COSC2625:
Building IT Systems
Assignment: Part 1

Group: Mooncake

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Table of Contents

1. Project Title

MoonCRM

2. Group Members

For more information about the group, feel free to visit our Trello Card.

2.1 Daniel Dominique

(Figure 1.0: Group Member Daniel Dominique)

From a very young age, I've been fascinated with computers – both hardware and software. I've built quite a few PC's over the years but never really learned how to use a computer beyond using programs. I finally took the jump and decided to enroll in this course and pursue a dream of mine. To me IT is about improvement – the goal of which is to be useful to a user. I want to create products that improve the lives of others so that they can focus on what's more important.

I'm interested in learning more about server-side technologies, specifically databases. Having been a recipient of automated reports pulled from my work's database, I can understand their usefulness to other stakeholders. I to would like to build reports and work with databases on a regular basis to provide others with useful information. Having only studied at RMIT for a semester, my technical capabilities are quite limited. Having said that, I do have some experience with client-side languages (HTML/CSS/JavaScript) as well as some server-side languages (SQL, Python, Java). I also enjoy reading about good UX/UI design and good programming practices.

Building a CRM is quite an ambitious project for a first-year student and my biggest drawback in regard to doing so would be my lack of technical knowledge. I will endeavour to gain more experience with the SQL, JavaScript and other technologies to be used throughout the project.

2.2 Davin Ie

(Figure 1.1: Group Member Davin Ie)

Prior to taking this Bachelor of Information Technology degree, I have little to no experience in the world of IT. Aside from doing some self-reading or learning through various sources online, I found myself interested in the subject which prompted me to undertake this bachelor program. Experience from year one semester one at RMIT has allowed me to learn more in-depth information towards Hypertext Markup Language (HTML), a little bit of Cascading Style Sheets (CSS), and the very basics of Java. On the other category which is more on a practical and knowledge base, I have a better understanding of the components which make up various electronics, design related elements in programs regarding User-Centered Design (UCD) and several general practices which involves the know-how of how IT-related work-places or style is conducted which revolves around the importance of collaboration with other members.

My passion for IT initially sparked when a close friend of mine gave a tour of a server he built on his own. Subsequently, this made me embark on a solo journey to find out more about servers and how to create them for myself. As of today this still sparks my interest, and one day I wish to have servers of my own which can perform various functions.

As of now taking semester 2 of this program, I find everything fun and exciting. I believe the few strong points that will help contribute to the group are my ability to be disciplined and to get the work or job done days or weeks before the deadline. The weakness that I fear is the lack of knowledge I currently have to help contribute to the team. The biggest fear I have is to be an 'anchor' of the group, and I wish to stray from that title as far as possible. I wish to be able to contribute in all aspects for the success of the group.

2.3 Shane Kenny

(Figure 1.2: Group Member Shane Kenny)

I have previously worked as a professional chef starting work in Cairns when I finished high school. After working for a year and a half I was given the opportunity to work in Melbourne. I made the move to Melbourne half way through 2008. After working as a chef for sometime I found myself learning about and playing on computers as my past time and finally made the decision to undertake a Bachelor of Information Technology.

I'm passionate about learning more about information security as I find it very interesting and it is something I would like to pursue more in the future. I have also joined a student group that runs workshops on security too. My current technical skills for the project are very limited most of which I have learned from my time at RMIT during the first semester. I learned some basic programming in Java and about object-oriented programming, very basic website design using HTML, technical knowledge about computer hardware and the importance of designing a product around a user. Although it can be pretty frustrating I do find programming interesting and enjoyable.

In terms of the project I believe some of my weaker points lie within my technical ability to be able to contribute a lot to help produce a basic CRM. Although I will attempt to overcome this by learning the specific skills required to help contribute to my team.I have also needed to learn more about general functions of CRMs to get a better understand of our product. Although I do believe it is one of my weak points in terms of the product I can see myself attempting to help with the programming as our group does have a technical shortage for our project.

2.4 Wenshuo Wang

(Figure 1.3: Group Member Wenshuo Wang)

When I graduated from Griffith College in Brisbane, I decided to transfer to Melbourne. In numerous university major choices, I chose information technology. At that time, I thought IT was just a subject with strong practicality and can make our life easier as almost everything is related to IT nowadays.

