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Digitized Engineering Notebook

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ABSTRACT

Digitized Engineering Notebook is a website Application which allows users to execute same functionalities as a paper Notebook in real time such as storing data in digital format so that files, videos, photos, animations can be inserted, and users can share the data from any part of the world through cloud technology with less time. With Digitized Engineering Notebook users can create and edit projects, collaborate through discussion board, and also drag notes, notebooks, or tag for fast access. Further, users can keep detailed notes and can work on ongoing projects.

The main page of Digitized Engineering Notebook includes tabs like Menu, Site, Supervise operations, Creation of new projects, Different list of projects, Table of contents, and a search function. Some essential functionalities include user login, log entry forms, converting HTML to pdf files, uploading files, log printings, etc. Data is secure and reliable as it can be stored in different places.

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1 Project Description

The main purpose of this project is to eradicate the use of the traditional engineering notebooks by keeping all the recorded information during a project/research in a digital format on the cloud or web, so that the user can access it anytime, anywhere and from any part of the world. By moving the traditional engineering notebook from table to web, this application helps in preserving the precious recorded data for lifelong unlike the traditional engineering notebooks which can be lost or stolen. With the help of this application at a time more than 1 person can work and record their individual findings for a particular project/research for which they are a part of. In future more users join or become a part of that project they can be added too and all of them can work individually from being in different parts of the world. They can also engage in discussions in chat forums and add snaps, videos, and links to their ongoing projects which was not the case in the traditional engineering notebooks.

1.1 Competitive Information:

Prior to this there are applications of this similar kind like

<https://kiwibots.co.nz/>

<http://team3061.org/>

<http://www.nvrobotics.org/our-teams>

But none of the applications were complete or fully fledged with added features that this application has. It is first and one of a kind application with all the added advanced features.

1.2. Relationship to Other Applicants/Projects:

The project is based on the Digitized Engineering Notebooks where the users and clients share the platform to accomplish their tasks and required projects. The primary objective of this website is to provide an interface which help smooth flow of projects and activities. The website verifies the project posted by the user with the other companies and clients to see if there is any fraudulent or false information provided by the user/client to approve their project. This will eventually helps authenticity of the project and the satisfaction from both the ends.

1.3. Assumption and Dependencies :

As the project is online based, it is susceptible to online threats and misuse of information to the database and others. At present, the website application doesn't have any security measure for the protection of the user information.

1.4 Future Enhancements

Once this project is complete its Version 1 will be released in the market. In future an additional feature will be added to it and it will be merged with Office 365 application suite which helps the users who are a part of a particular project to share and discuss PowerPoint slides, create excel sheets and use all Microsoft Office suite Applications within this application and simultaneously share it with other members of the project.

1.5. Definitions and Acronyms :

Database : It is a structured set of data that is save on the server.

Admin: It is a person who manages, control and verifies the given tasks

User: It is a person who use an application to accomplish his task

Client : It is a person who post his required task that has to be accomplish.

2. Project Technical Description

The website design should have the below mentioned navigations.

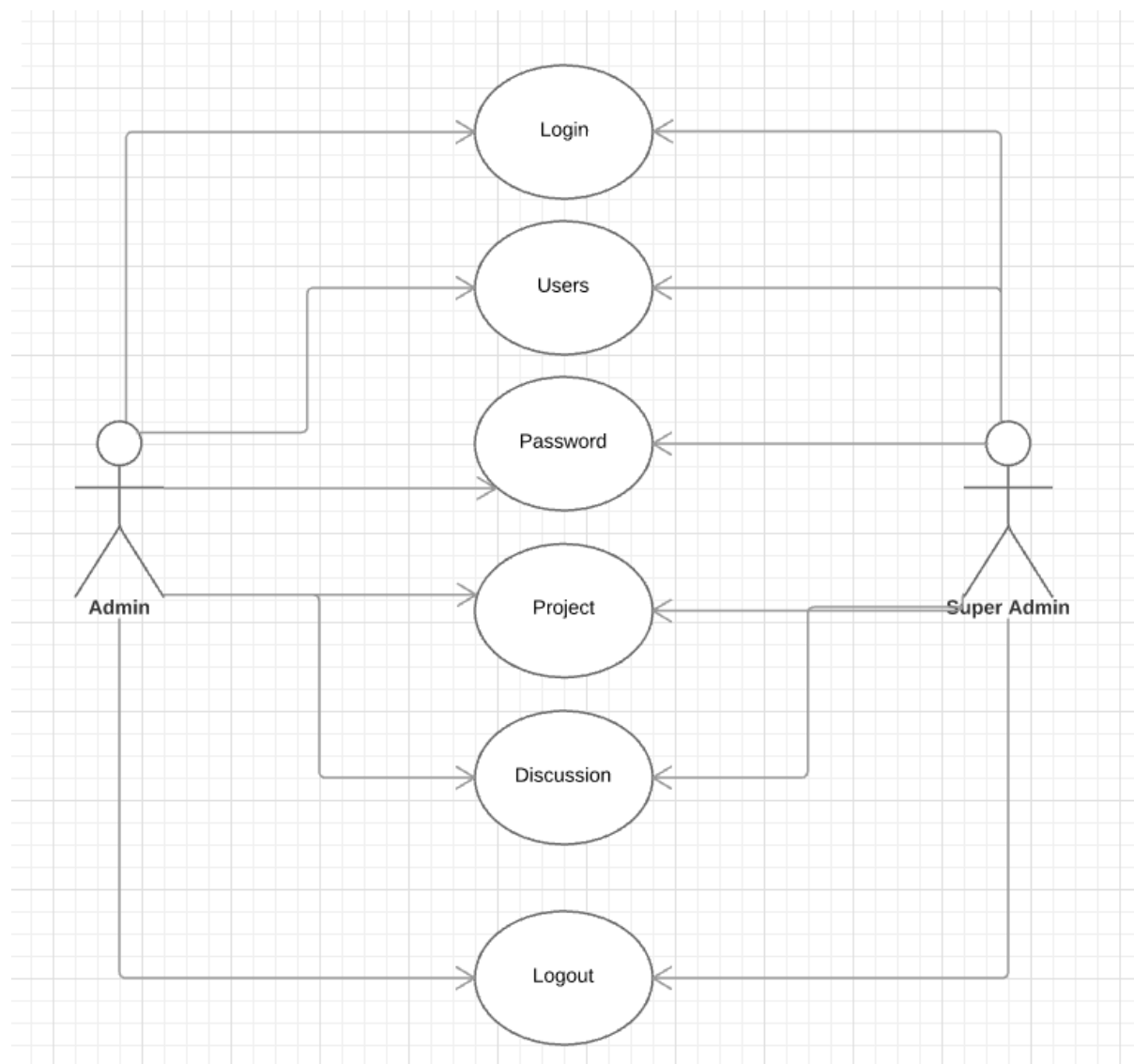
- ❖ A front page with welcome message and a menu for navigation
- ❖ Admin console for site administration
- ❖ Option to create a new project or select an existing project
- ❖ Add team members to project
- ❖ Table of content (or log index)
- ❖ Creation of dated log entries for ideas, details, observations, etc.
- ❖ Chronological listing of log entries
- ❖ File upload for text documents, drawings, sketches, figures, etc.
- ❖ Allow multimedia elements such as pictures and videos embedded in Web pages
- ❖ Search and listings
- ❖ Calendar of events
- ❖ Discussion board
- ❖ Printing of log
- ❖ Creation of PDF version of log
- ❖ Real Time Chat

2.1 Application Layer:

The Applications layer defines the roles of Admin and Super Admin which has major part on this web application. The super admin has the role to approve the project, deny the project and delete the project apart from the user.

Whenever user login to his account and create a new project, he will automatically gets a notification that super admin approval pending. The super admin verifies the authenticity of the project from its reliable sources, if found genuine he will automatically gets approval notification else a detail message will be sent to the user to make necessary changes to the projects.

The process is very smooth and it will build many users and client as both of them have trust that it is being under watch by the super admin. If anything goes wrong, the super admin has the right to delete the project with detailed explanation.



2.2 Application Information Flow:

- User must have to register himself/herself to the application to access it functionality. On click register link a window open look likes below.
- It is required and no white space allow between the name. It will be the username for login into site.
- Required field and only enter a valid email format there. Also can be used for login on the site.
- Required Field and will the password on the login page. At least six character validation.
- Required and password and confirm password should be match.

2.3 Interactions with other Projects:

This is a unique project and it does not interact with any other project.

2.4 Interactions with other Applications:

The reason behind developing this application is its outstanding functionalities from the other applications.

2.5 Capabilities:

- ✓ Here the capabilities are associated with the database we created, like we have 8 tables in our database for accessing the application.
- ✓ Project Description Will be stored.
- ✓ Content added by the user to the project.
- ✓ Comment added by the user to the project.

2.6 Risk Assessment and Management:

There are zero chances of risk in between the development. The implementation has been done under the guidance of our top tech. Here to secure login for the users we use “https” protocols. This application has been engineered with the latest tools, the GUI looks so attractive that the user feel comfort and secure to login.

3. Project Requirements

3.1 Identification of Requirements

The application has been classified as

1. Users
2. Admin
3. Super admin

Users have to create an account to access all the functions later user can make their own project.

Admin: The role of admin here is to take care of all the accounts of the users and allow the to make their own projects. Here admin has the authority to make changes in the project.

Super Admin: the job of super admin here is to control the entire application, if any user creates the dummy project he can remove it. And also has the power to denied the projects.

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

Digitized engineering notebook application provides authorities to the admin to manage all the users. Here admin and the super admin has the full powers.

- Manages project
- Approve project
- Denied project

Manages project: Here super admin manage the project created by the users like, super admin check the project whether it is a dummy project or not.

Approve project: If the project looks good to the admin or worthy he will approve the project.

Denied project: If the project looks dummy or the user creates unusual content in the project he can denied the project.

3.3. Security and Fraud Prevention:

This application is fully secured and robust. Here we are using azure website which is a part of Microsoft that supports multiple programming languages and technologies. It is user friendly and a client can save his data on cloud.

3.4. Release and Transition Plan:

With the help of CSS and bootstrap, the release and transition was smooth. The database design and the User-Interface were thoroughly were linked together for a smooth working of the project.

4. Project Design Description :

The project design is a detail description of the project that is used for the implementation of this project. We have used MySQL database for the back-end for this project and the front-end is C# and ASP.Net which is being run on the Microsoft Visual Studio. We have use new innovative ways that will help the client and users to maintain and implement their projects with robust and easy methods. We have used pop-up calendar that will give you notification on your email for the upcoming events and meetings. The client and the

user admin can discuss their priorities before the meeting and plan out their discussions to save time and work pressure.

We have 8 tables total in our database:

1) **UserID:** Data type Int, Primary key, Auto Incremented.

UserName: Varchar Data type

UserEmailaddress: Varchar data type.

2) **UserRoles:** Has 3 columns

UserRoleID: Data type Int, Primary key, Auto Incremented.

