

**Governors State University**  
**OPUS Open Portal to University Scholarship**

---

All Capstone Projects

Student Capstone Projects

---

Spring 2017

# Digitized Engineering Notebook

Mirza Nadeem Baig  
*Governors State University*

Abdul Mateen Mohammed  
*Governors State University*

Ehesan Aman Mohammed  
*Governors State University*

Abdul Muqteet Syed  
*Governors State University*

Follow this and additional works at: <http://opus.govst.edu/capstones>

 Part of the [Computer Sciences Commons](#)

---

## Recommended Citation

Baig, Mirza Nadeem; Mohammed, Abdul Mateen; Mohammed, Ehesan Aman; and Syed, Abdul Muqteet, "Digitized Engineering Notebook" (2017). *All Capstone Projects*. 286.  
<http://opus.govst.edu/capstones/286>

For more information about the academic degree, extended learning, and certificate programs of Governors State University, go to [http://www.govst.edu/Academics/Degree\\_Programs\\_and\\_Certifications/](http://www.govst.edu/Academics/Degree_Programs_and_Certifications/)

Visit the [Governors State Computer Science Department](#)

This Project Summary is brought to you for free and open access by the Student Capstone Projects at OPUS Open Portal to University Scholarship. It has been accepted for inclusion in All Capstone Projects by an authorized administrator of OPUS Open Portal to University Scholarship. For more information, please contact [opus@govst.edu](mailto:opus@govst.edu).

## ABSTRACT

Digitizing engineering notebooks, articles, assignments, multimedia things, event calendar and uploading downloading files from online web portal will certainly help engineering students in their studies.

Here in this abstract we are proposing a system where students can share their notebooks on online web portal and others can read it and download it in a PDF format. This system will surely help and make updated all the students about college activities, studies and other activities.

Proposed system will implement in Microsoft .Net Framework, C#.Net, ASP.Net and required an IIS web server to run it on live server. Developing this system require an IDE i.e. Visual Studio and backed database MS SQL to keep records of notebooks, data and assignments etc.

There will be another super user which will manage student's record and manage and restrict them to access the system. He can manage projects, assignments and assign to students.

## Table of Content

1	Project Description .....	1
1.1	Competitive Information .....	2
1.2	Relationship to Other Applications/Projects .....	2
1.3	Assumptions and Dependencies .....	2
1.4	Future Enhancements .....	2
1.5	Definitions and Acronyms.....	3
2	Project Technical Description .....	3
2.1	Application Architecture .....	5
2.2	Application Information flows .....	5
2.3	Interactions with other Projects (if Any).....	7
2.4	Interactions with other Applications .....	7
2.5	Capabilities .....	7
2.6	Risk Assessment and Management .....	7
3	Project Requirements .....	8
3.1	Identification of Requirements .....	8
3.2	Operations, Administration, Maintenance and Provisioning (OAM&P) .....	8
3.3	Security and Fraud Prevention .....	8
3.4	Release and Transition Plan .....	8
4	Project Design Description.....	8
5	Internal/external Interface Impacts and Specification.....	15
6	Design Units Impacts .....	17
6.1	Functional Area A/Design Unit A.....	19
6.1.1	Functional Overview.....	19
7	Open Issues.....	20

8	Acknowledgements .....	20
9	References .....	20
10	Appendices .....	20

## *1 Project Description*

Governors State University required an online system where students can view and share their college notes and project details. System admin will provide the access to the projects and students can upload, download project contents from anywhere. Following modules are proposed for the system

### Student

- Registration

Students need to register on website to get access of projects and contents of project.

- Sign in

Once registration is completed, student needs to login to the system using his/her credentials.

- Forget Password

If any student forgets their password he/she can get his/her password from this function. To get password he/she need to provide his registered email address on which system will email his/her password.

- Edit Profile with change password

This option will provide user to change his profile details and change his/her password.

- View Project List and Details

There will be a project list which he/she has joined. User can view the details of project which includes Date, Title, Duration, Users, User-wise Tasks, and Discussions

- Export complete Project Details in PDF

User can export project details on PDF format.

- Select Project & Upload Project Contents

User can upload contents of project which includes text, video, image, graphs image

- Invite friend via Email into Project

User can invite his/her friend to participate in project by providing friends email address.

- Project-wise discussion board

There is a discussion board where user can discuss and comments on project

- Logout

Logout from system

## Admin

- Login

Admin need to login to the system to get access for all the functionalities

- Manage Project

Admin can manage project, he can add, update and delete project and its details

- View Students

Admin can view the student's registration details.

- Logout

Logout from system

### ***1.1 Competitive Information***

Governors State University does not have any online system to give online support to students to share the notes and project documents. Digitizing engineering notebooks, articles, assignments, multimedia things, event calendar and uploading downloading files from online web portal will certainly help engineering students in their studies

### ***1.2 Relationship to Other Applications/Projects***

This project is not related with any other system or project. This is self / independent application which will run on online server.

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

- If system will use for only college students
- There is no dependency in this system
- User of a system will dependent on others like super admin will manage the entire students where he can deactivate and delete their accounts.
- Website is dependent on web server performance. If server gives best performance there will be no issue running the website.

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

Future enhancements can be as follows;

- College faculties / Professors also can be user of a system
- They can upload, download contents from system
- Mobile applications can be developed

### 1.5 Definitions and Acronyms

Acronyms	Definitions
Engineering Notebook	Document where all the class notes are written for future references.
Website	Software application runs on a live server, accessible for all over internet.
Multimedia	Multimedia contents audios, videos etc.
IIS	Internet Information Services – Server to run the .Net website
IDE	Integrated Development Environment

## 2 Project Technical Description

- Hardware Requirements:

	Server Side	Client Side
Processor	Minimum Core i3 and above	Minimum Core i3 and above
RAM	Minimum 4GB or Higher	Minimum 2GB or Higher
Hard Disk	80 GB or Higher	20 GB or Higher

- Software Requirement:

- Front end: .Net Framework 3.5
- Back end (Server): IIS
- Database: MS-SQL Server 2015 Express
- Other Technologies: HTML, Microsoft Visual Studio 2012
- Operating System: Windows XP, Windows Vista, Win 7
- Tools: Any Browser

## Asp.Net:

ASP.Net offers a whole new approach to developing your web applications instead of a single code block that runs whenever the page is submitted, like we had in ASP. ASP.Net offer a richer programming model that emulates an event driven programming.

Static pages, web pages that have the same content each time you view them, are more and more becoming a thing of the past. To encourage the development of your web community and to get visitors to return to your site, you must provide them with a reason to come back. Probably the most compelling reason a person has for returning to your site is because you offer dynamic web content.

Dynamic web pages can change every time they are viewed, or they can offer ways for visitors to send information back to you. ASP.Net provides a way for you to create dynamic web pages.

**ASP .NET Controls:** - ASP .NET contains a large set of HTML controls. Almost all HTML elements on a page can be defined as ASP .NET control objects that can be controlled by scripts. ASP .NET also contains a new set of object oriented input controls, like programmable list boxes and validation controls. A new data grid control supports sorting, data paging, and everything you expect from a dataset control.

**Event Aware Controls:** - All ASP .NET objects on a Web page can expose events that can be processed by ASP .NET code. Load, Change and Click events handled by code makes coding much simpler and much better organized.

**ASP .NET Components:** - ASP .NET components are heavily based on XML. Like new AD Rotator, uses XML's to store advertisement information and configuration.

**User Authentication:** - ASP .NET supports forms-based user authentication, including cookie management and automatic redirecting of unauthorized logins.

**User Accounts and Roles:** - ASP .NET allows for user accounts and roles, to give each user (with a given role) access to different server code and executable.

## IIS (Internet Information Server):

IIS is an abbreviation for Internet Information Services (formerly Internet Information Server.) It's Microsoft's web server that operates in Windows NT and 2000, giving Windows HTTP capability. IIS Web sites run using a copy of IIS that is installed on your computer. When you create a local IIS Web Site, the pages and folders for your site are stored in a folder under the default IIS folder for Web site. Visual Studio 2008 also creates the appropriate IIS configuration so that the Web site is recognized by IIS as an application. To create a local IIS Web Site, you need to Administrator privileges on the computer.

## HTML: -

The language used to develop web pages is called Hyper Text Markup Language (HTML). HTML is the language interpreted by a browser. Web pages are also called html documents. HTML can be embedded in text to add formatting and linking information. HTML is specified as Tags in an HTML document (I.e. web pages).



## 2.1 Application Architecture



User:

- There are three types of users in this project. They are Admin, Captain and Member.

Functionalities:

- Admin can accept/decline requests of captains.
- Admin can view and manage captains.
- Admin can view/manage projects.
- Captains can accept/decline requests of members.
- Captain can add/update/delete projects.
- Members can join projects and update the project.
- Users can discuss about the project on the discussion board.
- Users can upload and download the project files.
- Users can send invites to their friends.