After I started my first semester, I realized this is a brand new world to me, the real IT world is more complicated and attractive than it looks. Beginning stage was a hard time for me, I had to understand lots of abstract knowledge and know how to use it. However, subsequently, I feel excited when I use SQL language to query the information in the database. My mode of thinking has also changed, for example, when I access a website, I would more likely consider its user design or features for a professional perspective rather than only surfing on the web. In my daily life, I am very interested in painting and design. In last semester studying, I learned UX/UI knowledge and the principle of design, and designed various wireframe and interface pages. That was a good attempt for me. I thought my passion for IT was gradually cultivated in the process of continuous learning, Although it is still a huge challenge for me, I would like to be fulfilled in my IT studying life.

I have to say, it's very challenging for me to build a CRM system at this stage. Due to the lack of professional technique knowledge, I was so confused about the whole project. I have only sketched out a general framework of the project, I did have some database knowledge but it's very basic, I am worried about I can't provide enough technical support for our team in the actual building process. I believe I need to seek some help from teachers, courses or my group members in next few weeks, and I would like to contribute to my team at the designing stage.

2.5 Sophie Sha

(Figure 1.4: Group Member Sophie Sha)

After working as a child care educator for several years, my back was injured badly due to the hard working condition, it pushed me to come up with the idea of a career change and eventually I became a student of RMIT.

In the past few years, I have gradually developed some interest in high-tech area, especially AI and software design. I often read articles and news about those fields. Besides theory exploration I also like to fix some of my old electronic devices on my own, I have once managed to replace the keyboard of my old laptop without much help. My curiosity not only lead me to IT but also to various hobbies such as drawing, painting, leather crafting and piano. These hobbies have been helping me with developing good art / designing skills that could be contributed to my study and work.

As a first year student, my main weak point wound be the lack of practical programming skills, which can strongly limit my contribution to the actual product building. For this project, the roles I set myself in are more than just a team member, but also a product manager who keeps the project moving smoothly and keeps everyone motivated to reach developing goal as becoming a product manager is one of my main career options.

3. Project Description

3.1 Background

CRM software is a tool used by businesses to manage their relationships with customers – both existing and potential. It does this by centralising customer contact information and allowing people within the business to access it. The type of data included in such a system can include, but not limited to;

- Emails sent
- Phone calls made
- Meetings scheduled
- Enquiries made

Due to CRM software's centralised nature, basic functionality will include tools for team members to collaborate and may include;

- Instant messaging
- Email integration
- File and content sharing

All this information allows sales representatives, customer service and other customer-facing roles the opportunity to make their interactions with customer relevant, personal and up to date. Through understanding existing customers, selling opportunities become clearer – presenting the chance for gaining new business from the existing customer base.

3.2 Project Idea

Many CRMs today cater to larger organisations through modular implementation, where companies by modules that provide additional functionality as and when they are required. The downside to this is that this can become quite costly and becomes an effective deterrent to small businesses that could benefit

from such software. In addition, the training required to use the software to its fullest potential can be time-consuming.
It is our aim to provide a CRM to businesses that can is accessible to small businesses and easy to use.

4. Demonstrable Outcomes

4.1 Project Motivation

CRM systems have cemented themselves as an essential piece of software in everyday business. They have led businesses to manage the relationships that they have with customers instead of data. In addition, they can help automate important processes, integrate with existing platforms and programs to provide a more seamless experience for users and more. Despite the benefits of incorporating CRM into daily activities, the cost of implementing and maintaining such a system has proven to be quite a deterrent to small businesses. Leading CRM providers offer their services in a subscription basis that require customers to pay a fee per month per user. Also, most systems are quite difficult to use and require a consultant to train staff members to use the software.

It has been my experience that small businesses tend to build systems that cater only to their current data needs that could potentially lead to data integrity issues. For example, customer contact information could be stored in an ERP system running on a local server whereas different contact information for the same customer may be stored in an excel file in the cloud. With multiple employees accessing multiple sources of information, it becomes difficult to determine which is correct. Sending important, confidential emails to incorrect staff and phoning incorrect customers can lead to the loss of customers, consequently hurting the business.

The combination of high costs and additional training provided an opportunity for us to create a product that is both affordable and simple to use and to avoid situations like those mentioned above. My team's aim is to provide a low-cost CRM that is easy to use and provides all of the basic functionality of leading CRM packages today like Salesforce, Adobe Market Cloud and Oracle.

4.2 Minimum Viable Features (MVF)

For the success of our CRM project, we have chosen five main minimum viable features that we believe would help tailor to the needs of smaller to medium companies rather than the generic large businesses.

4.2.1 Five Click Interface

Proficiency in regards to adopting new technology varies from person to person and training time runs in correlation with this. Through implementing this 5-Click interface we aim to create a simpler interface without overloading the user with a wide array of information, customization, alerts, inputs or outputs, and messages from various sources. Our end product strives to ensure users are not dissuaded from using the software.

