LITAB

A life time financial assist application

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Lei Guo s3516439

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Contents

Project Name

Litab is for life tab, meaning it is a financial tally book and hope users will use this application as long as possible.

GitHub: https://github.com/s3665803/excited-bird

Trello: https://trello.com/b/HchjnuLb/tr-excited-birds

InvisionApp: https://invis.io/HGO1CBQCJSQ#/319736797_1-1-Home

Project Background

Motivation

People always plan what they want to buy or figure out what they did with their money for management purpose, once in the past, I wanted to find out how much I spent weekly to see how much money will left for me at the end of the month to buy something I wanted, it was so inconvenience that I have to remember everything I paid because if I miss one or two things, the result may not as good as I thought.so, I think an application should be able to keep track my consumption and do some calculation for me to remind me how much money left at the end of the month or how long it takes for the thing I want or the event I need to pay to be affordable based on current consumption routine and income.

The other reason we think this app is valuable is everything in the current generation needs to be paid and higher life standard we all desire requires personal financial management which we should supposed to do some of it on our own instead of hiring a financial manager to do all of them. and, this application seems appropriate for our current level of skills.

People

Cheng Chen

s3728207

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Interest: Coding and Designing for the application

Skills: Basic skills in Java, Python and VS

Role: Interface designer and programmer for the project.

Bowen Zhang

s3617571

s3617571@student.rmit.edu.au

Interest: My interests in this project is that I am interested in programming, and this project seems like a suitable challenge for my level of programming skill.

Skills: I have some basic knowledge of Java, other than that, I have few experience in UX design.

Role: I am in charge of programming this project. Also coordinates the group, assign roles and tasks in assignment 1 and 2.

Bowen Yang

s3665803

s3665803@student.rmit.edu.au

Interest: Our mobile application call Litab which is a combination of Tally book and Reminder. What I am most interested in this topic is how to control my own money and plans for future spending reasonably. In addition, I am interested in UI design throughout the project, because a good interface design will better attract users and increase user loyalty.

Skills: For this project, related skills include programming, design and debugging skills.

Role: My role is to use my good text editing skills to help the team complete the reporting task while also taking on some programming tasks.

Lei Guo

s3516439

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Interest: The main function of our application is to record cost. This is very useful for students, we must arrange our living budget. This app also can improve our spending habits and avoid us wasting money.

Skills: Requirements collection, Design: UI, Programming, Testing

Role: My role is to help our team complete project report, share my ideas with them and some programming tasks.

Zheshun Shi

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Interest: Our team's topic is about mobile application, which is able to remind users how much you still need to save to buy your favourite things. It could track your personal expense daily, monthly and yearly and make you distribute your income properly. What I am interest in is that the application is better to limit your expense and always remind of you to plan your feature expense reasonably. What's more, it could make you be the planned person, and do everything more systematically.

Skills: I'm good at designing the website, organizing the group work and some programming.

Role: In assignment, I partially design our mobile application, making the whole page more aesthetical in order to let user look easily and convenient use. Additionally, I also do some text editing to explain how the mobile application works.

Zongming Liu

s3713771

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Interest: In the daily life, the tally book and reminder are important for us to record the things we do not want to forget and the money waste. We want to combine these together and publish an app for users. I am interested in UI design. A good designer can design a nice UI to attract users.

Skills: The relevant skills are the writing the codes, fixing the code and designing the UI.

Role: My role is to support other teammates to finish their work.

Aim and Goals

The aim of this application is to provide optimal financial assistance. This will affect people's behaviour on spending their money. Good habits can be developed through this application to improve the users' own ability in financial management.

The first goal is to be able to record the users' spending and put them in to different categories. This will create a report of the total spending of the user with detailed information on where the money went. Users will be able to know how much exactly they spent and whether they overspent in the inappropriate category. It provides useful information for users to adjust the way they spend

The second goal is setting routing costs like rent and bills. The application should deduct these fixed costs from the available spending of the period set by the user. This is to prevent overspend when users forgot about the fixed costs coming. Usually these costs come after middle of the month (which is near the end of the month). Most people are unconscious about the fact that they actually overspent since they did not notice those huge costs coming. It keeps users aware that they have those routing costs coming to prevent overspending early during the period.

The third goal is to provide reminders and notes for users. Sometimes we can't just remember things. People need something like a notebook to take down what they need to remember. A notepad will always be handy when it comes to this. It enables users to put what they are going to do or buy and remind them if they forgot. For example, a grocery list so that users will not miss anything when they travel to the supermarket.