## 2.2 Application Information flows

Admin

- Login

Admin need to login to the system to get access for all the functionalities

- Manage Project

Admin can manage project, he can add, update and delete project and its details

- View Students

Admin can view the student's registration details.

Admin can accept or decline captain's request.

- Logout

Logout from system

## Student

- Registration

Students need to register on website to get access of projects and contents of project.

\Student needs to enter his name, contact, email, address, password and add the profile picture and select the user type.

- Sign in

Once registration is completed, student needs to login to the system using his/her credentials.

- Forget Password

If any student forgets their password he/she can get his/her password from this function. To get password he/she need to provide his registered email address on which system will email his/her password.

- Edit Profile with change password

This option will provide user to change his profile details and change his/her password.

- View Project List and Details

There will be a project list which he/she has joined. User can view the details of project which includes Date, Title, Duration, Users, User-wise Tasks, and Discussions

- Export complete Project Details in PDF

User can export project details on PDF format.

- Select Project & Upload Project Contents

User can upload contents of project which includes text, video, image, graphs image

- Invite friend via Email into Project

User can invite his/her friend to participate in project by providing friends email address.

- Project-wise discussion board

There is a discussion board where user can discuss and comments on project

- Logout

Logout from system

There are two user types

1. Captain
2. Member

Captain

- Captain can create a project on the website.
- Captain can send invites to his/her friends through email from which they could register on the website.
- Once the user registers on the website as Member, Captain gets his request.
- Captain can accept or decline users request.
- Captain can add/delete the users in a project.

Member

- Member can register on the website using the link provided in the email.
- Member can update the project details.
- Member can view project details and comment on the discussions board.

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

No interaction with any other project.

### ***2.4 Interactions with other Applications***

No interaction with any other application.

### ***2.5 Capabilities***

Proposed system required a database which needs to handle the system data. System is built on .Net framework; it means it uses Microsoft SQL Server Database. All the project data and contents will store in database using SQL queries.

### ***2.6 Risk Assessment and Management***

As a system is quite lengthy, need to spend as much as time to complete the project in time.

### **3 Project Requirements**

#### **3.1 Identification of Requirements**

##### Req. 1 - Upload Project Contents

Project captain and Members can upload contents of a project

Once captain and members are in a project, they can upload the project details, documents, diagrams, images, videos, audios etc.

##### Req. 2 - Download Project Contents

Captain and team members can download the project contents in PDF format.

By clicking on download button captain and team members can download all the contents in a PDF format.

##### Req. 3 - Project Discussion

Discussion Forum

Project team members and captain can discuss on project by text messages. All the messages will be stored in a database which can view later for any reference.

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

System admin can back up all the website data from server admin panel.

#### **3.3 Security and Fraud Prevention**

Every user need to login to the system to access the website contents.

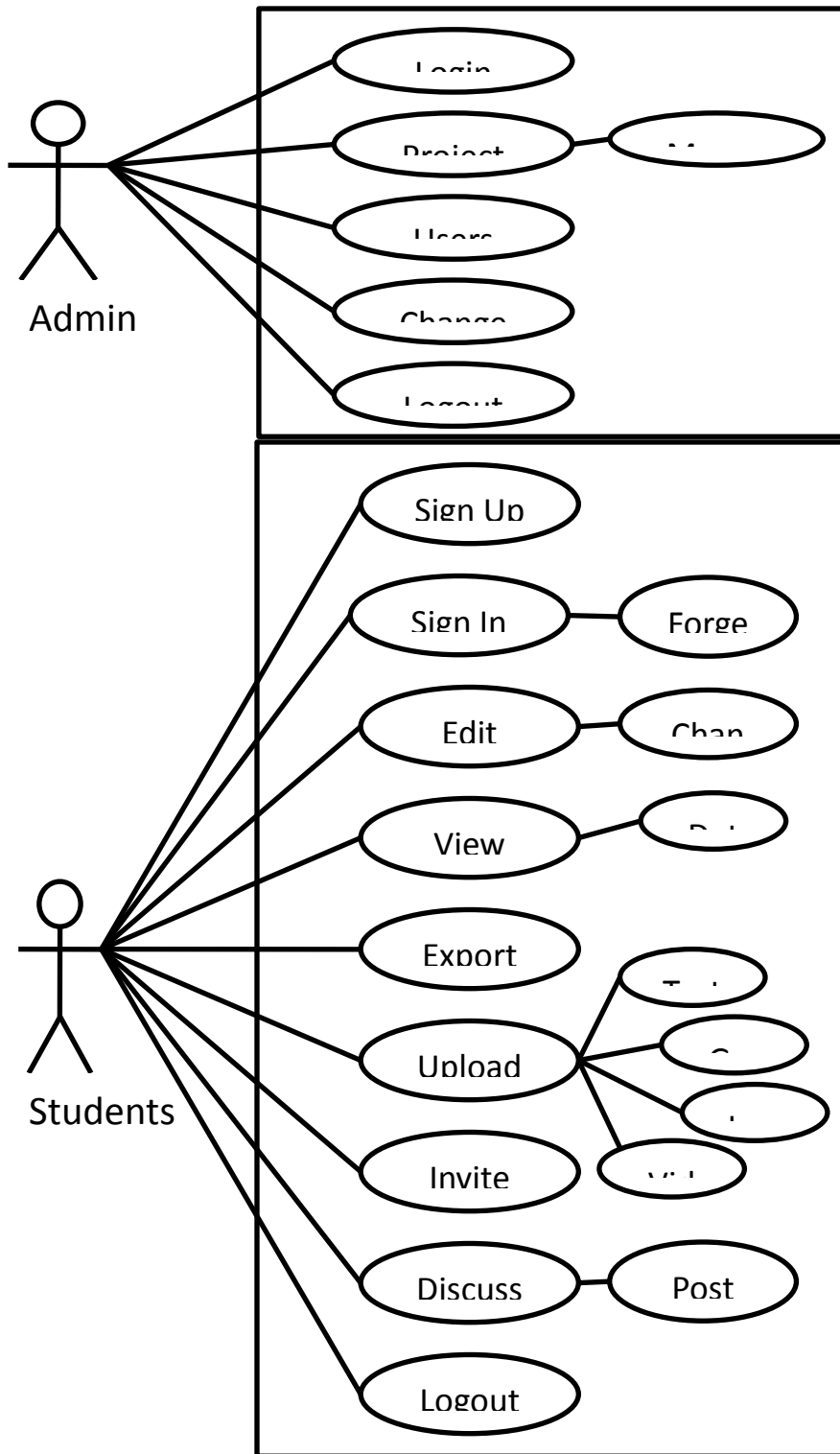
#### **3.4 Release and Transition Plan**

Project will complete in 4-6 weeks; complete project will host on a server and will provide the access to the admin.

### **4 Project Design Description**

#### Use Case Diagram

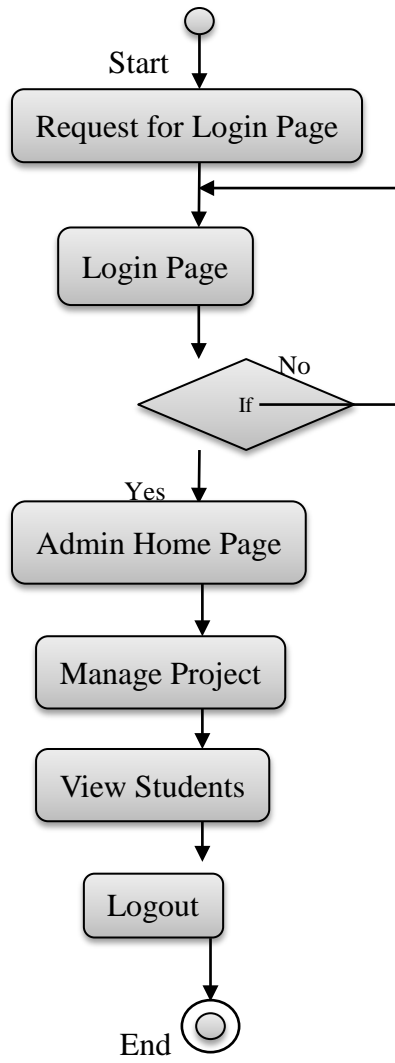
Use case diagrams overview the custom requirements for a system. They are useful for presentations to management and/or project stakeholders, but for actual development you will find that use cases provide significantly more value because they describe "the meat" of the actual requirements.