The method which we will aim for is the ability for users to reach their intended goal within 5-clicks/user-inputs or less. This will be achieved mainly through the use of a navigation bar.

Main key feature - Navigation Bar

The navigation bar will be displayed at the top of every page as to build a familiar frame of reference for the user. The bar itself will be comprised of clear segmented topics. Due to the vast amount of information a CRM application gathers. Categories will need to be properly separated and titled instead of having a large bucket of messy information. This can be achieved via drop-down sections available in a menu style fashion or similar.

Other extended key features for a more user-friendly interface are;

- Search Bars: The search box should be easy to find and handy to use with an extended feature of prediction text implemented to speed up searches. An example of this in action would be how Google predicts your search before you finish the word or sentence

- Visibility of system status: Often applications would confuse users by not giving an appropriate reaction to the user's actions. Simply by adding some animations or even a loading screen to certain actions would notify the users that their input has been acknowledged and is loading with the appropriate information

Validation Testing - Positive

- Navigational properties work as intended and bring the users to their intended destination, for example; Sales button on the navigation bar will take the user towards the Sales Page
- Users will be able to reach their intended destination within five clicks maximum
- User understands where each category or button leads to.
- The user will not perform mis-clicks due to size restraints or confusion on the navigation bar
- The navigation bar is sized properly and does not hinder the view of other applications within the CRM software

Validation Testing - Negative

- Navigational properties will not work and the buttons located on the bar will not take the user anywhere. Their page will remain at the 'Home' page
- Navigational properties will work however it will take the user to the wrong pages
- Users ability of taking more than 5 clicks to reach their intended destination
- Users ability to go to the wrong page due to confusion on what each category means
- Users ability to click on the wrong button or icon

4.2.2 Import / Export Feature

Importing and exporting existing information out of CRMs isn’t a simple endeavor in a lot of cases. We aim to allow users to easily integrate data from our CRM software to other programs.

CRM software commonly exports out .CSV files, also known as Comma-Separated Values. The goal is to implement an export and import feature which allows easy integration to other programs such as;

Notepad (.TXT), and Excel Spreadsheets (.XLSX) without the need for external programs to convert, have the risk of data loss or not being represented properly.

Validation Testing - Positive

- Ability to export current data user is looking at to another file type. For example from .CSV to .XLSX
- Ability to import external data user is looking at into the CRM application. For example a conversion back from .XLSX to .CSV
- All data is accounted for without the risk of losing information when the conversion is done
- Data is represented properly when converted to another file format. Therefore the information is still segmented in their respective fields instead of having a large string of information

Validation Testing - Negative

- The export feature will not work and the file will be unknown to other applications
- The import feature will not work and the file will be unknown to the CRM application
- Some data will be missing when a conversion is done to different formats
- Data is not able to be viewed properly and is instead represented in a mess
- Data import has been done, but the values are incorrect

4.2.3 User Profile & Custom Base Dashboard

Users that are presented with an excessive amount options, spend more time making decisions than acting. In an effort to provide a clean and efficient user interface, users will be able to drag and drop dashboard components to show information that is only relevant to them.

This feature primarily focuses on predetermined settings which companies commonly use to collect certain data types for their following needs. The settings will be linked towards each user profile.

- **Sales**: information related to customer interactions

- **Operations:** information related to the current tasks of various teams, similar to a KanBan board however with more specific targets to either the Customers or Company Members
- **Finance:** generates and automatically analyses financial reports from the system to the user

Validation Testing - Positive

- Users are able to log in with their own accounts
- The chosen settings will be saved so the user does not have the need to redo all the changes
- Users are able to select a predetermined dashboard setting which varies depending on their choice
- Each predetermined dashboard setting is unique and shows information relevant to its topic

Validation Testing - Negative

- The user will be unable to log in and instead be presented with an error message; Wrong Username / Password
- The user will have to go through their settings changing their dashboard to a predetermined setting
- Pre-determined settings do not function properly and selecting a different setting does not change the layout of the user's dashboard. Instead, it will revert back to the default
- Pre-determined settings do not function properly and show random information instead that is not relevant to the topic

4.2.4 User Specific Dashboard

The feature primarily focuses on the user's ability to customize their dashboard to suit their needs. The custom dashboard will be linked to the user's profile.

