




## School of Science

# COSC2675 Rapid Application Development

## Assignment

	<b>Assessment Type: group assignment</b> Submit online via Bitbucket or Github  Marks awarded for meeting requirements as closely as possible. Clarifications/updates may be made via announcements/relevant discussion forums.
	<b>Due date: end of Week 11</b> ; Deadlines will not be advanced but they may be extended. Please check Canvas → Assignments → Assignment for the most up to date information.  As this is a major assignment, a university standard <b>late penalty</b> of 10% per each working day applies for up to 5 working days late, unless special consideration has been granted.
	<b>Weighting: 40 marks/100</b> (note: that includes demo marks associated with this assignment)

### 1. Overview

The objective of this assignment is to train on high level web development skill including task analysis, fast development, testing and team collaboration. The different stages of this assignment are designed to gradually introduce different scales of development.

Develop this assignment in an iterative fashion with good time management practice. You should get started now.

If there are questions, you must ask via online forums or similar communication channels. You should phrase your question in a general manner. The teaching team is not supposed to debug for you. Do not post your source code. Small code snippets are fine.

### 2. Assessment Criteria

This assessment will determine your ability to:

1. Independently analyse the task requirement and formulate a development plan.
2. Systematically develop a complete web application.
3. Follow Ruby and Rails coding convention as described in the course materials.
4. Follow agile style of development.
5. Test application regularly and develop the application based on testing.
6. Document code when necessary
7. Use external gems or libraries
8. Control versions and stages of the development
9. Collaborate effectively with a small team.
10. Meet deadlines.

### 3. Learning Outcomes

**This assessment is relevant to the following Learning Outcomes:**

1. Programming capability using Ruby
2. Development capability of a full-stack application based on Ruby on Rails framework.
3. Knowledge and experience of industry level software engineering practices e.g. TDD, Agile.
4. Understanding and experience of team development with tight time constraints.

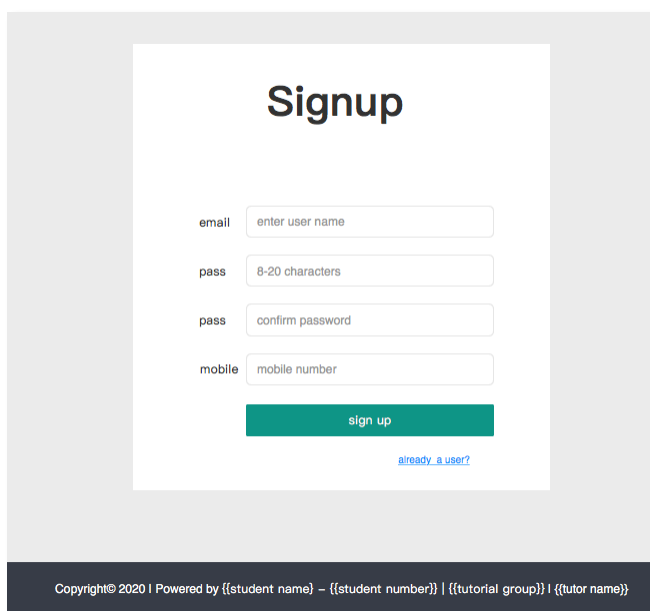
### 4. Assessment details

*Please ensure that you have read sections 1-3 of this document before going further. Your code must meet the following code and documentation requirements.*

Suppose you run a tech startup. You see the need of a news sharing website as everyone is inundated by news, messages from different social media and news channels. So you plan to build a new production, a “proper” news-sharing web site. A visitor only see news shared by those who have similar interest.

#### ===== PASS LEVEL =====

A new visitor will be required to sign up to be a user. The user must provide an email address, two identical password and a mobile number to be registered. If the visitor is already registered, then he/she can click the “[already a user?](#)” link for the login page (see below).



**Signup**

email

pass

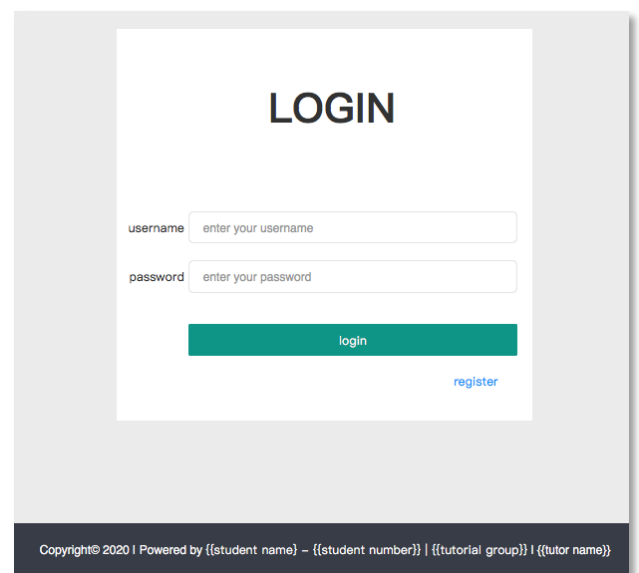
pass

mobile

[sign up](#)

[already a user?](#)

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**LOGIN**

username

password

[login](#)

[register](#)

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The login page is connected to Signup page as well via link “[register](#)”. Your app can begin with login page or signup page. The style of all pages should be consistent. The footer should show information like team member names, tutor group and tutor name.

