**INTI International College Penang School of Engineering and Technology 3+0 Bachelor of Science (Hons) in Computer Science, in collaboration with Coventry University, UK 3+0 Bachelor of Science (Hons) in Computing, in collaboration with Coventry University, UK**

**Coursework cover sheet**

**Section A - To be completed by the student**

|  |  |  |  |  |  |
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| Semester | | : | April 2023 | | |
| Lecturer | | : | Mdm. Koo Lee Chun | | |
| Module Code and Title | | : | 6002CEM – Mobile App Development | | |
| Assignment No. / Title: Coursework  CW2 – Project | | | | % of Module Mark : | 75% |
| Hand out date: | 2 May 2023 | | | Due date: | 18 June 2023 |
| Penalties: No late work will be accepted. If you are unable to submit coursework on time due to extenuating circumstances you may be eligible for an extension. Please consult the lecturer. | | | | | |
| Declaration: I/we the undersigned confirm that I/we have read and agree to abide by the University regulations on plagiarism and cheating and Faculty coursework policies and procedures. I/we confirm that this piece of work is my/our own. I/we consent to appropriate storage of our work for plagiarism checking.  A close-up of a word  Description automatically generated with low confidenceA close up of a letter  Description automatically generated with medium confidence  A picture containing black, darkness  Description automatically generated  Signature(s): - - | | | | | |

**Section B - To be completed by the module leader**

|  |
| --- |
| Intended learning outcomes assessed by this work:  LO1 : Design and implement a mobile application, showing systematic knowledge of relevant tools, methods and processes.  LO2 : Understand and critically evaluate the different tools and techniques for mobile application development.  LO3 : Scope, design, implement and critically evaluate a basic security policy to keep confidential data safe on a mobile device.  LO4 : Demonstrate an ability to maintain ease of data access/usability across several platforms. |

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# Introduction

Nowadays, as the digital landscape is continuing to evolve, there is a rise in the use of mobile devices as one of the platforms to access to the media. In response to this trend, NovelComix is a useful mobile application that provides the convenience of accessing a wide range of stories. Users may access any of the stories on their mobile devices whenever and wherever they decide on. The story line could be either in the form of comics or novels.

NovelComix is a mobile application that aims to provide users with a unique and engaging storytelling experience by combining comics and novels in one application. Comics and novels have been popular mediums for storytelling for decades, with each offering its unique advantages and drawbacks. Comic could help in increasing engagement as readers may find comics more interesting and have more fun compared to novel only story.

The motivation for developing NovelComix application is to give users a flexible and inclusive reading experience that meets their requirements and preferences. As a result, NovelComix combines comic books and novels into a single application that gives users the option to read the visual comic or novel version, depending on their preferences. Additionally, NovelComix ensures that users are able to explore and find new stories by providing stories in different genres, such as romance, fantasy, adventure, and others.

# Diagrams

## Use Case Diagram



Figure 2.1 Use Case Diagram

## Prototype

|  |  |
| --- | --- |
| **Pages** | **Description** |
| A screen shot of a login  Description automatically generated with medium confidence | **Login Page**   * User is greeted with the login page when the app is started. * It consists of only 2 inputs, username and password. * If the user clicked on the “Sign Up Here” button, they will be directed to the signup page. |
| A screen shot of a login form  Description automatically generated with medium confidence | **Sign Up Page**   * Users could enter their details such as username, email and password. * There is also an option where the user could go back to the login page by clicking the link below sign up button. |
| A picture containing text, screenshot, design, template  Description automatically generated | **Home Page**   * After logging in, users are greeted with the home page where all the ongoing comics and novels are displayed and recommended to the users. * The navigation bar below could direct the users to other pages such as, favourite, novel and manga. * There is also a profile button where users will be directed to the profile page. * Log out button is present beside the profile icon. |
| A screenshot of a cell phone  Description automatically generated with low confidence | **Bookmark Page**   * Bookmark or favourite page will display the comics and novels that the users saved. |
| A screenshot of a computer  Description automatically generated with low confidence | **Novel Genre Page**   * When the novel icon is clicked, users will be directed to the novel page. * Novels will be categorized with genres such as romance, adventure, etc. |
| A screenshot of a computer  Description automatically generated with low confidence | **Comic Genre Page**   * When the manga icon is clicked, users will be directed to the manga page. * Manga will be categorized with genres such as romance, adventure, etc. |
| A screenshot of a phone  Description automatically generated with low confidence | **Catalogue List Page**   * When the users clicked one of the genres, they will be directed this page where all books related to that specific genre will be shown. * When the users clicked on one of the book, they will be directed to the book detail page. |
| A screenshot of a book  Description automatically generated with medium confidence | **Book Detail Page**   * Users will be directed to this page when they click on one of the books from the book list. * It shows the details of the books to the users, including chapters available. |
| A picture containing text, screenshot, design  Description automatically generated | **Profile Page**   * When the users clicked on the profile icon in the homepage, they will be directed to this page. * Users could modify their full name, username, gender and birth date. * Email address is static and couldn’t be modified as it is based on the email signed up. |