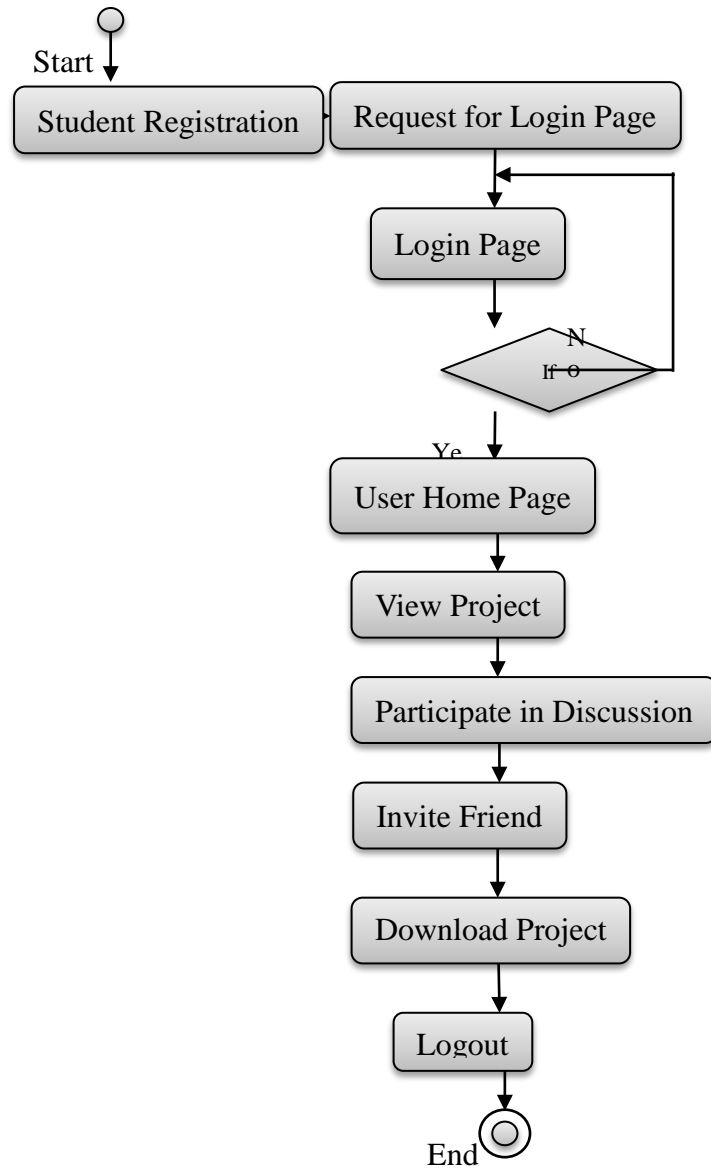


Activity Diagram

Activity diagrams are typically used for business process modeling, for modeling the logic captured by a single use case or usage scenario, or for modeling the detailed logic of a business rule. Activity diagrams can represent inside logic of a complex operation it would be far better to simply rewrite the operation so that it is simple enough that you don't require an activity diagram. In many ways UML activity diagrams

are the object-oriented equivalent of flow charts and data flow diagrams (DFDs) from structured development.

