Atech Computers

Project Closeout Report

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# Project management

**1.1 Personnel**

The first trouble of the team came when trying to form a group. It happened to the team leader that project students available for this trimester was quite limited. Only one local student from BIT was to do the project, and 90% of international students were Indians who knew each other and grouped themselves well. There was once a time that he decided to do the project himself.

Weltec project encourages practice of project management and team working. A group of only one person is not recommended by the coordinator. The team leader posted on the forum to recruit more members but no one answered and he was still alone after the academic commencement. However, right after he finished the proposal and was ready to proceed to the next phase, an unexpected new member was introduced to the team. The two members with different skill sets and project background recognitions started their work. Cooperation between such two guys was really a challenge to them. How they would eliminate the misunderstanding and perform with the highest proficiency determined the the success of the project. We knew exactly it was what the coordinator was looking forward to. He intentionally made us into such situations and saw us find a way out.

**1.1.1 Background**

We come from different countries, have grown up under different cultures and believe in different life philosophies. But we do not think that kind of difference of views of world has ever affected our cooperation negatively. Instead, we have different expectations of what to gain from the project. The team leader worked for IT companies for a couple of years, and he know how IT projects are running, the pressure from outside, the methodology, and things like that. He and the adviser are both hoping him to get a quite high mark from the course. But the other member owns a different concept of IT projects. At the beginning, he was mentally against what were planned for management, like meetings, agendas, documents. It made him reluctant to finish the work assigned to him.

**1.1.2 Skill Set**

Actually both of us lack the skills exactly suitable for this project. The team leader was once an Android developer, with only no more than half years’ Java Struts experience. The other is even a networking student rather than a programmer. None of us had the skill to build a web server from the beginning. We know that a lot of techniques are involved on the way to a successful web server and it requires years of experience to achieve that. But the fact is we have to complete such kind of a system within three months, let alone more than one month’s research time.

There was no way out but to get the ball rolling at the moment. Originally, the leader already had some idea from the client and spent about two months before the trimester started researching the possibility to utilize Angular plus Strongloop as the project framework. Although we did not use that combination later in the project, it helped him a lot get familiar in advance with the JavaScript language and the best practice in industry. It guided him step by step to the ReactionCommerce platform which was employed as the starting point of the project.

During the research period, we came across many fresh new concepts, like Meteor, MongoDB, ECMAScript 2016, Node.js, AWS, and Docker, which are quite important and popular in JS-based application development field. We are still in studying stage of those concepts but we feel optimistic to continue similar projects in the future.

**1.1.3 Working Time**

We are supposed to spend 435 hours for this project before the academic deadline, and according to our progress report, we will certainly achieve that goal.

But still we had problem. Vineet has two jobs, and his hours available for this project are quite different from normal students. The team working time is only possible from 2pm to 5pm on weekdays. Considering this, we set up this time mandatory for working together. It turns out that this decision is pretty wise and we gained much benefit from it, although it was not kept strictly. We have heard from other teams that their members met with each other only in team meetings twice a week. It was hard for them to proceed smoothly and they often got stuck because someone suddenly disappeared for a short time exactly when some information had to be synchronized. In this aspect, we are proud of ourselves to have continuous face-to-face communication.

**1.2 Planning**

**1.2.1 Scope Control**

Scope control is planning, performing, and managing how, what to be done during the project time. As building a website from the beginning is quite a large amount of work, and expectations from the client was too general and ambitious, it was easy at at time to get requirements out of control. We knew our restriction of skills, and we were aware that if we were to succeed, we must think up ideas to get it over.

Generally, two solutions were in front of us. First, convincing the client to lower his expectations and listing his requirements in priorities. Only the one with the highest priority was put into plan first, and let the project evolve along with more functionalities added. Even if the academic deadline comes, the project can still go on until it is mature enough to go live. Second, picking up a current online shopping open source project and customizing it. It seems like a much quicker path to a runnable project but it apparently needs more research and rework. The client was unwilling to accept this plan because he had the opinion that those open source solutions were not fully-customized and may be unsafe for an e-commerce.