# Detail Explanation for Each Module

## Authentication Module (Ooi Ying Jie)

In this module, it consists of two sections for authentication which are sign up and login. First, users are required to register accounts to use the application. Moreover, users need to login their accounts with registered email and password in order to accessing the features and content in the application. This is because the login authentication method is using email and password in Firebase.

## User Profile Module (Ooi Ying Jie)

After login to the account, the profile page will display user information such as full name, gender, birthdate, username and email. In the profile page, it consists of an update button which enable users to edit and update their user profile with personal information.

## Home Page Module (Damien Tan Lek Khee)

The home page will showcase ongoing comics and novels to the users which acts as recommendations to new comics and novels for the users. Users will be able to explore those comics and novels. When clicked, users will be directed to the detail page of the comic or novel, which they could start reading.

## Comic and Novel Catalogue Module (Lim Pau Thing)

There is a genre list provided that enables users to choose their preferred genre before accessing the comic or novel catalogue list. A list of available comics or novels categorised by the selected genre is displayed in the catalogue list, which is the next step. Users are able to scroll down to find more interesting comics or novels.

## Comic and Novel Details Module (Lim Pau Thing & Damien Tan Lek Khee)

In this module, the detailed information of the comics or novels such as cover image, title, author, description and chapters are provided in the detail page for each comic and novel. Therefore, users are able to view the detailed information about a selected comic or novel once any of them is selected. Also, there is a bookmark button at the bottom right of the detail page which allows users to add the selected comic or novel as their favourite.

## Bookmarks and Favourites Module (Lim Pau Thing & Ooi Ying Jie)

Once users have bookmarked their favourite comics and novels, the comics and novels will be displayed as a list in the bookmark page. The list will be categorized into two categories which are comics and novels so users able to save the time on finding their desired content based on these categories. Besides that, users are allowed to remove the comics and novels from the bookmark list by clicking the bookmark button again in the detail page.

# Strengths of the Application

* + - **Simple UI**

The app features simple yet beautifully designed user interface. The theme of the UI is set to be soothing yet bright colors, thus maroon and white. This allows the images and text to stand out from the background and interface of the app. The layout of the UI is simple which improves the user experience and promotes ease of use.

* + - **Navigation bar**

The navigation bar of the app makes it simple and intuitive to switch between its different sections and features, improving the usability and overall user experience. This is because the design of the navigation bar is simple and straightforward with clear text and icons.

* + - **Comic and novel catalogue**

The comics and novels that are available are efficiently arranged and presented in the catalogue module, making it simple for users to browse and explore the collection. The comics and novels are categorized with the genre which significantly improves the user experience.

* + - **Bookmarks**

The bookmark feature enables users to mark their desired comics and novels. It provides a convenient way to find back their desired comics and novels.

# Weaknesses of the Application

* + - **Lack of user reviews or ratings**

User reviews and ratings are essential in guiding users to decide what comic or novel to read. These reviews offer a wealth of information regarding various aspects such as the writing style, artwork, content, and entertainment value. Integrating these reviews into the app can enable its users to evaluate the quality of the content.

* + - **Absence of social sharing features**

The lack of social sharing features in the app may limit user engagement and referral advertising opportunities. Sharing is a common behaviour among users, and it helps in promoting the app and its content. It restricts the potential for attracting new users if users unable to share the experience or books to others.

* + - **Ability to Remember Login Details**

The lack of ability to remember login details affects the user experience. This causes the application could not auto-login and forces users to repetitively perform the login process. Users might become impatient and stop using the application frequently.