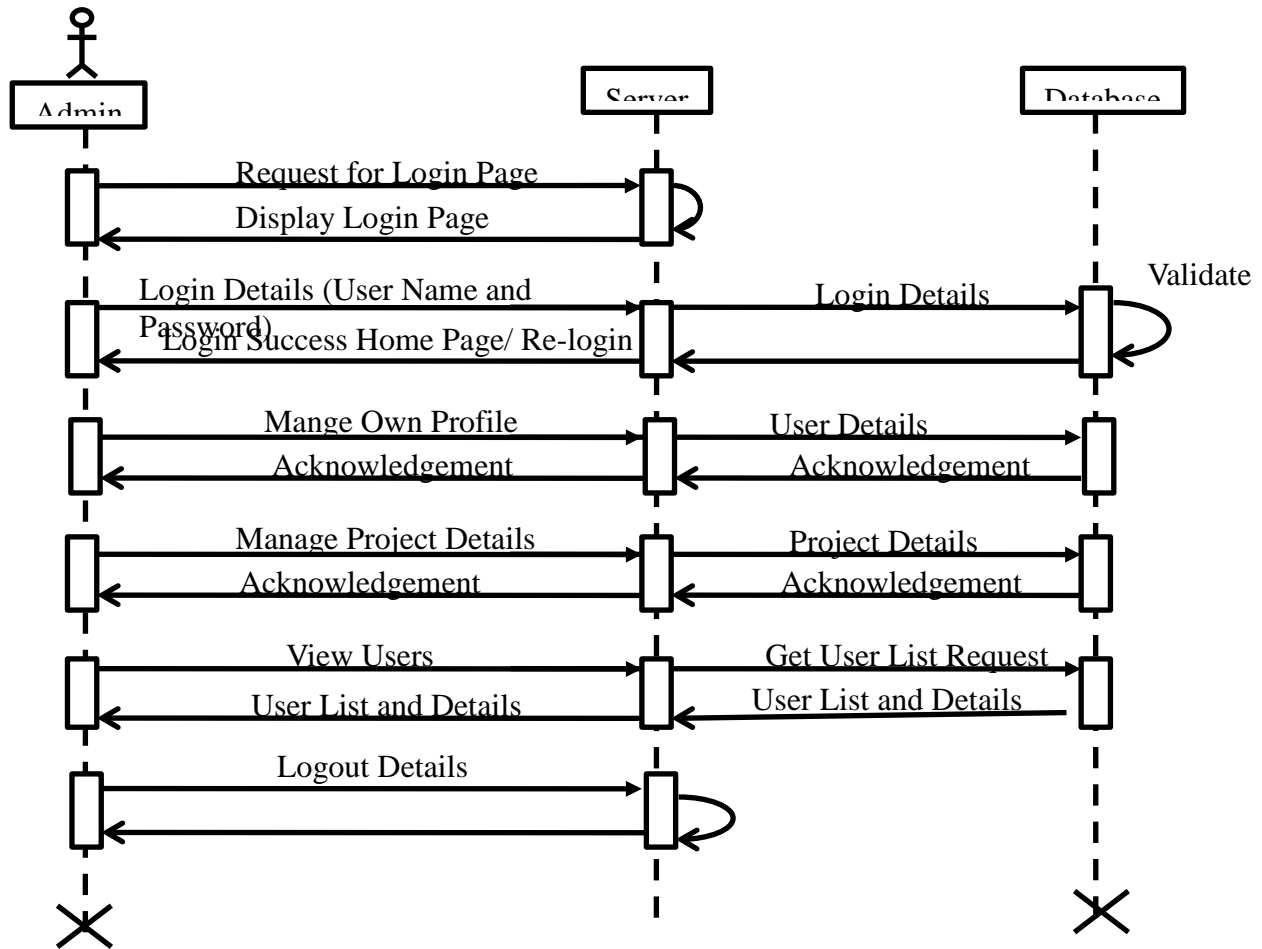


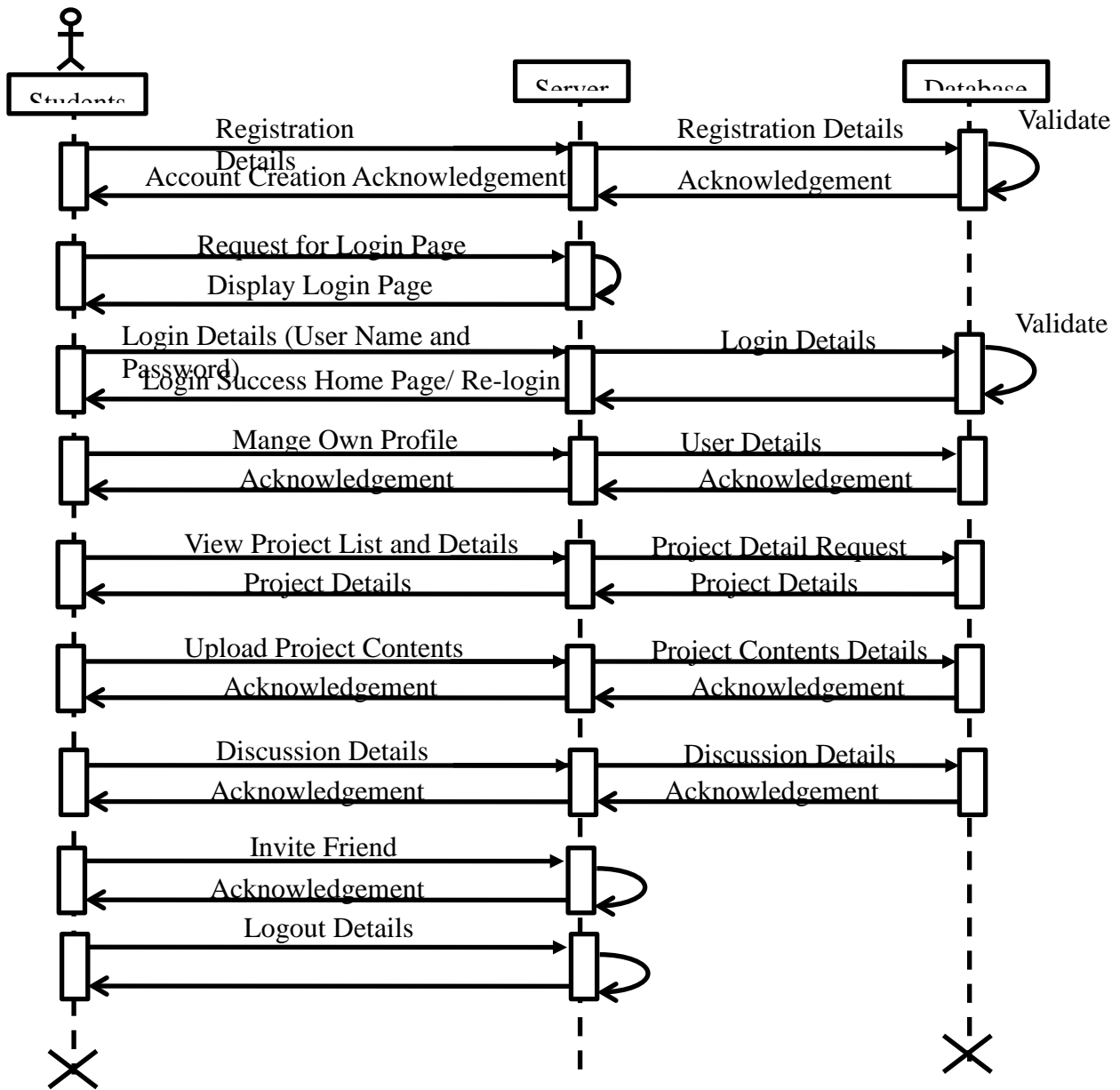




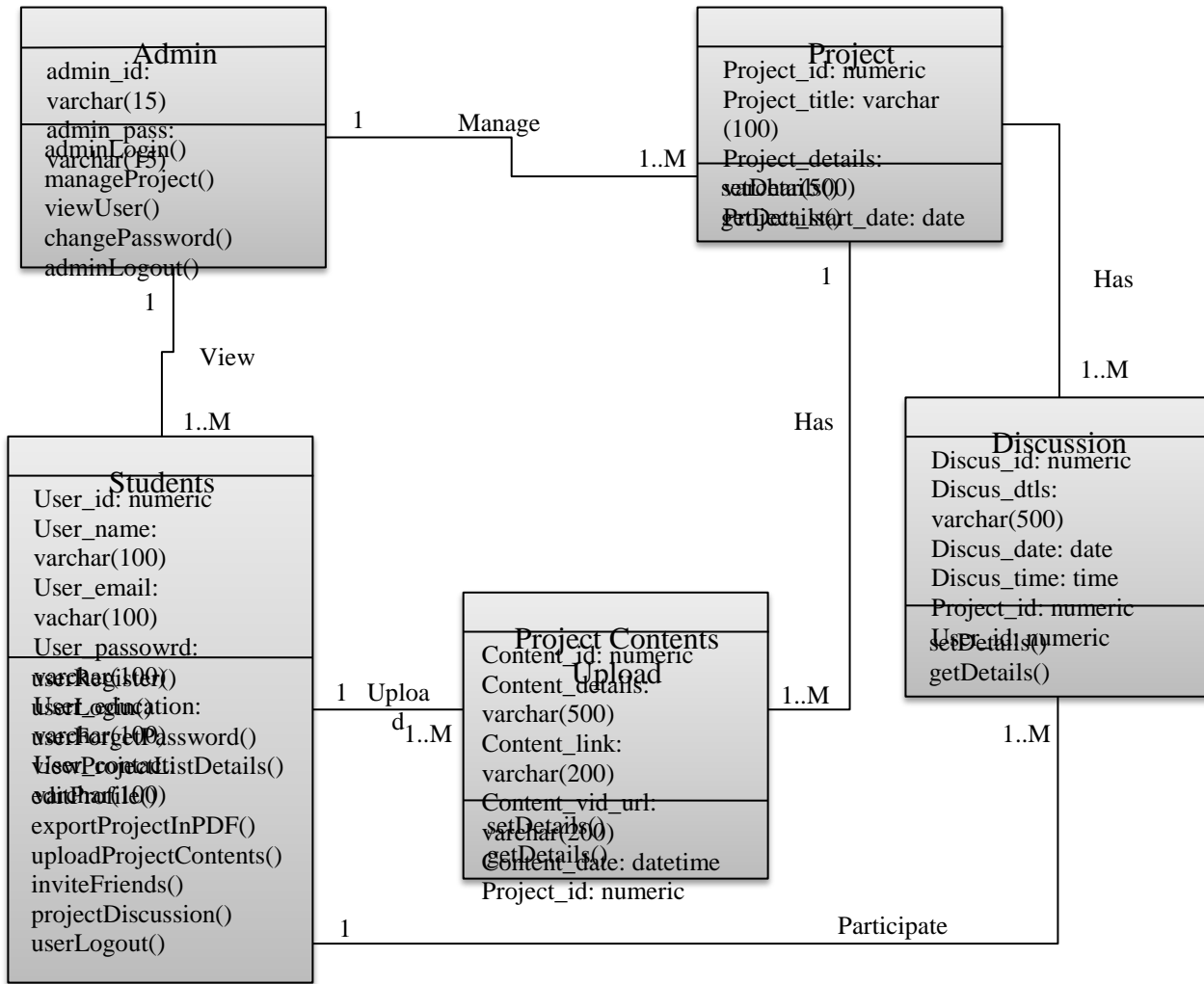
## Sequence Diagram

It represents the flow of logic within your system in a visual manner, enabling you both to document and validate your logic, and is commonly used for both analysis and design purposes. Sequence diagrams are the most popular UML artefact for dynamic modelling, which focuses on identifying the behavior within your system.





## Class Diagram



## 5 Internal/external Interface Impacts and Specification

Database Structure

Admin Login Table

	Column Name	Data Type	Allow Nulls
🔑	add_ID	int	<input type="checkbox"/>
	add_Profile	nvarchar(MAX)	<input checked="" type="checkbox"/>
	add_FName	nvarchar(MAX)	<input checked="" type="checkbox"/>
	add_LName	nvarchar(MAX)	<input checked="" type="checkbox"/>
	add_Contact	nvarchar(MAX)	<input checked="" type="checkbox"/>
	add_Email	nvarchar(MAX)	<input checked="" type="checkbox"/>
	add_Password	nvarchar(MAX)	<input checked="" type="checkbox"/>
▶	add_SecurityQue	nvarchar(MAX)	<input checked="" type="checkbox"/>
	add_SecurityAns	nvarchar(MAX)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

### User Login Table

	Column Name	Data Type	Allow Nulls
🔑	ID	int	<input type="checkbox"/>
	user_Name	nvarchar(MAX)	<input checked="" type="checkbox"/>
	user_ProfileImage	nvarchar(MAX)	<input checked="" type="checkbox"/>
	user_Contact	nvarchar(MAX)	<input checked="" type="checkbox"/>
	user_Address	nvarchar(MAX)	<input checked="" type="checkbox"/>
	user_Email	nvarchar(MAX)	<input checked="" type="checkbox"/>
	user_Password	nvarchar(MAX)	<input checked="" type="checkbox"/>
	user_Type	nvarchar(MAX)	<input checked="" type="checkbox"/>
	admin_Authority	nvarchar(MAX)	<input checked="" type="checkbox"/>
▶			<input type="checkbox"/>

### Blog/Discussion Table

	Column Name	Data Type	Allow Nulls
▶🔑	blog_ID	int	<input type="checkbox"/>
	user_ID	int	<input checked="" type="checkbox"/>
	project_ID	int	<input checked="" type="checkbox"/>
	blog_Text	nvarchar(MAX)	<input checked="" type="checkbox"/>
	blog_DateTime	nvarchar(MAX)	<input checked="" type="checkbox"/>
			<input type="checkbox"/>

### Project Contents Table

	Column Name	Data Type	Allow Nulls
🔑	content_ID	int	<input type="checkbox"/>
	user_ID	int	<input checked="" type="checkbox"/>
	project_ID	int	<input checked="" type="checkbox"/>
	content_Text	nvarchar(MAX)	<input checked="" type="checkbox"/>
	content_UploadFile	nvarchar(MAX)	<input checked="" type="checkbox"/>
	content_DateTime	nvarchar(MAX)	<input checked="" type="checkbox"/>
▶			<input type="checkbox"/>

