



**UNIVERSITI PUTRA MALAYSIA**  
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# SMART SPATIUM: A DYNAMIC COLLABORATIVE WORKING SPACE FOR SMART CAMPUS

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# INTRODUCTION



- Smart Spatium is an online community space developed for Higher Learning Institution students.
- The motivations for this development are:
  - ✓ Most of the assignments and projects given by the lecturer are teamwork-based.
  - ✓ Typically, students will have to divide the given tasks among their team members, and each will do their part separately.
  - ✓ Pseudo team

# ISSUES??



- Difficult to have F2F discussion due to different locations regularly.



- No centralized platform for storing the folders containing their assignments and project documents.



- Lacking of mechanism that provides evidence of contribution of each team member in completing a task.

# OBJECTIVES



- ✓ To design and develop a web application that allows students to :



Commit & Collaborate



Prove Contribution



Centralized Platform

# LITERATURE REVIEW



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KEY FUNCTIONS	SOCIAL LEARNING			SOCIAL MEDIA			Smart Spatium
	Edmodo	Google Docs	Dropbox Paper	Facebook	Google+	Skype	
Edit the documents simultaneously.	NO	YES	YES	NO	YES	YES	YES
View contribution of each team members.	NO	YES	NO	NO	NO	NO	YES
Post comment on timeline with variety types of file format used to be shared on specific folder.	YES	NO	NO	YES	YES	NO	YES
Comment on specific part of the documentation	NO	YES	YES	NO	NO	NO	YES
Set alert notification for project submission date.	YES	NO	YES	YES	YES	YES	YES

# LITERATURE REVIEW

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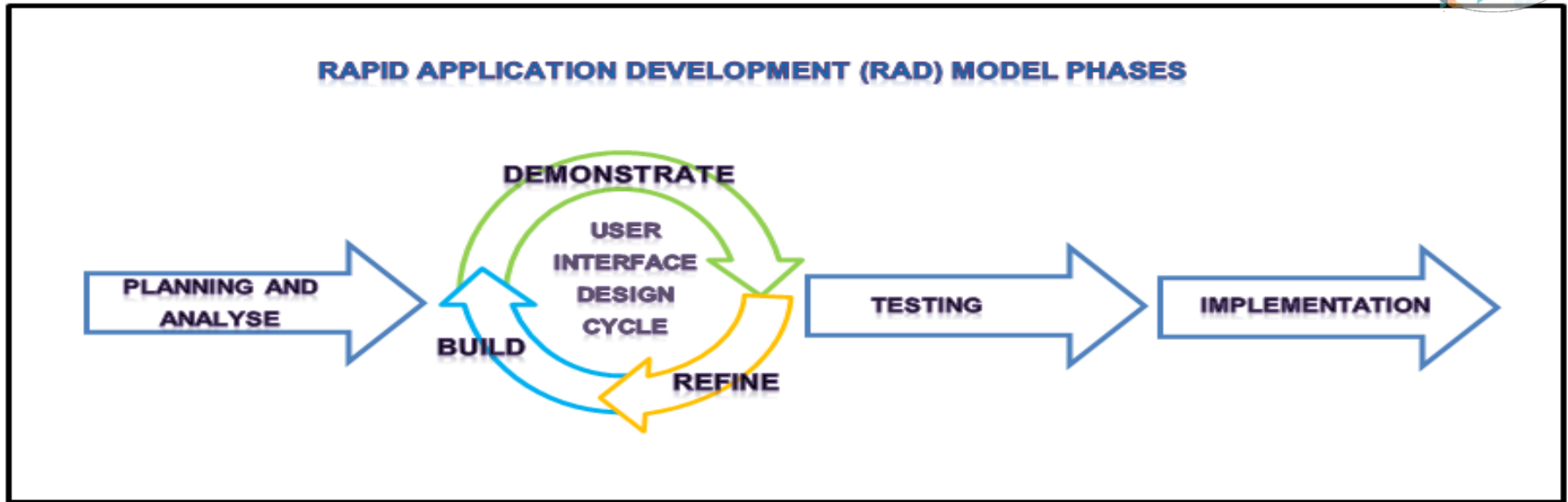


KEY FUNCTIONS	SOCIAL LEARNING			SOCIAL MEDIA			Smart Spatium
	Edmodo	Google Docs	Dropbox Paper	Facebook	Google+	Skype	
Discuss with team members in the chat board.	YES	YES	YES	YES	NO	YES	YES
Checklist activities for assignment and project.	YES	NO	YES	YES	NO	NO	YES
Invite team members to collaborate.	YES	YES	YES	YES	YES	YES	YES
Provide folders as a centralized platform to store the created documents	NO	YES	YES	NO	NO	NO	YES