# Future Enhancements

* + - **Social Feature**

NovelComix may offers a social feature that encourages users to interact and engage. Through this feature, users can recommend stories to friends and followers. It could allow readers to follow other readers making group connections effortless. Users could have the ability to leave comments and reviews fostering a lively atmosphere. NovelComix could also enable users to provide suggestions for storylines or improvements directly to administrators or authors.

* + - **Multi-language Support**

NovelComix could provide a multilingual support feature as it might be used by global audience. If having this feature, users can select their desired language from various options available, which enables them to enjoy reading comics in their native language or explore stories in different languages. This feature will enhance user accessibility and offer a personalized experience to the users.

* + - **In-app Purchases**

In-app purchase system may include in the NovelComix application, allowing users to access premium content or subscribe to exclusive features. Through in-app purchases, users are able to unlock bonus content that is interesting. This could provide chances to support users’ favourite authors by subscribing to their works. By doing this, readers may directly express their appreciation and support for the excellent authors while also supporting the app's revenues.

* + - **Publisher Feature**

Users may be able to register as publisher, which allows them to publish comics or novels created by them. However, the comic or novel must go through a verification phase to ensure that the contents provided to the users are appropriate. With this feature implemented into the app, it could potentially increase the user base as publishers could be involved in the app’s community.

* + - **Login Details Remembrance**

By implementing the feature where users could select remember password and auto-login, would significantly improve the user experience. This is because users are not required to re-enter their login details whenever they start the app.

# Reflection from Each Member

## Damien Tan Lek Khee

In this project, I’ve contributed to the homepage of the app, parts of the novel detail page and parts of the report. For the development of homepage, I was required to display the comics and novels that are ongoing in the homepage. I’ve encountered some challenges while contributing to this project.

Issues with time management had a major impact on my contributions to this project. There were a handful of projects to be completed within the submission date. The submission dates are quite close, hence I had to work on multiple projects at the same time. Luckily, my part was not that complicated as I am only required to develop homepage and complete the report. However, I still faced some issues with directing the user to the comic/novel detail page when they click on the images shown in the homepage. Still, I managed to solve the issue and move on with completing the report.

In conclusion, I learnt to improve my skills on Dart and Flutter. It had a major impact as my final year project is related to the same programming language and development tools. I also believe that I learnt to improve my time management skills so that I wouldn’t have to rush any projects or placing too much stress on myself.

## Lim Pau Thing

I contributed on multiple parts of this project, including the comic and novel catalogues, the comic and novel details, and the bookmarks. Ying Jie and I worked to create bookmark page and tried to retrieve user information from databases. However, I experienced numerous difficulties in this project.

My first challenge was time management. I realized that there was insufficient time for coding, which had an impact on my progress. This experience taught me the importance of setting certain time for programming tasks and being more disciplined with my schedule. Besides that, I faced some difficulties when trying to retrieve data from the Firestore database. It took me longer time to understand and implement the necessary code.

Overall, understanding the Dart language and Flutter framework is one of the lessons I have learnt. I had to increase my expertise to successfully contribute to the project since I am a beginner to the Flutter framework and the Dart language. The ability to solve problems is another lesson I learned from this project. Whenever I encountered code errors or faced challenges, I turned to ChatGPT for assistance and utilized online resources like YouTube videos. I became better at analysing and debugging code because of this practise.

## Ooi Ying Jie

In this project, I have contributed on various modules such as authentication module, user profile and the bookmarks. Pau Thing and I work together to create bookmark page and retrieve user data from database. However, there are some challenges faced in this project.

The first challenge I faced in this project was the unfamiliarity with the programming language and framework. As Dart language and Flutter framework were new to me, I need to explore and understand their functionalities. However, I was able to understand these tools contribute effectively to the project. Another challenge I faced was working with the database. As I had limited experience in using Firebase, I frequently got code errors and struggled to retrieve data. I have tried to solve the issues by watching YouTube videos.

For the lesson learned, I learned the importance of time management. I need to discuss with my team members about setting deadlines for coding tasks which will allow us to allocate sufficient time for the project. Furthermore, I gained practical experience in implementing Firebase as the database for data storage and retrieval. Through solving the second challenge which is retrieve user data from Firebase, I improved my skills in utilizing this powerful tool.