Validation Testing - Positive

- Users are able to change their dashboard to view different information in order to suit their needs
- Users are able to change and save their custom dashboard preferences.
- Dashboard features are able to meld together neatly without any issues
- Dashboard features will work even after moving it around to suit the user's needs

Validation Testing - Negative

- Users are unable to change their dashboard and instead are limited to either the predetermined settings, default, or none at all
- Users dashboard will revert back to the default style regardless of any customization or changes they have done
- Dashboard features end up being messy and cluttering the user's view or screen
- Dashboard features stop working or produce wrong results after it is moved around

4.2.5 Notifications

With a nonstop push and pull of information input by either customers or employees, it is important to note which are important or not. This feature will give priority to certain tasks or objects for everyone to see, it can range from; Urgent Sales, Current Asked Issues and Questions, Situation Alerts, Etc…

Notifications can be set by either the users individually, or for more important notifications it can be set by admins to the user(s). There will be various types of notifications that range in icons and urgency;

- ***Urgent Notifications:*** A reminder that informs the user that an activity that is currently 'Urgent' or 'Marked' is still required to be solved
- ***Summarized Notifications:*** Beside an issue, there can be a small notification that informs the user of its status. For example: Active / Pending / Cancelled
- ***Situational Notifications:*** The ability to inform the user if a certain condition is met. For example, used for marketing employees who receive a reminder when a certain figure is met in sales

- ***History:*** Logs the notifications to inform users of when it was created or when it ended. Includes a summary option for past notifications

Validation Testing - Positive

- Users are able to add notifications to various files depending on their need
- Notification icon works as intended and disappears when the job is finished or manually deactivated
- Different users are able to see the notification icons on various files

Validation Testing - Negative

- User's of all levels are unable to add a notification icon to a file
- Notification icon disappears randomly, almost instantly, or does not show up at all
- Users are unable to manually deactivate a notification icon
- Notification Icon is unable to disappear even after the task is completed
- Other users are unable to see notification icons on files

4.3 Extended Viable Features (EVF)

4.3.1 Internal Chat

As a business relationship management web application, having a feature of maintaining consistent and effective internal information exchange among employees can be a good addition for business use. Our application will improve the security protection and efficiency of the corporate network by creating online chat channels to carry out collaboration and communication functions.

The main content of transmission is text and character information. You can post a message in the CRM chat channel just like Messenger, direct @ someone or a specified group to get his/her attention.

In addition, options to transfer files,sed and receive mail, multimedia instant transmission that includes video chat or voice call.

Validation Testing - Positive

- Users will be able to receive message in seconds in the wifi environment
- A series of basic operations are successfully completed including sending and viewing videos, sharing links and support breakpoint continuation during file transmission process
- The automatic horizontal extension of this function is able to meet the massive concurrency when online crowd goes up
- The privacy of data is guaranteed, transmission information have been encrypted and data loss or theft does not occur
- Users could look up previous communication content

Validation Testing - Negative

- Users will receives message with delay
- The server will be abnormal when numerous users are online messaging at the same time, it requires users to force quit
- information lost, stolen or the source files was corrupted during data transfer
- A information storage error prevents the users viewing previous message records

4.3.2 Categorizing & data filtering

One of the crucial methods to improve work efficiency is tagging and categorizing of information, especially for commercial companies. Our categorizing and data filtering capabilities can help you category information and turn your data into useful insights.

Tagging/Categorizing

The existence of Tag has two main functions which are keyword and index. A set of information can be attached to multiple tags, you are able to put some tags under a category to make flexible classification of content, and then it only takes one word to find the target with high accuracy. It can give users finer control over the CRM application.

Filtering data

Filters help reduce the range of data to be processed, but do not change the underlying data. The filter will filter out unwanted results for them, and also they can conduct batch management of data.

Validation Testing - Positive

- Users are allowed to set various tags for one items in extremely simple keywords
- Users can successfully retrieve match contents by searching for a keyword
- Previous tags can be changed, deleted and categorized at any time
- Users could have tags as an option to only include or exclude customers with these tags
- The setting of the tags is private and personal, it will not be known to the setting subjects

Validation Testing - Negative

- The filter used returned incorrect data
- Unable to use tagging function to batch management of items
- The results from keyword indexing are not exhaustive, only partial information
- User’s private settings might be released to public

4.3.3 Color Blind Mode

The inclusiveness of our software is not only reflected in the simple page design, but also we have developed additional functions for the visually impaired to ensure their good user experience. The ideal of barrier free design is accessibility, we have to pay attention to the special needs of the disabled users.

We try to use a variety of visual variables to convey important information, choose a safe color scheme at design stage. We can even separately offer a color blind mode switch for people who are color blind, use text and icons for annotations so that make information as accurate as possible to the wider public.