# METHODOLOGY



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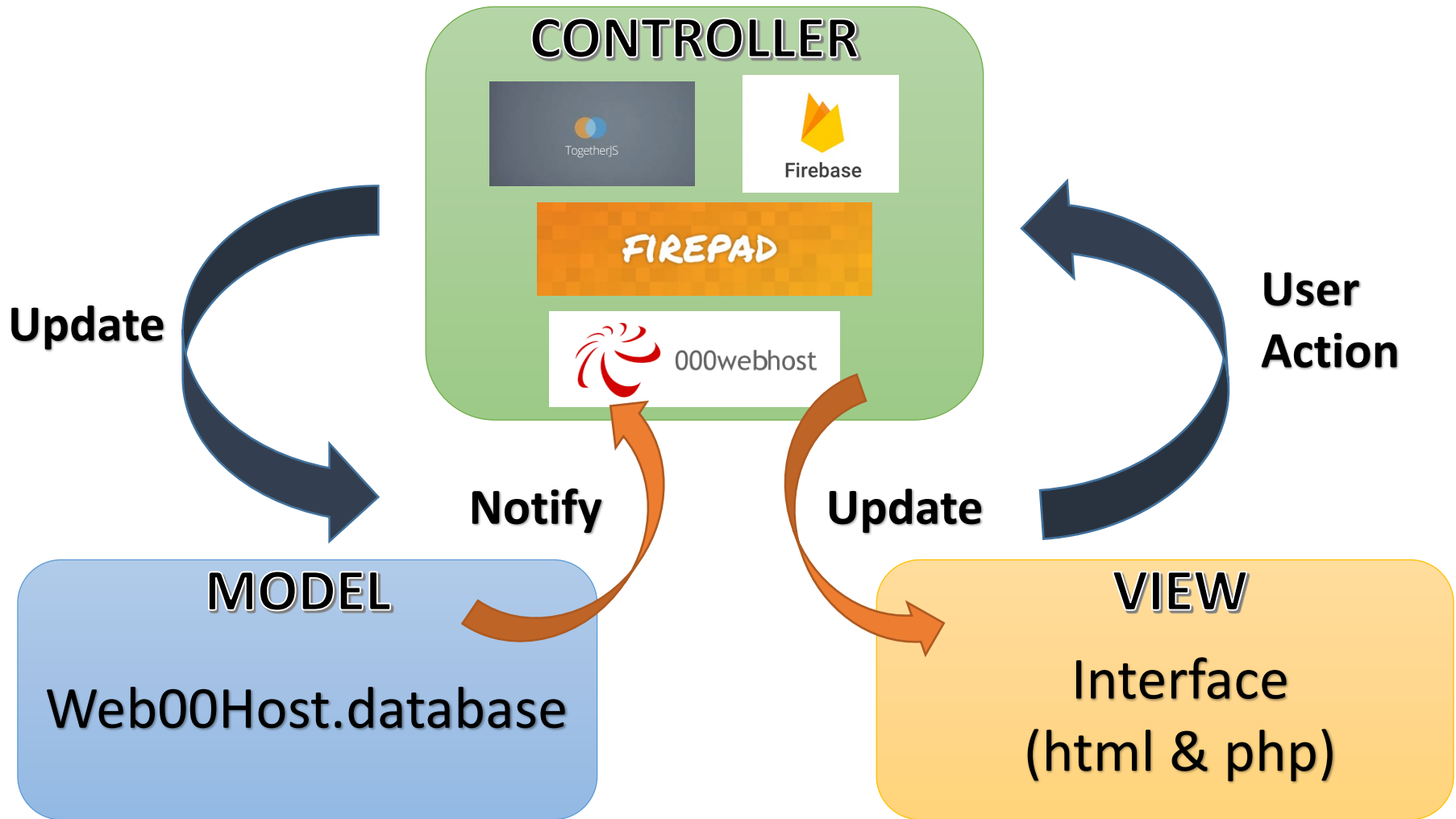


1. List down and Analyze the requirement needed.
2. 1<sup>st</sup> Cycle : Graphical User Interface (GUI).
3. 2<sup>nd</sup> Cycle : Back end Implementation (Database).
4. 3<sup>rd</sup> Cycle : Web Functions.
5. Smart Spatium web application Testing.
6. Smart Spatium deployment for demonstration.

