

CS487-CS488 Software Engineering Capstone
Individual Reflective Report

Project Solomo

Advanced Program in Computer Science

Submitted by

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Abstract

SoLoMo is a full-featured social network that not only provide a playground for normal users who are interested in commercial deals but also an advertising platform for local stores who are finding an efficient way to promote their products. SoLoMo consists of complicated multi-platform applications that perfectly satisfy the demands of different kinds of user. The project aims for a better way for customers get the promotions information as quick as possible by using social network strength in spreading information.

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Chapter 1

Introduction

1.1 The team

Our team comprises of 5 members:

- Nguyen Tran Phuong Nguyen
- Nguyen Quang Minh
- Nguyen Dinh Duy
- Nguyen Nhat Tien
- Duong Gia Tuan
- Nguyen Trong Tin

1.2 The project

Our project is SoLoMo - a Social, Location, Mobile platform for sharing and promoting shopping deals.

1.3 How this report organizes

In Chapter 2, we evaluate the project in general, compare the initial project proposal to what we have accomplished.

Chapter 3 gives a better view on the team, examine each of them and their roles, their performance throughout the project

Chapter 4 demonstrates the technologies and theories that we applied in the project, examine their effectiveness.

After Chapter 3 shows a general position of me in the team, Chapter 5 focus more on the personal development.

In the conclusion in Chapter 6, a general evaluation is made. At the same time shows a peek in future possible work with this project.

Chapter 2

Project Evaluation

2.1 General evaluation

Below is a list of features that we previously outlined in the original project feature list [1] and its status of being completed.

- Get data from popular source like Brands websites - YES
- Comparing several data to get lowest price of a product - NO
- Owner: Create store, manage, update business information, upload photo into a store - YES
- Users: Report to system administrator about store information - YES
- Sponsored Brand - YES
- Verification - YES
- Brand tracking: How the posts performance - YES
- Post statistic - YES
- Take photo and share promotions info - YES
- Comment and rating promotions - YES
- Newsfeed: frequently updated list of promotions shared by users that you follow - YES
- Physical distance from promotion business store to user current location - YES

- Notification about subscribed brands - YES
- Friend/Follow - YES
- Report - YES
- Interested - YES
- Send and receive message - NO
- Create/Manage user profile - YES
- Sharing privacy - YES
- Use social profile (Facebook, Google Plus, Instagram,...) to log in and maintain the connections - YES
- A search feature, based on:
 - Nearby location - YES
 - Interested categories like food, clothings, home and tech, health services - YES
 - Most popular - NO
 - Trending - NO
- Hashtags - YES
- Categorized promotion - YES

2.2 Project significance

The project also aims for higher trust from customers by using the system of brands, which post their own promotion information after being verified. This way, the customers not only get the information from their friends, their network, but also from the brands themselves. This project focus on location-based search to improve the user experience and be a better way to search for promotion from specific location. In the long run, the project can become a very effective tool for brands to improve marketing performance with low cost.

Chapter 3

Team Evaluation

3.1 Nguyen Tran Phuong Nguyen

Mrs. Nguyen is the team leader and project manager. She also took part in some designing phases such as application logo and UI polishing.

As a team leader, she took responsibility to contact and set up meetings with the client, Mr. Ho Ngoc Lam, and the advisor, Mr. Lam Quang Vu. The project required constant feedback from the client and report to the advisor, therefore Mrs. Nguyen's job could not be taken lightly. Generally, she had done a good job being a leader to keep the team together and an agent to transfer messages between the 3 parties in this project: the team, the client, and advisor.

As a project manager, being familiar with the SRUM software development method, Mrs. Nguyen set up sprints and milestones for the team to look up on. Tasks were broken down into smaller ones and distributed evenly to every member based on the number of hours committed per week. She made sure that progress is frequently updated within less than a week. If there were any issue, she noted down and contact with Mr. Lam Ho for feedback.

Despite taking two roles at a time, Mrs. Nguyen exhibited an outstanding performance that contributed a lot to the team final achievement.

3.2 Nguyen Quang Minh

Mr. Minh is the technical lead of this project, he took care of the back-end development and proposed some ideas for the front-end solutions. Mainly,

Mr. Minh focused on creating server side application, database and many other small services that amazingly worked together as a whole.

