Course: Product Development

Bachelor of Information and Communication

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Mar 18, 2017

Group P3

**PRODUCT DEVELOPMENT FINAL REPORT**

– about summary of the product.

****

BACHELOR´S REPORT | ABSTRACT   
TURKU UNIVERSITY OF APPLIED SCIENCES

Total number of pages: 30

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Modern technology-based industries grow minute by minute. It is a good thing to learn about how this process is actually going, and we are now at the end of the introductory course for product development. This report focuses on four main points: 1) Summary of work carried out by team, 2) Report of the demo day, 3) Product development process and 4) Time-tracking of team members. Methods used are extracting our own records of events, such as members' individual works, demo day, etc., and some Internet-based research on issues raised by the resulted product as well, such as its intellectual property.

KEYWORDS:

Summary Work, Report, E-Market, product development, mobile app

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# List of Abbreviations (OR) Symbols

None

# INTRODUCTION

## **OVERVIEW**

This final report for the course Product Development included:

* Chapter 1: This introduction
* Chapter 2: Summary of the work carried out for our project and the timeframe of our work.
* Chapter 3: Report of the demo day for our group and evaluation of the other groups' demos.
* Chapter 4: Product Development Process.
* Chapter 5: Time-tracking of all the whole group and of each group member.
* Chapter 6: Conclusion

## **GENERAL CONTRIBUTION**

The abstract is written by Hieu.

Chapter 1 had been divided as follows:

* Phan Duc: contribute for this chapter.
* Do Hieu: contribute for this chapter.

Chapter 2 had been divided as follows:

* Hung: responsible for point 2.1
* Phan Duc: responsible for the rest, 2.2 and 2.3

Chapter 3 had been divided as follows:

* Phan Duc and Ajit: responsible for this chapter.

Chapter 4 had been divided as follows:

* Phan Duc: responsible for point 4.1
* Binh: responsible for point 4.2
* Ajit: responsible for point 4.3
* Hung: responsible for 4.4

Chapter 5 had been divided as follows:

* Duc: checking all the tracking and responsible for all items in this chapter.

Chapter 6 had been divided as follows:

* Duc: writing the conclusion of the report.

Especially, Binh has a role that is to design the format of the report. And Duc Phan verifies and corrects the mistakes of the whole of the report.

## **METHODOLOGY**

This report was done mainly by researching and analyzing through Internet resources, which has also been limited to Finland region where appropriated, because its content is related to the market where our product is intended to be used. There are parts in the report using our own records of members' contribution.

Also, all previous documentations will be used as our own material to create this final report.

# Summary of the work carried out for project and the timeframe

## **DESCRIPTION OF THE PRODUCT IDEA AND TARGET**

As college students, we understand the needs of saving money. The same can be said for working adults. Hence, buying second-hand items and hunting for discounts are good options.

There is already a Facebook group “Flea market Turku” for dealing with used items. However, there are many downsides with the group like uncategorized items, misinformation about the availability of the item, disappearance of the item due to large numbers of items etc.

Moreover, supermarket discounts cannot be known unless coming to the supermarkets or hearing about them through friends and acquaintances.

That is the reason we decided to develop this mobile app: to help students and working adults access the information mentioned above.

And there are the links [1](https://youtu.be/X5PO-GIY4Aw) and [2](https://youtu.be/mvwKUsvC4wU) to explain about our idea and target of the product.

## **DESCRIPTION OF PROJECT PLAN**

The project has been developing under Scrum methodology divided into 7 sprints. The section summarizes each sprint and its evaluation.