News+

Home

News

Alex


Recent Post

Selected Post

My Setting

Search


New Post



MIDI 2.0 Specifications Available for Download

Jack2020-05-22 03:23:48A.I.


36685



China bans consumption and trade of wild animals

Andy2020-05-22 03:23:48News


36685



Walmart Gets Into Health Care

Zack2020-05-22 03:18:02News


36765



Isomorphic-Git: What is New in Version 1.0

Alex2020-05-22 03:18:02News


361765



Mathematics for the Adventurous Self-Learner

Jack2020-05-22 03:18:02A.I.


36685



ZFS on Linux repo renamed to openzfs/ZFS

Karl2020-05-22 03:02:23News


36685



Google is moving EU citizens' data to US?

Zack2020-05-22 03:02:23News


36685



Mozilla's DNS over HTTPs

Andy2020-05-22 03:02:23News


36685



Revolut raises \$500M at a \$5.5B valuation

Andy2020-05-22 02:45:49A.I.


36685



Quantum Dot Powered Night Vision for Microscopes

Andy2020-05-22 02:45:49News


36685



Amazon Go Grocery – Full store open now

Zack2020-05-22 02:45:49News

36685




Covid19info

Alex2020-05-22 02:45:49News


36685

Recent Members




148

Alex




100

Zack




100

Jack




132

Andy




148

Alex




100

Karl




100

Jack




132

Andy




148

Alex




100

Zack



100

Jack



132

Andy

Topic

A.I.

V.R.

RMIT

Game

Rails

Go

Web

M.L.

Joke

React

Vue

Node

iOS

AWS

1765

Post

Isomorphic-Git: What is New in Version...1765

Why I Like Math [pdf]1765

Waymo's Hiring Binge1765

In Britain, even jails have a class system1765

Walmart Gets Into Health Care765

Links

Alex

RMIT

Andy

Rails

Docs

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After login, your app home page should look similar to the above example.

- The “Recent Post” button is to show the most recent posts on the main page. For this assignment, you can assume recent means one month.
- The “Recent Post” page is the default homepage.
- Each news item shows the avatar icon of the person who posted it.

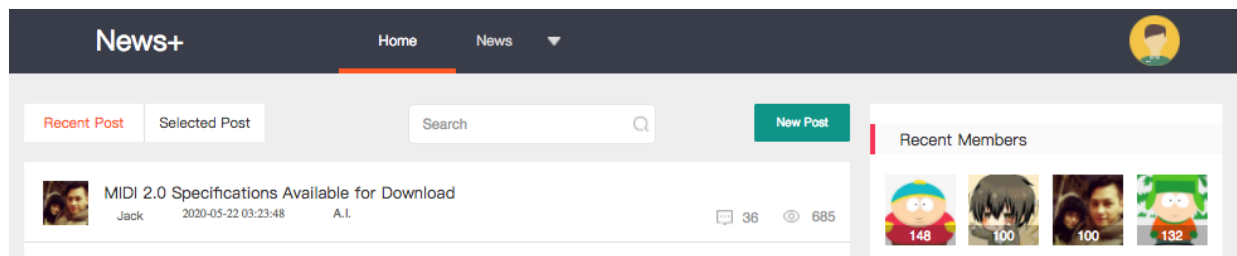
Page 3 of 12

- Each news item shows the title, the name of the contributor, the time stamp, categories of the news, number of comments and number of views.
- The title will be highlighted with mouse-over (see the top news post “*MIDI 2.0...*”). The news page will show when the title is clicked.
- On the right side bar, the “Recent Members” area shows the users that are recently active. You can assume that the width of this area does not change and it shows maximum 12 users.
- The “Topic” area contains some predefined topics e.g. A.I., V.R., RMIT, Game etc. Topics will be highlighted when mouse over. They can be selected and un-selected by mouse click.
- The “Post” area contains five most viewed posts (which might include some old posts)
- The “Links” area contains a few links to external sites such as RMIT homepage, rubyonrails.org etc. The links can also be be highlighted when mouse over.
- You should have a database at backend that stores information of users, news posts, comments and other necessary data.
- By clicking the user icon at the top right corner, a member can log out.

Your app should support user “**RAD**” with password “**Rails2020**”.