UserID: DataType Int, Reference from User table primary key.

RoleID: DataType Int, Reference from Roles table primary key.

3) **Roles:** Has 3 columns

RoleID: Data type Int, Primary key, Auto Incremented.

Name: Varchar Data type.

RoleDescription: Varchar Data type.

4) **Project:** Has 6 columns. All Projects Data there.

ProjectID: Data type Int, Primary key, Auto Incremented.

ProjectName: Project name will be stored there.

Description: Project Description Will be stored there.

CreatedBy: User name will be stored here who created that project.

CreatedOn: Date on which the project created.

IsApproved: Project is Approved or not.

5) **ProjectMembers:** Has 4 Columns. Assigned members userid and projectid stored there.

MemberID: Auto Incremented, Primary Key.

UserID: Userid from the user table who added content to the project.

ProjectID: Project id from the project table.

Added By User: which user added the members to the project (username).

6) **Members Data:** Has 5 Columns. Assigned members userid ,projectid and there Description stored there.

ID: Auto Incremented, Primary Key.

User ID: User id from the user table who added content to the project.

Project ID: Project id from the project table.

Description: Content added by the user to the project.

Created On: On which date content added by the user to the project.

7) **Calendar Events:** Has 7 column all calendar data stored in the table.

id: Auto Incremented, Primary Key.

title: Title of the event stored in this column.

start: Start date of the long event Store here.

end: End date of the long event store here.

url: Url of the event will be store here.

Username: username who added the event store here.

CreatedOn: date on which event added.

8) **ProjectDiscussion:** It has 5 Column. All Discussion about an project stored here.

ID: Auto Incremented,Primary Key.

UserID: Userid from the user table who post the comment to the project.

ProjectID: Projectid from the project table.

Discussion: Comment added by the user to the project.

Created On: On which date content added by the user to the project.

5. Internal/external Interface Impacts and Specification:

The impact of this web application would be related to the login and credential details while the user tries to login in the account. When we consider this web applications mostly interaction with third party servers or applications are not seen. The application gathers the information about the user, and it uses the same information in the later stages to process several actions.

6. Design Unit Impact :

The design of the of the web application is flawless and it is super admin who has to approve, deny or delete the project for the users before they start working on their project. The user/client has to wait for the approval and they will received an email with the status update.

6.1. Functional Area A/ Design A :

USERS:

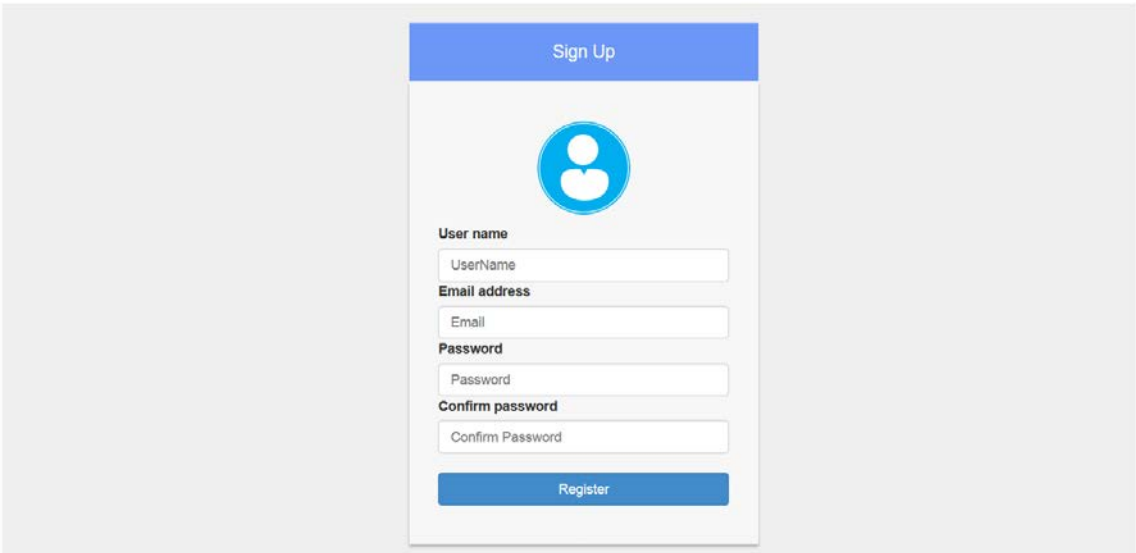
Working: Whole site is based on user roles.

6.1.1. Functional Over view :

Author:

Home Page: It contains two link on the right top of the application.

1). **Register:** User must have to register himself/herself to the application to access it functionality. On click register link a window open look likes below.



The screenshot shows a web application interface. At the top left, it says "Engineering NoteBooks". At the top right, there are links for "Register" and "Log On". The main content area features a "Sign Up" modal window. This window has a blue header with the text "Sign Up" and a circular icon containing three white dots. Below the icon, there are four input fields, each with a label and a text box: "User name" (with "UserName" inside), "Email address" (with "Email" inside), "Password" (with "Password" inside), and "Confirm password" (with "Confirm Password" inside). At the bottom of the modal, there is a blue button labeled "Register".

a). **Username:** It is required and no white space allow between the name. It will be the username for login into site.

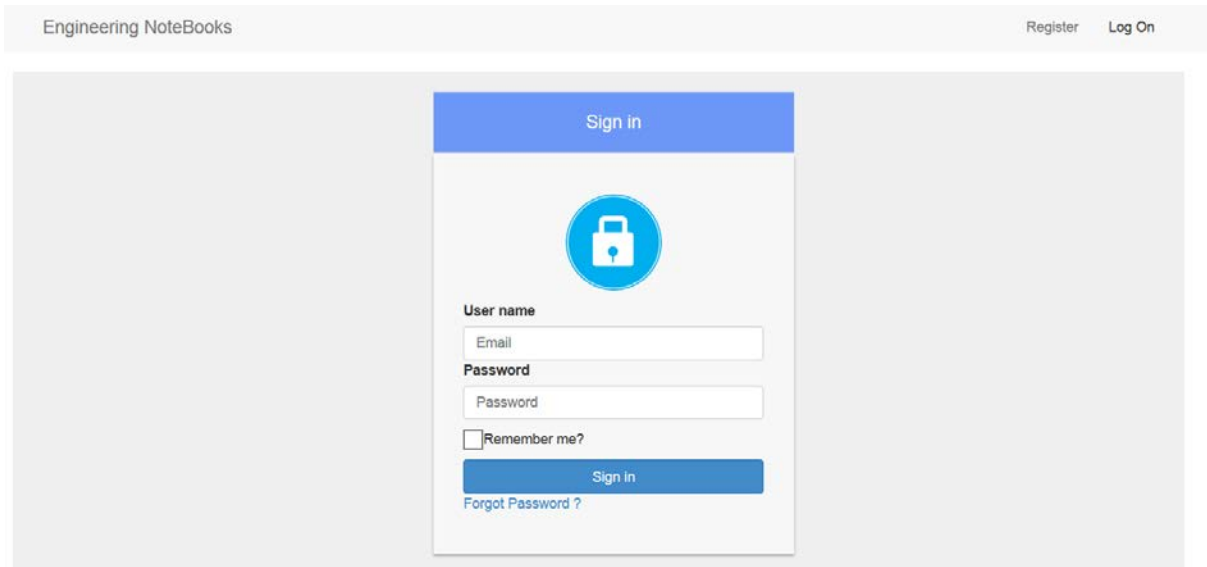
b). **Email Address:** Required field and only enter a valid email format there. Also can be used for login on the site.

c). **Password:** Required Field and will the password on the login page. At least six character validation.

d). **Confirm Password:** Required and password and confirm password should be match.

After fill the form click on "**Register**" button will add the user and redirect you to the login page. which look like below screen shot.

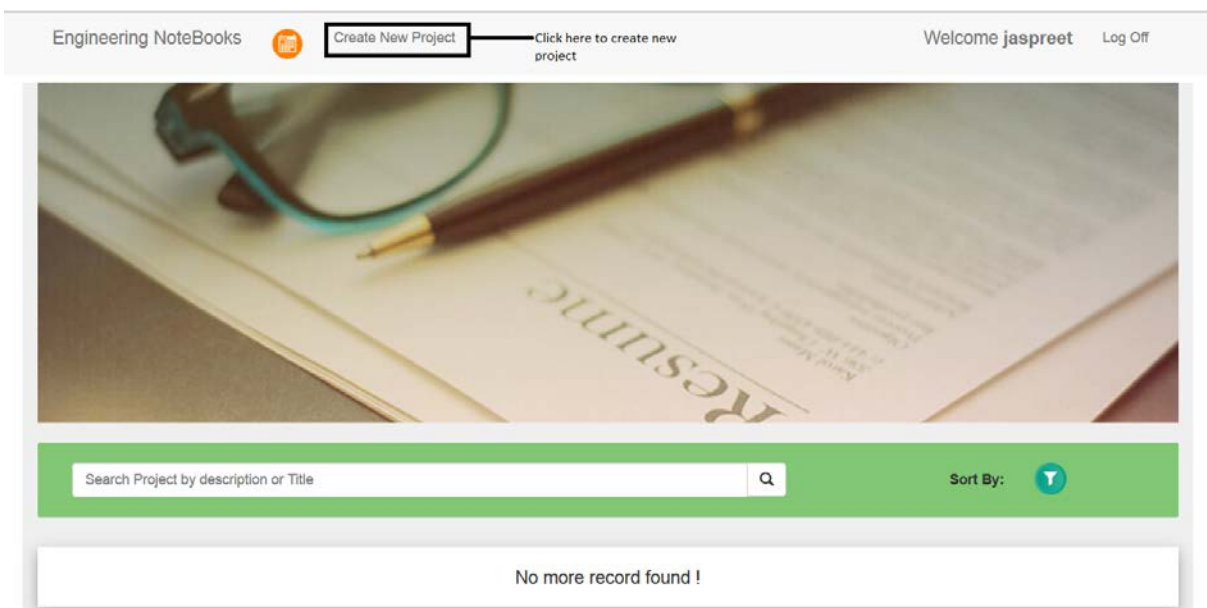
2). **Login:**



a). **Username:** Enter with register username or Email Address.

b). **Password:** Enter password for the register username.

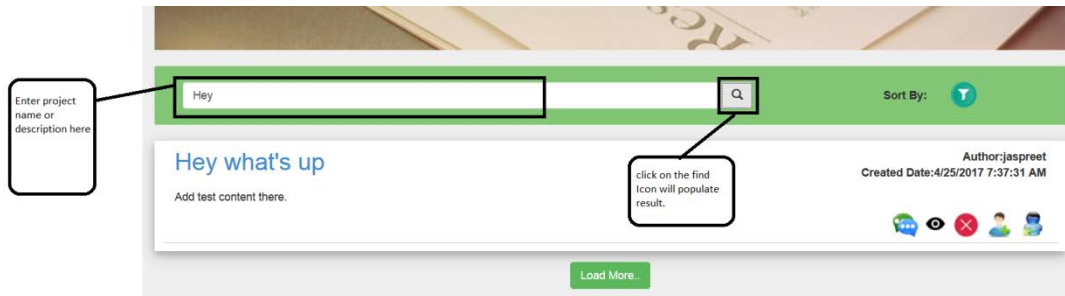
After click on "**Sign in**" the register user will be redirect to their dashboard page which is look like the below screen shot.