Scope

This application includes following functions:

- Ability to record spending

- Set budgets for a given period

- Set automatic payments and income

- Set a goal for saving money to buy something

- Take notes and reminders

- Setting different wallets to manage different accounts

If time permitted, we plan to implement the following functions:

- An account centre to synchronize all the data

- Ability to recognise SMS from banks to automatically record spending

Project Progress

Description

At the very beginning we actually had a hard time deciding what we are going to do. Since in most areas, applications for specific purposes have already been developed. It's hard to create something really new and special. After some deep discussion, we found that all of us have not found any good application for spend tracking. The one built into apps of corresponding banks are awful to use and manage. They are mostly inaccurate as well. We then decided to make an app of our own to track our spending. We have to admit that most of us have bad habits in spending money. We all had experience of that 'Financial Crisis' after spending money on something not necessary. This is what further put us into making a financial application.

Early discussions went on really well. We quickly distributed the work and created the timeline for our project. We also adjusted the app function a little to make the most out of the application. 'Notes' function was added after that make our app complete.

The first obstacle we met is UI design. None of us had experience in visual design before. One of our members even had some level of colour blind which made it much more difficult for decision. We then decided to create a simple UI first without any decorations and add on later and search for help.

For the first month everything went on very well. We completed our mock up for the application and put it on InvisionApp to demonstrate some interactions. The visual design is improved and usable. We decided to continue working on the code and further UI design.

Then something stoke. Cheng Chen had extremely severe infections that prevented him from eating and drinking. This put him out of the project for about three weeks. As one of the main programmers in the team is down, the progress of the project is significantly delayed. We later had to adjust our timeline and cut down some features that are not significant for our project.

Next we stepped deep into coding and this is where the real challenge came. We soon notice that it is almost impossible for us to create a real application based on our knowledge. Since we are year 1 students, we just started on basics of programming and never experienced file management and user interface. Though we do have completed some assignments regarding to drawing interfaces, those are to basic for a usable application. It seemed impossible for us to learn it all within the time period so we decided to move to some handy tools to create the functions.

Outcomes to date

Due to the delay of the project, we do not have a fully functional app to demonstrate. However, we do have an interactive interface to demonstrate all the functions in detail (without random inputs). Below are the functions we have completed the design:

- Record spending

We have the interface for this function and we can show how the spending is recorded. We can show that the spending is distributed into different categories for easy view and management.

- Set budget

We have the interface for this function and we can show what settings we have for setting a budget. We will explain how it works to help managing spending for the given period.

- Set routine payments

We have the interface for this function and we can show what settings we have for setting routine payments. We will show how it works by deducting from the available budget for the period.

- Set goals

We have the interface for this function and we can show what setting we have for setting a goal. We will show how it helps users to save specific amount of money during the period.

- Take notes and reminders

We have the interface for this function and we can show how it works. It's kind of a traditional notepad with reminder function built in.

- Setup accounts

This is still a mock up. We can only demonstrate how it looks and describe how it functions.

- SMS Templates

This is still a mock up. We can only demonstrate how it looks and describe how it functions. Since we need permission from banks and users to be able to read text messages which include personal information, this function is not considered as a priority. We will implement it in future development.

Scope Creep

We actually experienced scope creep at the beginning of the project. Since we did not really define what category our app falls into, we had trouble justifying whether we are making an app for note taking or for spend tracking. However, we did not change the scope of our project thanks to great discussion sessions. We emphasized on the functions for spend tracking and went back well on track.

Progress

Complete Assigned Report Tasks	Planned Start	Planned Due	Lead by	Achieve
Week 3				
https://trello.com/c/WaQMgzHB/42-assignment-1-project-description-	[29/07]	[05/08]	Bowen	Yes
https://trello.com/c/cjgyUNE9/37-assignment-1-risks	[29/07]	[05/08]	Hank	Yes
https://trello.com/c/d3DqVVXa/36-assignment-1-justification	[29/07]	[05/08]	Lei Guo	Yes
https://trello.com/c/h3c0zMJC/43-assignment-1-timetable	[29/07]	[05/08]	Zheshun SHI	Yes
https://trello.com/c/juBPF55A/40-assignment-1-demonstrable-	[29/07]	[05/08]	Cheng chen	Yes
https://trello.com/c/LKhBr2FV/38-assignment-1-resorces-tools	[29/07]	[05/08]	Bowen Yang	Yes

