

Coursework Submission Cover Sheet

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Module Code	<input type="text" value="CM3203"/>
Submission Date	<input type="text" value="08/02/2021"/>
Hours spent on this exercise	<input type="text" value="10"/>
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Student number of submitting group member	<input type="text"/>
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I hereby declare that the attached submission (or my contribution to it in the case of group submissions) is all my own work, that it has not previously been submitted for assessment and that I have not knowingly allowed it to be copied by another student. I understand that deceiving or attempting to deceive examiners by passing off the work of another writer, as one's own is plagiarism. I also understand that plagiarising another's work or knowingly allowing another student to plagiarise from my work is against the University regulations and that doing so will result in loss of marks and possible disciplinary proceedings.

Initial Plan

Finding Sport Partners using a mobile app



Cardiff University School of Computer Science and Informatics

**CM3203 - One Semester Individual Project
40 Credits**

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Project Description

Problem Statement and Proposed Solution

Physical health plays a big part in our lives and one of the best ways to improve it is by playing sports. However, some sports cannot be played alone, certain sports like tennis requires a partner while other sports such as football require two teams to play. It is often difficult to organise sport games with our friends due to busy schedules and sometimes our friends do not even play the sport that we are interested in. In other cases, we do not have enough connections to organise sport games that require a larger number of players such as football. Playing sports is a fantastic way to work on our physical strength and it helps maintain good mental health too, but not having anyone or enough people to play it can be very discouraging. According to an American survey[1], 1 in 5 millennial are lonely and have no friends. Sports are a great way to meet new people and develop new friendships. But how does someone with very few or no friends find sport games opportunities? How can someone find groups of people with the same sport interest to play with? These are the questions that my mobile application will provide answers for.

I am going to develop a mobile application that will help people to find sport partners in their local area and help them connect with each other. My platform will bring people with the same sport interest together and help them organise games.

Project Motivation

Social interaction is an essential activity that has both mental and physical health benefits. Being around with our friends and family promotes a sense of belonging and safety. Living a social life helps us to improve our communication skills and builds self-confidence.

Maintaining good physical health is crucial in order to live a healthy life and a great way to improve it is by playing sports such as football, basketball or tennis. A lot of people find team sports more enjoyable and fun than individual physical activities. Playing sports together encourages cooperation and teamwork, while people often give up easier when they are alone and face challenges. Teammates can support, motivate each other and teach each other new skills and share tips.

However, finding someone or a team to play a sport with can often be challenging with everyone having different schedules. This becomes even more difficult at an older age when people have other commitments such as work and family.

This is a real problem as team sports such as tennis, basketball or football cannot be played alone. You need a team or for certain sports like tennis, at least one partner. This is the issue that my proposed mobile app is going to solve. This application will help you find a team or a partner to play whatever sport you are interested in.

Project Details

The mobile app will offer two different ways of finding sport partners. The first option is when you are the one organising the activity and you wait for others to request to join your organised meet-up. As a host, you select the date, time, type of sport, the location of the game and specify the minimum and maximum number of players needed to get the activity going. When someone requests to join, the host can check out the requester's profile and choose to approve or decline the request. Approved players within the "room" can communicate using group chat to get all the final details sorted before they head out to play together. As a host, you can set many criteria regarding what kind of players you wish to play with. For example, you can specify age group, minimum skill level and even gender.

The other way of finding sport partners in the app is by browsing groups or individual players within the app. Users can apply filters such as sport type and location range. Once you find an interesting group, you can send a request to join.

This project will require a custom backend to be developed to provide the necessary APIs such as user authentication. The tech stack of the system will be decided at a later point but all decisions will be justified in the final report.

Project Aims and Objectives

The following lists set out the primary, secondary and personal aims. Primary aims are goals that my project will first focus on, these are the minimum requirements of the platform. Secondary aims are additional optional requirements that I will focus on once the primary goals have been achieved. These are optional aims and it will depend on the project progress how many of these can be completed.

Some of these aims will be refined over the weeks as I make progress on the project and it is possible that new goals will emerge while others may be left out, but the finalised version of the requirements will be provided in the final report.

