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# Digitized Engineering Notebook

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## ABSTRACT

In current generation, people are not happy with the preserving information physically either in the notebooks or in any form. They are not interested to write also. As technology is growing and everyone is making use of it. In the same way our application is used as a tool for so many users who want to use this application as a notebook. Features of this application include an editor which is used to edit the data and also the text formatter which is used to change the style of the text.

Apart from these features it is also having the information like uploading the images, creating the index, labeling the images and user navigation to a particular place and also to search the related information which is needed by the user.

By the use of this application, definitely user will feel satisfaction and the information will be stored digitally. By the use of this application, so much of the burden is gets reduced and retrieval process will become easy for the users.

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## 1 Feature Description

“Digitized engineering notebook” is an application which is used to store the information digitally. This application eliminated so much of paper work and it is user friendly. There is no need of carrying all the information physically. By using this application we can create the project, continue the project for any number of days by updating it. It is also having status maintenance information which gives the information about the status of the project.

Users of this application includes

- » **Admin:** He is the person who can create the projects and allocate the members to each and every project based on the availability of the members.
- » **User:** He is one of the member of the project where he can do different types of works like editing the files, updating and saving them.

All the operation which are done by both the users will gets stored in the database.

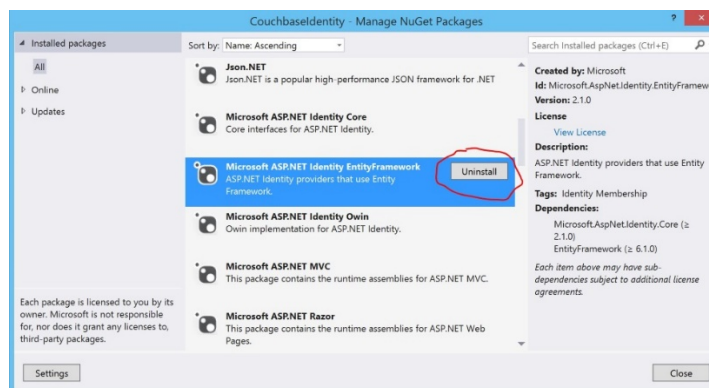
### 1.1 Competitive Information

There are many other products like Clock wise with is an enterprise level web based project managing application, which has a capabilities for, manages any kind of projects in enterprises. Usually there are many other open sourced project management tools like Jira, Scrum master, auto project planner mydeo etcat this point our project is academic level so it may not compete with the other similar applications but we can say that our application the best among all the academic level projects applications.

### 1.2 Relationship to Other Applications/Projects

Used many third party application and nugget packages for accessing API application programing interfaces such as

- **Open ID**
- **Two factor authentication**
- **Bootstrap plugins**
- **Ninject**
- **Ajax**
- **Facebook plugins**
- **jQuery packages**
- **Kendo UI**



### ***1.3 Assumptions and Dependencies***

- At this point we have limited capabilities in our application and our application will be enhanced in future, features such as drag and drop implementation, multi file format etc.
- As per the requirements and technicalities given the application is proficient, and it may be enhanced in the future. In future releases,

### ***1.4 Future Enhancements***

Integrating mobile applications is one of the big enhancements which we have as of now, as our application is 3 tier based application and it is highly scalable at any point so enhancements can be easily implemented in future.\

### ***1.5 Definitions and Acronyms***

<b>Appendices</b>	<b>Description</b>
UML	Unified Modeling Language
DFD	Data Flow diagrams
ERD	Entity relation diagram
HTML	Hyper Text Markup Language
MVC	Model View Controller
SEO	Software Engine Optimization
SQL	Structured Query Language
TDD	Test Driven Development
SoC	Separation of concerns

## ***2 Project Technical Description***

### ***2.1 Application Architecture***

The following figure is the application architecture, which gives the information about the different operations which are performed by the application. This architecture contains different components like data storage, front end, servers and communication media etc. All these components make the application to work properly.

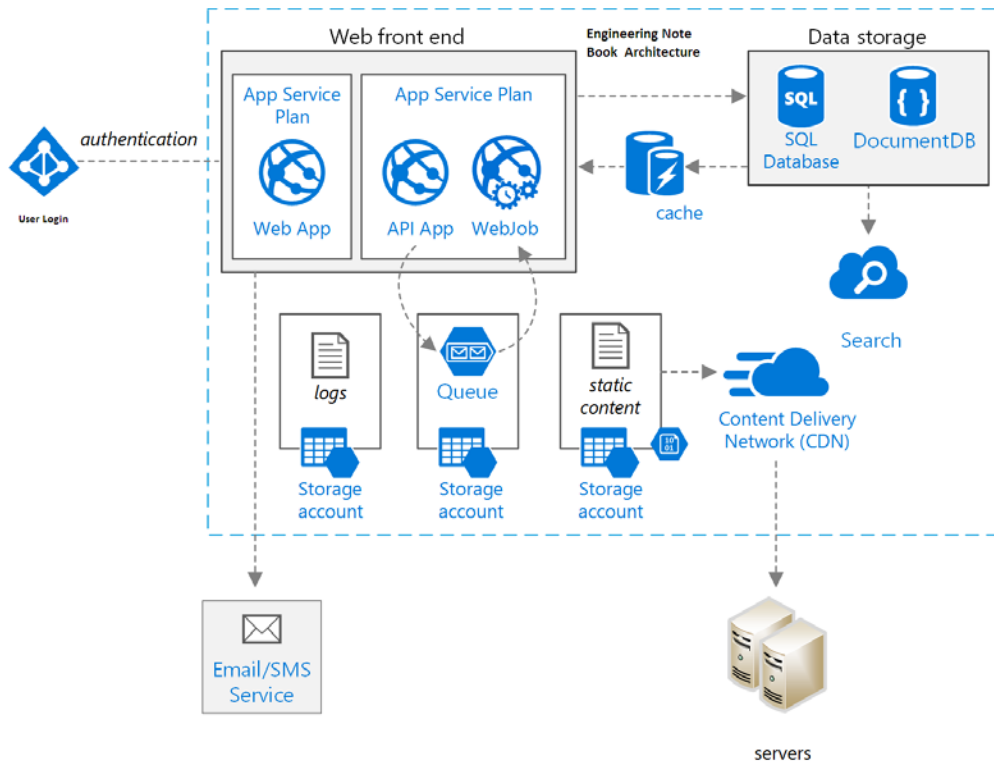


Figure Application architecture

## 2.2 Application Information flows

This diagram helps all the user to move in the application from one functionality to the other functionality.