Table 1. Sprint 1 - Requirement Analysis

|  |  |
| --- | --- |
| *Description* | - To analyze the requirements for the app.  - To priority the importance of requirements. |
| *Total volume of work* | 1 man-month |
| *Leader* | Duc Phan |
| *Workers* | Duc Phan |
| *Progress* | All members participated in analyzing and prioritizing the requirements for the product.  There are many features could be included but the most important one is the products / items for customers. |
| *Achievement* | The most important requirements for the product is to allow users to select items and products from sellers and supermarkets in Turku city.  These features will be developed in the first version of the App. Other features could be considered in future development. |

Table 2. Sprint 2 - Design Wireframes

|  |  |
| --- | --- |
| *Description* | To design wireframes for the App |
| *Total volume of work* | 1 man-month |
| *Leader* | Duc Phan |
| *Workers* | Duc Phan |
| *Progress* | Basic wireframes had been designed for the first version. |
| *Achievement* | The wireframes were simple but they reflected all key features of the app. |

Table 3. Sprint 3 - Design Layout

|  |  |
| --- | --- |
| *Description* | To design layouts for the wireframes |
| *Total volume of work* | 1 man-month |
| *Leader* | Duc Phan |
| *Worker* | Duc Phan |
| *Progress* | All layouts had been designed based on wireframes. |
| *Achievement* | The layouts gave a better visualization for the developer can implement the app. |

Table 4. Sprint 4 - Develop Prototypes

|  |  |
| --- | --- |
| *Description* | To develop the prototypes (front-end) of the app without back-end functions |
| *Total volume of work* | 1 man-month |
| *Leader* | Duc Phan |
| *Workers* | Duc Phan |
| *Progress* | Based on the layouts, prototypes had been developed in two platforms: Android and maybe IOS. |
| *Achievement* | The prototypes also had some differences with the design, but they had enough for main-features. |

Table 5. Sprint 5 - Develop Features

|  |  |
| --- | --- |
| *Description* | To develop the features for the app, making it becomes functional |
| *Total volume of work* | 1 man-month |
| *Leader* | Duc Phan |
| *Workers* | Duc Phan |
| *Progress* | Some basic features had been developed in a platform: Android. |
| *Achievement* | Unfortunately, not all features were finished because there is only one developer.  Features for end-users were done, such as selecting options and viewing the products from sellers and supermarkets.  However, there are many other features in the background need to be implemented before the release, such as auto-collecting data and put database to server with APIs. |

Table 6. Sprint 6 - Deploy and Commercialize

|  |  |
| --- | --- |
| *Description* | * To release the App to the Google store and everyone can download and use. * To publish the app for all over the world. |
| *Total volume of work* | 1 man-month |
| *Leader* | Duc Phan |
| *Workers* | Duc Phan |
| *Progress* | Completed. |
| *Achievement* | Done. |

Table 7. Sprint 7 - Report and Documentation

|  |  |
| --- | --- |
| *Description* | Technical document, Marketing report, Final report, and user guide |
| *Total volume of work* | 0.25 man-month |
| *Leader* | Duc Phan |
| *Workers* | All members |
| *Progress* | Reports, video advertisement had been distributed for each member to make. |
| *Achievement* | Most the documents had been received good evaluations from the teachers and tutors of the course. |

## **EVALUATION OF PROGRESS AND GOALS**

The scale and target of the project are suitable for the Product Development course. However, most of the group’s members have no experience in programming, so the development process had been slowed down.

Fortunately, the leader who is also the developer had found a company with named Choose Your Future which is interested in mobile app development. This gives the E-Market App an opportunity to be developed and integrated with that company’s product in the future.

# REPORT OF THE DEMO DAY AND EVALUATION OF THE OTHER GROUP’S DEMOS

## **OVERVIEW**

Demo of the groups product was held on 11th May in ICT building starting at 8:15 am. Our group have agreed to give a combine presentation and exhibition with group P2. Combine presentation gave a new idea of creating combine mobile application.