## ===== Credit LEVEL =====

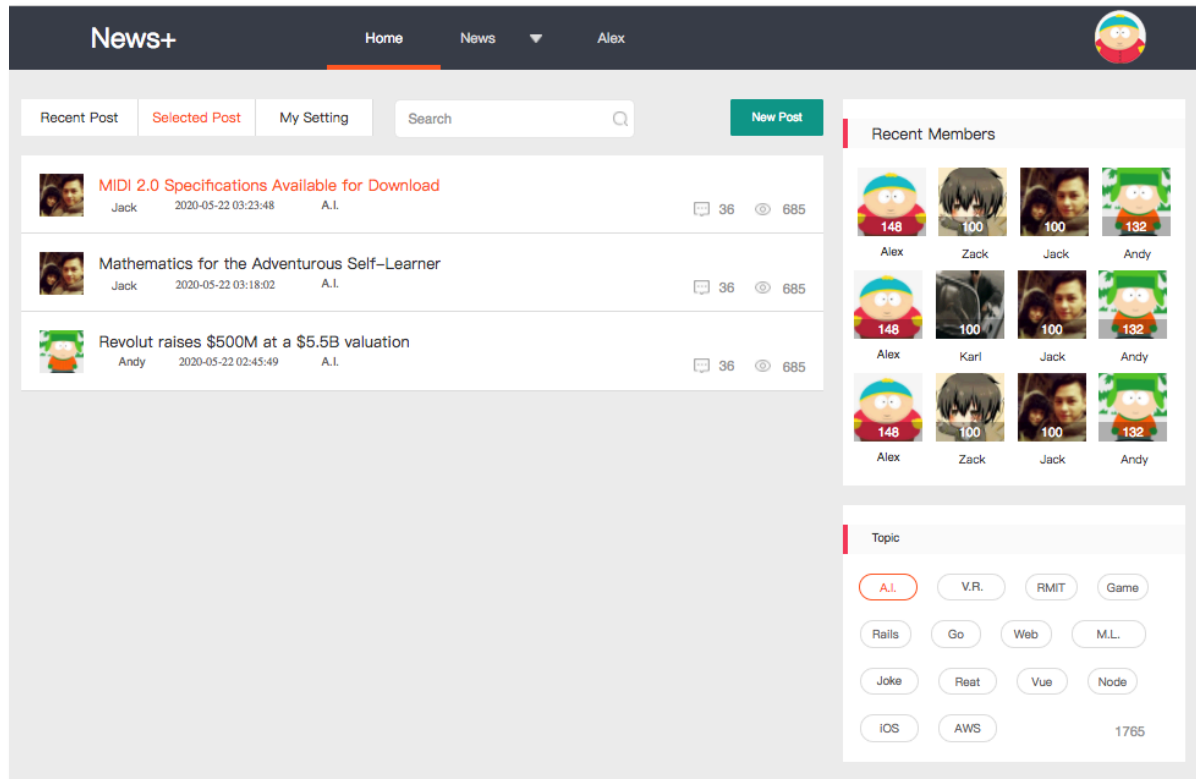
**NOTE: You should only attempt this level if you have completed PASS level.**



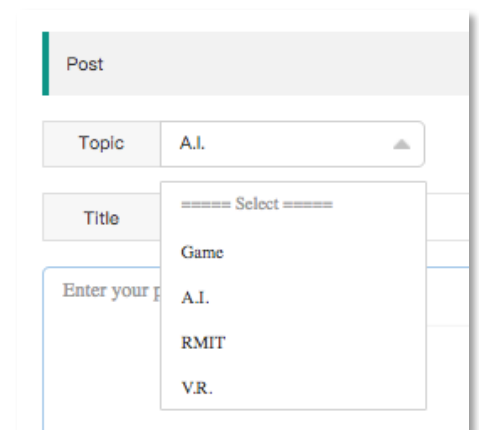
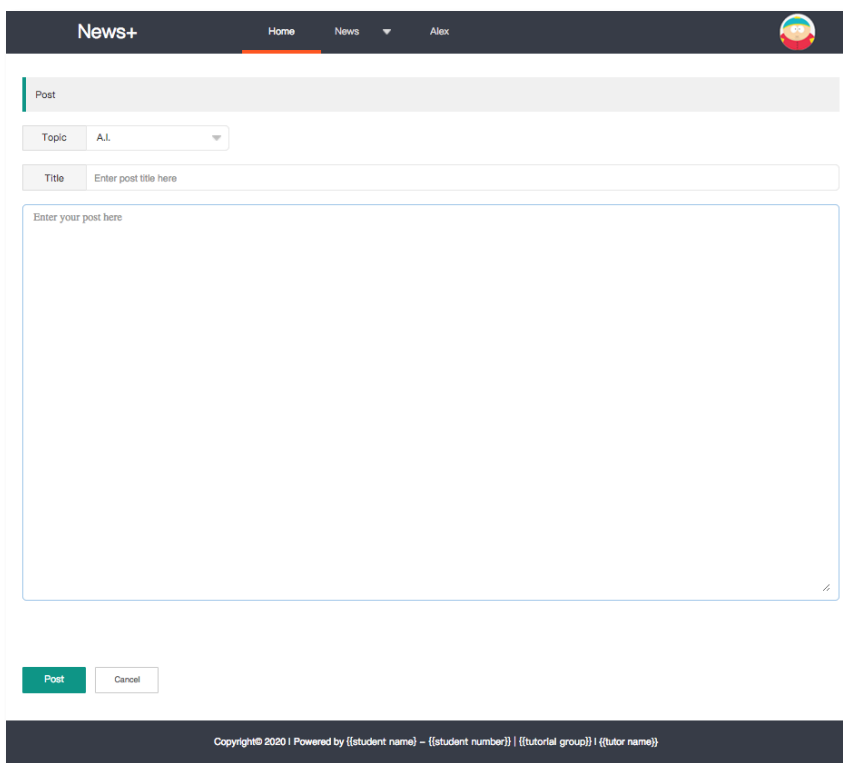
At Credit level, you app allows unregistered visitor to view the home page. However a visitor cannot make a new post. When the visitor tries to make a new post by clicking the “New Post” button, you app will prompt him/her to login or to register. The visitor can also login in by clicking the top right icon. After login, the visitor should see the home page same as that in Pass level.