Project Details Table

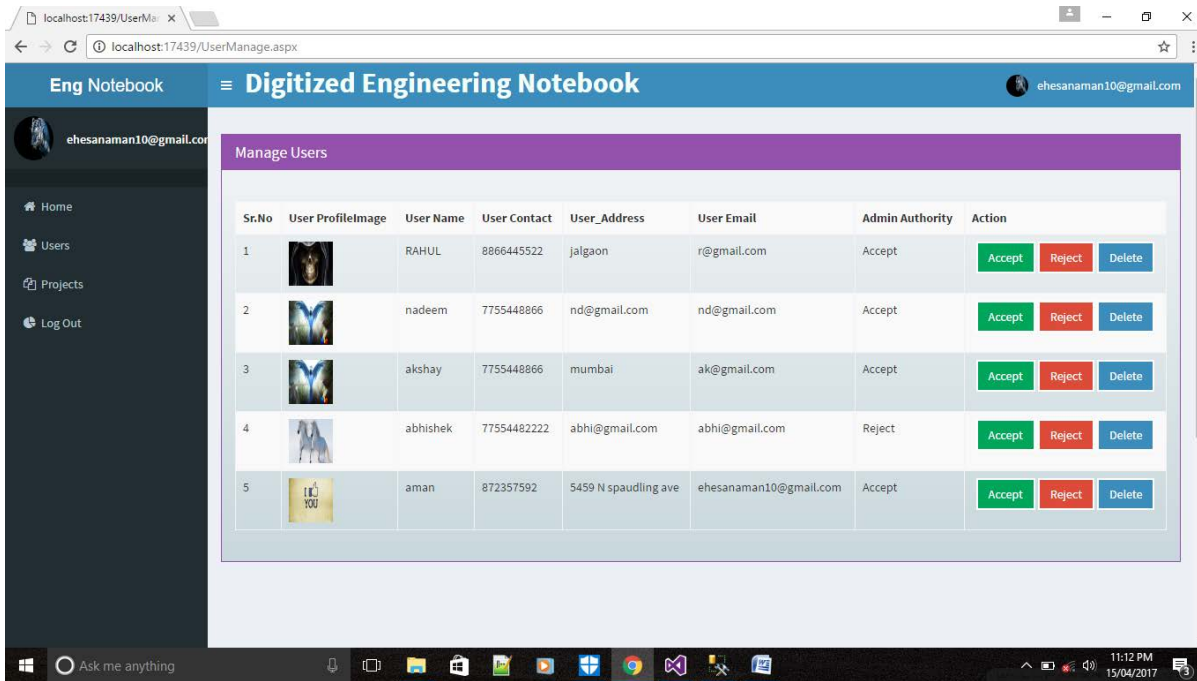
	Column Name	Data Type	Allow Nulls
🔑	project_ID	int	<input type="checkbox"/>
	project_Captain	nvarchar(MAX)	<input checked="" type="checkbox"/>
	project_Name	nvarchar(MAX)	<input checked="" type="checkbox"/>
	project_Duration	nvarchar(MAX)	<input checked="" type="checkbox"/>
	project_Task	nvarchar(MAX)	<input checked="" type="checkbox"/>
	project_Reflections	nvarchar(MAX)	<input checked="" type="checkbox"/>
	project_Atachment	nvarchar(MAX)	<input checked="" type="checkbox"/>
	project_Summary	nvarchar(MAX)	<input checked="" type="checkbox"/>
▶			<input type="checkbox"/>

Project Team Table

	Column Name	Data Type	Allow Nulls
🔑	team_ID	int	<input type="checkbox"/>
	project_ID	int	<input checked="" type="checkbox"/>
	user_ID	int	<input checked="" type="checkbox"/>
▶			<input type="checkbox"/>