## **PRESENTATION**

Final group's product was presented successfully combining with product of group P2 with the [slide](https://docs.google.com/presentation/d/1rMigLArG-qrl9FNDfjPqgancnEq4VMk0NZdvUMiOgdI/edit#slide=id.p4) of Powerpoint Microsoft tool. The feature and advantage of E-Market application was explained well with demo video clips. An idea of creating combine mobile application called My Mobile Tutor app together with local company was demonstrated with the product of group P2. My Mobile Tutor app is combine application for people of Turku which almost covers the local needs like searching restaurants, bus route, product of nearest store, second hand items deal etc.

## **EXHIBITION**

Aim of the exhibition was to introduce the final product of the group to the judges, students, parents and interested people in TUAS. Exhibition was carried out well. Explanation of the product to the judges was done nicely. Some students and parents have also visited our groups exhibition. Some judges gave nice response to the combine product My Mobile Tutor app.

## **EVALUATION**

Along with our product demonstration, we have evaluated the product of other groups. Every group had come with the different ideas but we found some of them are better than others.

Table 8. Detailed evaluation about the others group product.

|  |  |  |  |
| --- | --- | --- | --- |
| **Group name** | **Product and Idea.** | **Final product** | **Remarks** |
| E4 | Hour Deal:  This is an app which helps to notify the sales or discount offer of the nearest store to the users. | Final product seemed to be functioning nicely. | Idea of the product is nice. Beneficial to every people. |
| P2 | Ilukkari:  A mobile application which ease to see and manage timetable schedule of TUAS. Aimed to replace existing timetable schedule Lukkari of TUAS. | Final version of the application was functioning smoothly with some demo. | Great timetable management app for the teachers, students and staffs of TUAS. |
| D1 | WIP:  WIP (Where Is the Party) is a mobile application which shows the nearest party event, location and time period to the users. | Final product seemed to be functioning nicely. | Great idea and application for the party loving people. Not useful to everyone. |

# PRODUCT DEVELOPMENT PROCESS

## **DESCRIPTION OF HOW THE PROCESS CAN BE CONTINUED IN THE FUTURE**

Unfortunately, there are many features of the app have not been done. However, the Choose your future company has planned to develop the big App with named Mobile Mentor with the fund over 8000 euro from University of Turku combined E-market and iLukkari app of group P2. Therefore, we continue to develop the E-market and of course the Mobile mentor in the future.

## **COMPETITOR ANALYSIS**

### **Methodology**

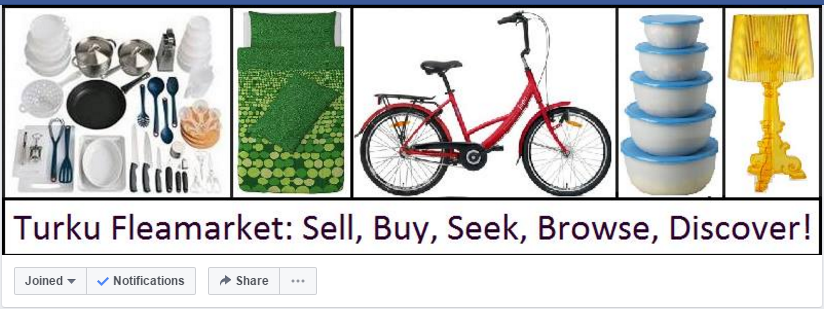
This competitor analysis has been conducted by finding if there are any products that provided the same services as our product does on the market.

Furthermore, if there are any companies that may launch similar products in near future that will compete ours.

### **Results**

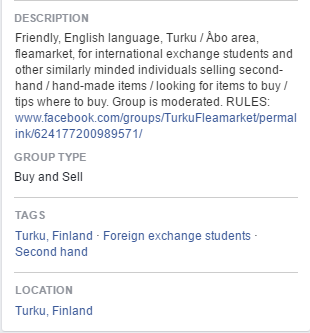
By using internet, there are products with the similar services.