**Selected Post:** As specified in Pass level, user can select topics in the “Topic” area on the right side. When user click “Selected Post”, then the main area will only show news with the selected topic(s). See the example below. When user selected “A.I.”, only AI related news items will show. If user selects more topics, then news of the newly selected topics will appear. Similarly, if a topic is unselected, then the relevant news items will disappear.

Note: Topic “News”, as shown in page 3, is the default topic, meaning no topic tag. News items of this type should not appear under “Selected Post”.



**New Post:** By clicking the “New Post” button, users can create their own posts. Other than title and content, users can also select topic from a pre-defined list. If none of the topic is selected, then the new post will be tagged with a generic topic “News”, which would not appear under “Selected Post”.

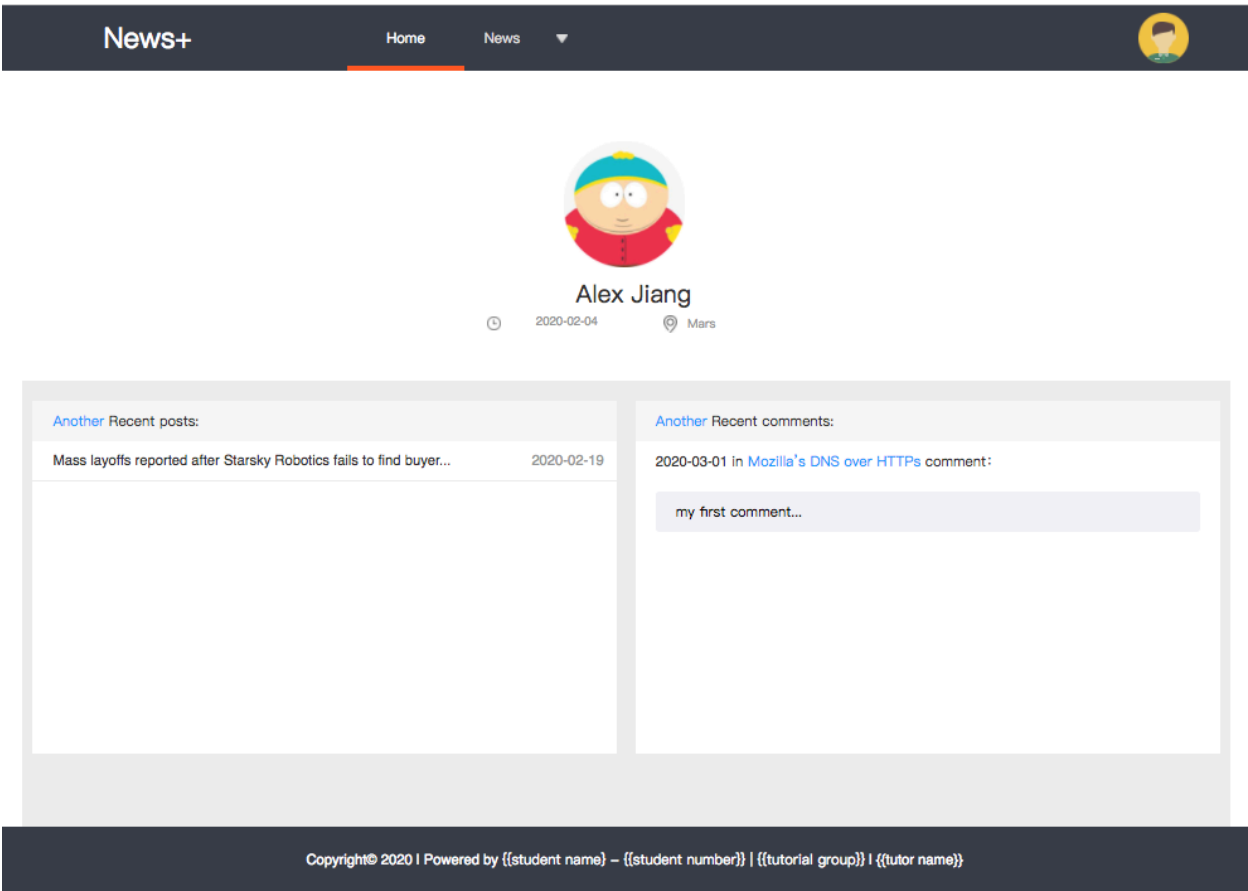


The title of a post cannot be empty. The content cannot be empty as well. After clicking the “Post” button, a valid post will appear on the front page with the actual time stamp.