Assignment 1 Report	Planned Start	Planned Due	Lead by	Achieve
Week 4				
[https://trello.com/c/NWSYPNR4/44-formatting]	[05/08]	[12/08]	Bowen	Yes
[https://trello.com/c/VYuHtjMw/45-assignment-1-report]	[05/08]	[12/08]	Bowen	Yes

[https://trello.com/c/127jjum4/7-week-4-check-formating]	[05/08]	[12/08]		Yes

User Centre Design discussion and prepare	Planned Start	Planned Due	Lead by	Achieve
Week 5				
https://trello.com/c/57aE7bCb/8-week-5	[12/08]	[19/08]		Yes
	[12/08]	[19/08]		
	[12/08]	[19/08]		

Design Prototype	Planned Start	Planned Due	Lead by	Achieve
Week 6				
https://trello.com/c/P3jenmuy/9-week-6	[19/08]	[26/08]		Yes
	[19/08]	[26/08]		
	[19/08]	[26/08]		

Programming discussion and research	Planned Start	Planned Due	Lead by	Achieve
Week 7				
https://trello.com/c/cUlpqeUe/10-week-7	[26/08]	[02/09]		Yes
	[26/08]	[02/09]		
	[26/08]	[02/09]		

Programming tasks	Planned Start	Planned Due	Lead by	Achieve
Week 8				
https://trello.com/c/2NIrvk4x/11-week-8	[02/09]	[09/09]		Yes (Delayed)
	[02/09]	[09/09]		
	[02/09]	[09/09]		

Programming tasks	Planned Start	Planned Due	Lead by	Achieve
Week 9				
https://trello.com/c/IksPOM8m/12-week-9	[09/09]	[16/09]		Yes (Delayed)
	[09/09]	[16/09]		
	[09/09]	[16/09]		

Programming Tasks	Planned Start	Planned Due	Lead by	Achieve
Week 10				
https://trello.com/c/RARhkYhc/13-week-10	[16/09]	[23/09]		Yes (Delayed)
	[16/09]	[23/09]		
	[16/09]	[23/09]		

Debug and Test	Planned Start	Planned Due	Lead by	Achieve
Week 11				
https://trello.com/c/wOWkeG4C/14-week-11	[23/09]	[30/09]		No
	[02/09]	[30/09]		
	[02/09]	[30/09]		

Final Testing	Planned Start	Planned Due	Lead by	Achieve
Week 12				
https://trello.com/c/tiGyrH3P/15-week-12	[30/09]	[07/10]		No
	[30/09]	[07/10]		
	[30/09]	[07/10]		

Due do some delay during the project and the obstacles we met, we haven't completely finished the whole project. Hence final testing could not be done. We did not make changes to the schedule since the original plan is correct and precise.

Testing

We have not done any testing bases on an actual working application since we haven't finished the coding part. We do have tested on interface interactions using web applications to make sure that the pages were linked up well. We do change a lot of pages during testing since we found that some pages were duplicates and can be merged for better user experience. The final testing for the application was delayed since we are unable to progress the coding part at this stage.

Tools and Technologies

Collaborative Workspaces

1.Google doc

https://drive.google.com/drive/u/0/folders/1CsO1w9nZACLbIzIfCf-IPmvI-VHngsY-

Google doc is the tool our team uses to write reports. Controlled by our tutor and given the permission of our team members to edit.

2.Github

https://github.com/s3665803/excited-bird

Github is controlled by our team member Bowen Yang and gives us team members permission to edit.

3.Trello

https://trello.com/b/HchjnuLb/tr-excited-birds

Trello is controlled by our tutor and given the permission of our team members to edit, which can show the progress of our assignment.

Software

Wechat

a. Short description

WeChat users can share text and pictures with friends through the smartphone client, and support smart phone chat software for group chat and voice and video intercom functions.

b. Rationale

In order to be able to respond in time and propose ideas after class, we create a wechat group, which it can help our group eliminate misunderstandings and improve efficiency.

Basically, six members of our team use WeChat every day to discuss assignments and to check and correct the completed parts.

The connection between each part is powerful despite the fact that each member has there individual parts., in order to guarantee the quality of the assignment, we need to report on the task.

c.Specific version

ios 6.7.2 For free.

App Icon Gear

a. Short description App Icon Gear is a tool for Mac, iOS developers who want to efficiently make App Icons, Launch Images and Image assets. Gear works perfectly with Xcode.

b. Rationale

It's very convenient to work with Xcode and very simple to operate, which it can quickly suppress pictures of various sizes. We can drag two images at the same time (one horizontal and the other vertical), and Gear will suppress the omnidirectional Launch Image. Therefore, our group select this app to design various icons for our project.