The only substitute product is the original Facebook group Flea Market Turku. This group can be accessed by the link:  [www.facebook.com/groups/TurkuFleamarket/](https://www.facebook.com/groups/TurkuFleamarket/?ref=group_cover)



Picture 1. Flea market Group on Facebook

This is a closed group with 9083 members (recently join 18 persons). The group itself have been moderated with clear description and has a rule to operate.



Picture 2. Description of Flea Market Group on Facebook

### **Analysis**

Table 9. Comparison between our product and competitors'

|  |  |  |
| --- | --- | --- |
| Aspects | Our product | Competitor’s product |
| Price | Free for trial/ Pay for more features | Free with features provided by Facebook |
| Quality | Good | Good |
| Image/Style | Excellent with UI designed | Depended on users |
| Value | Good | Good |
| Name Recognition | Easy | Depended on users, but mostly hard |
| Service | Provided by professional admin and staffs | Monitoring by some users that work for free |
| Convenience | Excellent due to it is a phone app | Easy to access due to it is based on Facebook |

## **IPR ANALYSIS**

### **Overview**

IPR (Intellectual Property Rights) is the legal way to protect one’s creative work and helps to manage and commercialize the result of development work. IPR owner have a right to deny other to use as well as to grant a license to utilize the object of the rights. In Finland, the Ministry of Education and Culture deals with matters relating to copyright issues related to IPR. (Finnish Patent and Registration Office 2017)

To avoid the copyright issues, we have conducted IPR/Patent research as below.

### **Methodology**

Patent database searches has been conducted in Espacenet using key word 'mobile application' limiting the region Finland only. 6492 references have been found in the database where only the first 500 references were checked. (Espace net 2016)

### **Finding**

Out of first 500 patent databases, not even a single application mainly featured as E-Market mobile application have been found as patented but there is an application whose main feature is similar to secondary feature of E-Market I.e. providing the product detail of nearby stores. (NAKKA CHINNI 2016)

Since, none of the product like ours has been found as patented, we conducted another research to find out what could be the challenges and opportunities for our product in local area in Turku region. We have found two website tori.fi and turunekotori.fi, excluding Flea market group in Facebook, which sells secondhand items in Turku region.

### **Challenges**

E-Market mobile application was developed to replace Flea market Group of Facebook in Turku but meanwhile, it has to compete with other two websites. Main possible challenges we received from these websites are their content which are similar to E-Market's content and also available in Finnish language. Some of them also have home delivery service which is next challenge to our product.

### **Opportunities**

Though our product seems to face some challenges, it has got some opportunities too. We have searched some items in two websites and in Facebook group and found that the price of similar items, excluding delivery charge, in websites are comparatively higher than in Flea market group on Facebook. This shows that contacting directly to the seller would be more beneficial than contacting third parties. None of these have a notification feature and items can't be searched per categories in Facebook group. Hence, it is quite possible that E-Market application gets market in local area in Turku.

## **CERTIFICATION TEST STUDY**

### **Quality**

* *Power consumption:* our application has little to no power consumption.
* *Mobile data consumption:* since our application is only the prototype using static database, we cannot test mobile data consumption effectively

### **Safety**

* *Vulnerability to exploits:* none of them has been exploited yet.

### **Acceptance and Combability**

* Cross-platform availability: only available on Android.
* Future supported platform: iOS