**Profiles:** The name in each news item and the icons in “Recent Members” area are all clickable.



They link to the profile page of the corresponding member. A profile page shows the joining time, the city, recent posts and recent comments of this member.

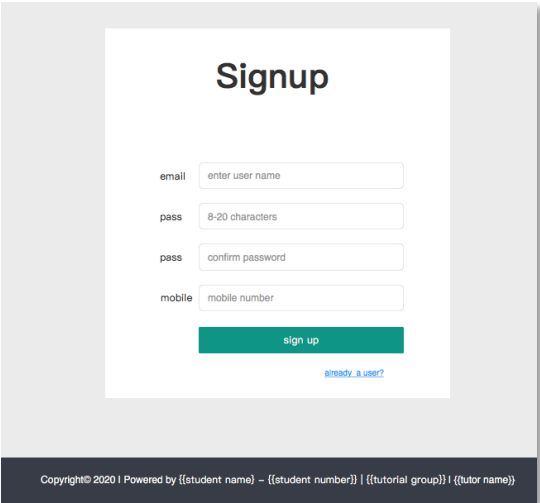


===== Distinction LEVEL =====

**NOTE:** You should only attempt this level if you have completed CREDIT level.

**Input validation:** When a new user signs up, you are required to validate the input.

- The email address must be valid as <>@<>.<>
- The initial pass word should be in between 8-20 characters, excluding special characters.
- The confirm password must be identical to the initial password.
- Mobile number must be a number in between 10-13 digits.



**My Setting:** When user clicks “My Setting”, a page similar to below should appear.

The top “My Profile” page is the same as that in Credit Level.

“My Posts” lists all the posts made by this member.

“My Comments” lists all the comments that the members to other people’s posts.

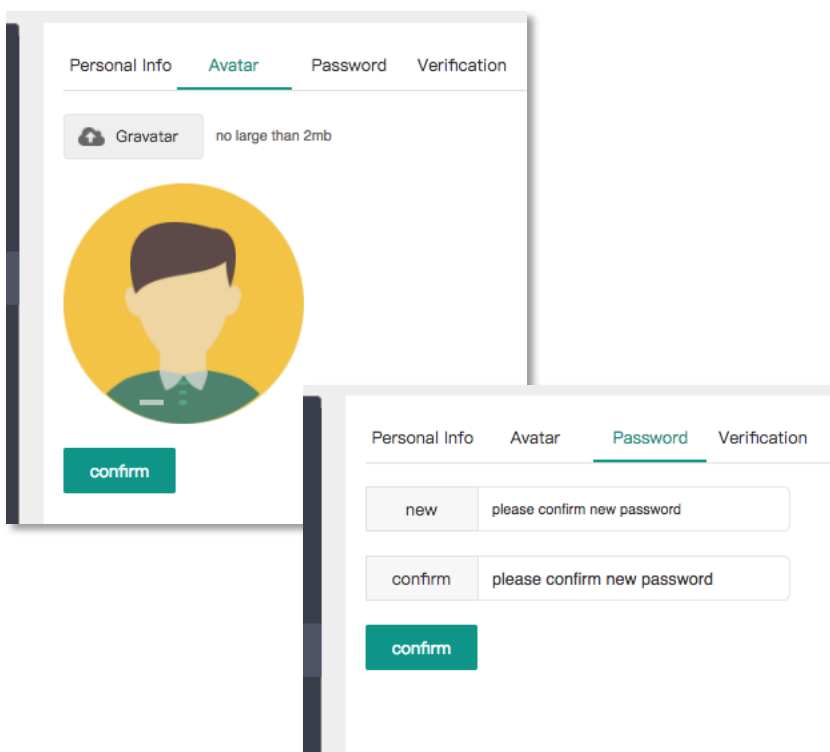
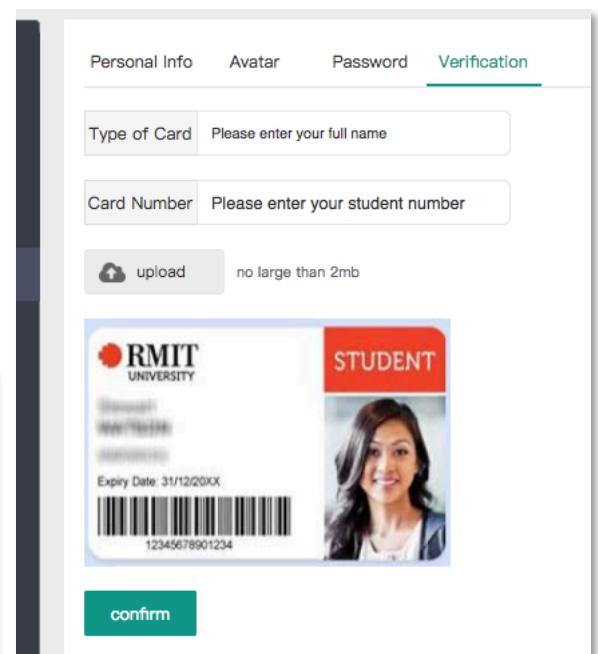
“Comments to Me” shows the comments that other members made on this member’s posts.