Validation Testing - Positive

- The system automatically adds text and icons for annotations
- Color blind mode does not change every contents on the pages
- Color blind mode is consistent throughout the entire page

Validation Testing - Negative

- After turned on the color blindness mode, it is inconsistent with the default setting of the function module
- Color blind mode is unable to activate and the page shows no change
- Color blind mode swaps the color pallete to a different range which does not aid the user

4.3.4 Data analysis

Data is the foundation of business. The data formed by the relationship between enterprises and customers is the reference basis for enterprises to win the market. Our analysis function will transform business data into obvious information for the leadership to predict and make decisions.

Our software application automatically captures data from files and third-party software, combine it with internal CRM data then perform comprehensive data analysis to better understand the market. The CRM advanced statistical analysis function presets various formula and arithmetic to help users analyze key business metrics and generate predictive model, in order to enhance business insight.

Validation Testing - Positive

- Successfully integrate with other third-party data tools by sharing data

- Report operation permissions are different, only owners can modify, delete and edit reports
- All reports can be exported to other applications
- When users doing comprehensive analysis, it will not change other reports information
- Reports can be shared with different levels of access to users or groups

Validation Testing - Negative

- An error occurred while generating the report, the task could not be completed
- The report's non-owner can also be edited reports without permissions
- Users are not able to export reports out of the system

4.3.5 Interaction Tracking

In many scenarios, you will almost never talk to a one-on-one, be it the customers or even within the company itself. Therefore logs that can reflect on various conversations within one topic is required.

The tracking feature we want to implement will not only log interactions, but also record other data. This allows users to understand whether the person on the other side has received the information or not and act accordingly to ensure the other party is informed.

Validation Testing - Positive

- Effectively track and record customer status
- Users are able to receive the notification of whether certain emails have been delivered, opened, or links accessed
- Users could edit and update customer records
- Users could view the customer record history

Validation Testing - Negative

- Users couldn’t find the history records due to data loss

- Users are not able to receive according action from others instantly
- Users are unable to edit or update interaction logs

5. Project Justification

5.1 Justified Workload

Below we have an overall breakdown of how our time will be spent throughout the course of the project. The times shown are rough estimations of our tasks and if/who the lead will be for the specific tasks. We have allocated a total of 25 hours of work to be completed each week (totalling 200 hours by week 12) evenly distributed to all members of the group.

We have created a week by week timetable as it is easier to follow where we have also synced these tasks to our Trello board where it is more informative in the "When" section of this document.

During each week we will also be conducting 2 meetings to be able to troubleshoot and discuss if we need to dedicate more time to a specific task or if we have run into any issues. We will also be documenting as we go especially if we have had any issues throughout the week as it could be helpful for the following weeks.

Week	Task	Person	Hours
1	Team Creation and ideation	Everyone	8
2	Decide on the project and research	Everyone	10
3	Assignment Part 1 draft: ● Project idea & motivation ● MVF	 Daniel Davin	 5 7

	● EVF ● Justification ● How ● Other content	Wenshuo Shane Sophie Everyone	5 5 5 5
4	Website Design ● What navigation tools will we use ● Web pages layouts - Home page - 3 main subpages	 Shane Davin, Sophie, Wenshuo, Daniel	 5 22
5	Web Development research - tools to be used	Everyone	25
6	Website Coding ● Create website pages ● Implement navigation bar ● Review website and finalize	Everyone	28
7	Website/Database Coding ● Create Website Login ● Create Database ● Connect database to web pages	Shane, Davin, Sophie, Daniel	26
8	Notifications ● Create Notifications ● Test Notifications	 Everyone Everyone	 22 4
9	Coding (Dashboard customization) ● Finish customizable dashboard ● Project checkpoint 2	 Everyone Everyone	 26 3

10	Coding (Dashboard customization/Import/export feature) ● Test customizable dashboard ● Implement Import/export feature	 Everyone Everyone	 4 23
11	Code (Import/export feature) ● Finish import/export feature ● Test import/export data	Everyone	25
12	Code (Final testing) ● Test all features ● Make any changes as needed	Everyone	25
13	Presentation (including practice hours)	Everyone	10

(Figure 2: Proposed project breakdown)

5.2 Beyond Current Capabilities

As a whole this project will require us to learn and grow our current skills as we are planning to create an interactive web-based application with a backend for storing data and organizing it according to clients. As we have all been in the same course with a singular exception and have only done very basic projects most of our technical skills will overlap.

Wenshuo Wang is currently our only member who has had any technical experience with databases and although the remainder of us have started that course, they have stated it is a very basic introduction to the subject that will focus more on the theory. For this project we will be storing a lot of data about interactions with specific clients. We will need to set up a database and structure it to be able to store details and interactions for each client, we will also need to add data continually to each client after each interaction.