### **Certification Tests Table**

Table 10. Certification Tests

|  |  |
| --- | --- |
| * **Certification Tests** | **P3 App** |
| **Visual design and User interaction** | |
| *Standard design* | |
| The app does not redefine the expected function of a system icon (such as the Back button) | ✓ |
| The app does not replace a system icon with a completely different icon if it triggers the standard UI behavior | ✓ |
| If the app provides a customized version of a standard system icon, the icon strongly resembles the system icon and triggers the standard system behavior | ✓ |
| The app does not redefine or misuse Android UI patterns, such that icons or behaviors could be misleading or confusing to users | ✓ |
| *Notification* | |
| *Android design guidelines* | |
| Multiple notifications are stacked into a single notification object, where possible | - |
| Notifications are persistent only if related to ongoing events (such as music playback or a phone call) | - |
| Notifications do not contain advertising or content unrelated to the core function of the app, unless the user has opted in | - |
| *Purpose* | |
| Indicate a change in context relating to the user personally (such as an incoming message) | - |
| Expose information/controls relating to an ongoing event (such as music playback or a phone call) | - |
| **Functionality** | |
| *Permissions* | |
| The app requests only the absolute minimum permissions that it needs to support core functionality | ✓ |
| The app does not request permissions to access sensitive data (such as Contacts or the System Log) or services that can cost the user money (such as the Dialer or SMS), unless related to a core capability of the app | ✓ |
| *Install location* | |
| The app functions normally when installed on SD card (if supported by app) | - |
| Supporting installation to SD card is recommended for most large apps (10MB+) | - |
| *UI and graphics* | |
| The app supports both landscape and portrait orientations | 🗶 |
| The app uses the whole screen in both orientations and does not letterbox to account for orientation changes | 🗶 |
| The app correctly handles rapid transitions between display orientations without rendering problems | 🗶 |
| *User/app state* | |
| The app should not leave any services running when the app is in the background, unless related to a core capability of the app | ✓ |
| The app correctly preserves and restores user or app state | ✓ |
| **Compatibility, performance and stability** | |
| *Stability* | |
| The app does not crash, force close, freeze, or otherwise function abnormally on any targeted device | 🗶 |
| *Performance* | |
| The app loads quickly or provides onscreen feedback to the user (a progress indicator or similar cue) if the app takes longer than two seconds to load | ✓ |
| *Visual quality* | |
| The app displays graphics, text, images, and other UI elements without noticeable distortion, blurring, or pixelate | ✓ |
| The app displays text and text blocks in an acceptable manner | ✓ |
| *Security* | |
| All private data is stored in the app's internal storage | ✓ |
| All data from external storage is verified before being accessed | ✓ |

# TIME TRACKING

## **OVERVIEW**

The tracking has been updated weekly by Hong-Duc PHAN.

There is a time-tracking to track the attending time of each member at classes and group’s meeting. There is also a task-tracking, as the group is using Scrum method. This tools is used to organize and track member’s tasks.

In this report, task-tracking will be converted into hours for an easier working estimation.

The detail of time-tracking is in [management tracking group P3](https://docs.google.com/spreadsheets/d/1Idqfa1zzJ-mvxfGf1Ii1rnNn6FoGup1ZmObEtyu9wOc/edit#gid=1427661944) and [product development tracking group P3](https://docs.google.com/spreadsheets/d/1xFDtmb8pC8fgtsbjlG7l_g2BNOTadi4KOL79hNNDHqg/edit#gid=613799606) and [attention in class](https://docs.google.com/spreadsheets/d/1oHAaVROnAXa8OnSMMYU4FelqxfzuwL-FnQgs3w1YQfQ/edit?pli=1#gid=1263287449) task-tracking is in this [link](https://p3prodev.myjetbrains.com/youtrack/reports/issueDistribution/98-43) and [link](https://p3prodev.myjetbrains.com/youtrack/reports/issueDistribution/98-44). If you have problem accessing those links, please contact [duc.phan@edu.turkuamk.fi](mailto:duc.phan@edu.turkuamk.fi).

## **GROUP P3**

The Time tracking shows about 93:50 hours working at school of the group P3 for one member can attend in classes , including theory classes and group’s meetings.

On the management tracking, it shows about 320 hours working for spending of the course.

The development tracking shows 428 hours for building the product of the Product development course.

## **MEMBERS TRACKING**

### **Time Tracking**

The table below shows the summary of [attending time](https://docs.google.com/spreadsheets/d/1oHAaVROnAXa8OnSMMYU4FelqxfzuwL-FnQgs3w1YQfQ/edit?pli=1#gid=1263287449) of each member. Duc Phan was the most active member because he had done extra works and was not absent at school.