You are free to design how the above three parts would look like.

For “Setting”, there are four sections: “Personal Info”, “Avatar”, “Password” and “Verification”.

See example of Personal Info on the left. “Avatar” is where user sets their Gravatar profile (see info re Gravatar in tutorials or search online.) “Password” is to change password. “Verification” is where user upload an official card for authentication.

Note: the avatar image and card image should be stored locally, not on a remote site.

**Making comments:** For each post, all the relevant info will be display when user click the post item from home page. That includes existing comments on the news. See the example below. Note the right side bar, including Recent Members, Topic, Comments and Links, also appears on this page.

News+

Home

News

▼

Alex

## Selfie — Tiny self-compiling C compiler, RISC-V emulator and hypervisor

V.R.

2

15

Jack

2020-02-15 09:32:02

Selfie is a project of the Computational Systems Group at the Department of Computer Sciences of the University of Salzburg in Austria.

The Selfie Project provides an educational platform for teaching undergraduate and graduate students the design and implementation of programming languages and runtime systems. The focus is on the construction of compilers, libraries, operating systems, and even virtual machine monitors. The common theme is to identify and resolve self-reference in systems code which is seen as the key challenge when teaching systems engineering, hence the name.

### Comment

**B** U *I* ~~S~~

Post

### 2 Comments

Hilton

2020-02-15 09:32:02

reply

another comment

Kira

2020-02-15 09:32:02

reply

another comment

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User can comment on that news post. A simple text box is fine for this level. The number of comment on this post should increase by 1 after the comment is posted.



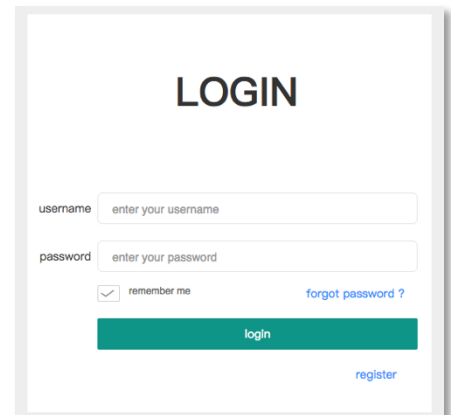
## ===== 80+ LEVEL =====

**NOTE:** You should only attempt this level if you have completed DISTINCTION level.

**Live view count:** The number of views of a post increases by 1 when a viewer opens the news item.

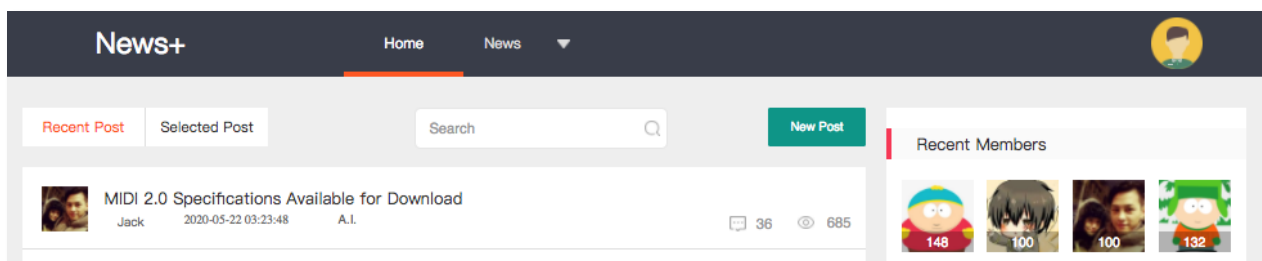
**Remember me:** the login page at this level supports this functionality, so a user doesn't have to type user name and pwd.

**Forget password :** the login page at this level can help user to retrieve the password by simply sending a temporary login link to the user's email. User can bypass login when the user clicks the link in the email. You should use an email address that you have access e.g. your RMIT student email address.