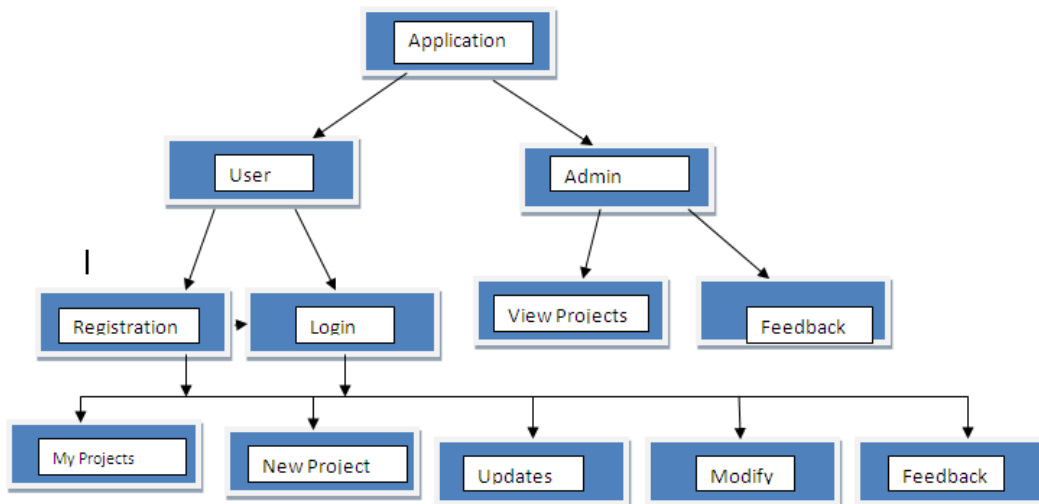


Figure 1 Navigation diagram

## 1. User Interfaces in the application

### 1. Registration interface

This interface allows the user to register with the application. The registration details which are entered here has to be remembered so that it will be further used to log into the application.

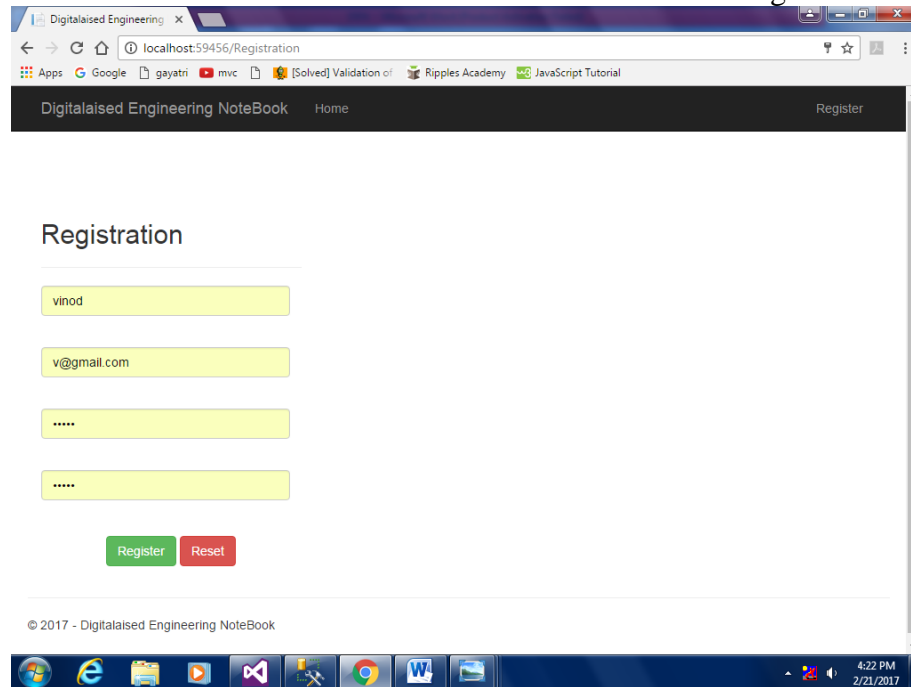
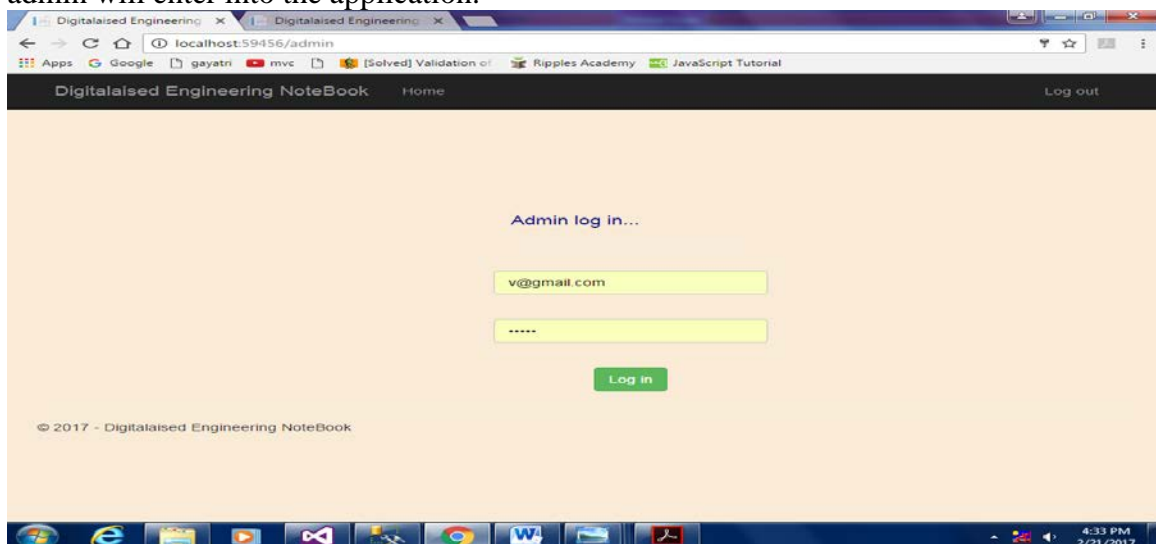


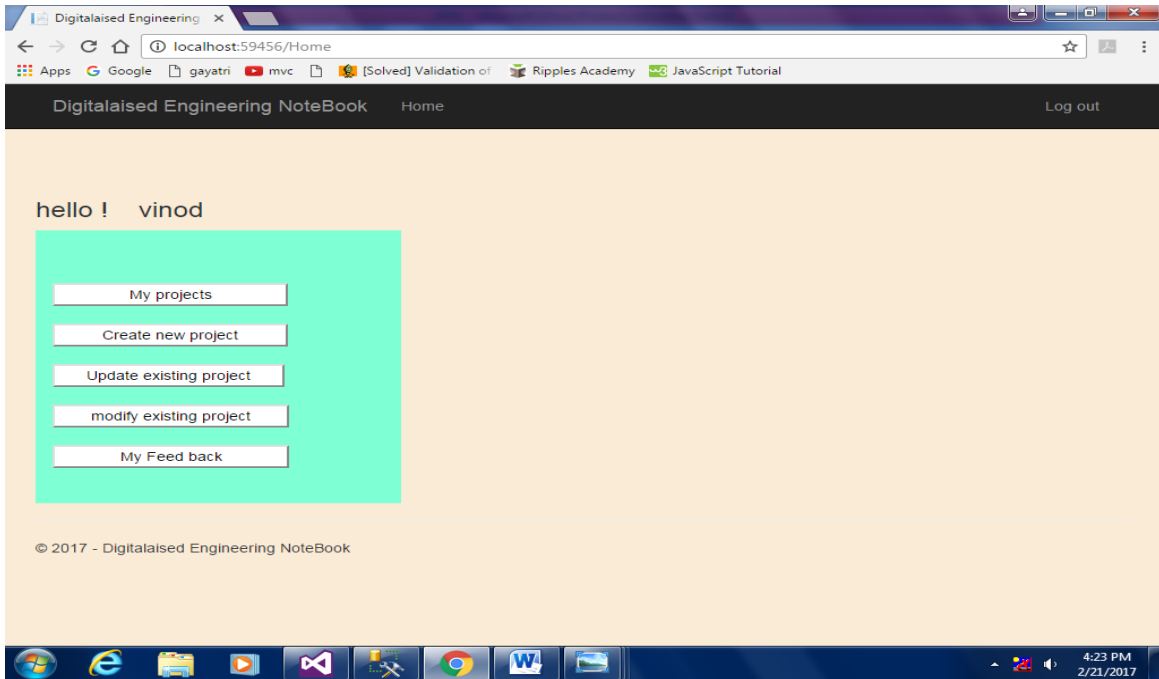
Figure 2: User Registration UI

### 2. Login form

Given below is the login form where the user can enter into the application and he can utilize the services which are offered by the application. With the given login form both the user and the admin will enter into the application.