Table 11. Time Tracking at school

|  |  |  |  |
| --- | --- | --- | --- |
| Member | Total time(hours) | The absent times  (per day) | Role |
| Duc Phan | 93:50 | 0 | Project manager / Leader |
| Binh Tran Trinh | 85:50 | 3 | Member |
| Hieu Quang Do | 55:20 | 12 | Member |
| Hung X. Hung | 85:50 | 3 | Member |
| Ajit | 86:20 | 2 | Secretary |

### **Management Tracking**

Table 12 is generated by [YouTrack tool](https://p3prodev.myjetbrains.com/youtrack/reports/issueDistribution/98-43), showing [the number of tasks of each members](https://docs.google.com/spreadsheets/d/1Idqfa1zzJ-mvxfGf1Ii1rnNn6FoGup1ZmObEtyu9wOc/edit#gid=1427661944). All the tasks are assigned to a specific time label to show the amount of time a task could take. Therefore, the hours of working can be calculated as Table 13.

Table 12. Member's management task tracking

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Time Lebel | Hung Nguyen | Binh Trinh | Ajit | Duc Phan | Hieu Do | Time(hours) |
| 1h | 42 | 36 | 36 | 28 | 25 | 1 |
| 4h | 2 | 1 | 4 | 4 | 2 | 4 |
| 2h | 1 | 3 | 0 | 3 | 0 | 2 |
| 3h | 0 | 4 | 1 | 2 | 0 | 3 |
| 5h | 1 | 1 | 0 | 1 | 2 | 5 |
| 7h | 1 | 1 | 0 | 0 | 1 | 7 |
| 6h | 1 | 0 | 0 | 1 | 0 | 6 |
| 8h | 0 | 0 | 0 | 1 | 0 | 8 |

Table 13. Members' management tracking in hours

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Hung Nguyen | Binh Trinh | Ajit | Duc Phan | Hieu Do |
|  | 42 | 36 | 36 | 28 | 25 |
|  | 8 | 4 | 16 | 16 | 8 |
|  | 2 | 6 | 0 | 6 | 0 |
|  | 0 | 12 | 3 | 6 | 0 |
|  | 5 | 5 | 0 | 5 | 10 |
|  | 7 | 7 | 0 | 0 | 7 |
|  | 6 | 0 | 0 | 6 | 0 |
|  | 0 | 0 | 0 | 8 | 0 |
| **SUM(hours)** | **70** | **70** | **55** | **75** | **50** |

### **Development Tracking**

Table 14 shows the development task tracking using the [Youtrack tool](https://p3prodev.myjetbrains.com/youtrack/reports/issueDistribution/98-44?presentation=MATRIX). There are [the huge tasks](https://docs.google.com/spreadsheets/d/1xFDtmb8pC8fgtsbjlG7l_g2BNOTadi4KOL79hNNDHqg/edit#gid=613799606) had been done by Duc Phan as the Table 15.

Table 14. Product Development Tracking using [Youtrack tool](https://p3prodev.myjetbrains.com/youtrack/reports/issueDistribution/98-44?presentation=MATRIX).

|  |  |  |
| --- | --- | --- |
| Time table | Duc Phan | Time (hours) |
| 6h | 2 | 6 |
| 8h | 2 | 8 |
| 12h | 2 | 12 |
| 10h | 1 | 10 |
| 16h | 1 | 16 |
| 1day16h | 1 | 40 |
| 2day12h | 1 | 60 |
| 4day4h | 1 | 100 |
| 6day6h | 1 | 150 |

Table 15. Product Development Tracking per hours

|  |  |
| --- | --- |
|  | Duc Phan |
|  | 12 |
|  | 16 |
|  | 24 |
|  | 10 |
|  | 16 |
|  | 40 |
|  | 60 |
|  | 100 |
|  | 150 |
| **Sum (hours)** | **428** |

Since other members are junior students, Duc Phan is the only developer who worked on developing the product. He also worked with an outside company, developed two products. The tracking assumed that each day has 4 hours and there are 5 days a week. But the developer had to work on weekends also. The tracking detail is in [this YouTrack report](https://p3prodev.myjetbrains.com/youtrack/reports/issueDistribution/98-44?presentation=MATRIX).