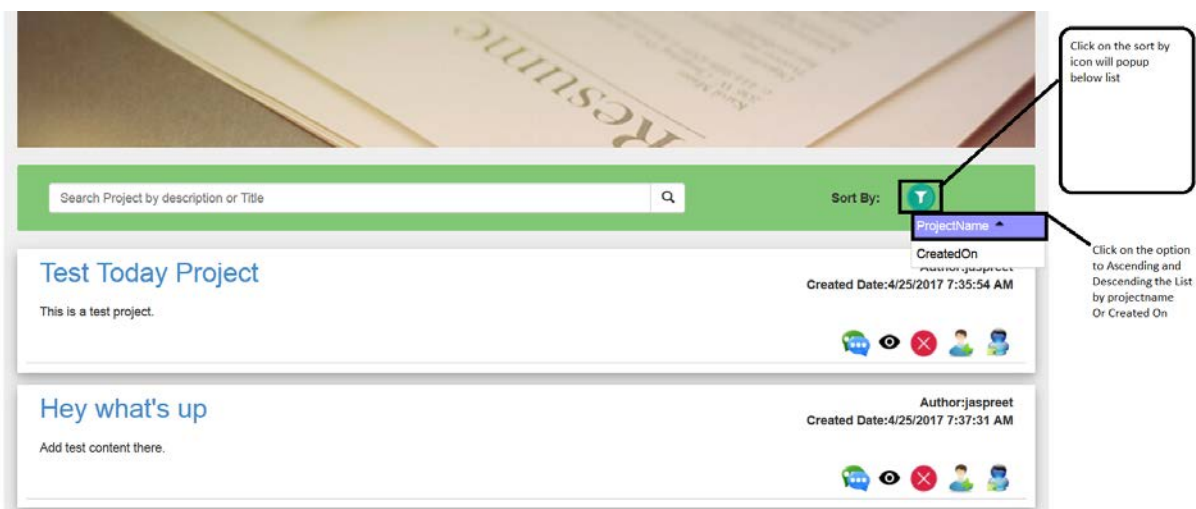
On the Dashboard page there those project are to be show which is Created By the logged in user or the user is assigned to that project.

There are some components of the page:

- a). **Search:** Enter project name or description in the search box and click on the find Icon.
will populated all the project with the name or description.



- b). **Sorting:** Click on the Sort icon will pop up a list have "Project Name" and "CreatedOn".
By click on the one of the option will sort the project list Ascending or descending according to selection.



- c). **Each Project Options:** There are several functions there on the each project.

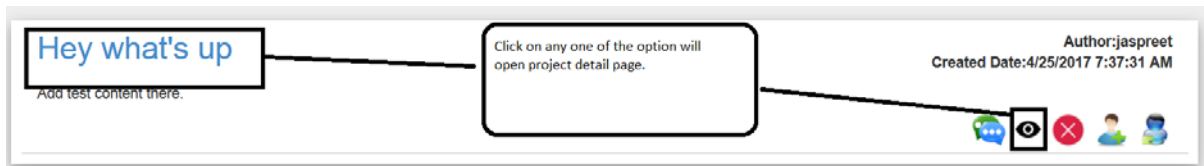
6.1.2 : Impacts:

Some options are only visible to who created the project: "Add Member" and "Delete Project"

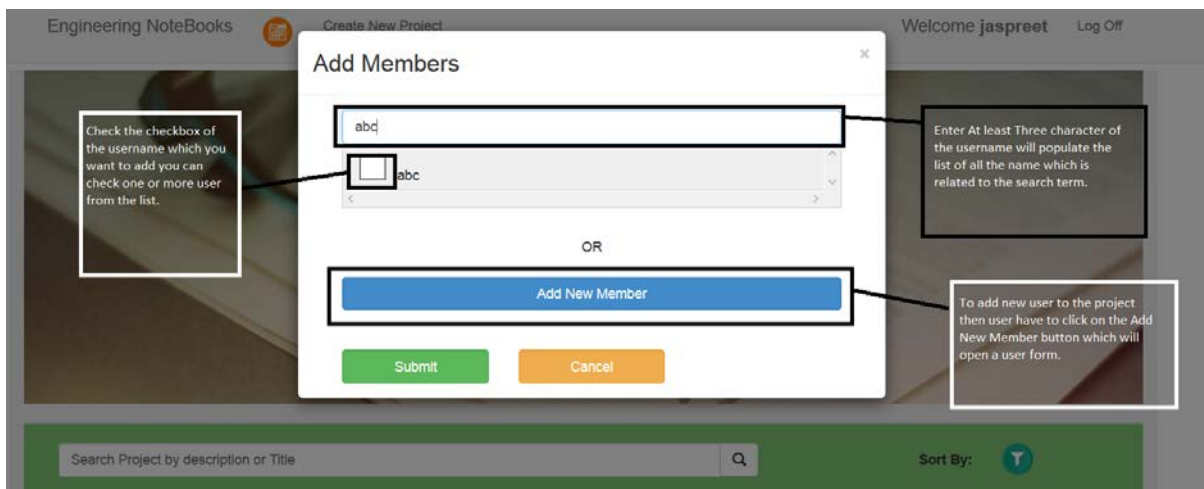
>>**Discussion Option:** To discuss something about the project click on the Icon below in the screen shot will open a new window.



>>**View Project:** You can you project detail page by click on the view icon on by click on the Project name.



>>**Add Members:** If you created the project only then you can add members to the project and only add member option will be available If you created that project.



>>> **Search Member:** user can search member by type at least three character of the username will populate a list of the all the username which are not already assigned to the project. Here you can select one or more user by click on the checkbox in front of Every username.

Or

>>>**Add New Member:** If you want to add new member to the project then you have to click on the "Add New Member" button will open a new form. like this

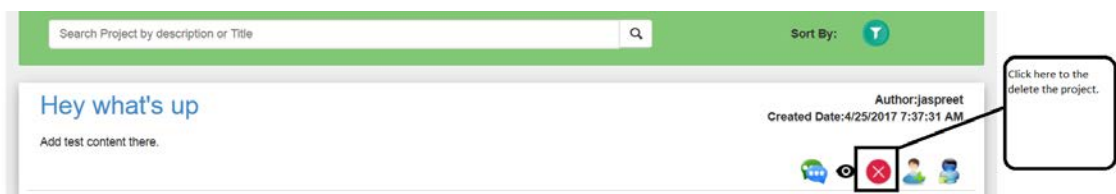
The image shows a modal window titled "Add Members" with a close button (X) in the top right corner. At the top, there is a search input field containing the text "abc". Below this is a dropdown menu that is currently open, showing a single item "abc" with a small square checkbox to its left. In the center of the modal, the word "OR" is displayed. Below "OR" is a blue button labeled "Add New Member". Underneath this button is a form with three input fields: "UserName", "Password", and "EmailAddress". At the bottom of the form are two buttons: a green "Submit" button and an orange "Cancel" button.

Fill the above from all fields are required.

After fill the form click on the "**Submit**" button.

If you don't want to add members to the project click on the "**Cancel**" button or close Mark on the popup top right.

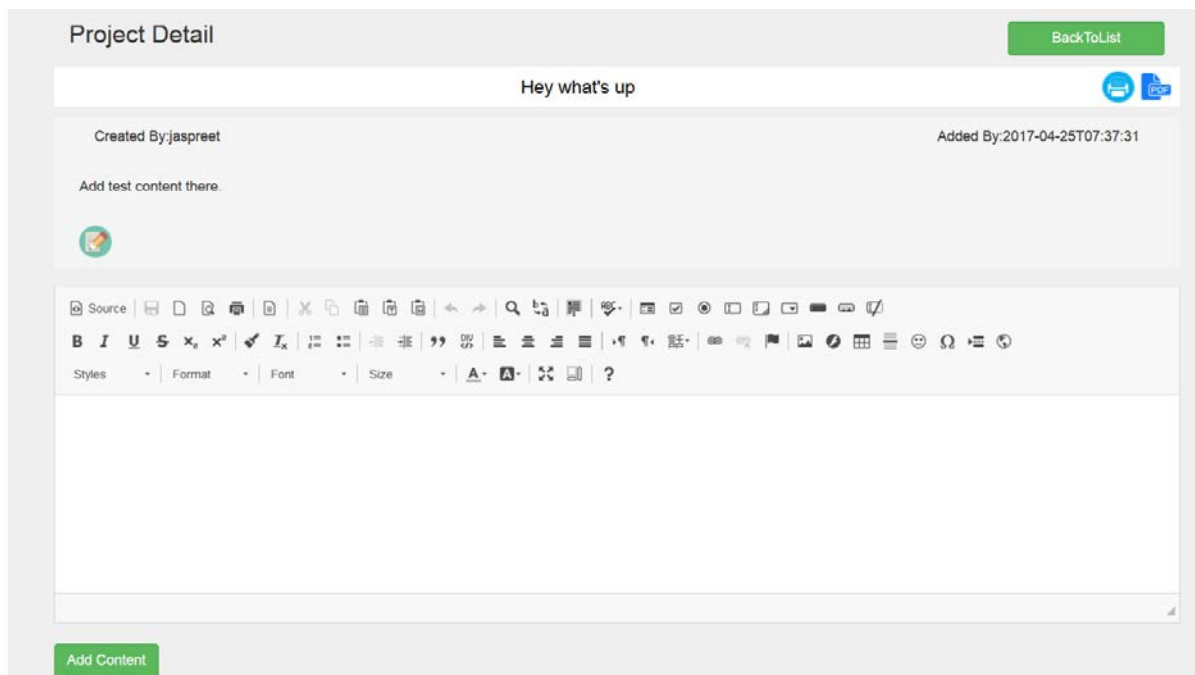
>>**Delete Project:** Only user can delete project who is created that project.



>> **View Members:** To view member just hover over the Member Icon will populate a list of all the member assigned to the project.

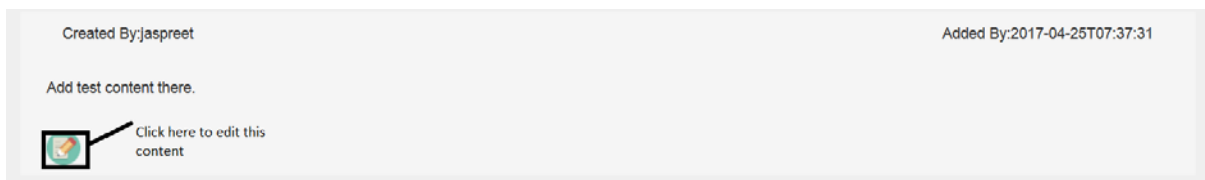


3). **Project Detail Page:** To Edit or see the project detail you have click on the View Icon or the Project Name from the list. Which will open a new window below is the screen shot.