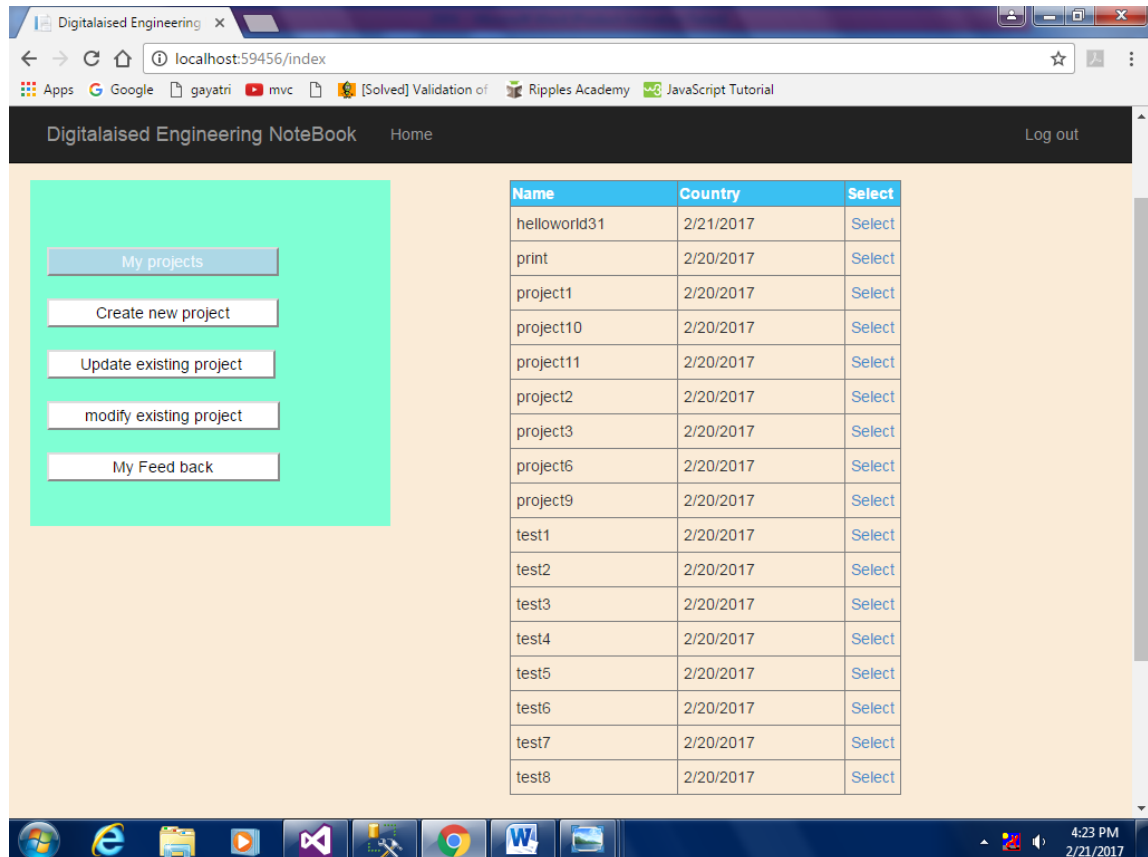


### 3. Main page of the application:



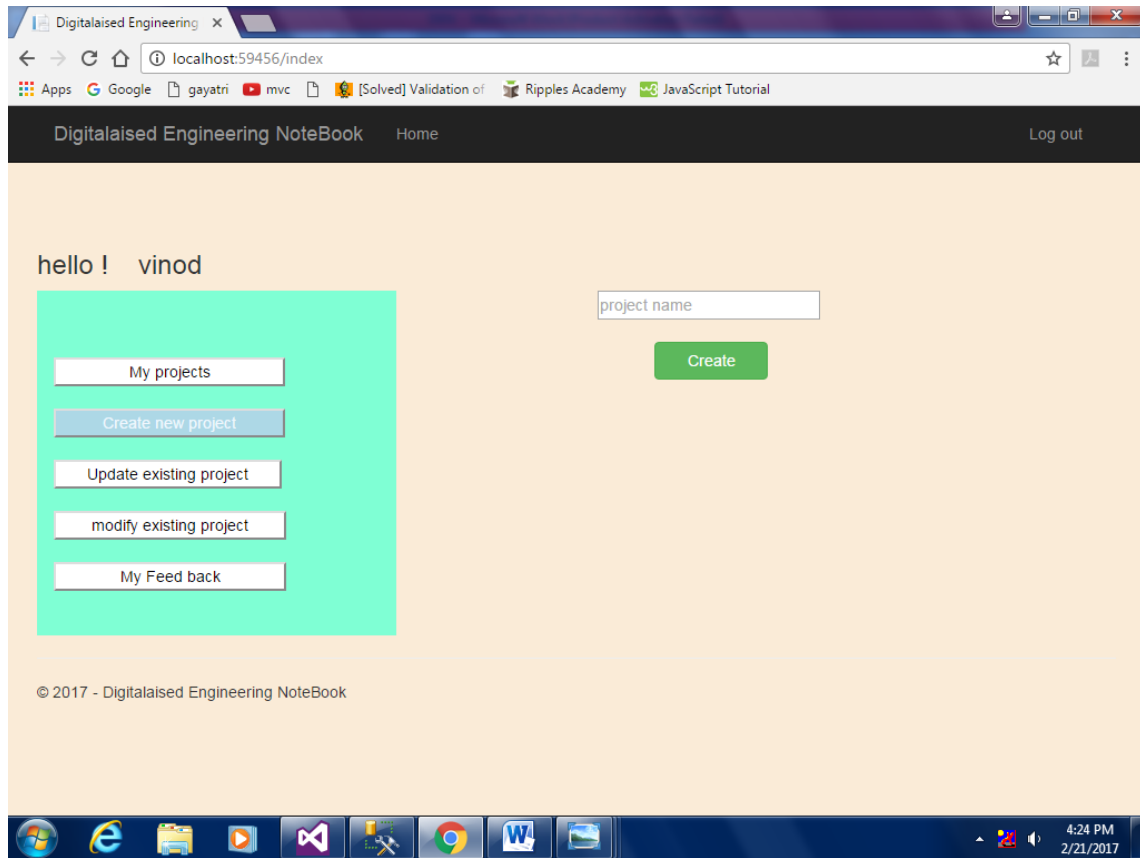
### 4. My Projects:

This interface allow the used to view all his projects which he is currently doing.