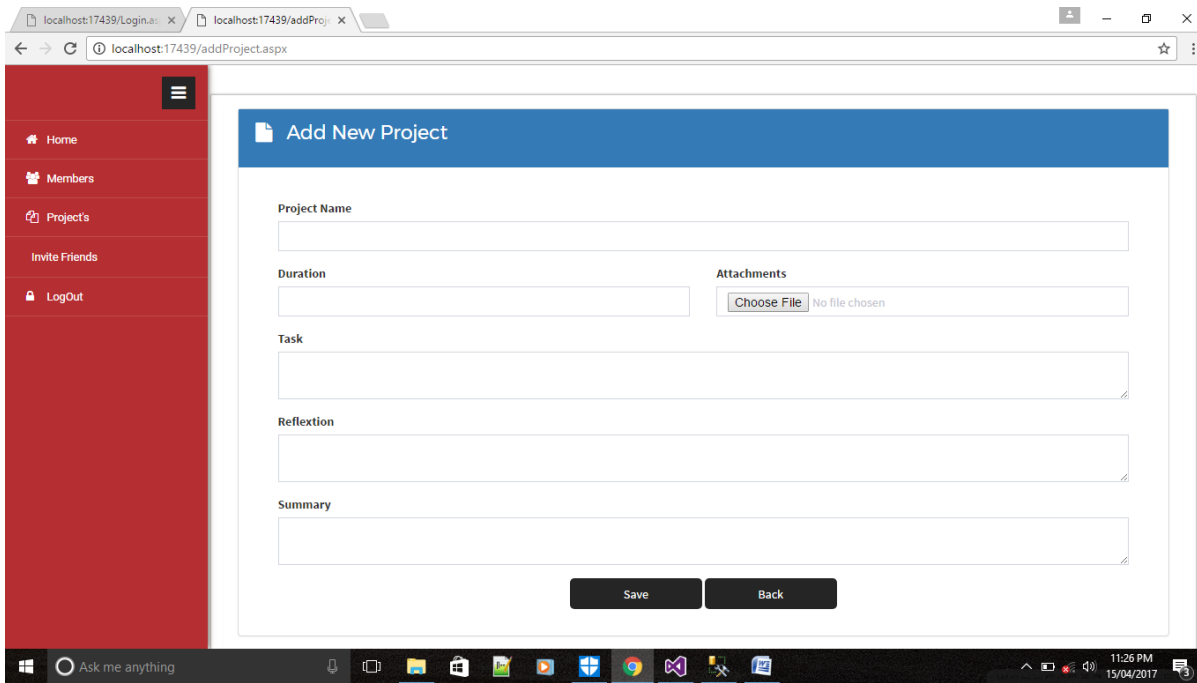
## 6 Design Units Impacts

Admin main process

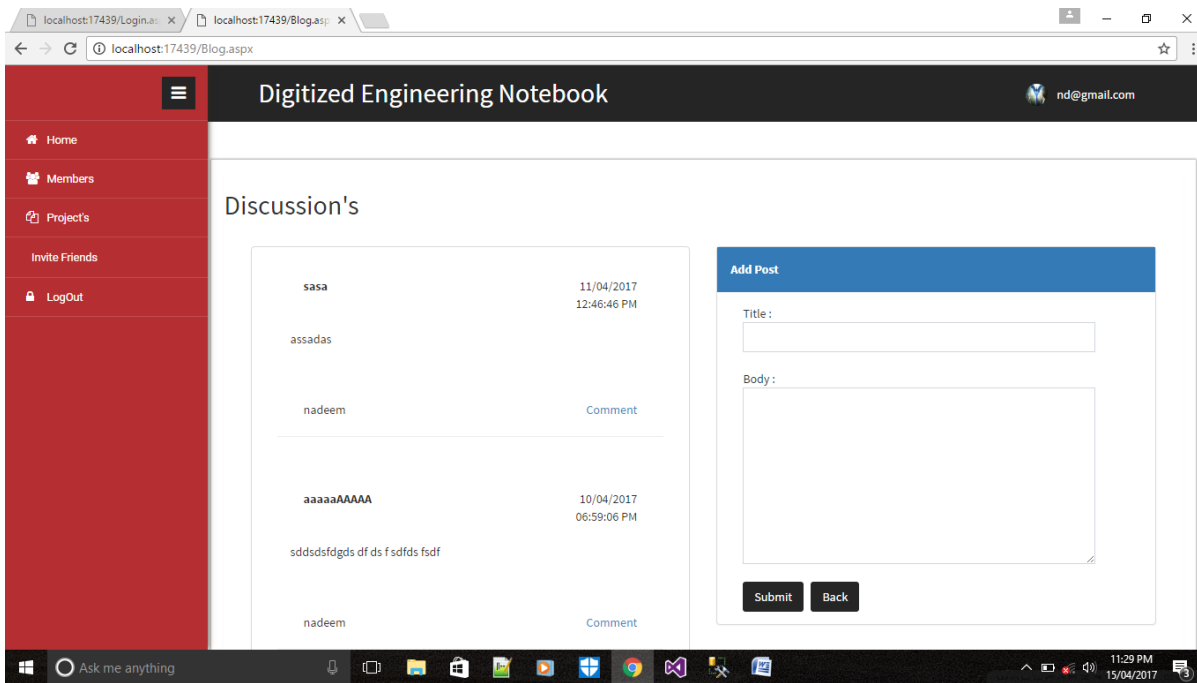


Captain main process

Manage Project

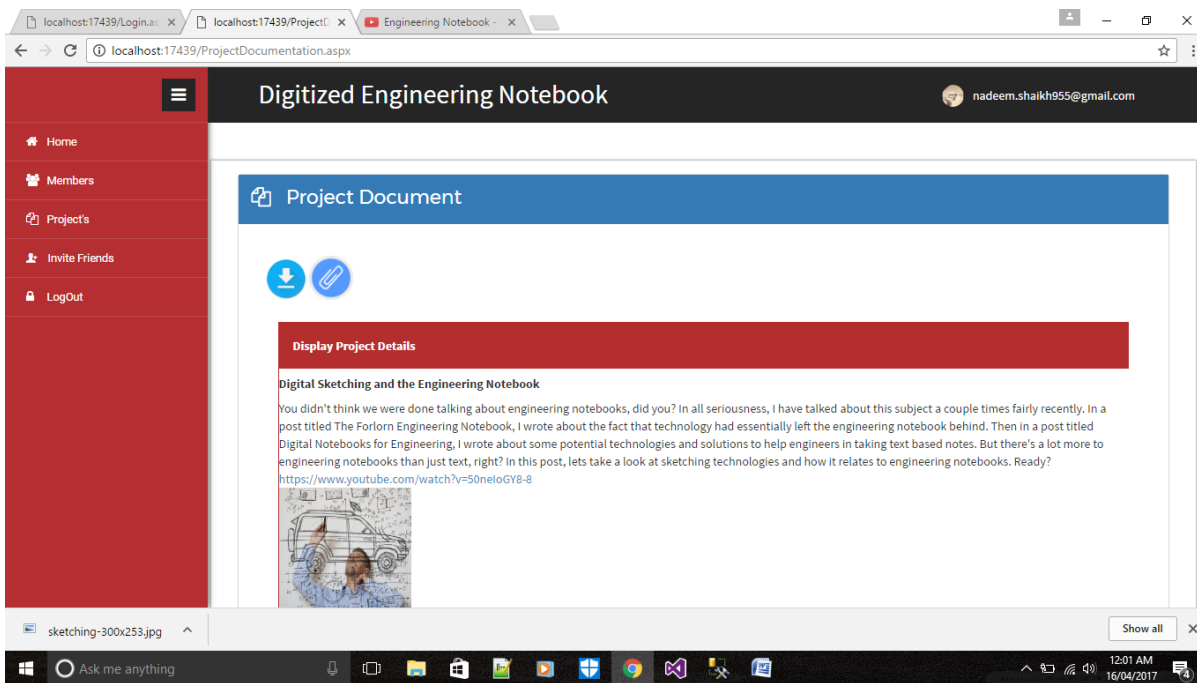


Project Discussion



Project member main process

View and download project



## 6.1 Functional Area A/Design Unit

### 6.1.1 Functional Overview

- Admin can manage users and projects
- Captain can create new project and upload, download contents of a project
- Team members can upload, download project contents.
- Project members can take a part in project discussion

## 7 *Open Issues*

There is no open issue in a system

## 8 *Acknowledgements*

We are thankful to our Professor to believe on us to complete this project. Developing the real life system gives real experience in IT industry. We have learned a lot while developing this application.

## 9 *References*

### **Books:**

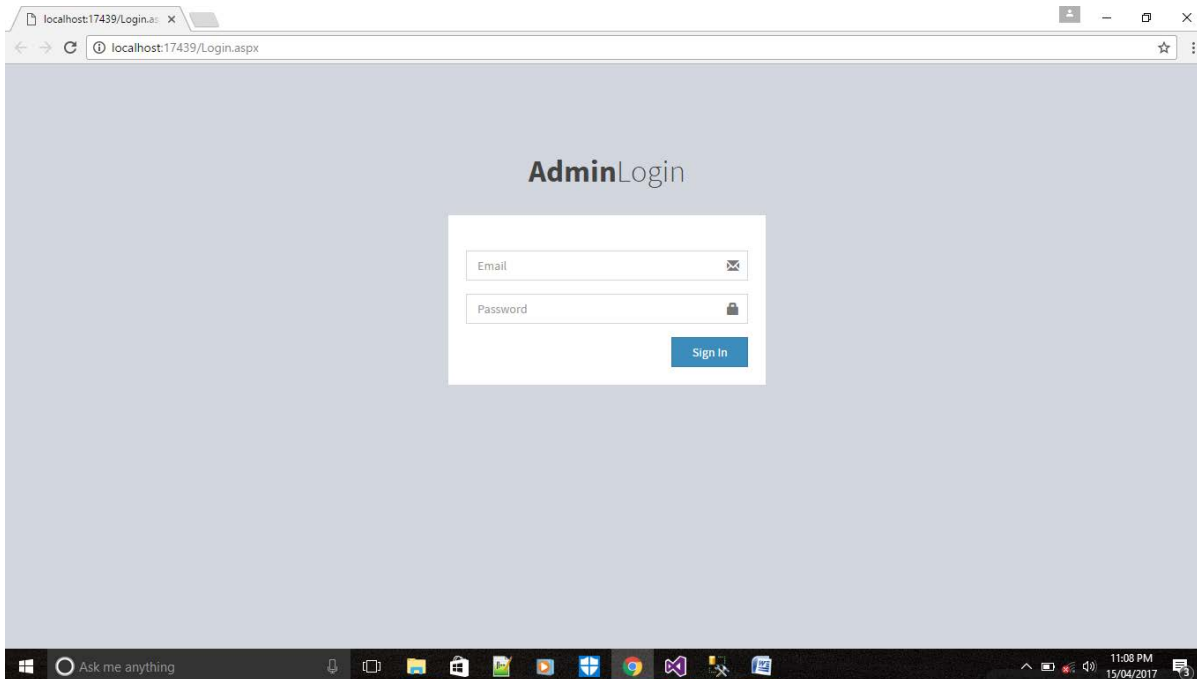
1. C#.Net 2008 by Wrox Publication
2. Learning C#" by O'Reilly Publication
3. Beginning ASP.Net 3.5 by Wrox Publication
4. ASP.NET 3.5 Step by Step – Microsoft Publication
5. Professional ADO.Net by Wrox Publication

### **Websites:**

1. <http://msdn.microsoft.com/>
2. <http://www.c-sharpcorner.com/>
3. <http://www.dotnetcurry.com/>
4. <http://www.codeproject.com/>
5. <http://www.dotnetfunda.com/>

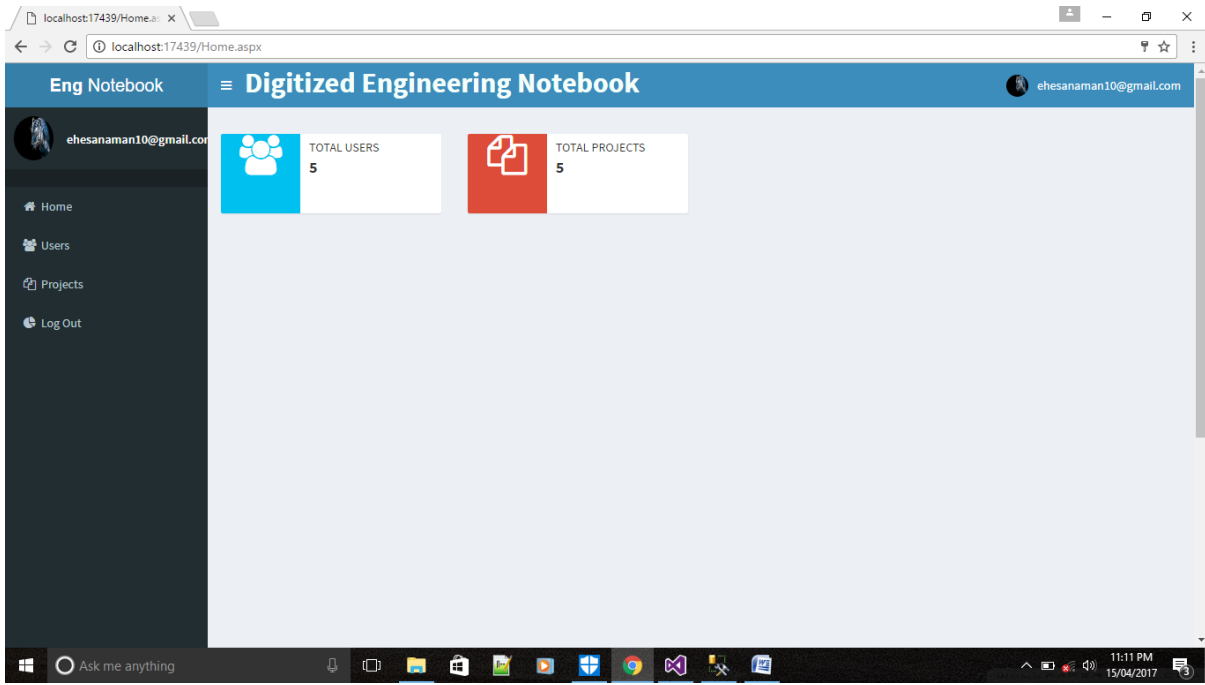
## 10 *Appendices*

### Admin login



### Admin Home





## Manage Users

Sr.No	User ProfileImage	User Name	User Contact	User_Address	User Email	Admin Authority	Action
1		RAHUL	8866445522	jalgaon	r@gmail.com	Accept	Accept Reject Delete
2		nadeem	7755448866	nd@gmail.com	nd@gmail.com	Accept	Accept Reject Delete
3		akshay	7755448866	mumbai	ak@gmail.com	Accept	Accept Reject Delete
4		abhishek	7755448222	abhi@gmail.com	abhi@gmail.com	Reject	Accept Reject Delete
5		aman	872357592	5459 N spaulding ave	ehesanaman10@gmail.com	Accept	Accept Reject Delete