Throughout the project, Mr. Minh has shown an excellent display of performance, with his broad experience in technical background, he quickly point the development team to the right direction. It's very fortunate to have someone reliable with software development technologies, as it was prone to make the incorrect technical choices and waste time, while the project timeline is quite strict. At first, it was solitude that the Ionic framework would be used. On the back-end, Mr. Minh suggest Ruby-on-Rails would be the right way to go, whereas me and Mr. Tien prefer NodeJS. Mr. Minh then went on and discuss the good and bad points of each solutions very clearly, therefore, we decided to went for his propose. Later, in the development phase of the project, it appeared that Ruby-on-Rails did ease down the amount of work for this massive project, NodeJS would have created chaos that we couldn't control. There are many other situations where Mr. Minh stood out to propose a reasonable solution that help the team a lot.

In my general opinion, Mr. Minh is well-deserved an acknowledgement for his effort in this course.

3.3 Tran Dinh Duy

Mr. Duy took charge on the grapghic designing in general. Graphical designing requires a lot of effort to deliver a suitable solution for the application user interface. However, Mr. Duy utilize his experience in this field and complete his tasks well.

Our client, Mr. Lam Ho, has a slightly focus on the graphical interface and user experience. Luckily, Mr. Duy has been working in the industry for a long enough time, thanks to him we were able to adapt to those requirements. In the development process, Mr. Duy has frequently complete complex designing tasks that have a lot of strict guidelines. Although, graphical interface is widely varied from projects to projects, he willingly researched into the category of our mobile application.

I highly evaluate Mr. Duy professional abilities and his work ethic that demonstrate the effort he put in this project.

3.4 Nguyen Nhat Tien

Mr. Tien sided with me to develop the mobile application based on the Ionic framework. In this project, the mobile application is our concentration, it's very important that a stable, working version is produced. Therefore, Mr. Tien and I put a lot of effort in the process, from the beginning to the end.

Mr. Tien has performed very well throughout the project. He completed tasks on time, report progress every time a feature was online or an issue came up. He is a decent engineer with strong ground basic skill in web development, which is a majority of this project.

3.5 Duong Gia Tuan

Mr. Tuan took the role as an application tester for the team. Report any bugs and errors to the development team on time. He also put effort in preparing reports and documents for the project.

Throughout 6 months of project timeline, Mr. Tuan has shown a constant enthusiasm for the project, although he lacks skill in both programming and designing. He shown up in most of weekly meetings and put up a professional attitude to the client and the advisor.

3.6 Nguyen Trong Tin

I was responsible for the mobile application development and the programming, setting up of data crawler. My work and self-evaluation is examined closer at Chapter 4 - Personal Development.

Chapter 4

Theory and Practice

4.1 Technology

4.1.1 Ionic framework

There is an ongoing trend of using hybrid framework to develop mobile application. The most popular choice is Ionic [2], a framework that utilizes web technologies to help develop mobile apps faster and easier than traditional native code.

Adapt the trend, with the support from Mr. Lam Ho, we pick up Ionic as the solution for our mobile app. Fortunately, we have developers familiar with the framework, so setting up the working environment is fast and efficient. As the project went on, it became apparent that there were trade-offs between convenience and performance. The framework uses Javascript as its programming language, then produce what we code into a html site. To transform that website into a mobile application, the framework has to host a webserver on the phone and display that web view. Such many work-arounds lessen the application performance a lot. On the other hand, programming in Javascript is a huge plus, as it boosts the iteration speed in development phases. With the fact that our team lacks experience in native code programming, Ionic is a still a right choice despite performance issues. Accepting that, we focus on refining our Javascript code to minimize the leaks that might cause performance drops. In general, the decision of choosing Ionic over native code is reasonable in our situation.

4.1.2 Ruby on Rails

Rails [4] is a web framework that based on Ruby. After much discussion, we chose Rails as our solution for back-end services. Mr. Minh is responsible for the server side application, where many works has to be done simultaneously. We have register, login module, database access, accept and response HTTP API, etc. Those big services wouldn't be done smoothly with minial effort if we chose another technology for the job. In my perspective, Rails has done a great job lighten up the burden in technical feature. It's apparently that the logic programming that one has to write is massive. However, with the support from Rails, its nature of the framework that help us reuse the work from third-parties package, we did accomplish the task.