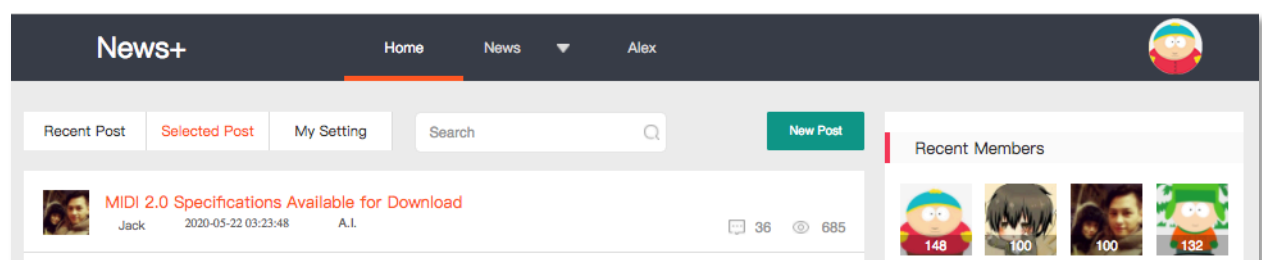


The login form is titled "LOGIN". It contains two input fields: "username" with placeholder text "enter your username" and "password" with placeholder text "enter your password". Below the password field is a checkbox labeled "remember me" and a link "forgot password?". A green "login" button is at the bottom, and a "register" link is at the bottom right.

**Search:** Search function works for both unregistered users and logged-in members. News posts that contain the search key word will listed in a manner similar to "Recent Post" and "Selected Post". You can ignore comments which may also contain the search keyword.



(before login)



(after login)

## ===== 90+ LEVEL =====

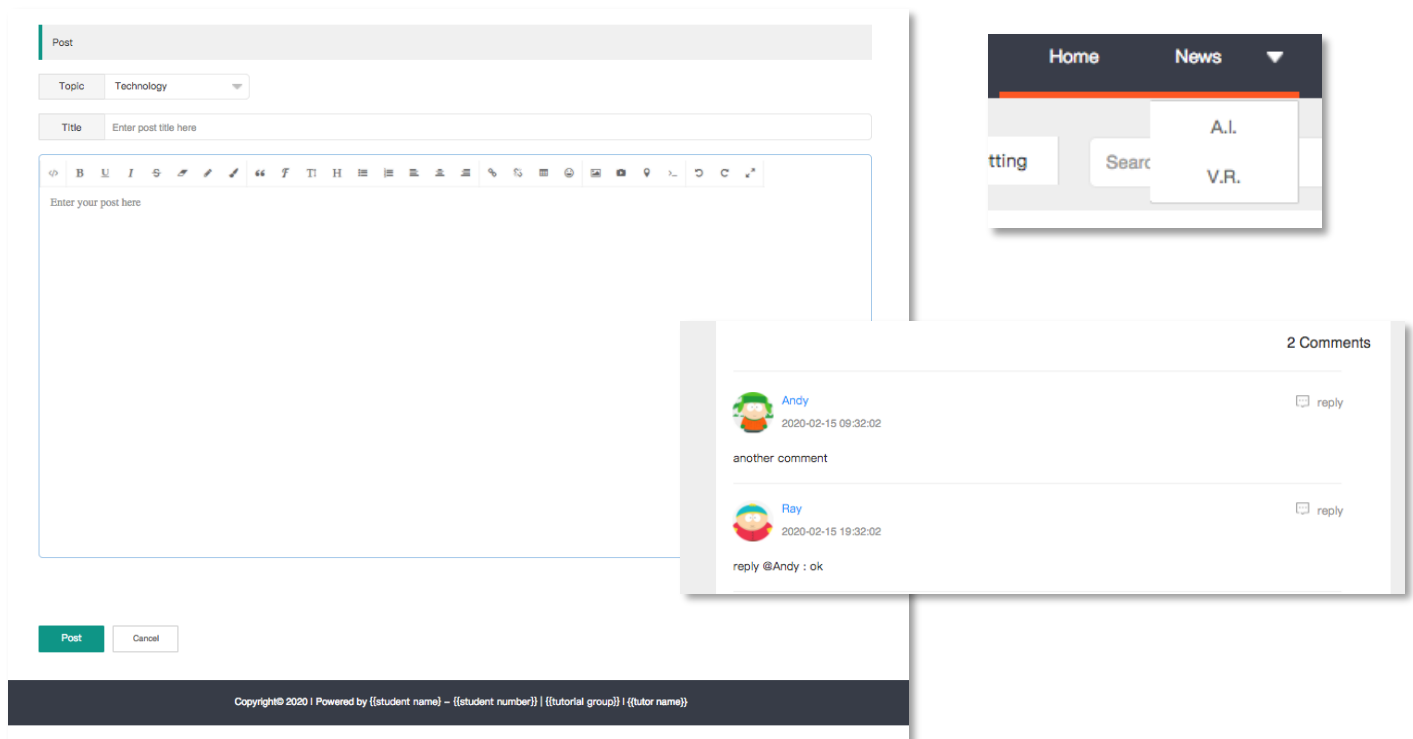
**NOTE:** You should only attempt this level if you have completed 80+ level.