Primary Aims:

1. Users will be able to sign up securely to the platform

2. Users will be able to sign in securely to the platform
3. Users should be able to create new sport groups and specify criteria of needed players
4. Hosts of sport groups should receive push-notifications when someone submits a request to join
5. Hosts of sport group should be able to approve and decline players' requests to join
6. Users should be able to find local sport groups in their local area and submit requests to join
7. Users should be able to apply filters when looking for sport groups to join
8. User should be able to view their profile page and update it
9. Users should be able to view other players' profile pages

Secondary aims:

- Players in a sport “room” should be able to communicate using a built-in group chat
- App should read user's approximate location instead of precise location
- Sport “rooms” should be reusable so that groups can organise further games
- Users should be able to send friend requests to other players
- Users should be able to communicate with their friends using a built-in chat
- Users who forgot their password can request a password reset
- Users should be able use some of the app's features such as looking for players without signing in or signing up

Personal Aims:

- I will have proficient knowledge in building full-stack applications

- I will have experience in building a secure platform that uses industry leading security practices
- I will have gained knowledge of building complex mobile applications on one of the major mobile platforms
- I will be able to prototype and design mobile applications easily and quickly

Technical Objectives:

- Sensitive user data such as password must be encrypted before saving it to the database
- Use Json Web Token for user authentication mechanism
- Develop dynamic user interfaces that work well on any size of smartphone
- Implement push-notifications for important events
- Deploy backend on a cloud platform service
- Build reusable user interface elements to improve development efficiency
- The chosen mobile platform's interface guidelines should be taken into consideration when designing the interface of the application

Ethics

I will conduct a user experience research after finishing development to find out what features users like and dislike and how they interpret the product. I will be asking people who are likely to use this app and I will evaluate their responses. In order to carry out this research, I will need to submit an ethical approval form.

The platform will be storing user data such as profile image and also sensitive information such as password and location. I will consider ethical issues regarding storing these kind of data and I will take the required actions to only store necessary information about users and I will make sure to securely store sensitive user data using industry leading security practices.

Work Plan

The following table below describes the work plan of the project. The plan is subject to change as some features may take longer than initially planned. The milestone column explains what should be achieved by the end of each week. Some of the milestones refer to the app's primary features and these are marked with the letter 'P' and the corresponding aim from the primary aims list.

Week #	Week Date	Objective	Milestone
1	1/02 - 7/02	<ul style="list-style-type: none"> Schedule weekly meetings with supervisor Complete initial plan report Research on mobile platforms and backend frameworks and other tools 	Submit initial plan by 08/02
2	8/02 - 14/02	<ul style="list-style-type: none"> Learn about chosen backend framework and mobile app platform Choose database management system Create wireframes of the sign in and sign up screens 	Having a good understanding of the chosen tech stack
3	15/02 - 21/02	<ul style="list-style-type: none"> Finish drawing wireframes of the rest of the screens Build sign in and sign up APIs Set up database and connect it with backend Report writing: explain chosen tech stack 	All wireframes should be complete and sign in and sign up APIs should be working Deliverable: Initial Plan Report
4	22/02 - 28/02	<ul style="list-style-type: none"> Develop sign in and sign up screens and connect app to backend Design database structure Develop APIs for profile page, changing personal info Build profile screen and use profile API to retrieve and update profile information 	P.1, P.2, P.8, P.9
5	1/03 - 7/03	<ul style="list-style-type: none"> Create API for creating a new sport room Build screen for new sport room creation and connect API Report writing: Explain database structure 	P.3
6	8/03 - 14/03	<ul style="list-style-type: none"> Develop API for retrieving sport rooms Build screen for getting nearby sport partners and connect to API Implement API for sending request to join sport groups Integrate join request API into mobile app 	P.6, P.7
7	15/03 - 21/03	<ul style="list-style-type: none"> Build notifications screen Enable push-notifications for hosts when someone sends a request Bug fixes and code cleanup Report writing: Explain new APIs and flow of setting up sport rooms and receiving join requests 	P.4