# SYSTEM ARCHITECTURE

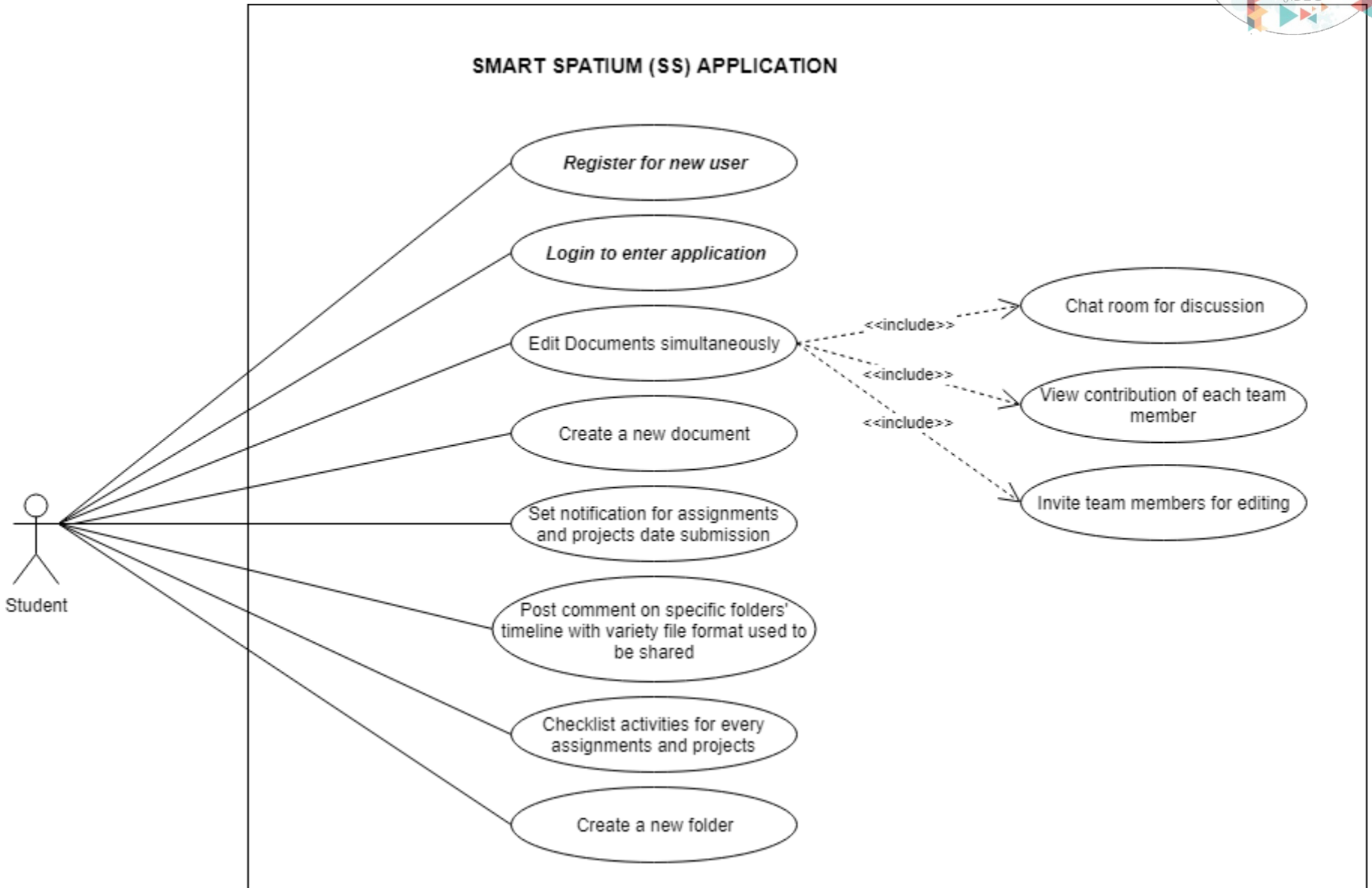


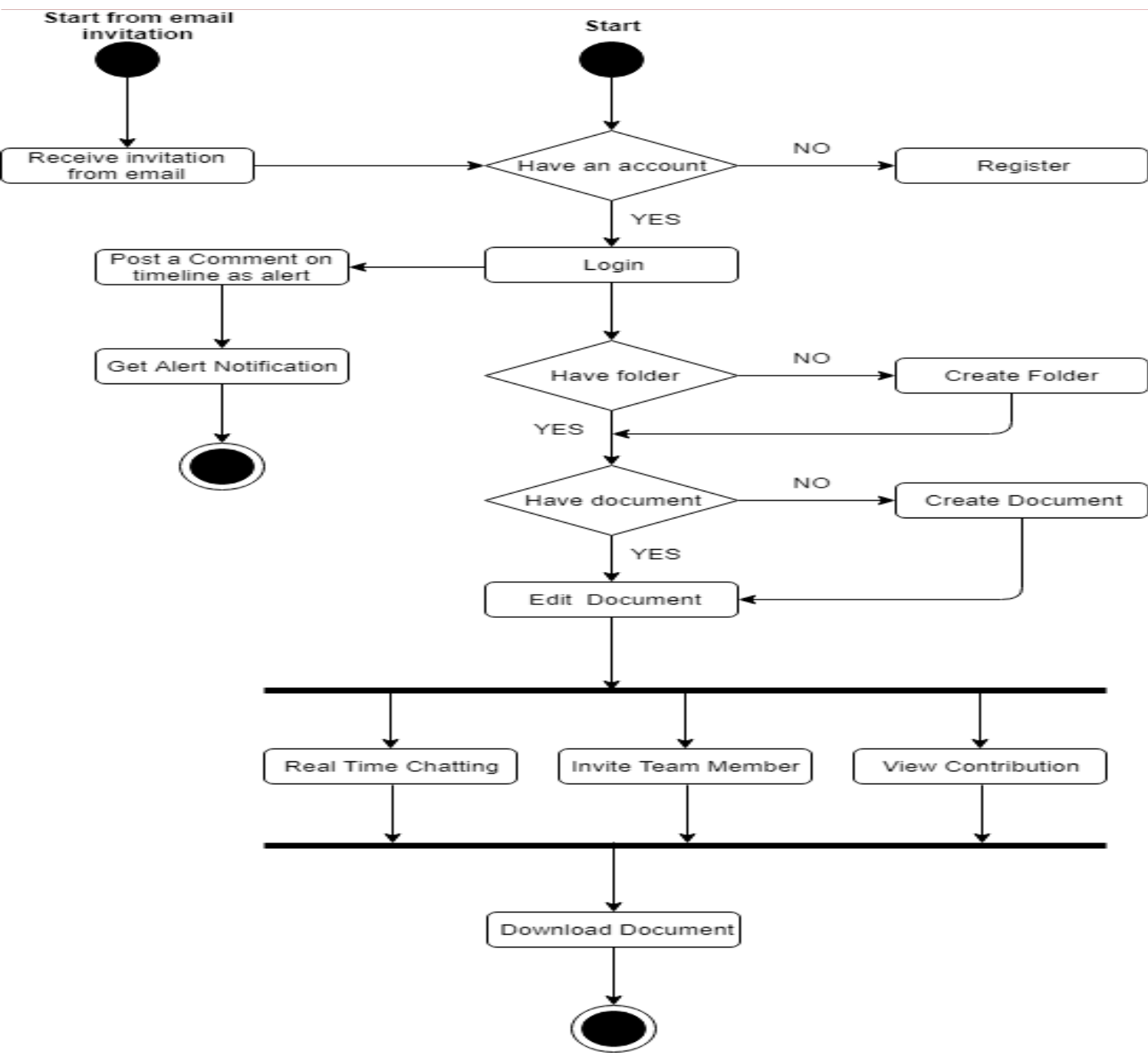
## MVC Architecture Pattern





# USE CASE DIAGRAM





# ACTIVITY DIAGRAM

# SMART SPATIUM FEATURES

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- Edit document of the assignments or projects simultaneously among team members.
- Provide centralized platform for storing folders containing the assignments and projects.
- Make a post comment space to have discussion among their team members as well as to alert their team members.
- Set alert notification for assignments and projects submission.
- Create and check document checklist.
- Provide an evidence of contribution.

# SMART SPATIUM SCREENSHOTS (1)



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## Index Page:



## SMART SPATIUM

This is the space where you can collaborate with your team members anywhere and anytime!