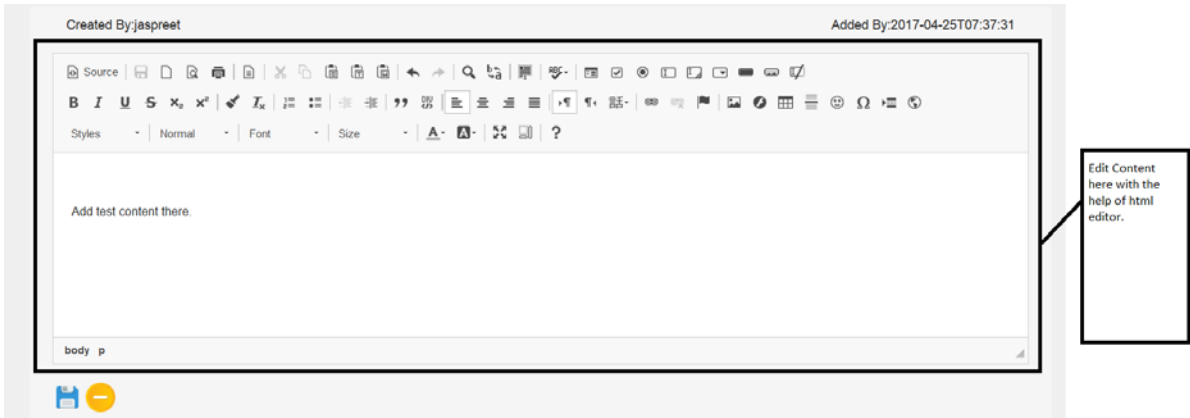


Functionality: Here the user can Edit the previous detail and add the new Content in the project.

>> **Edit:** To edit the already added content of the project click on the Edit Icon.

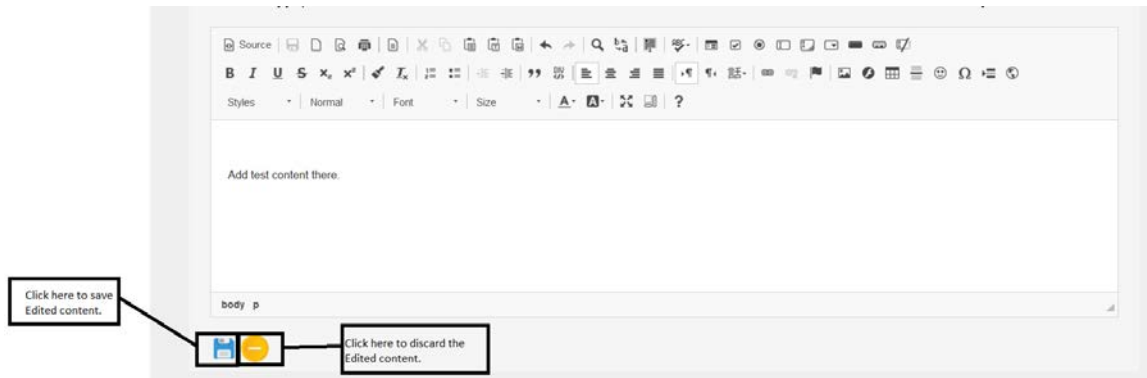


which will show a HTML Editor having already added content you can add here some content or delete content.

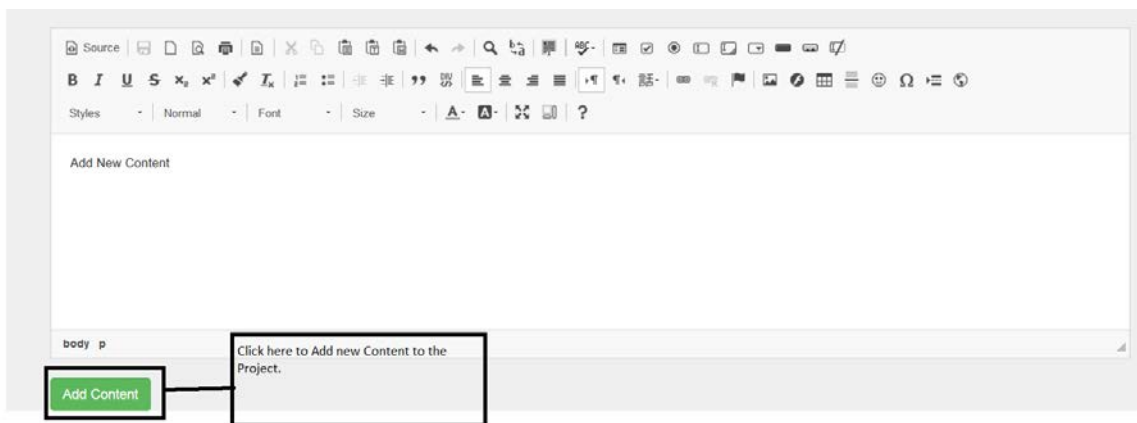


>> **Save Content:** To save the Edited content you have click on the save icon button.

>> **Cancel Edit:** To cancel Edited content click on the cancel Icon.

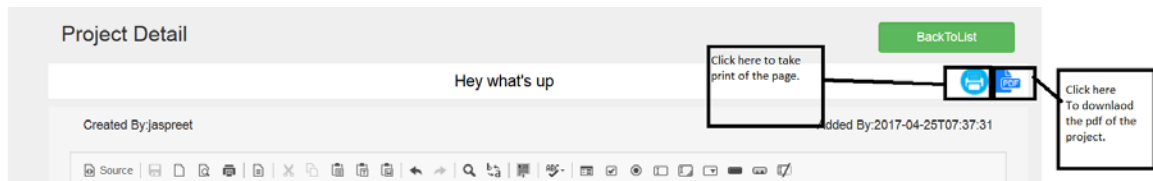


>> **Add New Content:** To Add new content to the project Add content in the below most HTML editor and click on "**Add Content**" button.



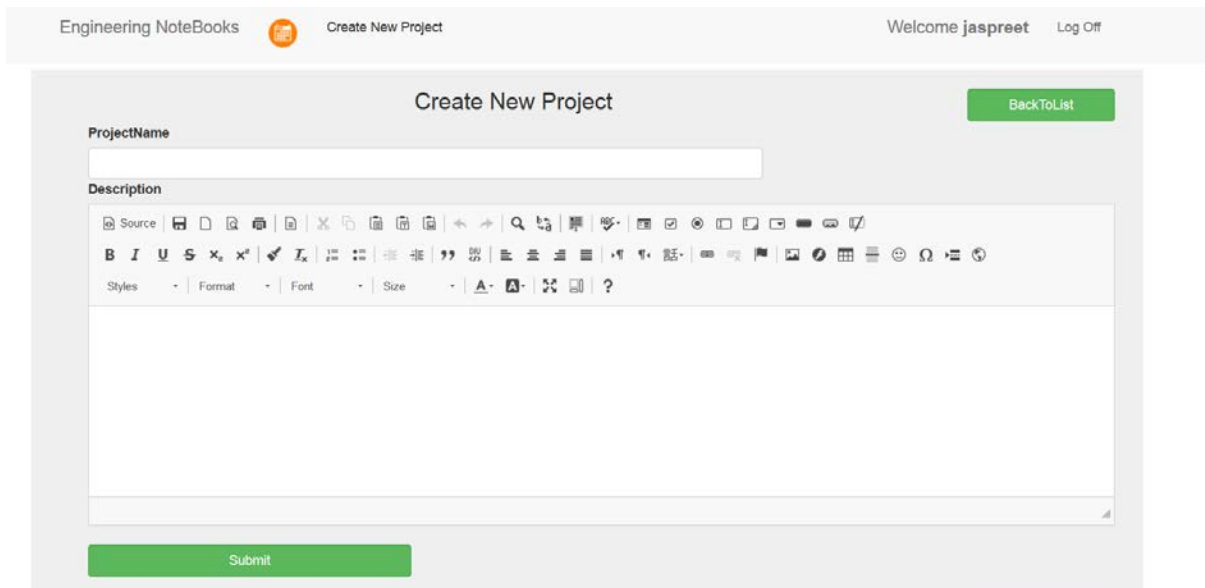
>> **Print:** To take the print of the project detail page click on the "**Print**" icon.

>> **PDF Download:** To download PDF of the project click on the "**PDF**" icon.



6.1.3 Requirements

4).**To Create New Project:** To create new project click on the button on the top name as "Create New Project" will open a new window.

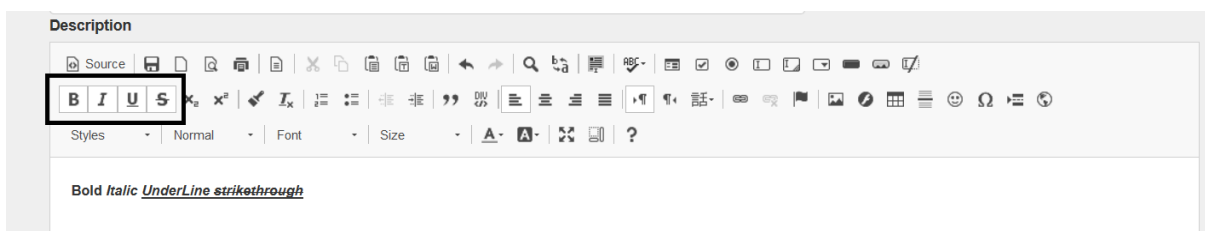


>> **Project Name:** Enter Project name in the textbox above. It is required Field.

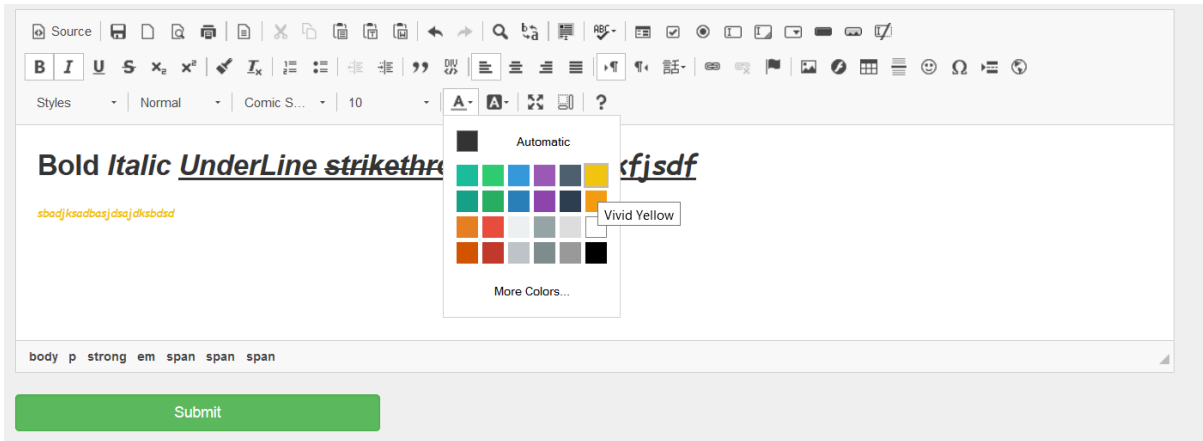
>>**Description:** Enter Description in the HTML Editor to Add Content.