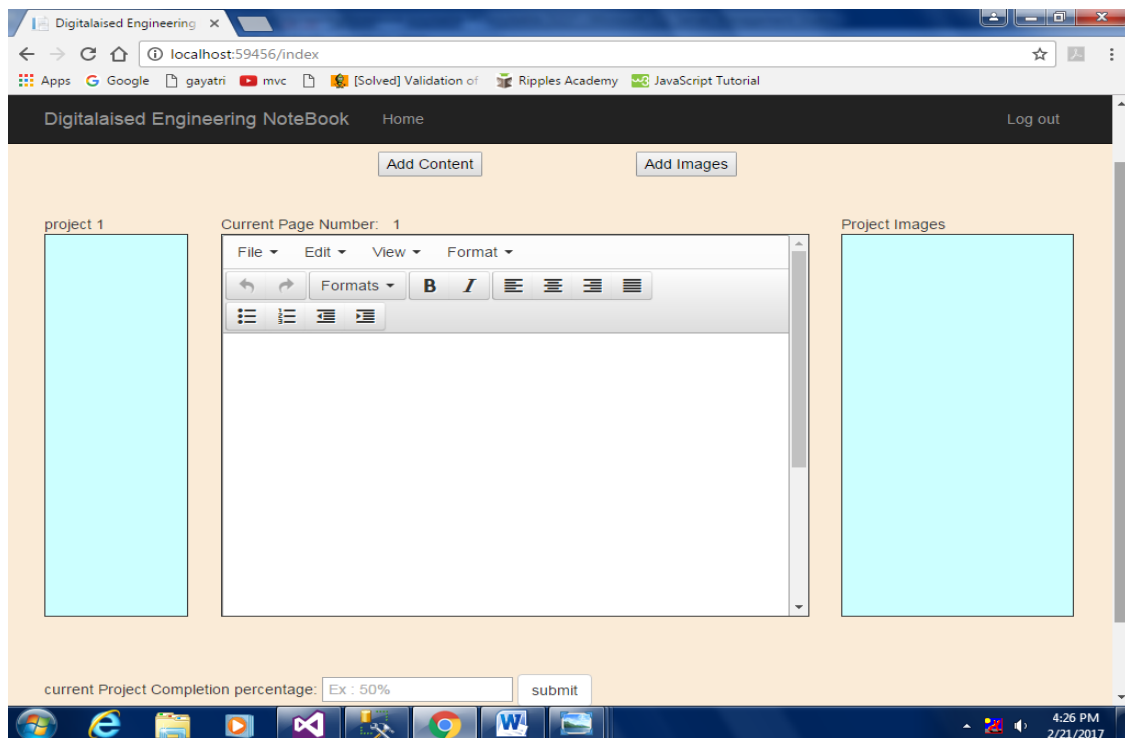




## 5. Create New projects:



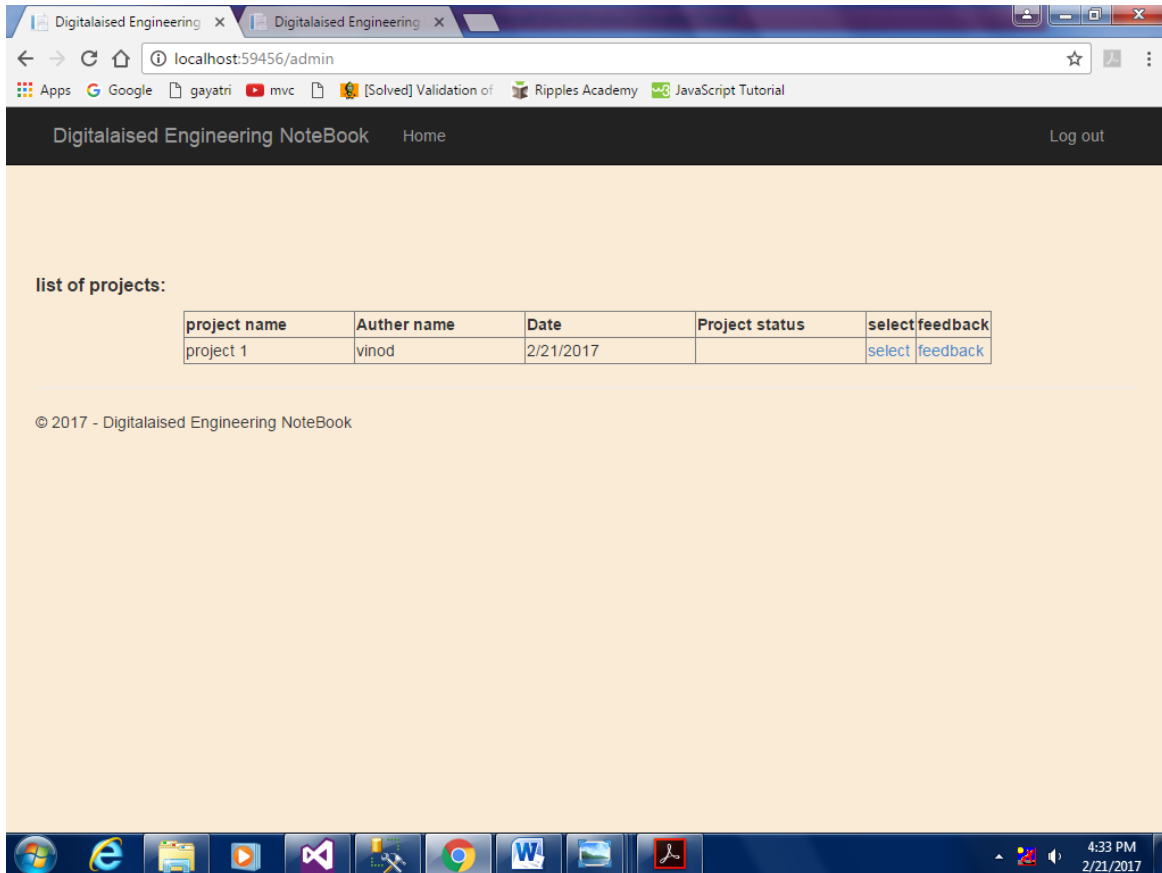
## 6. To add and to update the contents:



Below interface allows manager and operator to view all created brands

Figure 3 view, modify or delete Brands UI

7. To view the list of projects by the admin.



Below interface allows manager and operator add new parts products

Figure 4 Add new auto parts product UI

8. To give the feedback of the project:

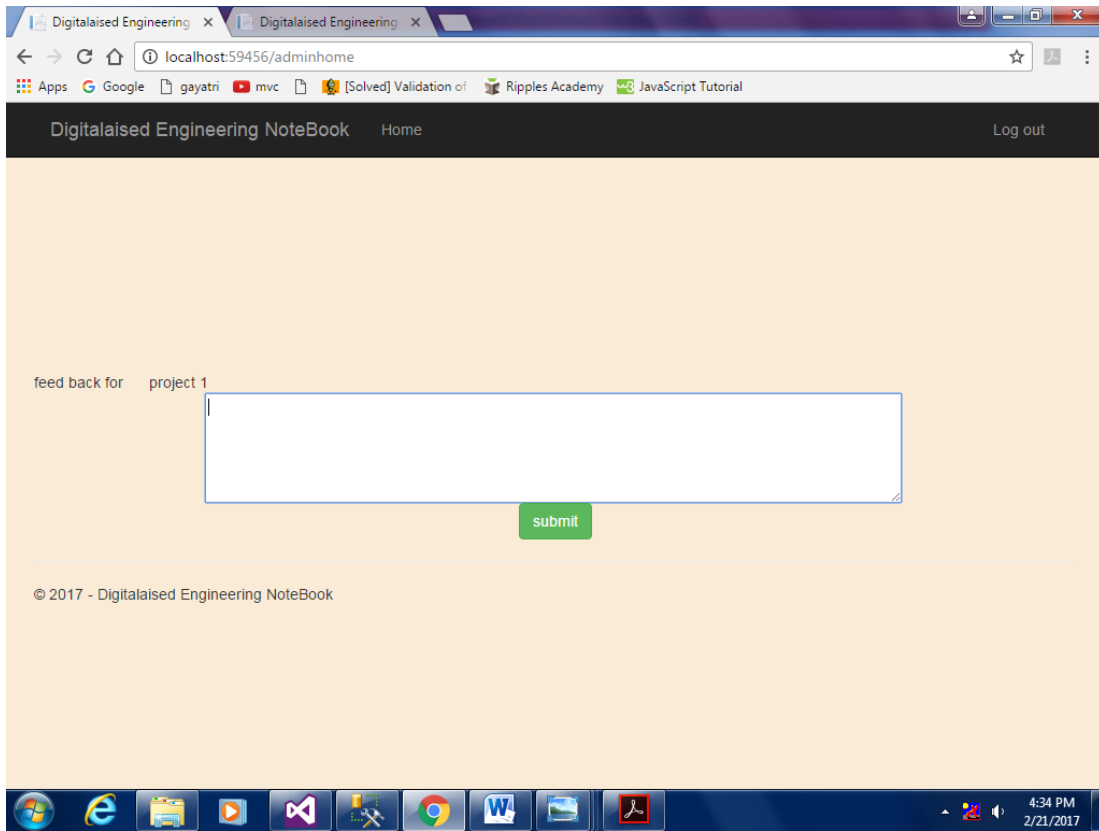
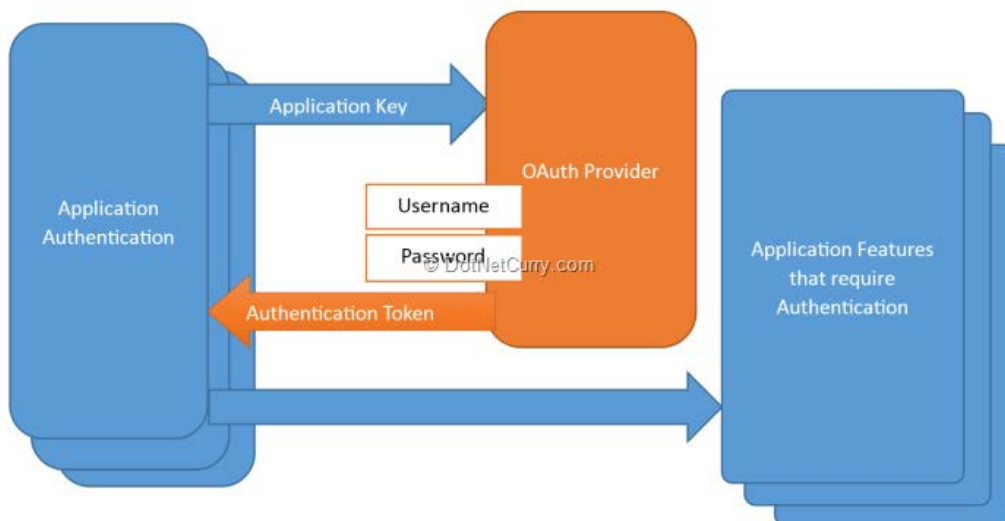


Figure 5 To give the feedback by the admin.

**2.3 Interactions with other Projects (if Any)**

**2.4 Interactions with other Applications**

Implemented open authentication in this project so this application interacts with the other third party applications such as Google and Facebook for other open authentication and in future we implement payment gateways such as paypal etc.



## 2.5 Capabilities

This web based application has a capability to create update delete projects any time, one more important feature in this is forum discussion board integrated with the other users that are registered and using this web application, and notification based web application it can be integrated with the email notification.

## 2.6 Risk Assessment and Management

Coming to risks involved, as this application is built from the scratch more over it is not an enhancement of an existing application there won't be any risks associated, in most cases risks such as sequel injects not format error and data redundancy etc may affect the application but there are several measures that are taken to prevent the risk, more over security frameworks such as passport and identity 2.0 are used for authentication and algorithms such as AES Auto encryption service make this application much more secure.

## 3 Project Requirements

### 3.1 Identification of Requirements

<GSU-GS\_SP2017-1 add notes-000100>

The project must allow new users to add notes, delete them and edit them where ever required

<GSU-GS\_SP2017-2 admin home-000100>

Admin can do the changes where ever needed like deleting the users m, adding the users and editing their information where ever required.

<GSU-GS\_SP2017-3 Registration-000100>

New users are able to sign up and create their projects in the module. They can also edit the projects and add images to the files and add new members if necessary

<GSU-GS\_SP2017-4 display-000100>

All the projects created are displayed in block contents and are displayed along with the other menus and navigation menu.

<GSU-GS\_SP2017-5 Home000100>

The home page will be displayed in the first and will have the user login page and user signup page.

<GSU-GS\_SP2017-6 Modify-000100>

We are able to modify different information in the content page and the user page. There are many other functionalities which can be added later on.

<GSU-GS\_SP2017-7 Students-000100>

There is a student's page where al the students are registered and can able to sign up and create their projects

<GSU-GS\_SP2017-8 Notes-000100>

We also created a section or a block where students are able to keep a track of all the information of the project by placing them in the notes.

<GSU-GS\_SP2017-9 Index-000100>

This is the back end section of the website where we get the list of all the navigation forms within the website and is accessible only by the admin.

<GSU-GS\_SP2017-10 add notes-000100>

The project must allow new users to add notes, delete them and edit them where ever required

<GSU-GS\_SP2017-11 Project-000100>

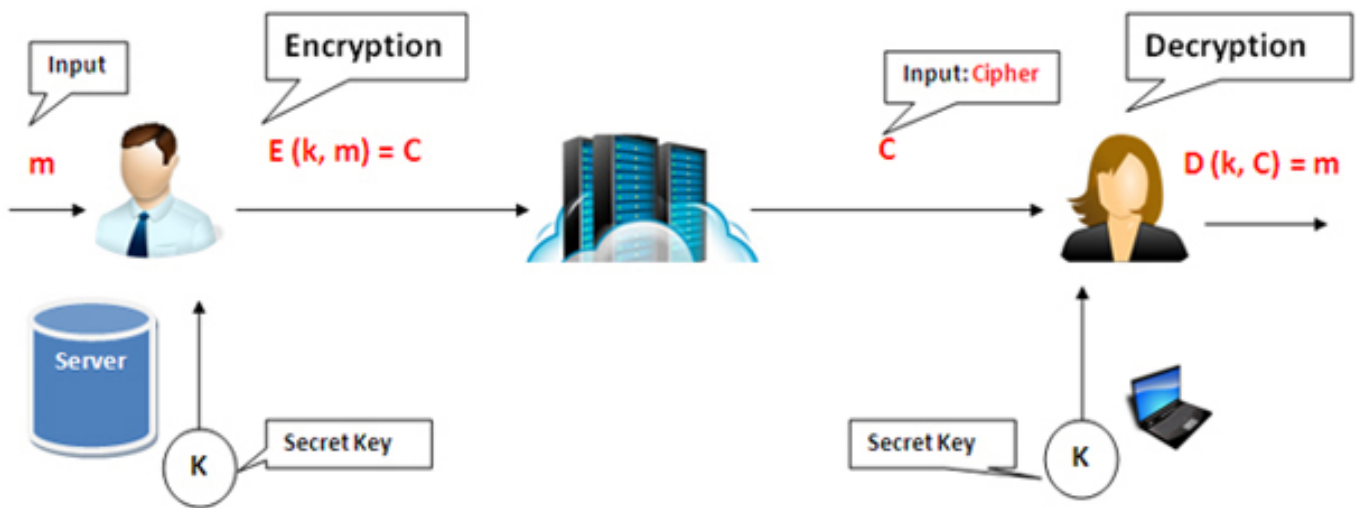
This page will be displaying all the projects created by the students and the users in the list. We have created a list array of items and have customized the page using css properties and java script.

