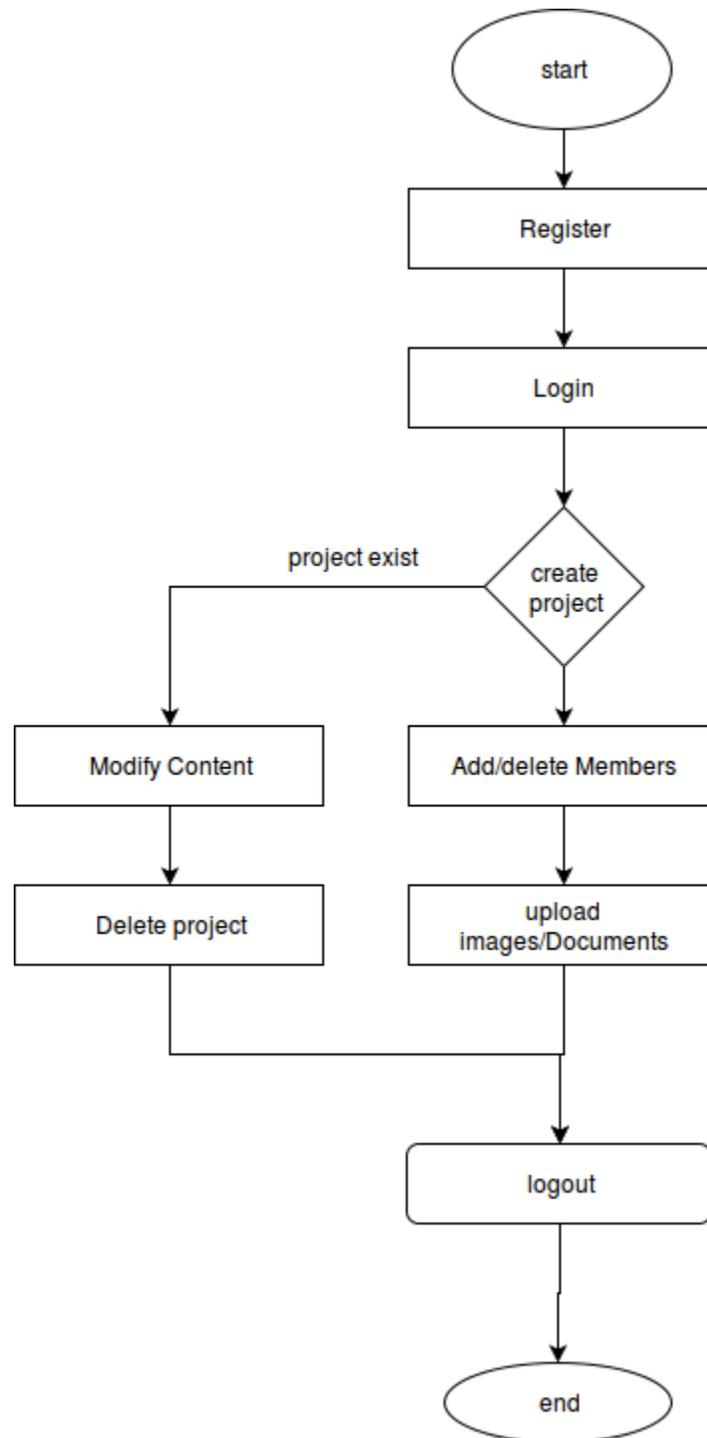
Use case Diagram



Sequence Diagram



Activity Diagram



5 Internal/external Interface Impacts and Specification:

Internal Interface: After user gets registered, his details will be stored in the database. From there onwards, with this information user can log into the application and the user details will be stored in the form of log record, whenever he use the project. Information which is stored in the application will be able to view by the user as well as by the admin. Admin is having the right to allocate the projects.

With this application user can able to store all the information digitally. For using this application, just the knowledge of using computers is necessary. There may not be any kind of changes are required to reflect in the documentation.

6 Design Units Impacts

Based on the type of user, functional requirements will change. All these requirements has been gathered initially and presented below.

Administrator: He is one of the user who is having right to create the project, update the project, to view the project, to know the status of the project. He is also having the right to allocate the project to different members of the organization, so that these people will be responsible to those projects.

User: Every user has to register with the application. After registration he can create the project or event, this information will be stored in the database. This information will be used for the next operations which will be done by the users.

6.1 Functional Area

The whole application is treated as a single functional unit. The application does not have any multiple applications interconnected with it.

6.1.1 Functional Overview

With the use of this application, the user can automate all the functions of a notebook into a digitized format. The user and admin both have a flexible role of searching, navigating the information. The navigation for the user helps us in reaching the desired place without any interruptions or issues. This application works with the convenience and has a 100% safe and secure process.

6.1.2 Impacts

The impact of the application is that the user will have all the information digitally saved and retrieved in the database. The database will keep all the data records. The data preservation has been eliminated by the digitization of the notebook.

6.1.3 Requirements:

All of the requirements have been specified clearly in the above requirements sections. These requirements have been fully met and are functional in the application. The requirements have been well utilized and projected into the application.

7 Acknowledgements

We would acknowledge our Guide Mr. Alex Liu, for encouraging us for building this application and also helping us in review and modifying the project according to the needs. Without his help and reviews, we would have not able to achieve the application with the necessary requirements.

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8 References

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- 3.) Simple note, August, 2011 <http://in.pcmag.com/simplenote-web/70820/review/simplenote-web>,