>>>**HTML Editor:** We can Add Images and Videos and Bold Text here in the Editor.

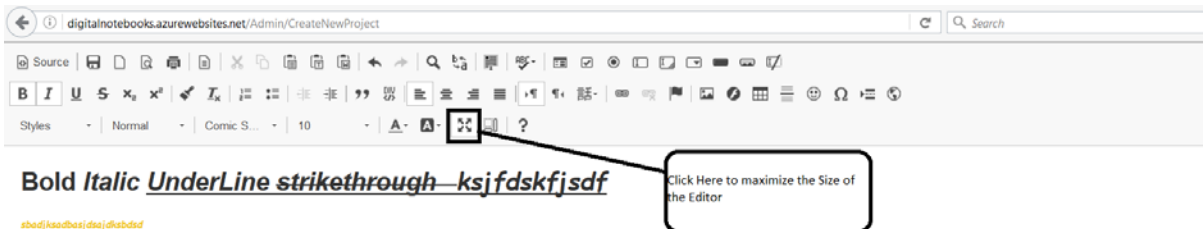
Text Editing: You can add bold, Italic and Underline text by the selecting the option from the Editor



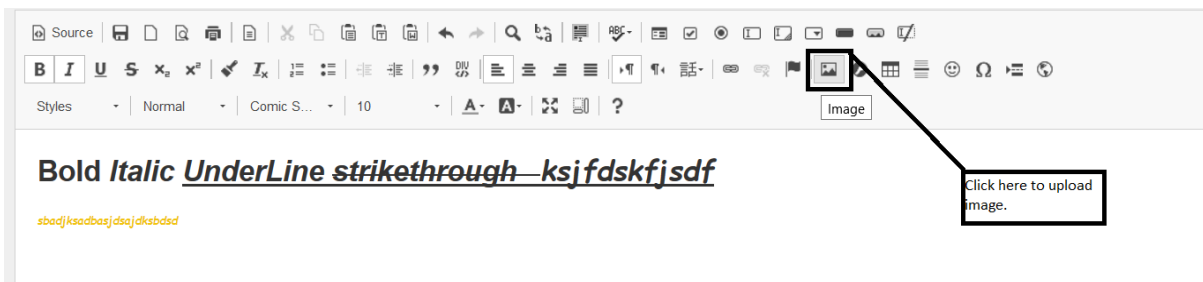
Select Font Style: You can select font styles, Size, color etc.



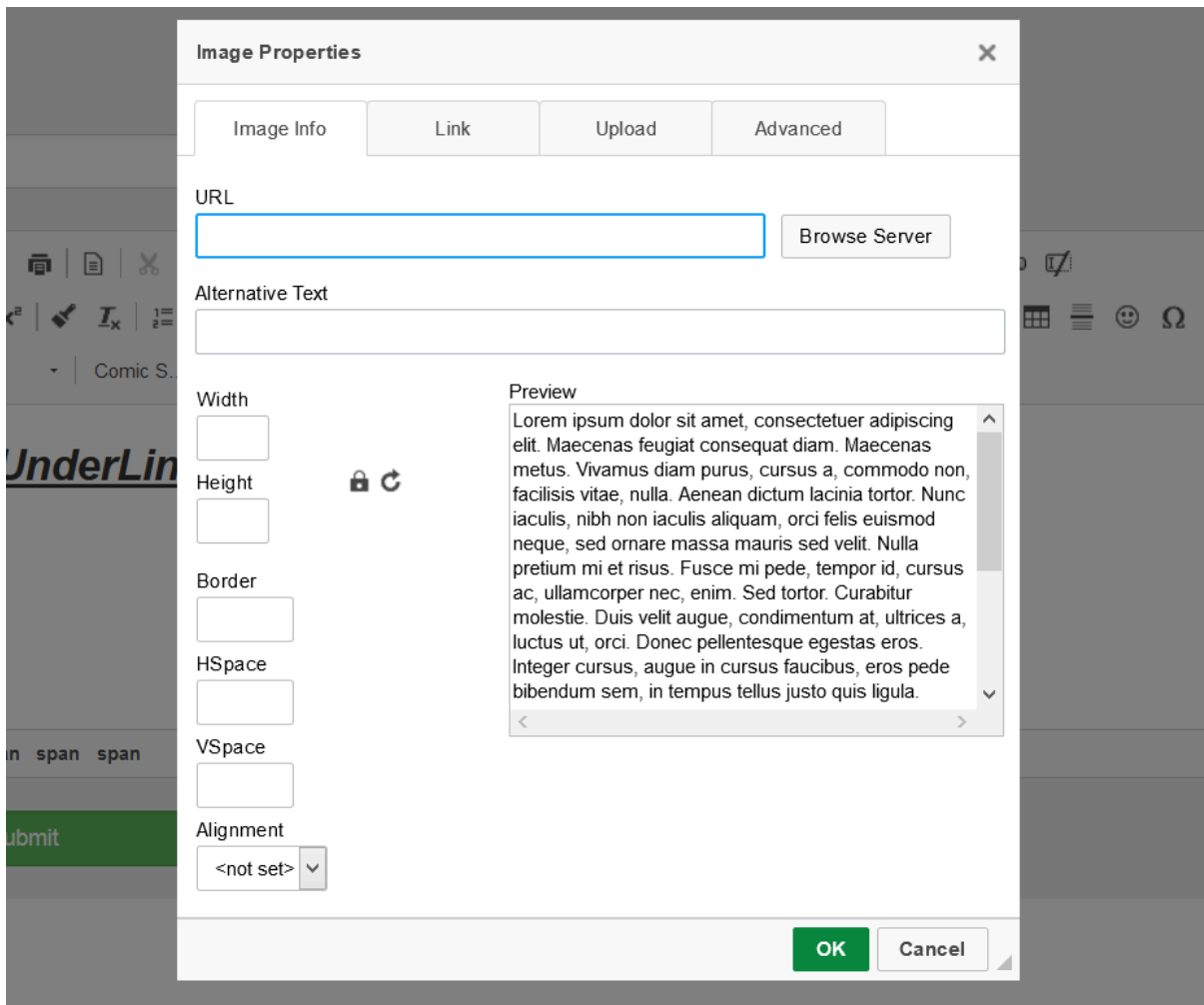
Maximize: Maximize the HTML Editor by click on the Maximize Icon.



Upload Image: To Upload and Image to the Edit Click on the Image icon in the HTML Editor.



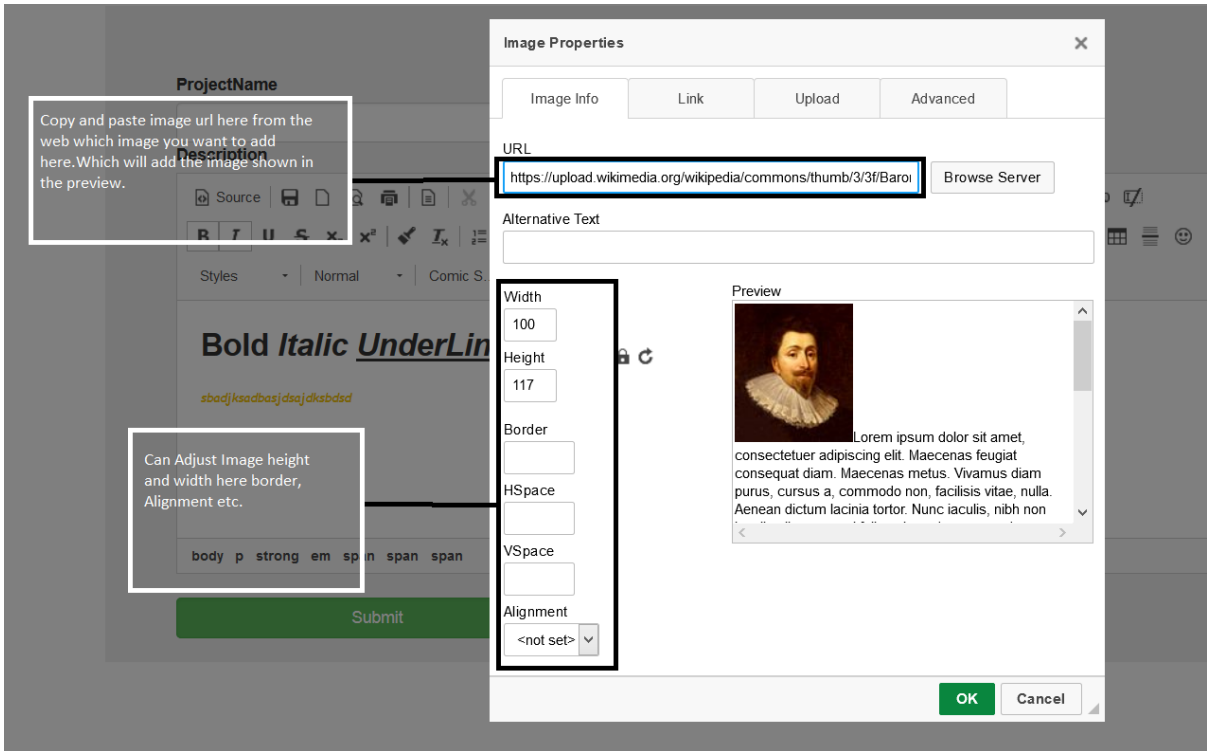
It will open a popup window. like below



Here are some tabs in the screen shot above.