### 3.2 Operations, Administration, Maintenance and Provisioning (OAM&P)

The application which we build have a admin page and have given all the rights to the admin. He/She can edit any kind of information on the website like creating an account for the users accessing their information, modify the information and edit the information. The admin have all privileges on the website and will be performing all kind of operations.

### 3.3 Security and Fraud Prevention

This application is built on Asp.net Identity 2.0 and this is a complete new level of Microsoft security frameworks which can prevent the unauthorized and unsecure practices over this web application. And coming to password encryption the AES algorithm is used for this password level security.



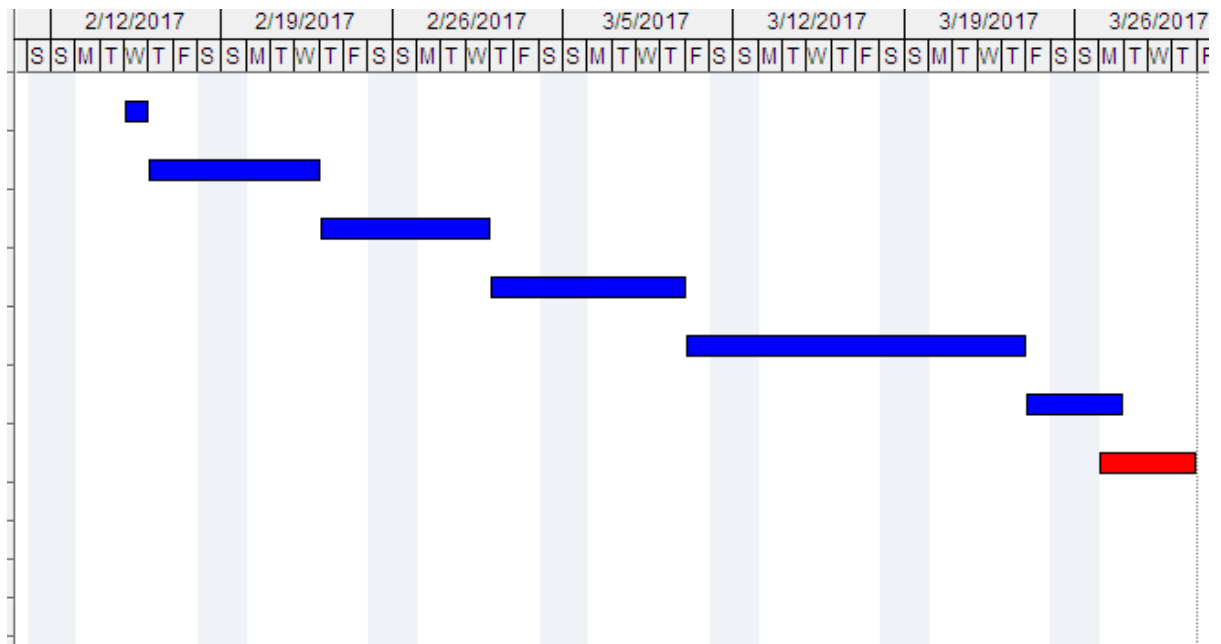
### 3.4 Release and Transition Plan

The following chart explains in detail about the schedule of the project. This schedule will guide us in implementing the project in the given constraints.

Table 1 schedule plan

digi_gantt_sarat							
	WBS	Name	Duration	Baseline Start	Start	Baseline Finish	Finish
1	1	Requirements gathering	1d		2/15/17		2/15/17
2	2	planning	5d		2/16/17		2/22/17
3	3	Analysis	5d		2/23/17		3/1/17
4	4	designing	6d		3/2/17		3/9/17
5	5	coding	10d		3/10/17		3/23/17
6	6	Testing	2d		3/24/17		3/27/17
7	7	documentation	4d		3/27/17		3/30/17

Figure 6 Gantt chart



The above image indicates the work to be done in the given dates. This image is having the relation with the previous table. Based on the previous table, this graph has been had.

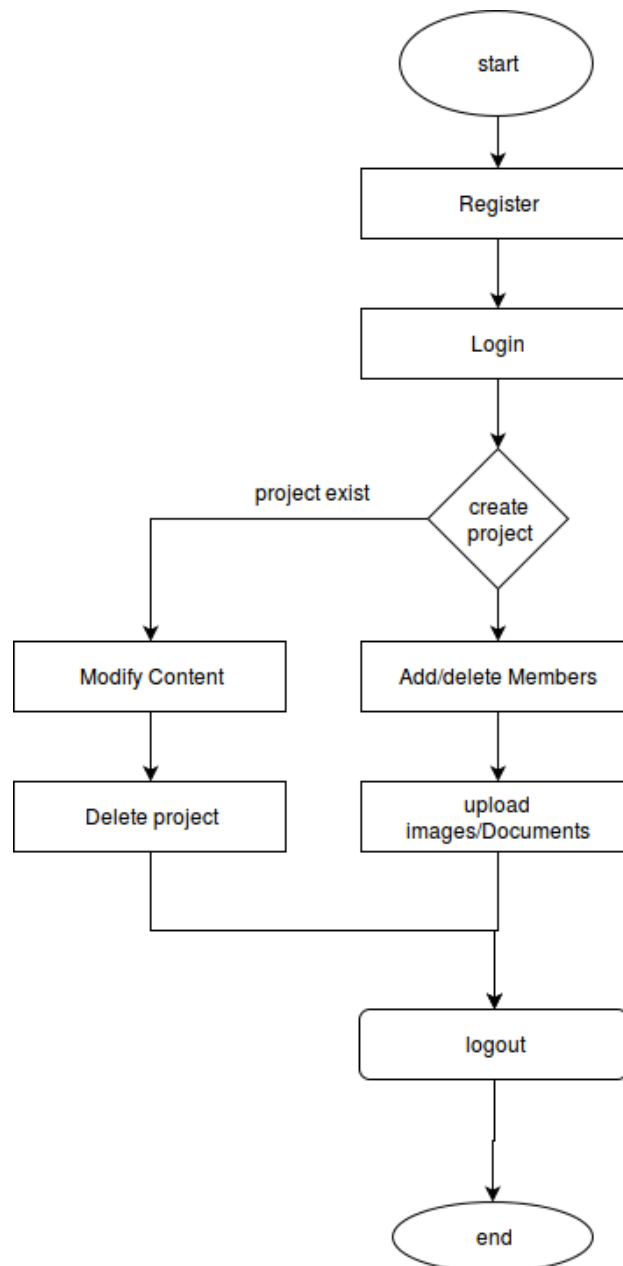
#### 4 Project Design Description

The project is a 3 tier application built on ASP.net technology, initially the project is designed using asp.net web forms, the front end is designed with the Asp.net UI controls and the server side code is built on C#. The project is using Bootstrap CSS framework which supports all the mobile tablet and desktop mode by default. Coming the back end this application uses MS SQL as a data base.