4.2 Software development methodology

We adopt the SCRUM methodology for the development process. We think this methodology is extremely appropriate for Solomo because of its flexibility so that we could change the development process quickly to keep up with the unexpect requirement changes. Using Agile method give us opportunity for UI/UX refinement, test APIs and fix bugs efficiently. This kind of methodology also helps us to test various technology and adjust different software environment platforms for Solomo to operate optimally. But honestly, we did not adopted and did not carry out the full SCRUM model, our method seems quite naive and not carefully organized so the SCRUM method does not give us its full strength and capacity. This imperfection leads to poor performance of our team. First, in each sprint we did not have a sprint backlog and also an announcement from project manager so some team members do not know the a new sprint has started. Second, we did not have sprint review to know what we have done and what should be done next and to have a whole big picture of our project. These two mistakes takes us a lot of time to coordinate our operation and decrease team member cooperation and productivity. We use facebook group chat as our main tool for team communication and also task assignment but it turns out to be far less effective than specialized tool like Slack!. We have youtrack as our project management system but this tool is not well designed and is not appropriate for big project and agile method like scrum, more appropriate tools should be MS Project or Trello. The failure to get all team member keep up with the current status of the project and development process decrease each team member performance and contribution to the srpint.

Chapter 5

Personal Development

5.1 Self-evaluation

5.1.1 My role and impact

In the team, I act as a software developer that responsible for the front-end mobile development. I mainly focus on the technical side of the project.

As the project went on, I've put a lot of effort in the development of the application. It's because that my performance affects a lot on the project result where stable version of the mobile application must be present. There many areas that would be malfunctioned or incomplete without me.

I am also responsible for programming and set up of the crawler that pulls data everyday to our mobile application. It's obvious that without the data stream, the app would have nothing to present to the user and become useless. Besides, setting a crawler requires serious work as well. Using of resources and exception handling must be taken care.

In the development of mobile application, I personally involve in alot of programming tasks that shape the current version of our app. There are many complex features that I invest a lot of hours in to make it plausible.

- Infinite loading of feeds
- Map navigation
- Analytics
- Capturing images

5.1.2 Personal and professional growth

There are some positive changes that I have after finishing the project, both in technical and non-technical areas.

In the beginning of the project, there is a requirement that I have to be able to set up crawler for our application data. At the time I have no prior experience working with a crawler, therefore, I conduct a research into this field. After going online and study many crawling technologies, I decide to pick up Scrapy [3], a crawler written in Python. I used Scrapy to set up our crawler for the application. After complete the project, I now familiar with the technology and would be confident with any requirement in crawling services in the future.

Although I am purely a technical engineer, I also realize that I've acquired a useful skill from the project that is non-technical. As a programmer, I focus only on my code of performance, but when working in team, there are many other things to keep in mind. One of them is to be commitment. The project is not only for me but also for my team. Without commitment, the engineer wouldn't put his heart into his work and end up letting teammates down.

In the future, there are apparently a lot more things I have to learn. But through this project, I realized that the skillset I have is not enough to work in the industry. Therefore, I will put my focus on improving my expertise in engineering.

5.2 Team evaluation

In general, all member of my team did an excellent job finishing this project, which is huge in its own terms. There are some lags here and there in the duration of the project. Where we communicate the the client and advisor poorly. Especially at the middle of the project timeline, there is a distraction among team members. The team is disconnected and everyone end up doing their tasks and report. Aware of the situation, we held more offline meetings and work together. This really boosts the team motivation and concentration.

My experience working with the team is great. I communicate with the team frequently if there are any issue and willing to help other if they ran into problems.

Chapter 6

Conclusion

The working process with client in this project provides the team members with practical experience. At the end of this course, although our product is still far from perfect since the mobile application is not running very smoothly and efficiently, the team has created a really strong technical base with well-categorized and modular structure which is perfectly fit for future massive scales. The final product can handle a small to medium set of users (1k - 10k users). Although, these numbers are not really impressive comparing to other social network system, it is enough to validate the product market fit without putting too many effort in technical side. Thanks to the modular structure, we can replace all components individually, even the core of the system with faster technical stacks without worry about the compatibility of the new system in the next stage of the product.

References

- [1] SoLoMo project feature list, <https://docs.google.com/document/d/1F1Z3NxaUI7RV06QqhNQjzWVVRObVNL10APN4IR2P5I0/edit>
- [2] Ionic framework, <http://ionicframework.com/>
- [3] Scrapy, <http://scrapy.org/>
- [4] Rails, <http://rubyonrails.org/>