Tabs:

>> **Image Info:** You can direct copy past the image url in the URL textbox and set its Width, height and border etc. from there.and click on the "**OK**" button will add the image to the content

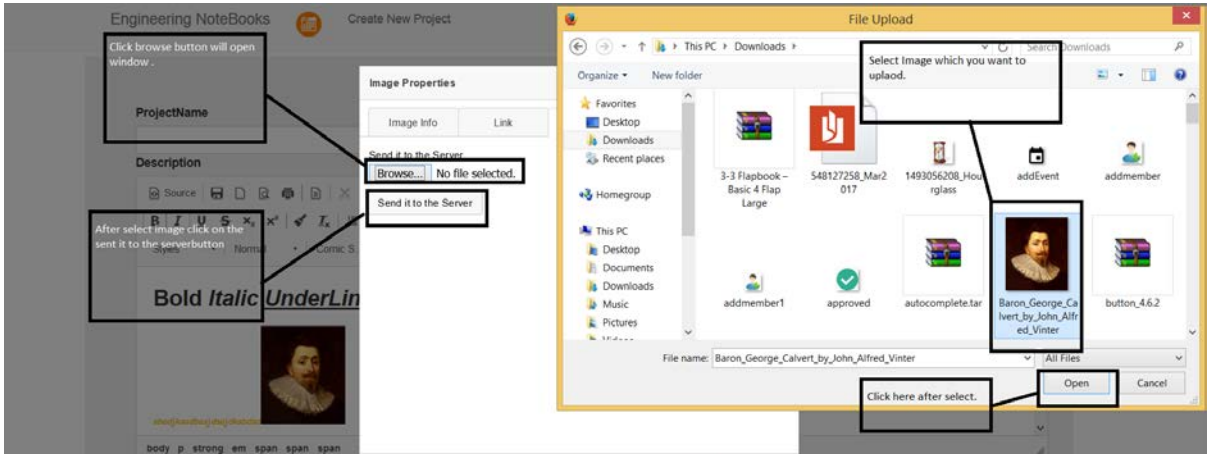


Or

>> **Upload Image from System:** To upload an image from your pc.

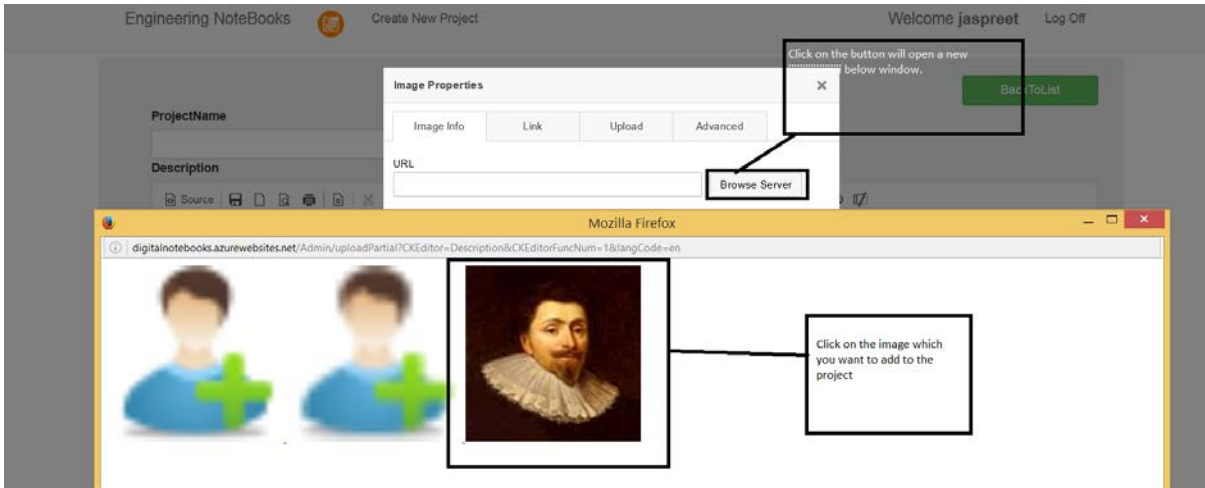
Step 1. Click on the Upload Tab.

Step 2. Upload image and click on the sent it to server button.

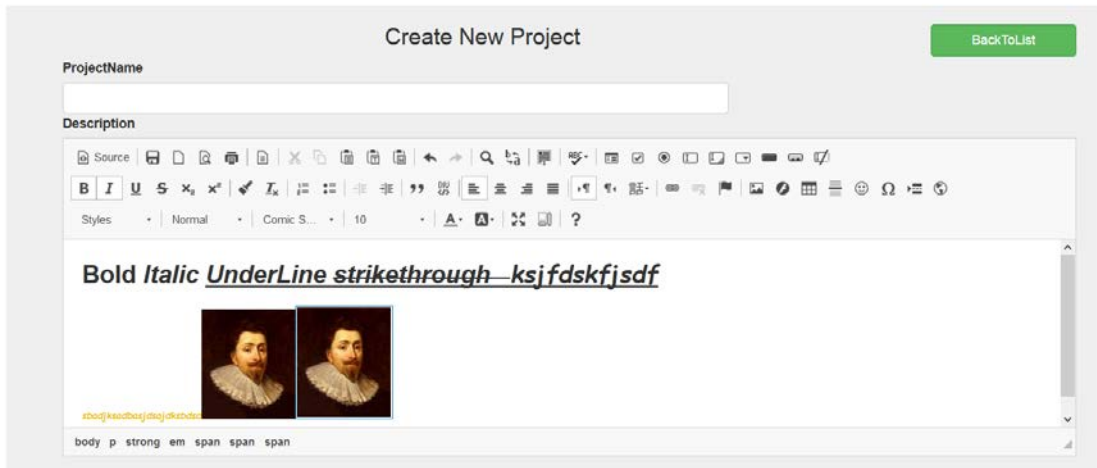


Step 3. Click on ok button will open the "**Image Info**" tab automatically.

Step 4. Click on the "**Browse Server**" button will open a new window having all the images. Select you uploaded image here and click on image will fill the URL textbox automatically.

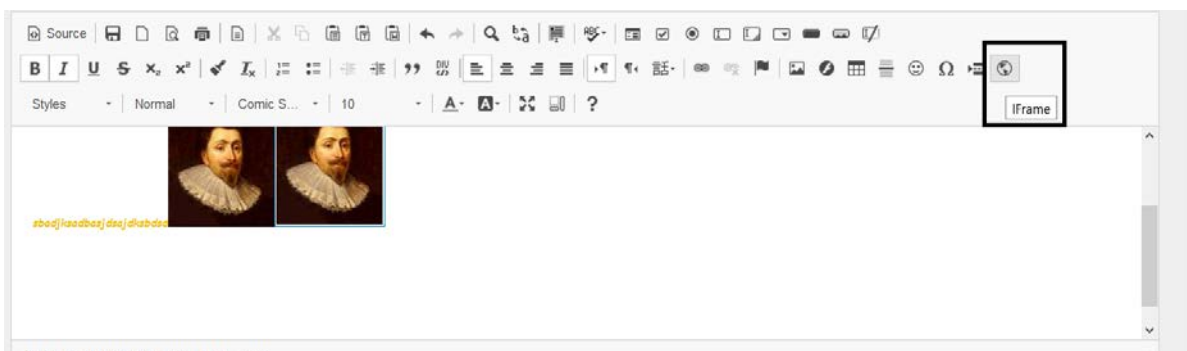


Step 5. Click on the **Ok** button will add the image in the editor.

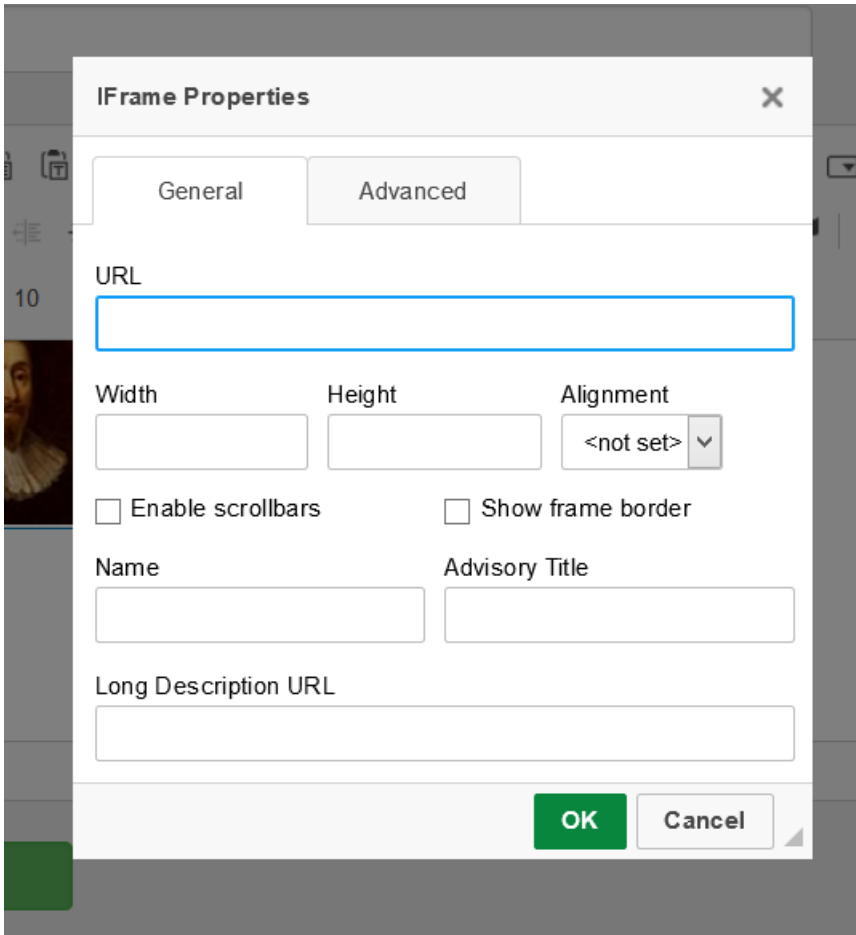


Add You Tube Video:

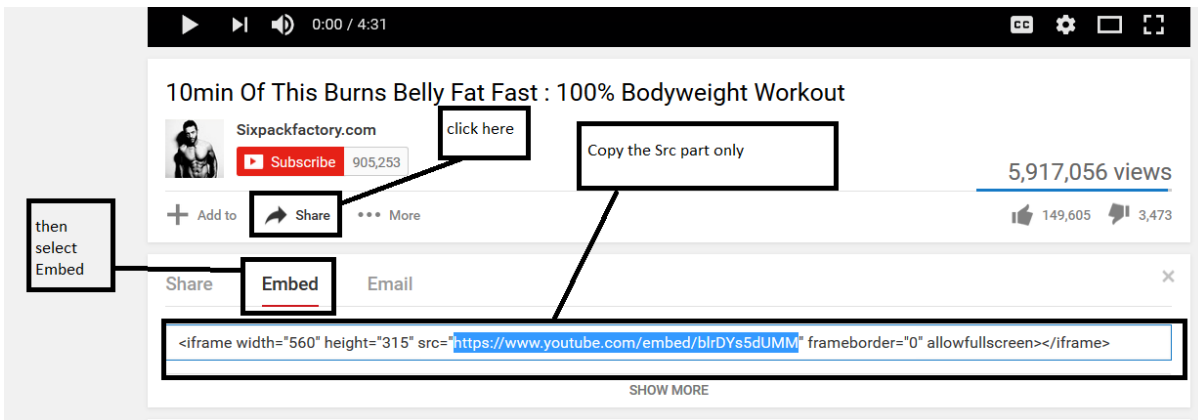
Step 1. Click on the IFrame Icon.