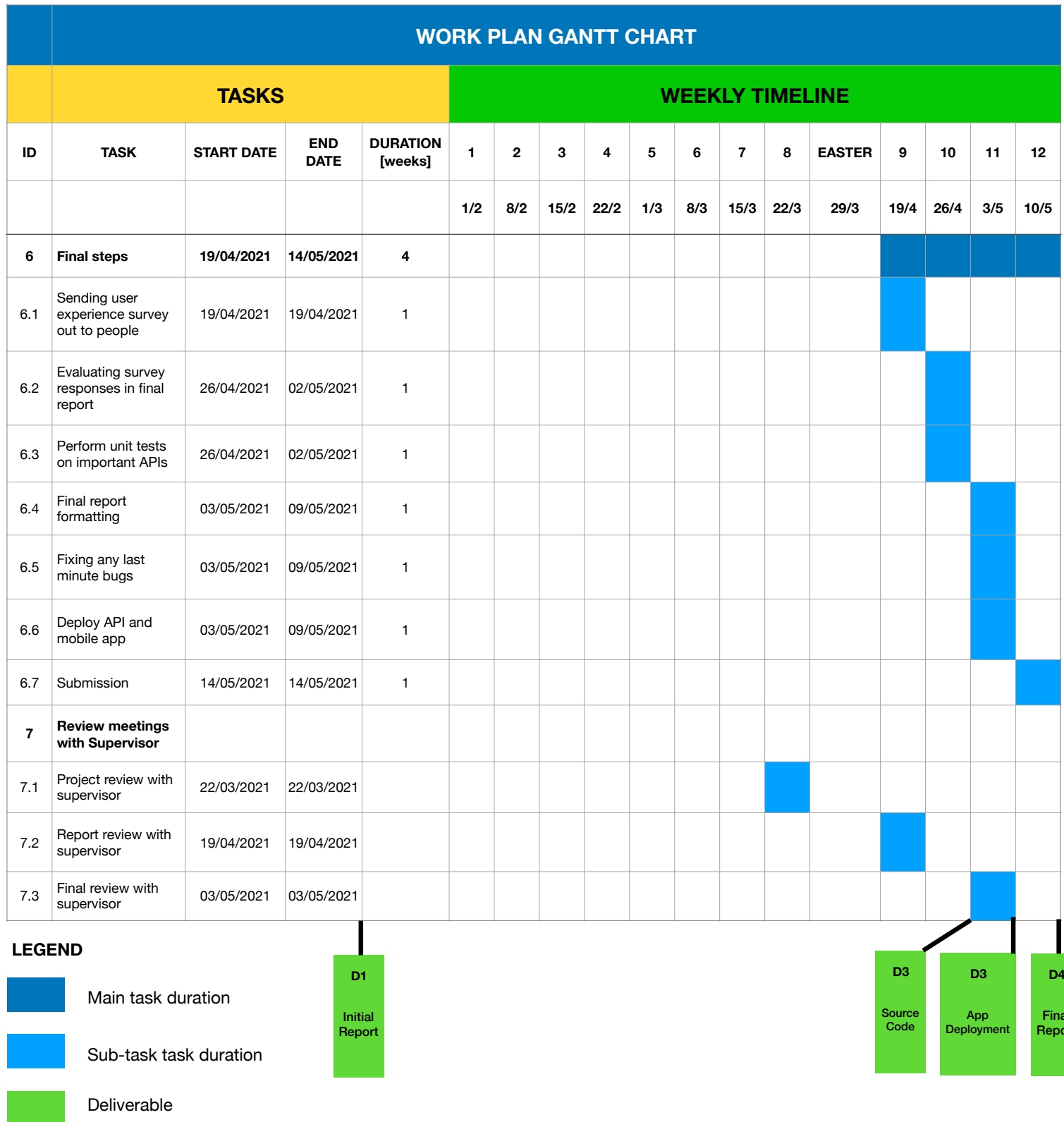
Week #	Week Date	Objective	Milestone
8	22/03 - 28/03	<ul style="list-style-type: none"> Develop API for hosts to approve and decline join requests Implement request approval screen and connect to API Project review with supervisor 	P.5. All primary aims completed
Easter	29/03 - 18/04	<ul style="list-style-type: none"> Fixing bugs, cleaning up code Cleaning up final report, include any missed out sections Preparing for user experience research survey Decide which secondary features will fit in remaining project timeline 	Final report and code should be cleaned up and any bugs should be fixed
9	19/04 - 25/04	<ul style="list-style-type: none"> Sending user experience survey out to people Implementing some of the secondary features Report writing Report review with supervisor 	Chosen secondary features should be complete
10	26/04 - 02/05	<ul style="list-style-type: none"> Evaluating survey response and analyse them in final report Implementing final chosen secondary features Performing unit tests on important APIs and explain testing in final report 	Understand survey responses and chosen secondary features should be complete and fully tested Deliverable: Source code completed
11	03/05 - 09/05	<ul style="list-style-type: none"> Final report writing Fixing any last minute bugs Deploy API and mobile app Final review with supervisor 	Backend should be deployed and app is ready for testing Deliverable: Application deployment
12	10/05 - 14/05	<ul style="list-style-type: none"> Final report formatting and writing missing sections Submission 	Final report should be submitted Deliverable: Final report

Gantt chart

A gantt chart has been developed based on the above work plan to visualise the proposed timeline of the project. It is attached on the next page.