Building the website will be another challenge for us. Currently we have not had much experience with website creation apart from some basics of HTML and a little bit of CSS. Our goal is to be able to create an easy to use website where users can specifically customize their view. In order to create this, we will be required to get an understand of JavaScript to be able to have an intuitive website. This will most certainly require some self-teaching as well being able to design it in such a way to meet the requirements of our features.

5.3 Risks & challenges

5.3.1 Bad Website creation and design

As a group we haven't yet had much experience with creating a website. Largely we will need to research the specific functions we will want to input and focus on these areas when learning the required skills. Not having a complete grasp at the technology used will make it more susceptible having bugs or faults and as it is an unfamiliar skill it will be much more difficult find and rectify these issues.
As we want to have it easy for user to navigate and be able to get anywhere on the website within 5 clicks, we will have to be weary of which navigation tools we choose.

Mitigation

To try to prevent any issues when creating the website would be to do through testing of functions and interactions before moving on and creating the next function. By testing each feature after its completion, we will be able to more easily identify the problem and work on a solution quicker.

5.3.2 Having a badly managed database

One of our risks will definitely be with how we manage our database as this is the foundation to some of our features and the extended features also. It is important that we are able to correctly collect and organise the data that we require to be able to properly create a query to receive the information needed. With a badly managed database we could be unable to produce the information required after each query reducing the effectiveness of our product.

Mitigation

As most of the team hasn't yet had much experience with using or configuring a database, as a result we will need to draw from our team members experience Wenshuo Wang as well conduct independent education to enable us to create the functioning database we require.

5.3.3 Having a faulty login page

As this is the beginning of our project form the users view it becomes very important to have it working correctly. With our team overall not having much experience with creating a login function it will be a challenge for us to create. With a malfunctioning login page, the user may not be able to have some of the features working correctly, or they may be unable to login at all.

Mitigation

We will need to ensure that our database has been correctly configured and connected with our webpage. After our login page has been created will need to perform thorough testing to ensure that it is working correctly. We will have to make sure that our webpage is working correctly with our database.

5.3.4 Team dynamic challenge 1 - Scope Creep

During the planning stage while discussing our project it became clear that we didn't like the idea of compromising on a final product regardless of our current skill capabilities. Since our initial meeting where we discussed the minimum viable features we have constantly had to review our project and alter our features, (both minimum and extended) to be able to meet a project within our goals, both skill and timeframe. After much altering of our original idea we then presented it it our mentor.

During our mentor session we were able to closely define our features and were able to put together a plan for us to follow to be able to create our minimum viable features.

How to minimize it

To minimize this, it would be best for us to try and follow our plan and to avoid adding or altering our agreed features until after all minimum viable features have been created. This will help us achieve our smaller tasks before building on them into more complex features.

5.3.5 Team dynamic challenge 2 - Communication issues

As this is one of the first group projects we would have done involving building a product with code, we will need to keep on top of our communication to ensure we are using our time effectively. We will want to be sure that we aren't attempting to do the same work or overwrite each other's code when uploading our individual work. As we are on a strict timeline any of these minor setbacks could snowball into a huge loss of work for the project.

How to minimize it

To minimize any issues around communication we will need to be sure to let each other know what we are currently working. We also have multiple communication channels that are being used. With Trello being used to be able to see what each individual member is currently working on and having it updated frequently will make it much easier for everyone to know what we are all working towards. Discord will be used for more specific communication between each other, as well as where our meetings are conducted.

5.3.6 Team dynamic challenge 3 - Being flexible with the plan

With this being our first project coding a product we don't have a lot of knowledge with how long it will take to create our project. We have estimated a rough time frame on how long tasks will take but with our limited experience this will most likely be incorrect. At some point during our project one of our tasks will most likely take much longer than we have initially thought.

How to minimize it

During our project we will need to be diligent with how much time we are spending on each task. We will need to stay relatively flexible with our timetable, although we need to keep in mind that we are unable to push back our deadline for the project. We should refer to our timetable regularly to ensure that we will be able to complete our project on time.

6. How

6.1 Resources and tools

- Bootstrap 4

  It is an open source front end interface component toolkit which contains many design templates that programmed based on HTML, CSS and JavaScript. It could provide an easier approach for our web application interface development compare to traditional way which is programming everything from scratch. The version we will use is v4.3.1, and currently free.

- HTML/ CSS / JS / PHP

  These are all web development programming languages that highly chance we will use for our CRM web application at later development stage.

- MySQL

Database server and document store services from this tool will be essential for our product as we will have to store a large amount of information on their cloud server. The version we plan to use for a large scale is v8.0 Enterprise Edition. This will cost roughly $5000.00 annually.