[Click to Start Online Collaboration](#)

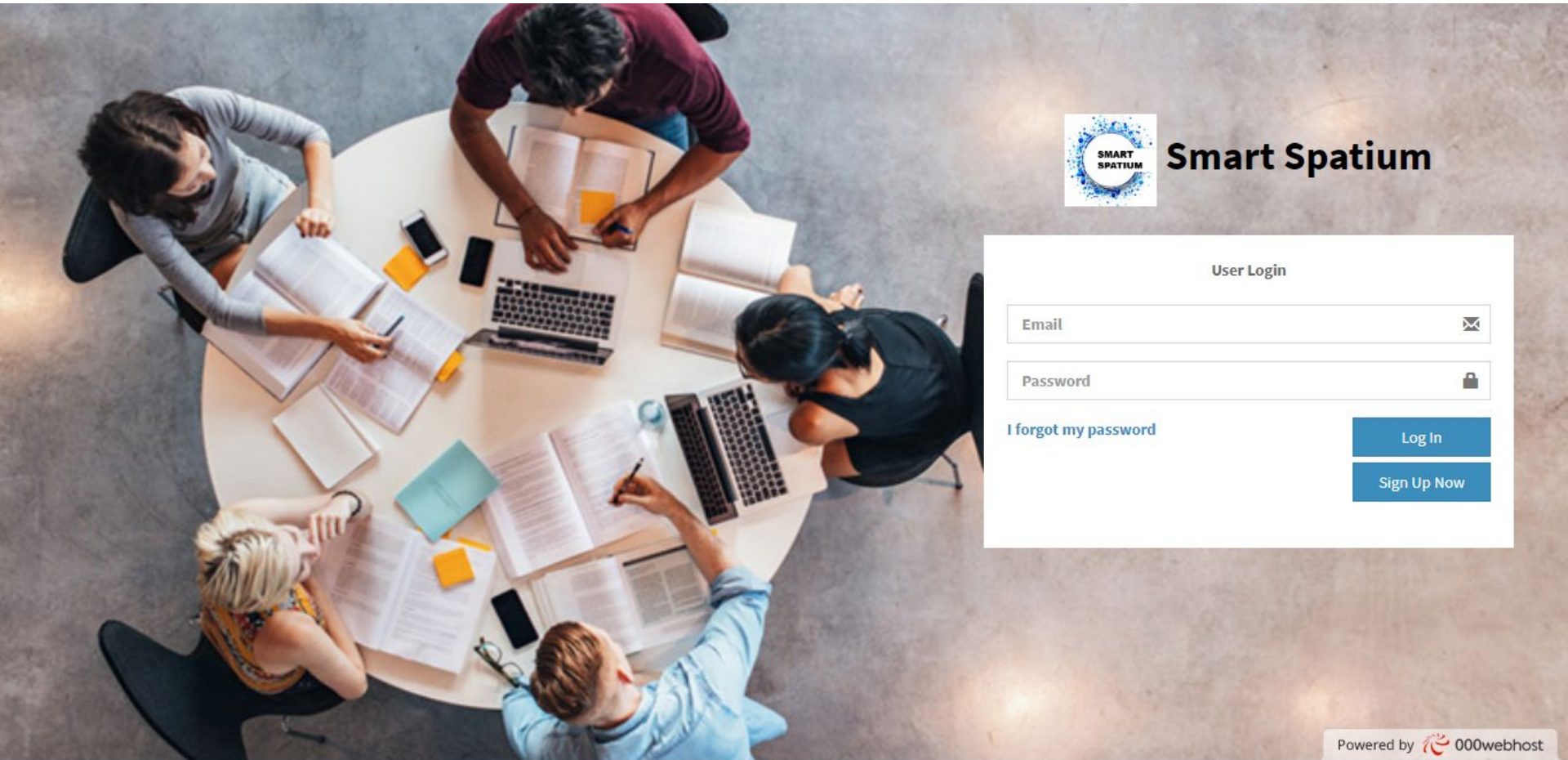
[Get Started](#)

# SMART SPATIUM SCREENSHOTS (2)



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## Login Page:



### Smart Spatium

User Login

Email

Password

[I forgot my password](#)

# SMART SPATIUM SCREENSHOTS (3)

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## Home Page:



@farahshazwani

farahshazwani azmi (184170)

My BIO:  
I'm Final Year Student in UPM.

Post Comment

Says: @farahshazwani

Post

Insert Comment Here



farahshazwani

Our submission date only 2 more days left !!!



farahshazwani

Don't forget our assignment due date on 25/12/2018



farahshazwani

Hi my team

# SMART SPATIUM SCREENSHOTS (4)

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## Home Page:



@najwa

najwa azmi (U123BC)

My BIO:  
I'm Lecturer in UPM.

Post Comment

Says: @najwa

Post

Insert Comment Here

najwa

I finish my part already.

farahshazwani

1 more day left !!!!

farahshazwani

Our submission date only 2 more days left !!!

# SMART SPATIUM SCREENSHOTS (5)

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## Home Page:



@syazani

syazani hussin (182222)

My BIO:  
I'm Software Engineer.