Tier	Technicalities
Front end	Asp.net, HTML5
Middle tier	C#
Backend	MS SQL
Scripting	JQuery, Java Script
Frameworks	Bootstrap, entity framework etc.

### 5 Internal/external Interface Impacts and Specification

These diagrams helps the user to show the flow of information of the application. With this diagram we can know the different components of the application and where it starts and ends. By using this diagram one can easily understand the functionality of the application.



## 6 Design Units Impacts

### 6.1 Functional Area A/Design

To represent the sequence of operations which are performed in between the objects sequence diagrams are used. This diagram explains the order of events which will be occurring in between the objects. It also helps us to understand the interaction which is had in between the objects.

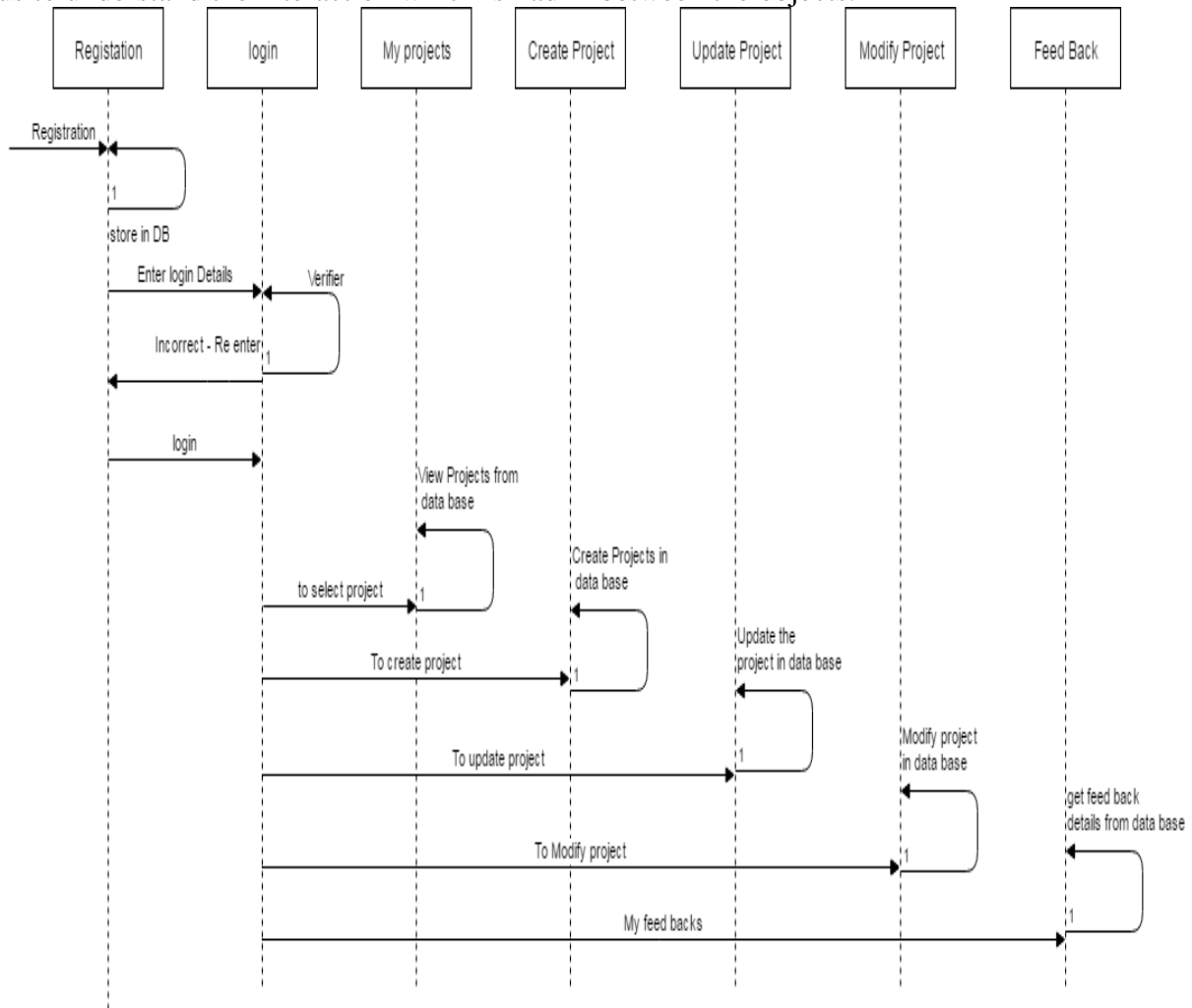


Figure 7 Student sequence diagram



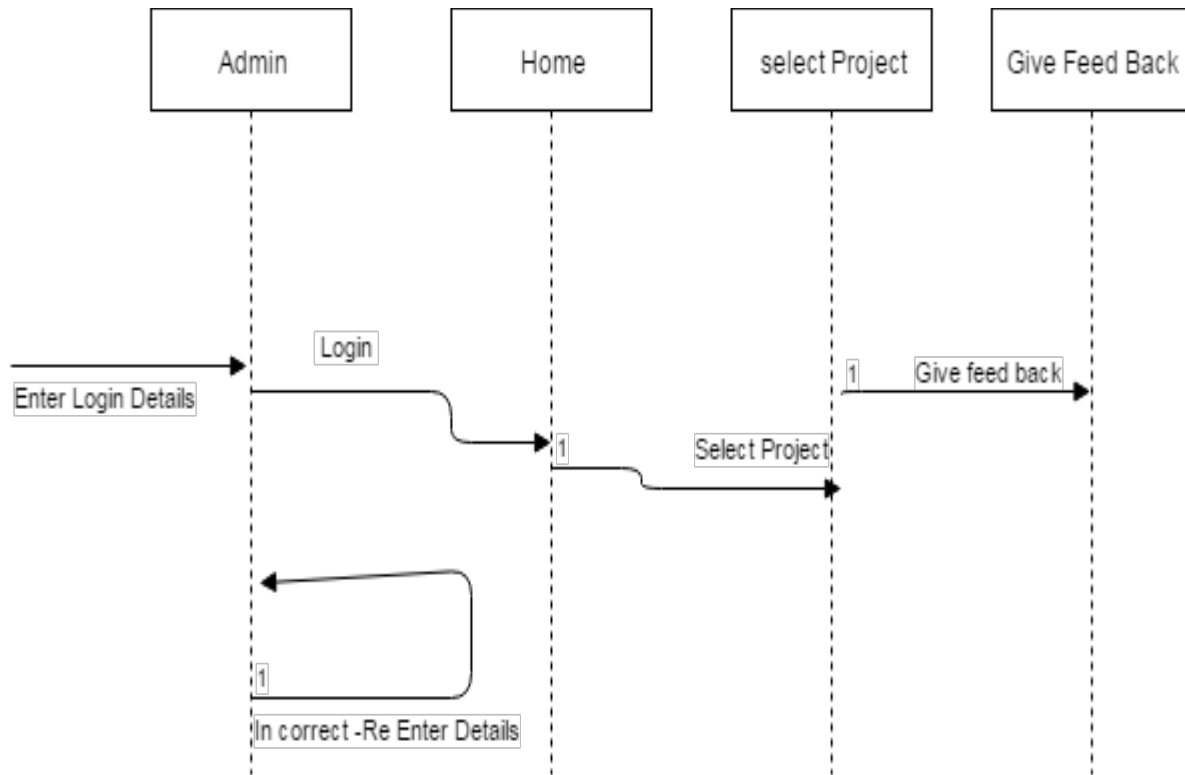


Figure 8 Admin sequence diagram

### 6.1.1 Functional Overview

While implementing this application, I have tested the application parallel. All the testing of the interfaces has been done manually. Which helps the developers to understand where the errors are there and whether the application is satisfying the requirements or not.