- AWS EC2

Amazon EC2 offers fully controlled cloud hosting services that contains very flexible computing capacity to allow customers achieving the best results with minimal cost. This could be a very good option for our CRM application as it is also integrated with other Amazon services we could use, like Relational Database Service and Simple Storage Service, etc. This service will be available to be used as a free trial for one year on EC2.

- Adobe XD

This software allows group members to design prototypes collaboratively at the same time. It supports interactive design and display. The best part about this website is that it is easy to use and also free of charge.

- Trello

Trello can let us plan project, prioritize tasks and organize effective timetable in an easy and clear way, this collaborative working system will save team plenty of time from planning so we can focus on product developing a lot more.

- GitHub

GitHub is an open source code version control website that lets programmers work together to code, make modifications and upload latest version of code and also keep older versions as back up. For our project we could code as a team in GitHub group and back up different versions of our code and reports all in the same repository.

- Google Drive

Google Drive is a free cloud storage space for storing all sorts of documents. We can use 'Shared with me' function to let all group members access and edit our project report collaboratively.

6.2 Collaborative Workspaces

For more information about our collaborative workspaces please visit our Trello card.

There are a few shared online workspaces will be used by our team in different stages to accomplish this big project, such as Google drive, Adobe XD, Trello, GitHub, etc.

As a semi-mature team which all members have worked together before during last semester, we all knew how to access shared Google drive group folder and locate our project report doc that we are currently working on. Adobe XD will be used for wireframe and prototype making and GitHub will be mainly used for project documentation and web programming. The only new workspace for us is Trello, therefore we do need to improve our collaborative working skills on Trello and make it useful for project planning and management process.

Trello

URL: Mooncake Trello
How to access: Sign up on Trello with Student email, then check email and accept Mooncake Team board (created by tutor) invitation, login on Trello,com (or on Mobile App Trello) to access.

Google Drive

URL:

- Work Plan
- Assignment 1 - Final

How to access: Accept group Google doc (created by one of team members) invitation from student email then log in Google drive, access “shared with me” then group file ‘Work plan / report draft” would show up.

GitHub

URL: Github Repository

How to access: It is similar to other shared workspaces. One member creates a team project and invite other members to join in. Others accept invitation through email then a shared repository will appear in everyone's repository list.

Adobe XD

URL: Adobe XD

How to access: Everyone should download and install Adobe XD software in their laptops first, then sign up with their student emails. One member would create a shared project and invite others to join in. The invitation notification and a shared project would appear in every member's software interface. Access project by clicking on either of them. This software will be mainly used for stage 2 of our designing process which is held from week 4 onwards.

6.3 Communication Expectations

More information about our communication expectations can be found on our Trello card.

As our team's main communication channel Discord plays a super important role during all project planning, designing and developing stages. All team members are expected to check new messages in the group channel on a daily basis to ensure themselves get informed well about project updates in a timely manner. If there is any small issue rises, the group members whoever is available at that moment welcome to provide ideas or advices to help others out.

Each week we will have a few meetings planned, mainly online meetings on Discord. The number of meetings we have completely depends on how the project goes, whether it goes smoothly or encounters various unexpected issues that needed to be resolved urgently. No matter what happens, at least having one class meeting and one online meeting at the end of each week is our group meeting bottom line.

Other than Discord we also expect team members to communicate as much as possible in the tutorial class and face-to-face meetings outside the class. Additionally, at the next two phases of the project, Trello will be used more frequently than now to improve the task assignment, project management and group communication.

Action Plan for communication issues:

- No responding within 24 hours: try all possible ways to reach the person, e.g. discord, email, phone call, text message, messenger, or other available social media approach
- No responding more than 5 days: contact tutor or lecturer to discuss about team member changing concern
- No show in group meeting: team member need to inform the whole group about absent reasons at least one day ahead and the reasons provided should be rational and understandable. The absent member should catch up with all the project updates by going through discord chatting history and meeting summary and group google doc, etc

6.4 Decision-making Processes

More information about how we process decisions can be found on our Trello card.

Our team is quite democratic as we try hard to let everyone get involved in decision-making process. When there is decision which related to the project need to be made, the members would discuss about it either face-to-face or via Discord to collect everyone's opinion. If everyone agreed with the same decision that would be the very ideal situation for our group.

What if the team couldn't reach to the same ground at the end, then we would have to vote to achieve the most suitable decision. If someone insists on a less-supported opinion and the person should provide enough convincing evidence to let the group reconsider about it or review the previous decision making process.