Post Comment

Says: @syazani

Post

Insert Comment Here

syazani

I'm done too !! Sorry for my late ...

najwa

I finish my part already.

farahshazwani

1 more day left !!!!



# SMART SPATIUM SCREENSHOTS (6)



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## Alert Notification Page:



Smart Spatium

Home Folder What's Due Notification\_ ▾

Account ▾



@farahshazwani

farahshazwani azm

My BIO:  
I'm Final Year student.

**syazani**

*I'm done too !! Sorry for my late ...*

**najwa**

*I finish my part already.*

**farahshazwani**

*1 more day left !!!!*

**farahshazwani**

*Our submission date only 2 more days left !!!*

**farahshazwani**

*Don't forget our assignment due date on  
25/12/2018*

**farahshazwani**

*Hi my team*

Post Comment

Says: @farahshazwani

Post

Insert Comment Here

**syazani**

*I'm done too !! Sorry for my late ...*

# SMART SPATIUM SCREENSHOTS (7)



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## Create Folder Page:

Smart Spatium Home Account

### CREATE YOUR FOLDERS

This is your folders And you can create new folders

Enter Folder Name

(\*\*Format: abc.folder\*\*)

Create

Close

+ Create Folder

Folder Name	Total Files	Total Size	Update	Delete	Create Docs	View Uploaded File
DrSalfarina.folder	0					View Files
syazani.folder	0	0 bytes	Update	Delete	Create Docs	View Files
wani.folder	0	0 bytes	Update	Delete	Create Docs	View Files

# SMART SPATIUM SCREENSHOTS (8)

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## Create Folder Page:

Smart Spatium Home Account

CREATE YOUR FOLDER  
This is your folders And you can create new folders

Enter Folder Name  
Software Team Project.folder

(\*\*\*Format: abc.folder\*\*\*)

Create

Close

Folder Name	Update	Delete	Create Docs
DrSalfarina.folder			Create Docs
syazani.folder	Update	Delete	Create Docs
wani.folder	Update	Delete	Create Docs

+ Create Folder

# SMART SPATIUM SCREENSHOTS (9)



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## Folder Page:



Smart Spatium

Home

Folder

What's Due

Notification ▾

Account ▾

### CREATE YOUR FOLDER HERE

This is your folders And you may also share with your team members

+ Create Folder

Folder Name	Update	Delete	Upload File
DrSalfarina.folder	<a href="#">Update</a>	<a href="#">Delete</a>	<a href="#">Create Docs</a>
Software Team Project.folder	<a href="#">Update</a>	<a href="#">Delete</a>	<a href="#">Create Docs</a>
syazani.folder	<a href="#">Update</a>	<a href="#">Delete</a>	<a href="#">Create Docs</a>
wani.folder	<a href="#">Update</a>	<a href="#">Delete</a>	<a href="#">Create Docs</a>

# SMART SPATIUM SCREENSHOTS (10)

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## Create Document Page:



Smart Spatium Home

Account

### CREATE YOUR FOLDER

This is your folders And you can create new folder

Folder Name

DrSalfarina.folder

syazani.folder

wani.folder

### Create Docs

File Name

Created Date:

23/12/2018

Due Date:

dd/mm/yyyy

Create Docs

Close

+ Create Folder

file

e Docs

e Docs

e Docs

# SMART SPATIUM SCREENSHOTS (11)

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www.ppict2019.upm.edu.my  
powered by  
eDEC

UPM  
PERSIDANGAN  
PENTADBIRAN ICT  
UNIVERSITI 2019

## Create Document Page:



Smart Spatium Home

Account

### CREATE YOUR FOLDER

This is your folders And you can create new folder

Folder Name

DrSalfarina.folder

Software Team Project.folder

syazani.folder

wani.folder

### Create Docs

Software Team Project

Created Date:

25/12/2018

Due Date:

27/12/2018

Create Docs

Close

+ Create Folder

Load File

Create Docs

Create Docs

Create Docs

Create Docs

# SMART SPATIUM SCREENSHOTS (12)

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www.ppia2019.upm.edu.my  
powered by  
aDEC

UPM  
UNIVERSITI  
PERTANIAN  
MALAYSIA

PERSIDANGAN  
PENTADBIRAN ICT  
UNIVERSITI 2019

## Edit Document Page:



Smart Spatium

Home

Folder

What's Due

Notification

Account

SHARE

CHAT

ONLINE (1)

farahshazwani  
ENTER YOUR NAME

Font

Size

Color

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Hi. Document that we will discuss is :|