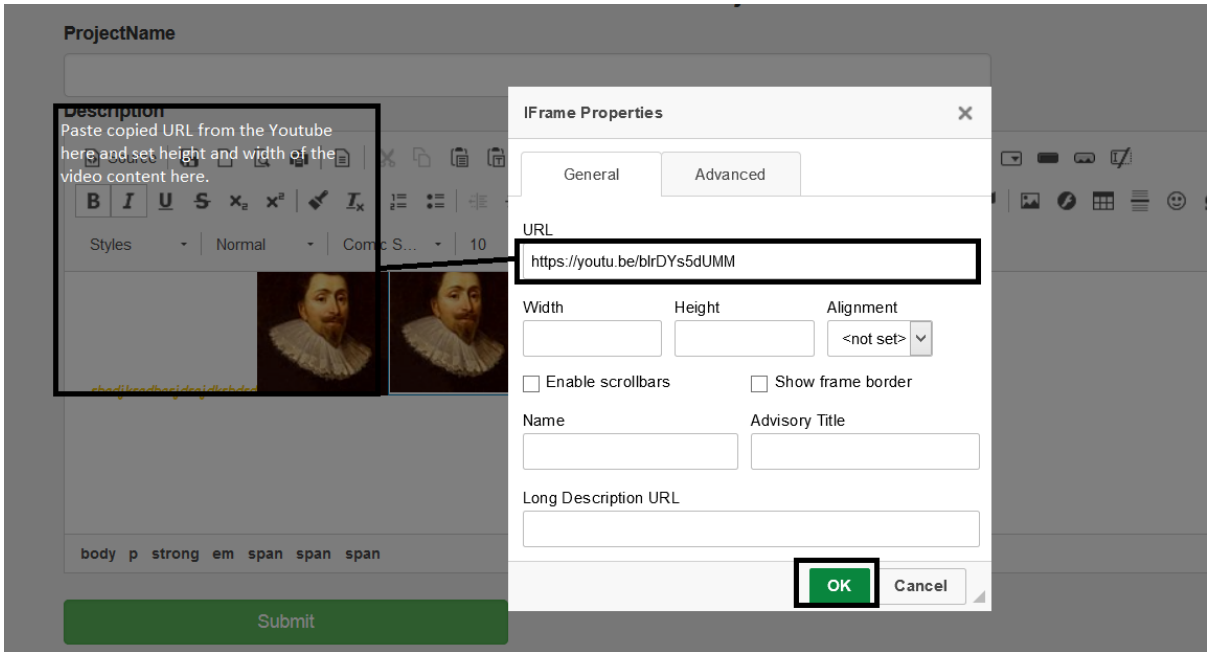
Step 2. It will open a popup below screen shot.



Step 3. Open YouTube in your browser and copy that video URL which you want to add to the project.

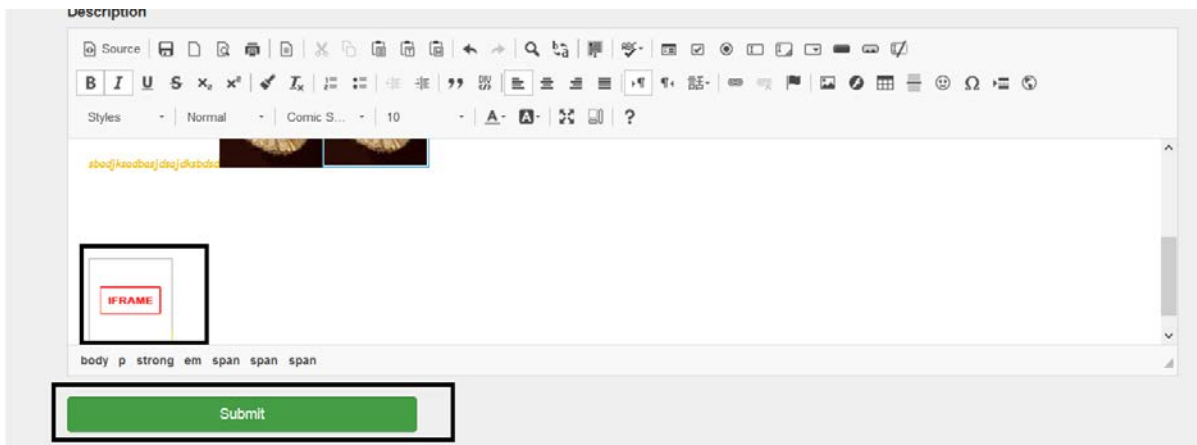


Step 4. Paste the copied url in the URL text on our page in the opened popup.

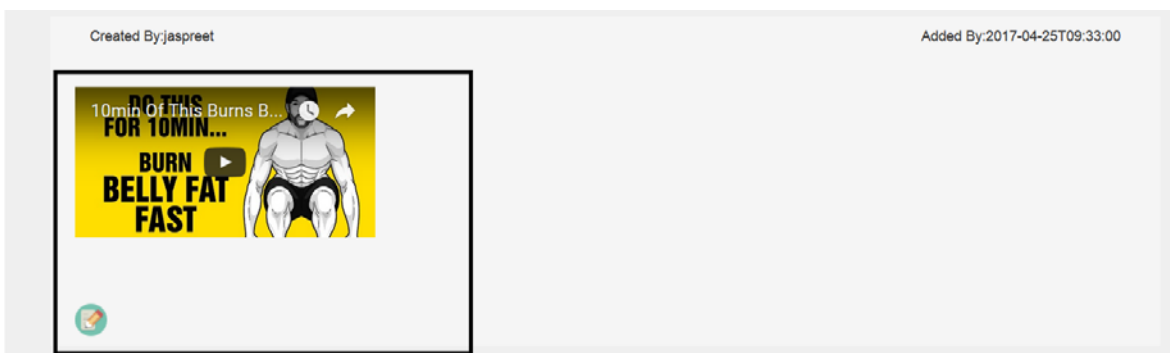


Click on the ok button will added an IFrame in the Editor.

Step 5. Click on the Submit Button.



And Video will be added to the project.

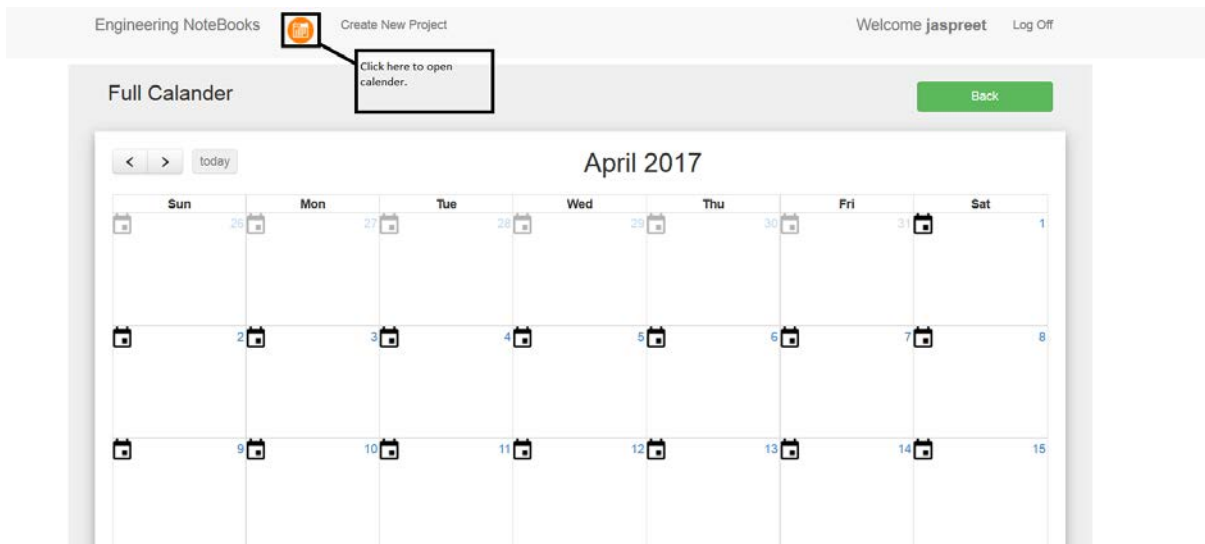


Note: After Submit Project An Approval Email Will be send to the Site Admin.

Once Admin approved the project then the project will started be seen on the dashboard.

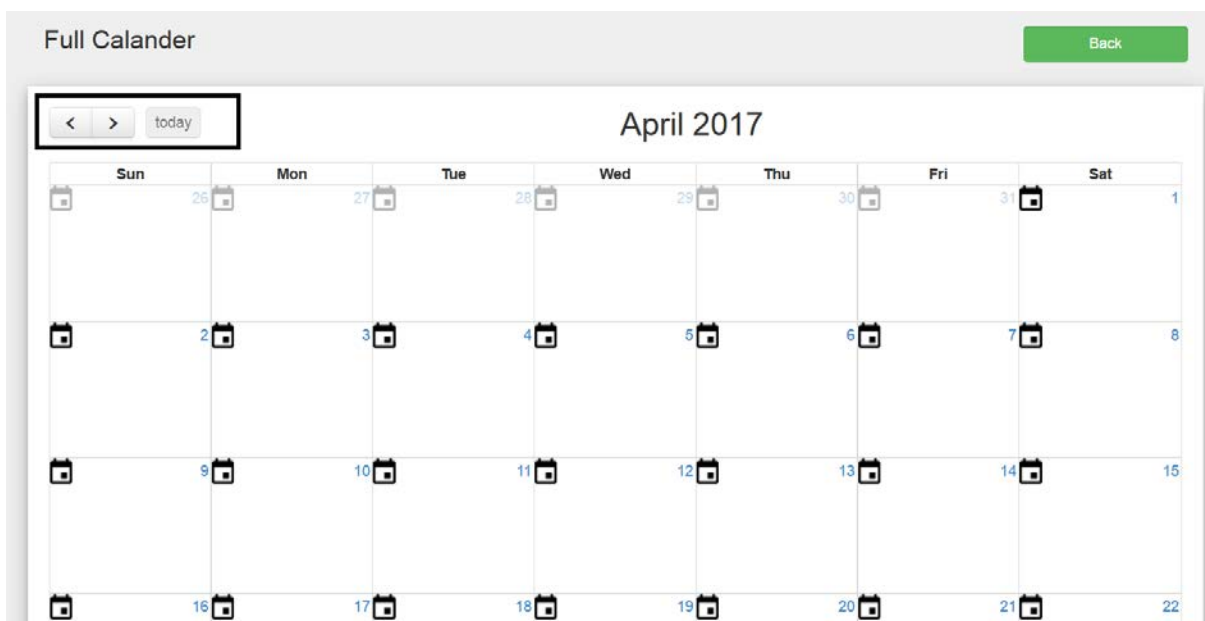
6). **Calendar:** We provide a functionality to add event of any date which will be shown on the Calendar for the user.

To add an Event Click on the Calendar Icon the Top of the Page.