In addition, currently supported a plenty of types and these beautiful icons are easy to identify.

12 kinds of iOS App Icon (6 iPhones, 6 iPads)

iOS Launch Image 20 kinds

MAC App Icon 10 kinds

Apple Watch App Icon 8 kinds

Xcode icon set (XC Asset) 3 kinds

c.Specific version

1.5.5 For free.

ADOBE PHOTOSHOP CC

a. Short description

Photoshop is one of Adobe's most famous image processing software, which integrates image scanning, editing and editing, image creation, advertising creativity, image input and output into one image processing software.

b. Rationale

Photoshop is the most powerful drawing software available today.

Photoshop's tools are so smart ,which we can use the pens, filters and modes that come with the software to achieve all the effects you can think without any extension. In addition, powerful expandability allows us to perform tasks in a wide variety of pen filters in a wide variety of pen filters.Therefore, we discuss use the Photoshop to design background and logo of outr application.

c.Specific version V13.0.3

First month is free.

A$39.59/mo (incl. GST)

Tools

1. Xcode

a. Short description

Xcode is an integrated development environment (IDE) provided by Apple to developers for the development of MacOS, iOS, WatchOS and tvOS applications.

b. Rationale

Because our group will develop a program on the ios platform. Xcode has a unified user interface design, coding, and testing that is the fastest way to develop OS X and iOS applications. Support multi-language programming programs C, C++, Objective-C or Java programming and it can publish the program directly to the App Store. Therefore, the Xcode is the most suitable IDE for our program.

c.Specific version

Xcode 9.4.1 For free.

2. proto.io

a. Short description

Proto.io is a dedicated mobile phone prototyping platform that can build and deploy prototypes of fully interactive mobile applications and simulate similar finished products.

b. Rationale

It's convenient for quickly creating an interface because it has a rich set of standard UI elements, and many of them are customizable. In addition, it can be many screens in a project, and transitions can be made between these screens.

c. Specific version

Proto.io 6 Free for 15 days.

d. Alternative plan

invision

https://www.invisionapp.com/

Challenges and Learning

Cheng Chen

I actually found that communication is very easy during this project. Since there are no language barriers between us and all team members are motivated, we met minimal problems in regard to communication. Progress is made step by step as planned.

The difficult part I found this the programming part. At the moment I'm extremely limited in coding skills, I can't even create the interface. Lots of research were done but I still cannot work out the right way using JAVA. I have to switch to some handy tool to create the full prototype instead.

The hardship in coding is what I did not expect. This had a huge influence on our plan. We have to switch to another approach instead.

I was expecting challenges in interface design and coding. Together with my team mates, a lot of work is put into developing the interface. We had a lot to do to adjust the pages to its best. The interface design is accomplished though some minor edit could be further done. For the programming part, we could not overcome due to the limitation in skills. Though we have put a lot of effort researching, we still could not find a proper way.

After this project, I have developed a great skill in designing the interface. It was challenging but actually a lot of fun. My ability in logic and function innovation is also greatly improved.

I also learnt that not everything can be easily overcome. Sometimes we have to change our plan to make the best result.

The plan did not change much, it is more of a postpone to the plans due to my unexpected issue. I lost a month due to that disaster (almost thought I died actually). I had to catch up on the project as well as other subjects I took which slowed down the process of the project. My plan works out pretty well though I met difficulties in programming. I'm not going to change my plan, but I will definitely spend more time researching for coding if I had a chance.

My timetable worked out nicely. The only thing I could change in my timetable is the research part. I will definitely spend more time researching for solutions and resources. Currently I'm quite limited and I need to learn much more.

The tools worked out perfectly for us. We had no trouble in communication and collaborations. The only problem is that the resources are quite limited. We may need to find more to assist us for the project. One of the risks that we may meet difficulty in coding has actually came true. What unexpected is that we did not think that the problem would cause us to change the way to present.