### **Tracking Summary**

The summary of the whole of the tracking for contribution above is as Table 16.

Table 16. Time tracking summary for contribution.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Duc Phan | Binh Trinh | Hung Nguyen | Ajit | Do Hieu |
| Management | 75 | 70 | 70 | 55 | 50 |
| Development | 428 | 0 | 0 | 0 | 0 |
| Total(hours) | 503 | 70 | 70 | 55 | 50 |
| Percentage | 67.24% | 9.35% | 9.35% | 7.35% | 6.68% |

The summary of the whole of the attention time above is as Table 17.

Table 17. Time track for the whole of the course.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Duc Phan | Binh Trinh | Hung Nguyen | Ajit | Do Hieu |
| Management | 75 | 70 | 70 | 55 | 50 |
| Development | 428 | 0 | 0 | 0 | 0 |
| Attention Time in class | 93:50 | 85:50 | 85:50 | 86:20 | 55:20 |
| Total(hours) | 596hours 50 minutes | 155hours 50 minutes | 155hours 50 minutes | 141hours 20 minutes | 105hours 20 minutes |

To sum up, according the table 17, Group P3 spent to total up to 1155 hours and 10 minutes for the course with the huge tasks assigned. As the table 16, Duc Phan took a significant amount of work during three months, required document-knowledge such as Project Plan, Research Market and Technical document and Duc Phan is the only developer who worked on developing the product. He also has worked with an outside Company with named Choose your Future, developed the E-Market and Mobile Mentor App. Therefore, Duc Phan is the only member who has enough skills to plan, initialize and summarize those technical related works on the course.

# Conclusion

The Product Development course has given students a general knowledge about making a product. It is necessary for students to have a concept before they work on the workplaces in the future.

However, there are many students are first-year students and they lack technical skills to build products from ideas. For example, there is only one developer in Group P3 is able to develop mobile app. The same situation also happened with Group P1, P2, D1 and maybe other groups, making the leaders to find difficult to develop the products.

Confliction and disagreement sometimes happened between members causing difficulties for the leader. There is no management method which can satisfy all the members’ claims. **But result can reflect the efficiency of the teamwork.**

However, during the course, the Group P3 was able to give a good idea and implement it with only 5 members, less than other groups about the number of members, due to the guide of teachers and Tutors. The prototype of the product was completed, and many weekly tasks of the group have received positive feedback from teachers. It means the Group P3 have worked smoothly, hard and been managed in a reasonable way.

Finally, we sincerely thank all the teachers who have helped us so much to successfully complete this course.

# References

FINNISH PATENT AND REGISTRATION OFFICE, 12-01-, 2017-last update, IPR. Available: <https://www.prh.fi/en/information_and_services/ipr_information_for_smes.html>.

ESPACE NET, 06.22., 2016-last update, Patent search. Available: <https://fi.espacenet.com/searchResults?submitted=true&locale=fi_FI&DB=EPODOC&ST=advanced&TI=mobile+application&AB=&PN=&AP=&PR=&PD=&PA=&IN=&CPC=&IC=>.

NAKKA CHINNI, E.N., 06.22., 2016-last update, Identification: AU2017100052 (A4) - 02/03/2017. Available: <https://fi.espacenet.com/publicationDetails/biblio?DB=EPODOC&II=66&ND=3&adjacent=true&locale=fi_FI&FT=D&date=20170302&CC=AU&NR=2017100052A4&KC=A4>.

Heading of appendix

None

Heading of appendix

None