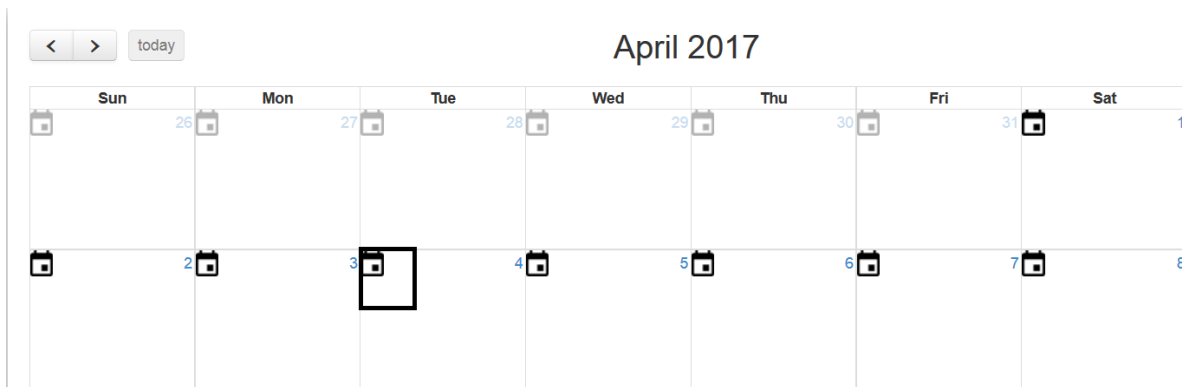


which will open the above page.

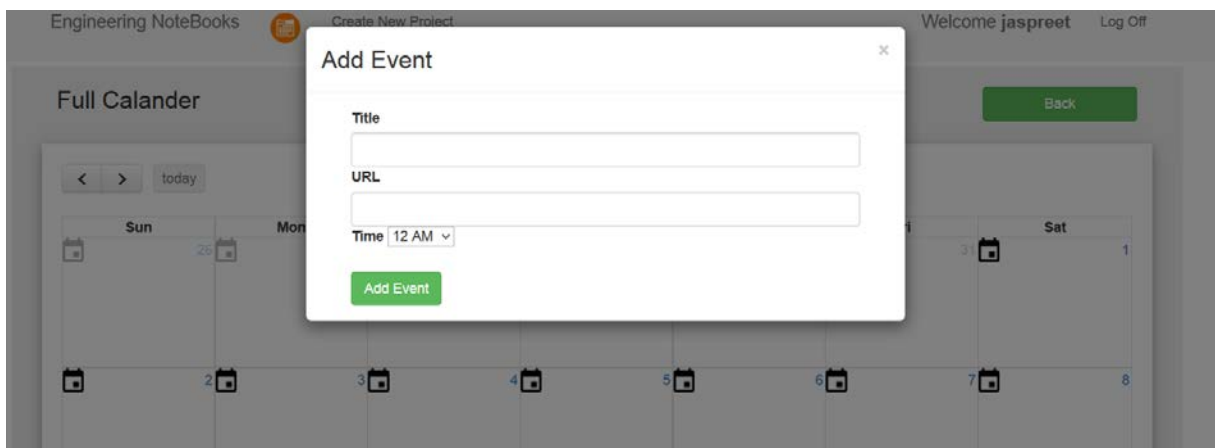
>> **Go to Next and Previous Month:** To go to the next and previous month click on the next and previous arrow buttons.



>> **Add Events:** To add Event of a date click on the add event icon in the particular date.



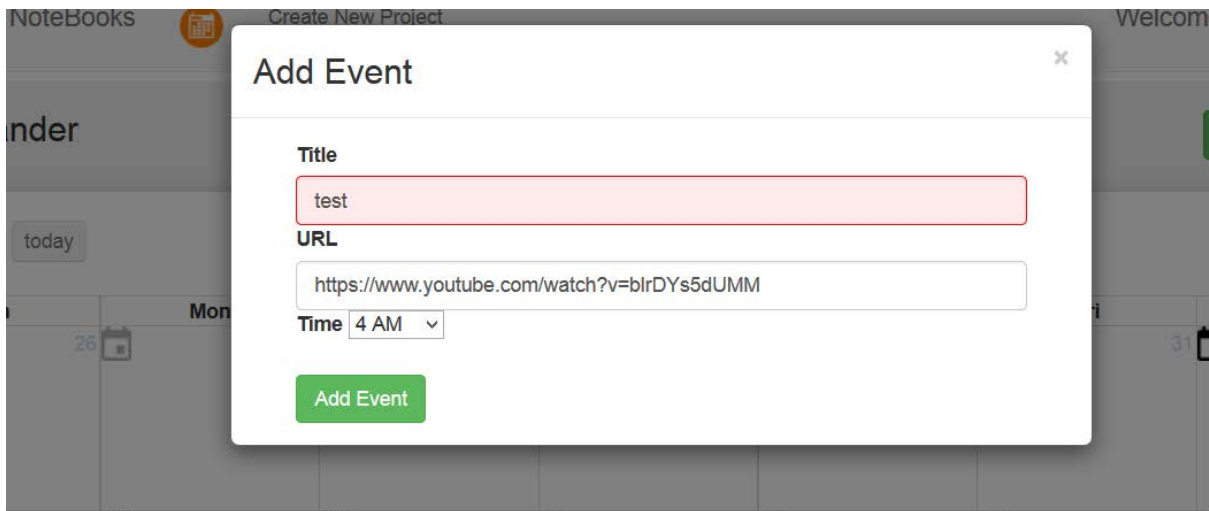
Which will open a popup window. below



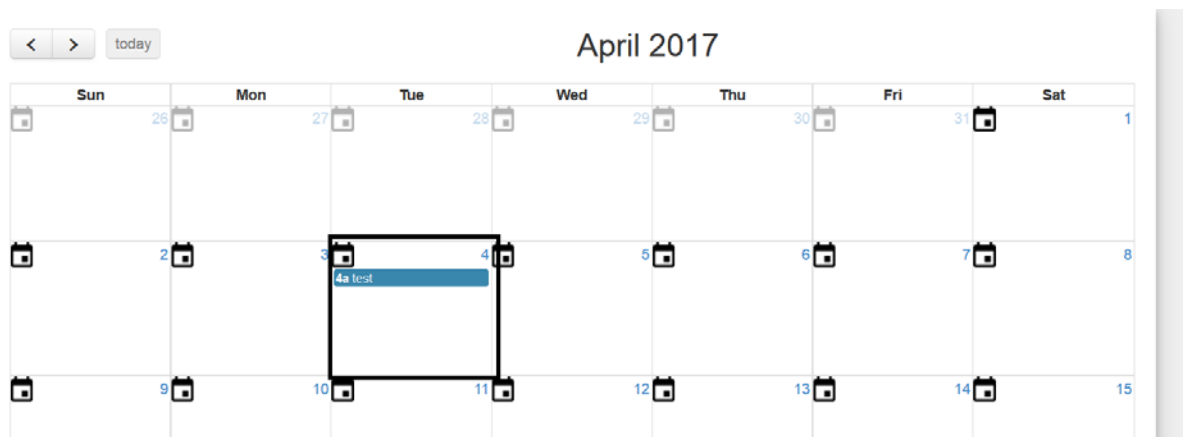
>>> **Title:** Enter title in the title text box which is a required field. this will be shown the calendar after click on the Add event.

>>>**URL:** Optional Field give a url of the web page here you want to go through that page from the calender by click on the this Event.

>>> **Time:** select the time for the Event.



After click on the "Add Event" button. Popup will close and then Reload the page.



Here you can see that Event name **Test** has been added to the date and you can go the URL by click on the Event which you Added Above.

6.2 : Functional Area B/Design Unit B :

Admin: This user has some extra functionality on the site.

- 1). Can Delete Any Project:
- 2). Can Approved any project.

6.2.1. Functional Overview :

When a Admin login to the site Admin User can see a list of all the Project. Below is the screen shot

ProjectName	CreatedBy	CreatedOn	
sdfsdf	abc	4/21/2017 8:16:00 AM	
Test Project	vaseem	4/21/2017 1:43:22 PM	
Rasheed Test Project	rasheed219@gmail.com	4/24/2017 5:11:37 AM	
Lunch Ordering	Syed Asadullah	4/24/2017 5:37:49 AM	
Lunch Ordering	Syed Asadullah	4/24/2017 5:38:21 AM	
Test Project by Lateef	mohammed	4/24/2017 4:21:52 PM	
Test Today Project	jaspreet	4/25/2017 7:35:54 AM	
Hey what's up	jaspreet	4/25/2017 7:37:31 AM	

a). **To Delete a Project:** Click on the Delete Icon in the list to delete the project.

ProjectName	CreatedBy	CreatedOn	
sdfsdf	abc	4/21/2017 8:16:00 AM	
Test Project	vaseem	4/21/2017 1:43:22 PM	

b). **To Approve an Project:** Click on the Pending Icon to Approve a Project.

Rasheed Test Project	rasheed219@gmail.com	4/24/2017 5:11:37 AM	
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c). **Review a Project:** Can review a project by click on the Project Name

Lunch Ordering	Syed Asadullah	4/24/2017 5:37:49 AM	
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It will redirect the Admin to the Project Detail Page.

6.2.2. Impact :

Navigations:

1). **Go back to the Project List:** Click on the Back to List Button

Project Detail	
Rasheed Test Project	

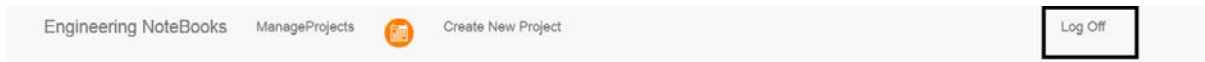
2). **Create New Project:** Click on the Click new project on the top menu.



3). **Calendar:** Click on the calendar icon.



4). **Log Out:** To logout from the site.



6.2.3. Requirements:

The requirement for this task has been made very flexible for the users and clients to an extent that a user and client can share their work related information even via chat messages. They may have long conversations between the members in the project and the clients so that they all are on the same page and work is being accomplish in a timely manner and a schedule delivery is being given.

The calendar tab also plays a vital role between the team meeting and user/client meeting where they can describe the meeting requirements before hand to save time and off related queries.

7. OPEN ISSUES :

At present, the url on the doc doesn't show the thumbnail of the video for the uploaded documents. This bug will be removed in the future and the user admin isn't able to see the online activity of the added members. This functionality is under process and will be implemented in the future.

8. ACKNOWLEDGEMENTS:

In performing our assignment, we had to take the help and guideline of some respected persons, who deserve our greatest gratitude. The completion of this assignment gives us much Pleasure. We would like to show our gratitude to **Mr. Mohammed Faheem, CEO, Centre for Strategic Solutions Inc.** for giving us a good guideline for assignment throughout numerous consultations. We would also like to expand our deepest gratitude to all those who have directly and indirectly guided us in writing this assignment.

Many people, especially our classmates and team members itself, have made valuable comment suggestions on this proposal which gave us an inspiration to improve our assignment. We thank all the people for their help directly and indirectly to complete our assignment.

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