Bowen Zhang

I don't think that any part of this project can defined as easy because the time and effort I spent on this project. The part that I found difficult is programming and design which is hard to say it is good because of my weakness in colour. speak of programming, it is hard to get it started in a group, what is the names of each method? How to decide separated task so that the code can be independent and appropriate, and this problem is also unexpected. I only expected that GUI would be difficult since I haven't learnt anything about it. In order to solve this problem, I did a lot research on GUI programming and that is really confusing sometime. There is awt and swing, both seems ok for GUI. so, I mainly leaning awt because it is basic GUI programming library. To be honest, I haven't figure out how to code the interface yet even though I can code a basic interface so far but still, it is hard to figure out how to do the layout, and how it can be functional. I thought about SwingTerminalFrame which is what we used for Programming 1 assignment, but it seems not something everyone use and not suitable for learning java, but it gave me some thought about coding this interface.

If I am asked to change my plan, I would definitely cut off the programming part because I am not confident in finish it in time. Especially without any help. The interface is hard and confusing, the workload is too much considering I have other assignment which is not easy to do at the same time.

The timetable has some problem, like GUI coding, I didn't anticipate I would spend way more time on research and practise. But I don't know how to change that.

The tools we consider use different language, so I think I should stick on Java since I already have some basic knowledge about it. The GUI coding problem is anticipated but I still underestimated it. And somehow assignments of other

subject became harder than the first half semester which means it took much more time than I expected. It seriously affects the progress I program this project.

Bowen Yang

In this project, the hardest part is the programming part, which is the core section of the whole project. Before start working on a project, I think that prototyping and UI design will be the simple part. However, I have encountered several challenges in this part which are Language setting and Identify SMS function. In conclusion, coding work is the biggest challenge for me.

Due to the interest of the interface design, I am looking forward to encountering some design problems. Besides, If I can solve this problem perfectly, my confidence will be significantly improved. In addition, I have searched plenty of resources to help me. A successful project is an excellent example for developers. An application that can successfully test the consumer's test in the market for a long time can help us to avoid weaknesses. Thus, I did some research on this aspect of the software, such as Spendee which is a gorgeous, user-friendly app that people love and it is the simplest way to control your finances. Finally, this challenge has been overcome and gain some helpful experience and skills. For example, the Validation Testing function, which is let a user set a target in money box with preferred purchase date and users can choose the "Estimate"; the app will calculate the time by the expense history that users will know how many days they need to wait.

My tasks and plans have not changed. Because the team members are responsible and complete their tasks on time, hence, everyone's plan is not disturbed, and the task is going smoothly under cooperation.

I concentrated on writing report and doing some programming code through this program. To start with, my timetable is realistic, and it is split into five parts which are learning, research, design, coding and test. Time allocation is determined by difficulty. Therefore, the coding part needs more time to complete. For instance, according to the MF1, This feature is the display on our home screen which it is not difficult. However, I focus on writing the report.

Therefore, I will spend a little time on the learning section and research section.

Based on this project, we need to use proto.io to develop the prototype, which is a dedicated mobile phone prototyping platform that can build and deploy prototypes of fully interactive mobile applications and simulate similar finished products. However, because of the use time is only 15 days. Thus we use the backup software Invision to complete the work. We use proto.io to make the function and use screenshots to make the flowchart on Invision. Fortunately, the process of the project is going smoothly and there no unanticipated events affecting the progress.

Lei Guo

I think the functional design is easy, because we are all students, and our application is very useful for students, in other words, we are also the users for this application, so we know what features are important for the users.There is no doubt that programming is the biggest challenge for our team, because we have no experience in application development, and we only learn the Java programming language, so implementing the functionality of the application is a big challenge.

I am looking forward to the programming challenge, because I want to be a java programmer in the future, I am very interested in programming.In order to complete this project, I searched a lot of information about mobile application development. There are some features that we can implement, like login, but there are some features that are too difficult for us to implement, like automatically recording cost based on SMS content.

The main skills I have learned are teamwork and communication. For a project, it can't be done by one person. It must be done by a team. Therefore, communication and teamwork are important because if one person can not completing tasks on time, it will affect the progress of the entire team. Therefore, good communication can guarantee good teamwork. Our team can communicate through Wechat to ensure that our communication is real-time. In addition, I also learned some mobile application programming knowledge, although I can not complete the entire mobile application now, but I learned how to develop mobile applications.

We didn't change our plan, but we changed some features of our application. We didn't complete the task according to our initial timetable. Initially, in the seventh week, we needed to discuss and divide the programming tasks, but we still adjust the function and design of the program in the seventh week. In addition, programming is very difficult for us, everyone need to spend a lot of time to learn mobile application programming, it totally influence our process. Our timetable is not very realistic, because we have neglected some things, for example, we thought the features are easy, we planned a lot of time to code, however we changed some of our features, at that time, our team should code, so we have to adjust the timetable to better complete this project.