## Manage Project

Sr.No	Captain Name	Project Name	Duration	Summary	Project View
1	RAHUL	Just OH	4 month	online Shopping	
2	nadeem	digital Engineering Notebook	3 months	digital Engineering Notebook	
3	RAHUL	digital Engineering Notebook	2 months	Using an Engineering Notebook to record ideas, inventions, experimentation records, observations and all work details is a vital part of any laboratory process. Careful attention to how you keep your Engineering Notebook can have a positive impact on the patent outcome of a pending discovery or invention.	
4	nadeem	KMC Marts	2 month	static online shopping	
5	aman	digitized engineering notebook	3 month	digitized engineering notebook	

# View Project Details

The screenshot shows a web browser window with the URL `localhost:17439/adminViewProject.aspx?project_id=1004`. The page title is "Eng Notebook" and the main header is "Digitized Engineering Notebook". The user is logged in as "ehesanaman10@gmail.com". The page content includes:

- Project name :** digital Engineering Notebook
- Duration :** 2 months
- Attendance**
  - Captain :** RAHUL
  - Members :** shalkh nadeem,
- Task**
  - 1) admin panel
  - 2) captain panel
  - 3) Member
- Reflection**
  - 1) admin can authority captain
  - 2) captain can authority MEMBER

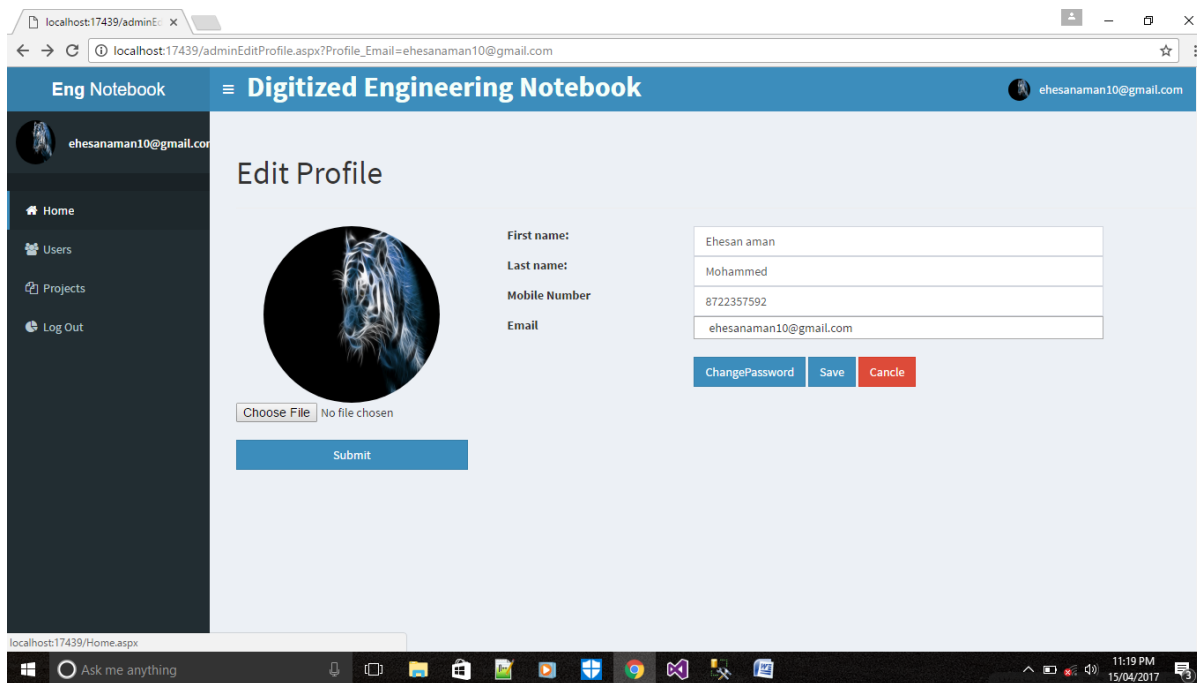
The browser's taskbar at the bottom shows the time as 11:17 PM on 15/04/2017.

The screenshot shows the same web browser window. The main content area displays a large image of two white horses running in a snowy field. Below the image is a "Summary" section with the following text:

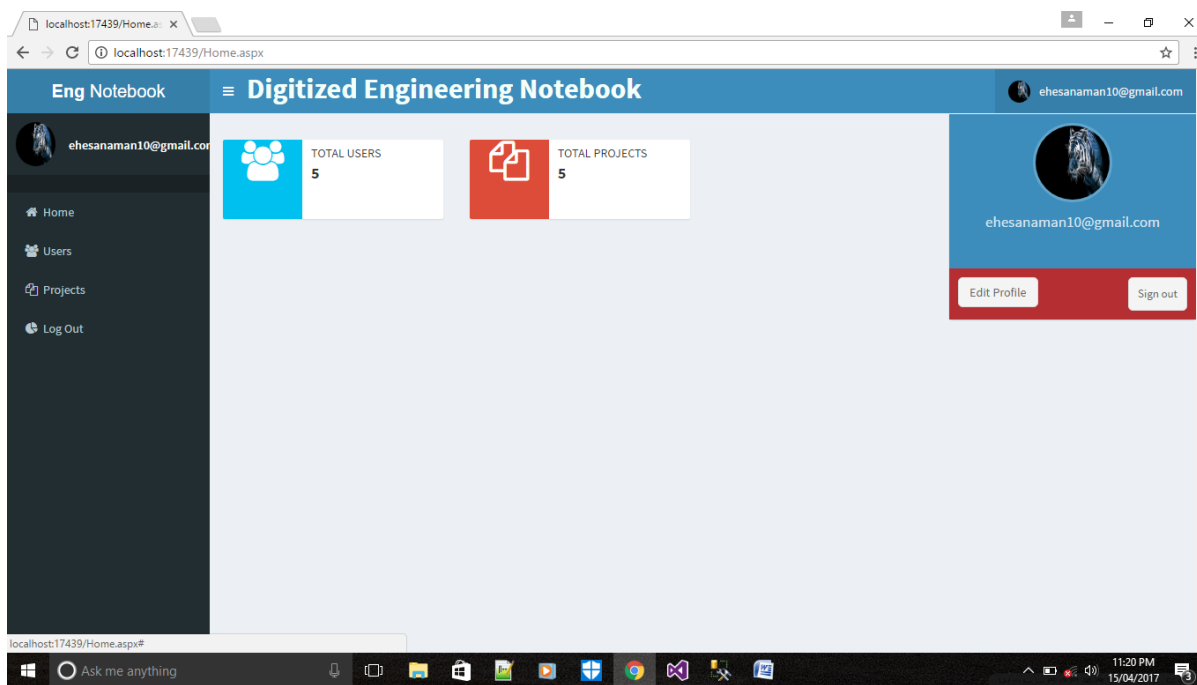
Using an Engineering Notebook to record ideas, inventions, experimentation records, observations and all work details is a vital part of any laboratory process. Careful attention to how you keep your Engineering Notebook can have a positive impact on the patent outcome of a pending discovery or invention.

The browser's taskbar at the bottom shows the time as 11:17 PM on 15/04/2017.