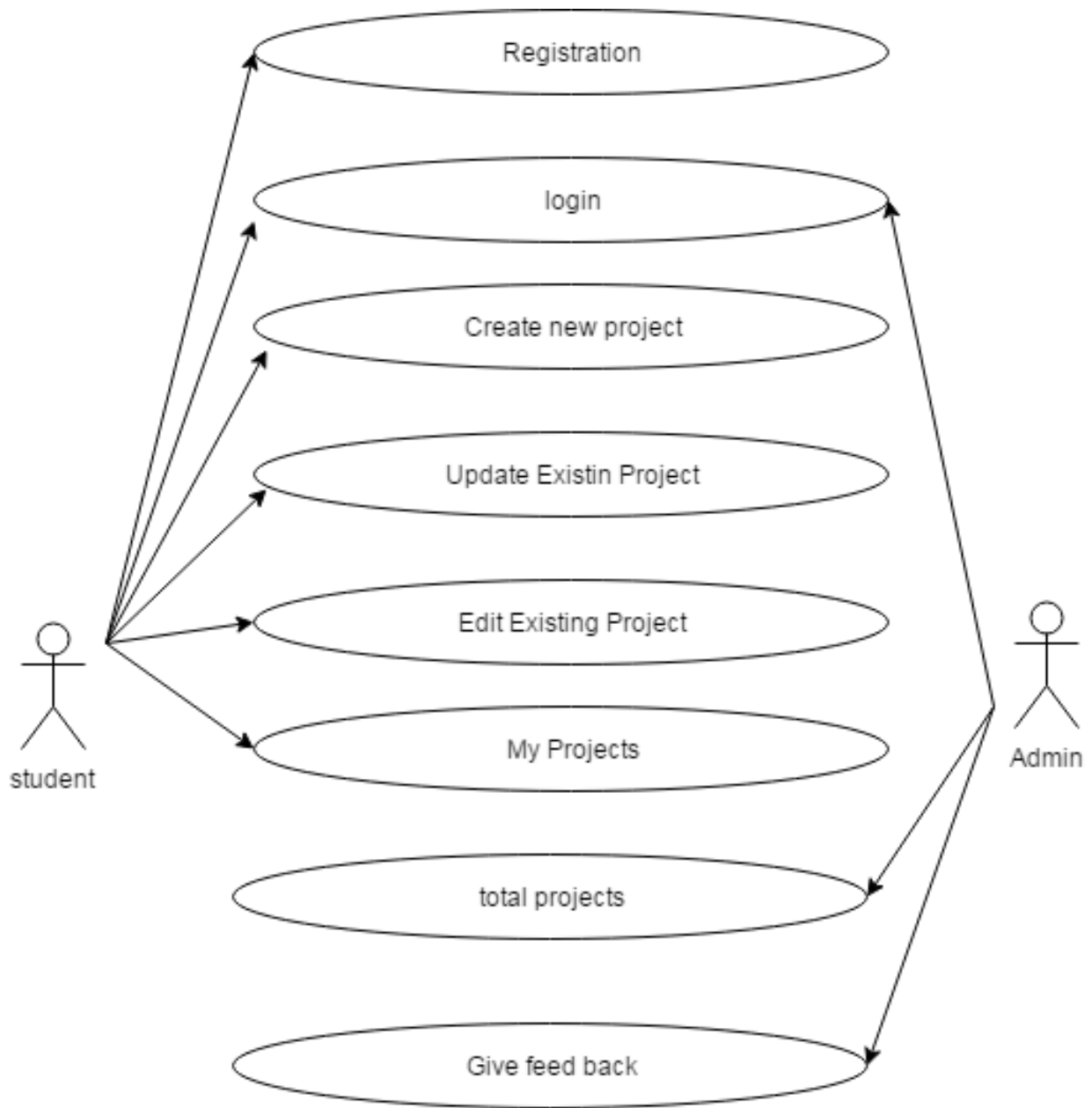
Table 2 functional test plans

No	Test	Parameters	Prerequisite	Action	Expected Result
1	To check whether the user can able to register or not.	Entering the username and password	User has to know the rules of keeping username and password...	After entering the details click on the register button	It should store in the database.

2	To login into the application	To enter user credentials	It should ask the user to enter the username and password	Tester has to check with multiple usernames and password to know whether it is working properly or not.	After multiple combination of checking, it is working exactly.
3	To view the information	Clicking on any of the button		It should show the concerned details to the user.	Got the expected output
4	To create a new project	It asks the name of the project to create.	Database should be there to save	Click the create new project button	It creates the new projects and ready for the operations.

### 6.1.2 *Impacts*

This is one of the behavioral notation which is used to represent all the functions which will be doing by all the users who are involved with the application. Every use case diagram consists of actions as functions and the actors as users.



Use case diagrams

### 6.1.3 Requirements

The following are some of the examples of the test cases which is written and tested manually with the following test cases.

<b>REQUIREMENT-1</b>	Admin or user registration into the application..
<b>TEST CASE-1</b>	Software tester tests through interface whether there is any issue with Registration and logging in.
<b>REQUIREMENT-2</b>	Testing the main page which contains options like my projects, view project, update projects, create projects.
<b>TEST CASE-2</b>	Software tester checks whether all the options are working properly or not and also checks that user is navigating to the concerned options.
<b>REQUIREMENT-3</b>	To check the my projects interface
<b>TEST CASE-3</b>	Software tester checks whether option is showing all the projects related to that user or not.
<b>REQUIREMENT-4</b>	Create project.
<b>TEST CASE-4</b>	This can be done by the admin and the user, tester has to check whether the interface is providing the facility to create the projects and the details are stored in the database or not.

Similarly to test the whole application, there will be different test cases has to be created and tested according to the test case. By this we can know whether all functionalities are executing according to the requirements or not.

## 7 Open Issues

While developing this application we encountered many issues with the system compatibility, software compatibility and we also considered some of the user authentication security issues thought they do not play a important role for the size of this project. We searched the internet and went through many online forums for resolving the issues that occurred while developing the application.

## 8 Acknowledgements

This section should include a reference to prior authors, etc. and others who have assisted in the generation of this document.

## 9 References

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[https://www.visual-paradigm.com/support/documents/vpuserguide/94/2576/7190\\_drawingclass.html](https://www.visual-paradigm.com/support/documents/vpuserguide/94/2576/7190_drawingclass.html)

## 10 Appendices

<b>Appendices</b>	<b>Description</b>
UML	Unified Modeling Language
DFD	Data Flow diagrams
ERD	Entity relation diagram
HTML	Hyper Text Markup Language
MVC	Model View Controller
SEO	Software Engine Optimization
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SoC	Separation of concerns