The tools and technologies worked out as expected. Before we start this project, we searched a lot of information, we shared a lot of ideas. In addition, based on our learning experience, we have a good understanding of development tools and techniques.

Zheshun Shi

during the assignment, we luckily have a best leader and cool groupmates to ensure the assignment progressing well. In my view, the writing report could be much easier one compared to the designing mobile application. Particularly, writing report is the texting edition about our mobile application to let user know and understand how the function works and how it looks like. However, it could not be easier to explain your project in details to users because they are not the person who creating this application. In addition, I've seen that designing the mobile application doesn't look easy as well, what I mean here is that you need to design home page, budget page, goals page as well as the account page separately. In particular, home page should include your daily, monthly, and yearly expense, which list every expense promptly. Budget page is based on home page that users could totally see their spending daily, monthly, and yearly. Goals page is the things that you plane to buy in the feature. Last but not least, account page is all about your personal details including wallets, overviews, templates, settings and feedback.

I have learned how to better collaborate with groupmates. There should be good communication between us, and also writing down your ideas immediately would work on your project. Conflict is not necessary a bad thing because it could sometimes come out with the new ideas.

There is a plan change about our designing mobile application. We have added the language page such as Chinese, English, Spanish, French and so on to let numerous user enjoy our mobile application. There is no limit to entry our project. What's more, there is a SMS templates page to send users expense immediately to mobile phone. Besides, our group doesn't have any changes about the role we have played in our group.

Timetable was realistic about my part. I focused on designing mobile application with the other two partners, and also doing some writing works. For instance, explaining the core feature and some MVF.

Designing mobile application is done by the proto.io. it looks well and enables to finish our project, which could link the email with our partners to do the assignment together. unfortunately, there is only 15 free days to work our project.

Zongming Liu

In this project, the codes are always the most difficult for me. To complete the app, I need to learn the new computer language for the iPhone which is too difficult for me to learn it. There are many bugs in the first demo program. I must read the codes many times and hope to find the problems. The bugs are always the thing I unexpected. I have spent a lot of time to debug them. I am interested in the designing which I think the UI design is quite easy for me. I like to design the nice UI which the users will like and feel comfortable.

To solve the problems, I have searched many articles and many books. I also asked many questions to my teacher. The articles, books and teachers give me a lot of help on coding and designing. However, I am still poor at coding. The teammates are always my strongest backup. They help me a lot on code, which I have enough time to finish the UI design on time.

Because of the software we used for UI design, I have changed many times of timetable. Based on this project, we need to use proto.io to develop the prototype, which is a dedicated mobile phone prototyping platform that can

build and deploy prototypes of fully interactive mobile applications and simulate similar finished products. This software has limited time for using. I must change the timetable and put all my design work in the 15 days. My teammates also find a backup software in case the work hasn't been finished. With the help of my teammates, the code and the UI design have been finished on time. The program is still in process.

Project Processes

Cheng Chen

Group project is not about personal performance. It is about chemistry and collaboration to make the most of everyone's talent. Communications had gone on really well in our group. No trouble in contacting each other for work distribution and meetups. Problem is the consistency. We have different time management skills which dragged the process a bit. Some finished the work early or on time while some pushes it to the deadline or even late.

We communicate by meeting up and using WeChat. Trello, Google Drive and GitHub are also used for status update. Communication through WeChat and meetups worked out very well. Though we are not very familiar with GitHub and Trello, they helped us in some way. Communication went on consistently without change since the start.

Collaboration is the most important aspect of organising a project like this. I would make separate plans if I were to start again in order to make quick responses to changes.

I would advise that the group make great preparation for upcoming challenges. Making an application is not easy as we thought.

Bowen Zhang

I learnt that when a group work on a project, it will be easier for each member and I can work on the part I am good at but avoid the part I am not. So far, compare I worked alone, I have more time on other subject because I don't need to do everything myself. The only problem is that when a group doesn't have a same goal, or the group member did not want to do a better job like

they just want to finish it, it can be harder than I did it alone sometimes because you will have to coordinate and think in their shoes. We use WeChat to communicate at beginning because we are all from the same place and WeChat is the app we use all the time. I think the most important aspect is the purpose of each member in the group. If I can make everyone in the group wants the same thing as get a high mark. I think everything will works way better than it is now. If I can start again, I will choose a simpler project to do, so that I can have enough time to finish.

My advice choose a challenge project is fine, but if the member in a group doesn't work well together, try to reduce the workload.