FIREPAD

Powered by 000webhost

# SMART SPATIUM SCREENSHOTS (13)



## Edited Document Page:

Smart Spatium Home Folder **What's Due** View Contribution

Account

fatinfizz976@yahoo.com

SHARE CHAT

ONLINE (1)  
farahshazwani  
ENTER YOUR NAME

Font Size Color **B** *I* U ~~S~~ [List Icons] [Undo] [Redo] [Image]

FIREPAD  
Powered by 000webhost



# SMART SPATIUM SCREENSHOTS (14)

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## Share Link Page:

The screenshot displays the Smart Spatium web application interface. At the top, there is a blue navigation bar with the Smart Spatium logo and menu items: Home, Folder, What's Due, Notification, and Account. Below the navigation bar, there are two green buttons labeled 'SHARE' and 'CHAT'. The main content area features a document editor with a toolbar containing options for Font, Size, Color, Bold (B), Italic (I), Underline (U), Strikethrough (ABC), Bulleted List, Numbered List, Indent, Outdent, and Undo/Redo. The document text reads: "Hi. Document that we will discuss is : **Smart Spatium (SS) is an online community space developed for because:**

- Most of the assignments and projects given by the lecturer would be in a team.
- Usually students need to divide the task among their team members and they will do the

An 'Invite a friend' popup window is visible on the right side of the editor, containing the text "Copy and paste this link over IM or email:" and a text input field with the URL <https://smartspatium1.000webhostapp.com/edit>. The bottom of the page features a banner image of two Minions holding drinks, with the 'FIREPAD' logo and "Powered by 000webhost" text on the right.

# SMART SPATIUM SCREENSHOTS (15)

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## Invite Team Page:

Smart Spatium: Calling For Collaboration Inbox x

**smartspatium1** <8278829@us-imm-node6c.000webhost.io>  
to me ▾

11:15 AM (5 minutes ago) ☆

English ▾ > Malay ▾ [Translate message](#)

Turn off for: E

Hi, [syazanihussin@gmail.com](mailto:syazanihussin@gmail.com). farahshazwani azmi has sent you an invitation to a docs. Kindly access the document through this link: [Go To Docs](#)

← Reply

➡ Forward

# SMART SPATIUM SCREENSHOTS (16)

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## Invite Team Page:

The screenshot shows an email client interface. At the top, there is a search bar with the text 'Search mail'. Below it is a navigation bar with various icons for mail actions. The main content area displays an email from 'smartspatium1 <8278829@us-imm-node6c.000webhost.io>' to 'me'. The subject is 'Smart Spatium: Calling For Collaboration'. The email body contains the text: 'Hi, [fizz230797@gmail.com](mailto:fizz230797@gmail.com). farahshazwani azmi has sent you an invitation to a docs. Kindly access the document through this link: [Go To Docs](#)'. At the bottom, there are buttons for 'Reply' and 'Forward'. The interface also shows a calendar on the right side with the date '31' visible.

# SMART SPATIUM SCREENSHOTS (17)



## Edited Document Page:



Smart Spatium Home Folder What's Due View Contribution

Account

SHARE

CHAT

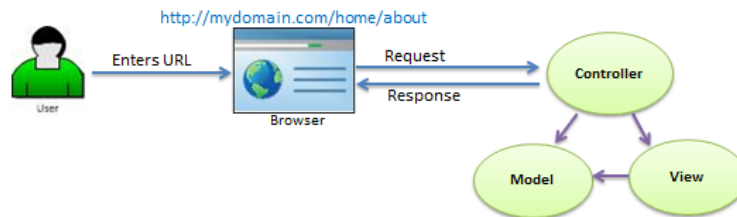
ONLINE (2)

- farahshazwani  
ENTER YOUR NAME
- Guest 82



### EXPECTED RESULT

- Edit document of the assignments or projects simultaneously among their team members.
- Provide centralized platform for storing folders' of the assignments and projects.
- Make a post comment space to have discussion among their team members and alert their team members.
- Set alert notification for assignments and projects submission.



FIREPAD

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# SMART SPATIUM SCREENSHOTS (18)

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PENTADBIRAN ICT  
UNIVERSITI 2019

www.ppict2019.upm.edu.my  
powered by  
eDEC

## Chat Room Page:

Smart Spatium Home Folder What's Due Notification Account

SHARE CHAT

ONLINE (1)  
farahshazwani  
ENTER YOUR NAME

Font Size Color **B** *I* U ~~S~~ [List Icons] [Undo] [Redo] [Image]

Hi. Document that we will discuss is :

**Smart Spatium (SS) is an online community space developed for because:**

- Most of the assignments and projects given by the lecturer would be in a team.
- Usually students need to divide the task among their team members and they will do th...