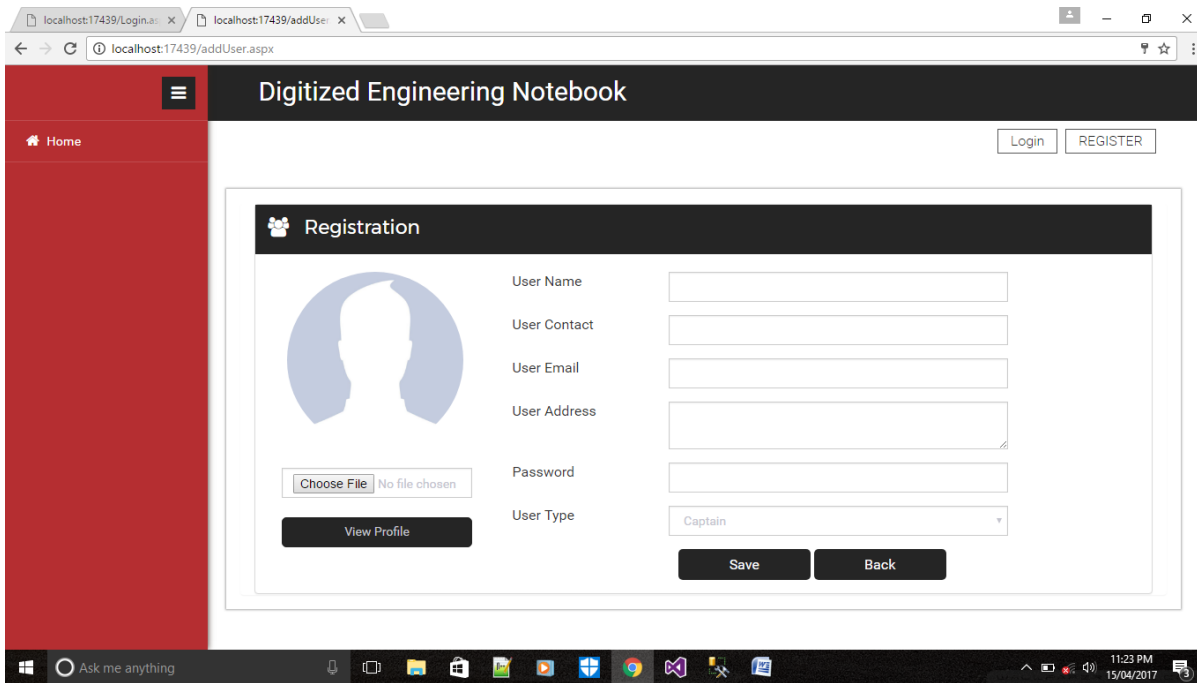
## Admin Profile Edit



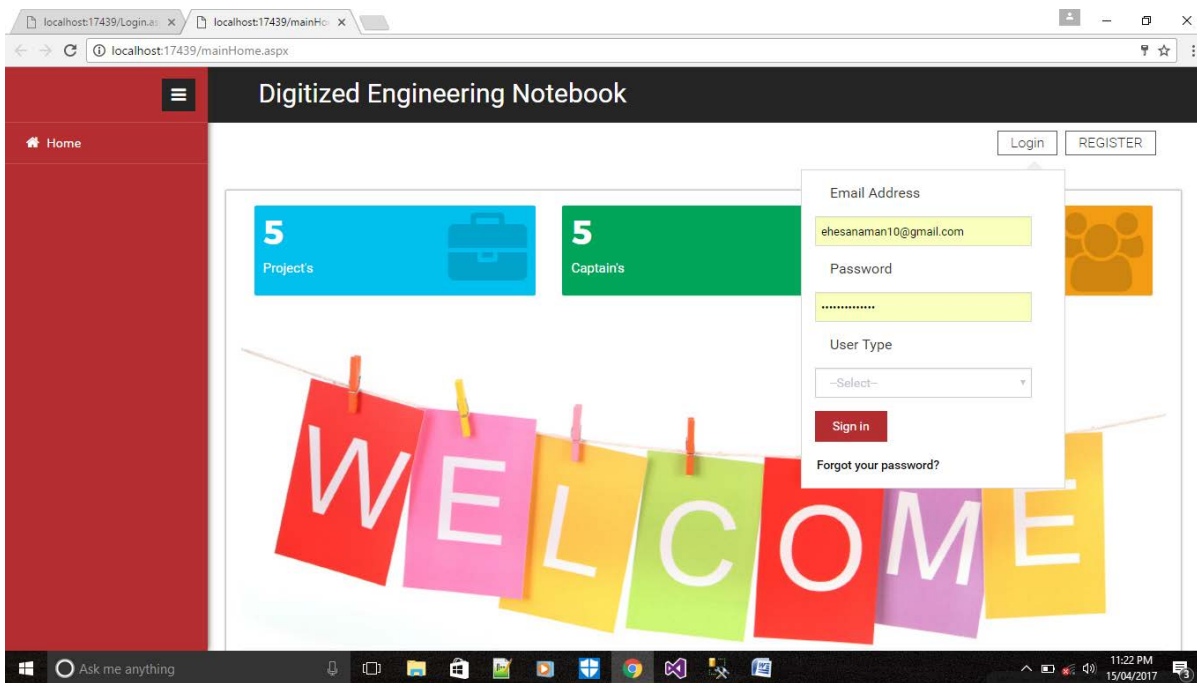
## Logout



# User Registration











# User Login



## Add Project

The screenshot shows a web browser window with the URL `localhost:17439/CaptainProject.aspx`. The page title is "Digitized Engineering Notebook" and the user is logged in as "nd@gmail.com". A red sidebar on the left contains navigation links: Home, Members, Projects (selected), Invite Friends, and LogOut. The main content area is titled "Manage project" and features an "ADD Project" button. Below the button is a table with the following data:

Sr.No	Project Name	Duration	Summary	Action
1	digital Engineering Notebook	3 months	digital Engineering Notebook	   
2	KMC Marts	2 month	static online shopping	   

At the bottom of the page, there is a copyright notice: "© 2016 Gretong. All Rights Reserved | Design by W3layouts". The Windows taskbar at the bottom shows the time as 11:25 PM on 15/04/2017.

## Add New Project

The screenshot shows a web browser window with the URL `localhost:17439/addProject.aspx`. The page title is "Add New Project". The red sidebar on the left is the same as in the previous screenshot. The main content area contains a form with the following fields:

- Project Name**: A text input field.
- Duration**: A text input field.
- Attachments**: A file upload area with a "Choose File" button and the text "No file chosen".
- Task**: A text area.
- Reflexion**: A text area.
- Summary**: A text area.

At the bottom of the form, there are two buttons: "Save" and "Back". The Windows taskbar at the bottom shows the time as 11:26 PM on 15/04/2017.

## Edit Project Details

localhost:17439/Login... x localhost:17439/addProj... x

localhost:17439/addProject.aspx?project\_id=1003

### Add New Project

**Project Name**  
digital Engineering Notebook

**Duration**  
3 months

**Attachments**  
Choose File No file chosen  
Animated-Wallpapers-HD-4.jpg

**Task**  
admin Panal  
Captain Panal

**Reflection**  
aaaaaaaaaaaaaaaaaaaaaaaaasas  
aaaaaaa

**Summary**  
digital Engineering Notebook

Update Back

Ask me anything 11:27 PM 15/04/2017

## Add Project Members

localhost:17439/Login... x localhost:17439/addMei... x

localhost:17439/addMemberProject.aspx

Digitized Engineering Notebook nd@gmail.com

Back

### Add Project Member

Sr.No	Member Profile Image	Member Name	Member Contact	Member Address	Member Email	Action
1		mosin shaikh	9966332211	jalgaon	m@gmail.com	ADD
2		shaikh nadeem	9975235283	nadeem.shaikh955@gmail.com	nadeem.shaikh955@gmail.com	ADD
3		Aasim	9966655222	nagardeola	asim@gmail.com	ADD

Ask me anything 11:28 PM 15/04/2017

## Project Discussion

The screenshot shows a web browser window with two tabs: 'localhost:17439/Login.aspx' and 'localhost:17439/Blog.aspx'. The address bar shows 'localhost:17439/Blog.aspx'. The page title is 'Digitized Engineering Notebook' and the user is logged in as 'nd@gmail.com'. A red sidebar on the left contains navigation links: Home, Members, Projects, Invite Friends, and LogOut. The main content area is titled 'Discussion's' and displays a list of comments. The first comment is from 'sasa' on 11/04/2017 at 12:46:46 PM, with the text 'assadas'. The second comment is from 'nadeem' with the text 'Comment'. The third comment is from 'aaaaaAAAAA' on 10/04/2017 at 06:59:06 PM, with the text 'sddsdfgds df ds f sdfs fsdf'. The fourth comment is from 'nadeem' with the text 'Comment'. To the right of the comments is an 'Add Post' form with fields for 'Title:' and 'Body:', and 'Submit' and 'Back' buttons. The Windows taskbar at the bottom shows the time as 11:29 PM on 15/04/2017.

## Project Details and Download

The screenshot shows a web browser window with three tabs: 'localhost:17439/Login.aspx', 'localhost:17439/Project...', and 'Engineering Notebook...'. The address bar shows 'localhost:17439/ProjectDocumentation.aspx'. The page title is 'Digitized Engineering Notebook' and the user is logged in as 'nadeem.shaikh955@gmail.com'. A red sidebar on the left contains navigation links: Home, Members, Projects, Invite Friends, and LogOut. The main content area is titled 'Project Document' and features a download icon and a link icon. Below this is a red banner that says 'Display Project Details'. The text below the banner reads: 'Digital Sketching and the Engineering Notebook. You didn't think we were done talking about engineering notebooks, did you? In all seriousness, I have talked about this subject a couple times fairly recently. In a post titled The Forlorn Engineering Notebook, I wrote about the fact that technology had essentially left the engineering notebook behind. Then in a post titled Digital Notebooks for Engineering, I wrote about some potential technologies and solutions to help engineers in taking text based notes. But there's a lot more to engineering notebooks than just text, right? In this post, lets take a look at sketching technologies and how it relates to engineering notebooks. Ready? <https://www.youtube.com/watch?v=50neloGv8-8>'. Below the text is a thumbnail image of a person sketching a car. The Windows taskbar at the bottom shows the time as 12:01 AM on 16/04/2017.



# Invite friends in project