Bowen Yang

Form the group work; everyone can do their job very well with high quality. Moreover, we are able to communicate better the work that everyone will do to make it easier to complete the task. Each member has a clear idea and can accept the opinions of others. In addition, there is one thing needs to be improved is that everyone should complete some work as soon as possible and then discuss it because everyone's tasks are very connected. Otherwise, it will affect the consistency of the overall report. We use some tools like Google Docs and Github to help us accomplish our tasks. Because we are a group with six members, it is effortless to have a situation where opinions are not uniform. However, each member of our team was willing to listen to others' opinions, everyone can respect the opinions of others, and we were particularly successful in discussing issues. It can help us to finish the assignment efficiently. Therefore, Listening and respecting the opinions of others is essential for the teamwork.

Based on my experience in this project, the most important aspect of organizing such a project is that each member of the team is willing to listen to others' opinions, and everyone can respect the opinions of others so that they can succeed when discussing issues. It helps us to accomplish tasks efficiently. Therefore, listening to and respecting the opinions of others is very important for the group.

I want to give some advice to the group that wants to start a similar project. To begin with, better able to communicate the work that everyone will do, which

makes it easier to complete the task, because everyone clearly understands how to do this and allows us to have the same amount of work. Besides, the group member should improve their organisation and do some work ahead of time, rather than being in a hurry before the final deadline. Furthermore, the group should use a project to keep track of progress and see what other members have completed and which parts require more attention, which helps track team progress, such as Github and Google Doc. In addition, weekly Meeting also helps communicate the overall progress of the mission.

Lei Guo

For this project, we have learned that teamwork and communication are very important, especially when dealing with large projects and tools that are new to us. Everyone needs to complete their setup tasks on time so that the team can move on to the next step, and any delay will delay the entire project.Our team discuss the problems encountered in the weekly meeting and how to solve them, and we divide the work after the meeting discussion, as well as the progress. After meeting, we can solve most problems. In addition, we communicate through Wechat, which ensures that we can communicate in real time.

Our main communication is a weekly meeting. After the meeting, we communicate on the chat application, which has never changed.This has never changed. This method is also very effective，everyone knows what their task is. Even if someone wants to change something, others can make adjustments in real time.

From my experience in this project, the most important aspect of organising a project of this nature are communication and planning. Good communication ensures effective teamwork.A good plan will also help us complete the project. It avoids many problems that we could encounter. For example, according good plan, every team member can make their own timetable, it will not influence their own learning process.

My advice to the group is to make real-time adjustments to the timetable.In the initial timetable, there were many things that were not considered. For example, in the later period, everyone had more homework and each person's

time would be limited.Therefore, in order to better work in groups, the timetable must be changed in real time to ensure that the team work can be done well.

Zheshun Shi

We perfectly collaborate with each other in the current, led by our leader. Everyone knows what roles are going to play in their part. Particularly, three members do the writing report part, and the other three do the designing mobile application part. Also, we would do the difficult part together, and give some suggestions for teammates. Our group have partially divided our work step-by-step every week in Trello. Everyone would pick up the one they are interest in or advantage of. As for us, our teammates would take part in the tutorial class every week and discuss the problem we have during the week. To begin with, we work out the planned description together to give the clear whole outline. Explaining it to tutorial teacher see what we could further add some details to make it fully understand by other users. Secondly, we search out the website called proto.io to continuously further working, which could have worked out the basic function that come out with our mind.

The outcome of our project is to keeping track on personal expense and to remind user what's coming next and what they want to buy or do in the future. Currently, we already have some basic function such core features and extended features. In particular, we have home page, budget page, routine page, goals page, memo page and account page in core features. Besides, we have password page, SMS templates page and language page in extended features. However, it is not fullyoperational in the market to let users see the current spending change, which need to have some programming code to linking the function apparently. Also, we still have some font size colour editing.

As for the scope creep part, it is obvious that we have the scope of project changed, which is about the experienced "scope creep". For example, we have the language edition page such as Chinese, English and Spanish to ensure numbers of people joining our mobile application. What's more, we

have processed well our project relative to the timetable. And it doesn't have much change about the schedule.

As for tools and technologies, our group has google docs to write the report linking our members' project together. Precisely, everyone could edit the report in time and see what changes you currently have. Trello is about the technology that group members could do schedule daily or weekly about the project, which would let teammates see much obvious. in addition, proto.io is about the tools that can build and deploy prototypes of fully interactive mobile applications and simulate similar finished products, which could be convenient for quickly creating an interface.