Chat

No one else is here.

me hi 11:17 PM

me thanks for join me ! 11:18 PM

type your message here

Powered by 000webhost

# SMART SPATIUM SCREENSHOTS (19)



## Chat Room Page:

+ Create Diagram

SHARE

lor ▾ **B** *I* U ~~S~~

- ☰
- ☰
- ☰

- ☰
- ☰
- ☰

 ↶ ↷ 🖼️

to the left!Check out the user list to the left!Check out the user list to the left!Check out the user list to the left!Check out the user list to the left!Check out the user list to the left!

Chat

Fatin & You

Fatin joined the session.

Fatin hi 3:08 PM

me hello 3:09 PM

Type your message here

FIREPAD

# SMART SPATIUM SCREENSHOTS (20)



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## Chat Room Page:

Smart Spatium Home Folder What's Due Notification Account

+ Create Diagram SHARE

ONLINE (3)  
Guest 681  
Guest 681  
Guest 681

Font Size Color **B** *I* U ~~S~~ [List Icons] [Undo] [Redo] [Image]

me 3:08 PM hi

Farah 3:09 PM hello

Shanna 3:10 PM hello

Type your message here

# SMART SPATIUM SCREENSHOTS (21)

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## Document Checklist Page:



Smart Spatium

Home

Folder

What's Due

Notification

Account

### LIST OF WORKS

Remind You and Your team members to finish up all the assignments & projects

Showing Created Files

File Format	File Path	File Name	Due Date	Edit Document	Complete Task
	<a href="https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F">https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F</a>	smartspatium	2018-12-28	<input type="button" value="Edit"/>	<input type="button" value="Complete"/>
File Format	File Path	File Name	Due Date	Edit Document	Complete Task



# SMART SPATIUM SCREENSHOTS (22)

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## Checklist Completed Page:



Smart Spatium

Home

Folder

What's Due


Notification

Account

### LIST OF WORKS

Remind You and Your team members to finish up all the assignments & projects

Showing Created Files

File Format	File Path	File Name	Due Date	Edit Document	Complete Task
	<a href="https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F">https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F</a>	smartspatium	2018-12-28	<input type="button" value="Edit"/>	<input type="button" value="Completed"/>
File Format	File Path	File Name	Due Date	Edit Document	Complete Task

Powered by

# SMART SPATIUM SCREENSHOTS (23)

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## Edit Profile Page:



Smart Spatium || farahshazwani azmi

### EDIT PROFILE

First Name

farahshazwani

Last Name

azmi

Email address

farahfeb95@gmail.com

Address

wangsa maju

Contact Number

0112345689

Matric Number

184170

Status

Student

About Me

I'm Final year student

Upload/Change Profile Picture

Powered by  000webhost



## Delete Account Page:



Smart Spatium || farahshazwani azmi

### Change Password

Type in new password that you want to use

Change Password

I Want To Delete My Account

Deactivate My Account

# SMART SPATIUM SCREENSHOTS (25)

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## View Contribution Page:



Smart Spatium Home Folder What's Due View Contribution

Account ▾

User	Time Spent (%)	File
farahshazwani	70.0000	<a href="https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F*">https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F*</a>
syazani	69.8650	<a href="https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F*">https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F*</a>
fatin	48.6540	<a href="https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F*">https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F*</a>
prashanna	50.7699	<a href="https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F*">https://smartspatium1.000webhostapp.com/edit-document1/edit-doc.php#-LUFdPpIH_pxB1-z_89F*</a>

# CONCLUSIONS



- ✓ Smart Spatium also aims to instill and cultivate the sense of community belonging that encourages work responsibility, and smart teamwork coordination among team members while working on assignments or projects.
- ✓ It is a complementary to the existing system (which involves conventional classroom, physical meetings and manual assessments). For higher learning institutions such as university and colleges, this would be an added value that not only facilitates and simplifies the students' learning process but also the lecturers' teaching and its related tasks including assessment.
- ✓ From time to time, the existing practice in higher education will gradually embracing more dynamic and efficient trend in teaching and learning especially with new technologies supporting collaborative teamwork and unbiased, objective assessment.
- ✓ Smart Spatium has recently been granted a copyright for its contribution especially to the ICT application for higher learning education area of interest.



**TERIMA KASIH/*THANK YOU***

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[www.upm.edu.my](http://www.upm.edu.my)