7. When

Project time tables for each week

Title	Planned Start	Planned Due	Lead by
Week 2			
Start project report writing	13/3	13/3	Everyone
Group meetings • Wednesday • Saturday	 13/3 16/3	 13/3 16/3	Everyone

(Figure 3.1: Week 2 task breakdown)

Title	Planned Start	Planned Due	Lead by
Week 3			
Assignment Part 1: • Project idea & motivation • MVF • EVF • Justification • How • Other content	13/3	24/3	 Daniel Davin Wenshuo Shane Sophie Everyone
Make matching trello cards	22/3	24/3	Everyone
Group Meetings • Thursday	 21/3	 21/3	Everyone

• Friday • Sunday	22/3 24/3	22/3 24/3	

(Figure 3.2: Week 3 task breakdown)

Title	Planned Start	Planned Due	Lead by
Week 4			
Research navigation tools	25/3	28/3	Shane
Design Web page layout	25/3	3/4	Davin Sophie Wenshuo Daniel
Group meetings: • Wed • Sun	 27/3 31/3	 27/3 31/3	Everyone

(Figure 3.3: Week 4 task breakdown)

Title	Planned Start	Planned Due	Lead by
Week 5			
Web Development research Frontend • Bootstrap 4 Backend • PHP • MySQL	1/4	7/4	Daniel Davin Shane
Group meetings: • Wednesday	 3/4	 3/4	Everyone

• Sunday	5/4	5/4	

(Figure 3.4: Week 5 task breakdown)

Title	Planned Start	Planned Due	Lead by
Week 6			
[Web Development research] Frontend • Bootstrap 4 Backend • PHP • MySQL	7/4	14/4	Daniel Davin Shane
[Revision of Website Design]	13/4l	14/4	Yuki
Group meetings: • Wednesday • Sunday	 / /	 / /	Everyone

(Figure 3.5: Week 6 task breakdown)

Title	Planned Start	Planned Due	Lead by
Week 7			
[Website Login Feature] • Learning • Creation / Coding • Testing	15/4	19/4	Everyone Main Developers - Shane & Davin & Sophie & Daniel
[Checkpoint 1 - Wednesday]	17/4	17/4	Everyone

Database Creation • Learning • Coding • Testing	 18/4	 21/4	Everyone Main Developers - Shane & Davin & Sophie & Daniel
Database Sync with Website Login	20/4	21/4	Everyone
Documentation	21/4	21/4	Everyone
Group meetings: • Wednesday • Sunday	 17/4 21/4	 17/4 21/4	Everyone

(Figure 3.6: Week 7 task breakdown)

Title	Planned Start	Planned Due	Lead by
Week 8			
Notification Feature - Learning	29/4	1/5	Everyone
Notification Feature - Coding	30/4	3/5	Everyone Main Developers - Shane & Davin & Sophie & Daniel Icon Designer - Yuki
Notification Feature - Testing	3/5	5/5	Everyone

Documentation	5/5	5/5	Everyone
Group meetings: ● Wednesday ● Sunday	 1/5 5/5	 1/5 5/5	Everyone

(Figure 3.7: Week 8 task breakdown)

Title	Planned Start	Planned Due	Lead by
Week 9			
Customizable Dashboard ● Learning and implementation	06/5	12/5	Everyone
Project checkpoint 2 - Sunday	12/5	12/5	Everyone
Group meetings: ● Wednesday ● Sunday	 8/5 12/5	 8/5 12/5	Everyone

(Figure 3.8: Week 9 task breakdown)

Title	Planned Start	Planned Due	Lead by
Week 10			
Finalize Customizable dashboard ● Finish creating ● Test customizable dashboard	13/5	15/5	Everyone
Start Import/export feature ● Learning and begin implementation	13/5	19/5	Everyone
Group meetings: ● Wednesday	 15/5	 15/5	Everyone

• Sunday	19/5	19/5	

(Figure 3.9: Week 10 task breakdown)

Title	Planned Start	Planned Due	Lead by
Week 11			
Finalize features • Finish import feature • Finish export feature	20/5	24/5	Everyone
Test import/export data	25/5	26/5	Everyone
Group meetings: • Wednesday • Sunday	 22/5 26/5	 22/5 26/5	Everyone

(Figure 3.10: Week 11 task breakdown)

Title	Planned Start	Planned Due	Lead by
Week 12			
Test all features	27/5	2/6	Everyone
Modify as needed	27/5	2/6	Everyone
Group meetings: • Wednesday • Sunday	 29/5 2/6	 29/5 2/6	Everyone

(Figure 3.11: Week 12 task breakdown)

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