**Nest comments:** The posted comments can be commented as well, similar to a forum where you can reply to someone else's reply.

**Rich text box:** Your text box at this level uses rich text box which supports editing and formatting. That applies to creating a new post and making a comment.

**Deletion:** User can delete their own comments in the My Setting area, under “My Comments”. If a comment is deleted, the number of comments of that post should be updated accordingly. User can also delete their own post in the My Setting area, under “My Posts”. You can still keep the comments attached to that post so the deletion from one user would not affect the profile of another user.

**News pull down menu:** The News menu in the header is implemented at this level. It only shows 2 options which are the two most popular news topics. Being popular means the highest total views of all posts tagged with that topic.



## 5. Referencing guidelines

If you have used sources of information other than the contents directly under Canvas→Modules, you must give acknowledge the sources and give references using IEEE referencing style. Where: Add a code comment near the work to be referenced and include the reference in the IEEE style.

How: To generate a valid IEEE style reference, please use the [citethisforme tool](#) if unfamiliar with this style. Add the detailed reference before any relevant code (within code comments).

## 6. Academic integrity and plagiarism (standard warning)

Academic integrity is about honest presentation of your academic work. It means acknowledging the work of others while developing your own insights, knowledge and ideas. You should take extreme care that you have:

- Acknowledged words, data, diagrams, models, frameworks and/or ideas of others you have quoted (i.e. directly copied), summarised, paraphrased, discussed or mentioned in your assessment through the appropriate referencing methods,

- Provided a reference list of the publication details so your reader can locate the source if necessary. This includes material taken from Internet sites.

If you do not acknowledge the sources of your material, you may be accused of plagiarism because you have passed off the work and ideas of another person without appropriate referencing, as if they were your own.

RMIT University treats plagiarism as a very serious offence constituting misconduct. Plagiarism covers a variety of inappropriate behaviours, including:

- Failure to properly document a source
- Copyright material from the internet or databases
- Collusion between students

For further information on our policies and procedures, please refer to the [University website](#).

## 7. Assessment declaration

When you submit work electronically, you agree to the [assessment declaration](#).

## 8. Submission

8.1 The submission can be from **an individual** or **a team no more than three**. For a three-member team, **15% mark reduction** will apply. For example, a 59-mark submission from a three-member team will result in 50 for each member.

8.2 Your application is expected to be production ready. Proper test and data validation should be embedded in your application **regardless of the level that you are attempting**.

8.3 There is no need for your application to look and behave exactly like the above example. You can make necessary adjustment to improve the design. However the aforementioned functionalities are the minimum requirement and should be well supported.

8.4 You are required to deploy the final version onto **Heroku**.

8.5 In the **README.md** file of your application, you should state

- Name(s) & student number(s) of the development team
- The highest level you attempted, e.g. CR, DI or 90+
- The time sheet for each team member (see Point 8.6 below)
- Heroku deployment URL and the last Heroku deployment log

8.6 Your assignment should hosted on a **PRIVATE** bitbucket or Github repository named as [RAD2020\\_{studentNumber\(s\)\\_in\\_ascending\\_order\\_separated\\_by\\_underscore}](#). You should update your repo as frequent as possible.

8.7 You are required to keep track of the hours that you spent on the development including testing, discussion, reading.

**For one professional developer working alone, the expected completion time is about 5 full days.**

For time tracking purpose, we recommend [togggl.com](https://togggl.com), a free online time tracker. You can sign in with your RMIT student account (under "SIGN UP WITH GOOGLE"). This log needs to be included in the **README.md** file (See Point 8.5 above).

8.8 Only the following GEMS should be used in your application.

```
gem 'rails',
gem 'bootstrap-sass',
gem 'puma',
gem 'sass-rails',
gem 'uglifier',
gem 'coffee-rails',
gem 'jquery-rails',
gem 'turbolinks',
gem 'jbuilder',
gem 'carrierwave',
gem "mini_magick"
gem "font-awesome-rails"
gem 'bcrypt',
```

8.9 More details about submission and demo will be provided close to the due date.

**Submission failed to run with provided docker/vagrant image would not be marked.**

#### Rubric

Assessment Task	Marks
Pass Level	50 - 59 marks
Credit Level	60 - 69 marks
Distinction Level	70 - 79 marks
80+ Level	80 - 89 marks
90+ Level	90 - 100 marks
1-member submission 2-member submission 3-member submission	final = mark * 100% final = mark * 100% final = mark * 85%
Submission from a group larger than 3 receives zero mark	