Zongming Liu

I am so glad that I am in this great team. Every member in this team can do their part with high quality. We have a good communication in this team. Every member can accept other teammates' advice and help. In this team, I learn that the good communication is very important for a team to success. So, I always keep connect with teammates and can reply them as soon as possible. For communication, I think I worked very well. My team also did well in communication. We updated the status every week, so every teammate can check.

However, the high quality needs much time to support. We have changed the timetable many times. We always submit the assignment very hurry before the deadline. The time control in this team hasn't done very well. We need to improve this in the future. We need to improve the organization skill in the future.

If we embark on a similar project, I will advice that the communication and time control are the most important. These two things will lead the team to success. If we do them perfect at the beginning of the start. The team will be better.

Marketing Pitch

Our project Litab provides optimal financial management experience to users. Every person with money hope to make the most out of it. However, this is not always the case since we are not aware of the broad view of our spending. Litab is the application that provides the broad view in an easy way to enable users to control how they spend. We have already finished the whole product mock up and the prototype for major functions. We have met some problem with coding due to our limitation in abilities. However, this will not be a problem in the future since we personally will get better in skills and hopefully experts will join us to help develop this application.

Currently the application is able to achieve:

- Record spending

We have the interface for this function and we can show how the spending is recorded. We can show that the spending is distributed into different categories for easy view and management.

- Set budget

We have the interface for this function and we can show what settings we have for setting a budget. We will explain how it works to help managing spending for the given period.

- Set routine payments

We have the interface for this function and we can show what settings we have for setting routine payments. We will show how it works by deducting from the available budget for the period.

- Set goals

We have the interface for this function and we can show what setting we have for setting a goal. We will show how it helps users to save specific amount of money during the period.

- Take notes and reminders

We have the interface for this function and we can show how it works. It's kind of a traditional notepad with reminder function built in.

- Setup accounts

This is still a mock up. We can only demonstrate how it looks and describe how it functions.

- SMS Templates

This is still a mock up. We can only demonstrate how it looks and describe how it functions. Since we need permission from banks and users to be able to read text messages which include personal information, this function is not considered as a priority. We will implement it in future development.

More functions are under development to make the application even better.

One more thing to mention is that we decide to cooperate with banks if there is a chance. Most banks have their built in spend tracker, but user experience is not very good. If we can cooperate with banks that are interested in it, we well get a huge market to sell our product. This application benefits almost everyone and we are confident that it will succeed.

Skills and Jobs

-Technical Programmer

This is the person who takes charge of coding of the application.

For this position the person needs to be precise and excellent in regards of programming skills. We look at professional Java coders who is able to manage all possible issues. This person also needs to be familiar with Android and IOS platforms to make sure that the app is optimised for operation.

This person needs to have proper communication skills. Nothing could be done perfectly without interaction with workmates. Connections between programmer and other facilities highly influences the quality of the application.

This person needs to be good at time management. This is to make sure that the project is on track and avoid overload at certain times to avoid inconsistency.

This person needs to be creative in the way linking up all the functions to provide optimal user experience.

-UI Designer

This is the person who takes charge of the interface design of the application. This person needs to have proper skills in design software and visual design. Users will not welcome an app that looks ugly even if it's excellent in functions. A clean and simple interface is the way to boost usability.

This person needs to have proper communication skills. With proper communication with tester and application designer, he can achieve the best result.

This person needs to be good at time management. This is to make sure that the project is on track and avoid overload at certain times to avoid inconsistency.

Creativity is a must for this position. There will be no development if we are trapped in current way of thinking. A creative UI will make the application unique and excellent in its own way.

-Application Designer

This is the person who take charge of the broad view and functions of the application.

This person needs to be familiar with mobile devices and the way people use them. This person should be able to come up with ideas of new functions and how to connect them with the application.

This person needs to be great at teamwork and some proper leading skills. Communication with other facilities is significant since this person is affecting the way this project goes.

Time management is important since timetable of other facilities are affected by this person.

Creativity is a must to come up with ideas to make application even better. Leadership is also important to make sure that all facilities work well together.

-Application Tester

This is the person who take charge of testing the functions and report for any possible improvements on the functions.

This person needs to know what users may feel when using the application. He should know what most people want out of this application. Careful mind is a must for this position. Any small bug may destroy the whole application and cause issues.

This person needs to be great at communication and should be honest when reporting issues. Communication with programmer and UI Designer highly affects the quality of the application.