WORK PLAN GANTT CHART																	
TASKS					WEEKLY TIMELINE												
ID	TASK	START DATE	END DATE	DURATION [weeks]	1	2	3	4	5	6	7	8	EASTER	9	10	11	12
					1/2	8/2	15/2	22/2	1/3	8/3	15/3	22/3	29/3	19/4	26/4	3/5	10/5
1	Understand project requirements	01/02/2021	14/02/2021	2													
1.1	Schedule weekly meetings with supervisor	05/02/2021	05/02/2021	1													
1.2	Complete initial plan report	01/02/2021	07/02/2021	1													
1.3	Research on mobile platforms and backend tech stack	01/02/2021	07/02/2021	1													
1.4	Learn about chosen backend framework and mobile app platform	08/02/2021	14/02/2021	1													
1.5	Choose database management system	08/02/2021	14/02/2021	1													
2	Set up project for development	08/02/2021	28/02/2021	3													
2.1	Create wireframes of the sign in and sign up screens	08/02/2021	14/02/2021	1													
2.2	Finish drawing wireframes of the rest of the screens	15/02/2021	21/02/2021	1													
2.3	Set up database and connect it with backend	15/02/2021	21/02/2021	1													
2.4	Design database structure	22/02/2021	28/02/2021	1													
3	Build primary features	15/02/2021	28/03/2021	6													
3.1	Build sign in and sign up APIs	15/02/2021	21/02/2021	1													
3.2	Develop sign in and sign up screens and connect app to backend	22/02/2021	28/02/2021	1													
3.3	Develop APIs for profile page, updating personal info	22/02/2021	28/02/2021	1													
3.4	Build profile screen and use profile API to retrieve and update profile	22/02/2021	28/02/2021	1													
3.5	Create API for creating new sport room	01/03/2021	07/03/2021	1													

WORK PLAN GANTT CHART																	
TASKS					WEEKLY TIMELINE												
ID	TASK	START DATE	END DATE	DURATION [weeks]	1	2	3	4	5	6	7	8	EASTER	9	10	11	12
					1/2	8/2	15/2	22/2	1/3	8/3	15/3	22/3	29/3	19/4	26/4	3/5	10/5
3.6	Build screen for new sport room creation and connect API	01/03/2021	07/03/2021	1													
3.7	Develop API for retrieving sport rooms	08/03/2021	14/03/2021	1													
3.8	Build screen for getting nearby sport partners and connect to API	08/03/2021	14/03/2021	1													
3.9	Implement API for sending request to join sport groups	08/03/2021	14/03/2021	1													
3.10	Integrate join request API into mobile app	08/03/2021	14/03/2021	1													
3.11	Build notification screen	15/03/2021	21/03/2021	1													
3.12	Enable push-notifications for hosts when someone sends a	15/03/2021	21/03/2021	1													
3.13	Develop API for hosts to approve and decline join requests	22/03/2021	28/03/2021	1													
3.14	Implement request approval screen and connect to API	22/03/2021	28/03/2021	1													
4	Project maintenance	15/03/2021	18/04/2021	3													
4.1	Fixing bugs, cleaning up code	15/03/2021	21/03/2021	1													
4.2	Fixing bugs, cleaning up code	29/03/2021	18/04/2021	1													
4.3	Preparing for user experience research survey	29/03/2021	18/04/2021	1													
4.4	Deciding which secondary features will fit in remaining project timeline	29/03/2021	18/04/2021	1													
5	Build secondary features	19/04/2021	02/05/2021	2													
5.1	Implement some of the chosen secondary features	19/04/2021	25/04/2021	1													
5.2	Implement final chosen secondary feature	26/04/2021	02/05/2021	1													



References

[1] Hannah Frishberg. 2019. in 5 millennials are lonely and have 'no friends': survey. Available at: <https://nypost.com/2019/08/02/1-in-5-millennials-are-lonely-and-have-no-friends-survey> [Accessed: 7 February 2021]