Finally we adopted them both. While we chose ReactionCommerce as the base platform, the development began by adding functionalities that the client thought were the most identifying ones from other current websites. On top of the list, he mentioned, was importing supplier csv product lists and updating product information each time the suppliers update their database. There were many small technical difficulties on the way, so our plan was to conquer them all and achieve this goal.

The last two phases were designed to be adaptive phases which was proved later to be very useful. In those phases it was flexible enough to add more functionalities or do anything else necessary. Also, they can be considered as buffer time to manage the risk when failing to finish the plan on time. It was our secret of surviving the torture of project.

**1.2.2 Methodology**

Methodology is the philosophy of proceeding and getting the most out of the project. Several models were taught in the textbooks, but when it comes to a certain type of project, it is possible that only one of them is the most suitable.

Waterfall model is pretty old, in which all the processes are arranged in a linear manner. The nodes of the chain run one after one precisely, any change is not allowed to break the original design.

For most general purpose projects, like web applications and mobile applications, waterfall model does not apply well. Because changes often occur during the development period, and schedules are adjusted in a timely manner to accommodate those changes. Furthermore, requirements of such projects are usually not certain at the beginning, but waterfall model demands that all the designs are fixed in the entire software development life cycle.

Therefore, our best choice is the one among the life cycle models that provide flexible processes. Options are incremental and adaptive models, as well as the agile method. Many practices are involved under the agile topic, such as daily stand-up meetings and pair-programming. We cannot carry out those practices in the case that we do not stay with each other all day and we only have one programmer.

From the scope control section above, it is clear that we arrange the requirements into fixed and adaptive phases. The workable website is released version by version as defined by the incremental model. At the end of this stage, importing supplier product list should be available. For the rest of the time, we can plan any work if needed.

This design of methodology helps us a lot. As will be described later, we missed our incremental due day. The buffer time is useful for us to finish technical work. And we leave the last phase for writing reports. The methodology is the most important factor that led us to succeed.

**1.2.3 Time Management**

1.2.3.1 Project Schedule Model

We use Microsoft Project 2013 to create the schedule model. It is a good tool to manage tasks, milestones and particularly it demonstrates the planned evolving processes of the project.

But according to our experience from the project, except for the person who produces this plan, no one else actually cares about what is in it. They even never opened this file once, and of course they never update their progress into the plan, although they have been told many times. It makes statistics of man power performance very hard to be precise.

The reason may be that we have written the tasks of each member in weekly progress report. However, the project manager is definitely happy to see that his team know what is going on and get the idea of the whole picture rather than just doing what they are told to do for this week.

* + - 1. Scheduling Methodology

Scheduling methodology is confirmed based on our SDLC (Software Development Life Cycle) model. As mentioned in 1.2.2, we adopt the mix of incremental model (for fixed requirements) and adaptive model (for flexible planning). Therefore, our scheduling strategy borrows the ideas from conventions of versions or cycles. We split the project into six phases (iterations in agile method): four weeks for research, and two weeks each for the rest. This practice is learned from pervious project experience in China when the agile concept became popular and internet companies were competing with each other to put it into practice. The purpose of this strategy is to release products and get feedback quickly enough to respond the ever changing world. But it is only the beginning of the project, so the “release” is not that obviously important. The main idea of doing so is to split a big project into small periods with manageable goals. It is a good way to relieve people from feeling at a loss when starting a big project with ambitious goals.

What to achieve in one development phase is only made clear right before the phase starts. At that time, the performance of last few phases is evaluated, and the reasonable amount of work is assigned to each member. Thus, the tasks are more possible to be completed, and it will not put too much pressure on the team.

* + - 1. Levels of Accuracy and Units of Measurement

As the course regulates, the project participating measurement is hours: for each student, 30+ hours a week on average should be given to this project.

As a risk control strategy, we give everyone buffer time at least one day a week. It will be discussed in the risk handling section. Our evaluation of a good scheduling is allowing a member to complete his work easily but still have sufficient time (estimated 6 hours per week) to correct mistakes or just do something else for fun.

However, the fact is that the developer always has heavy burden and spends more hours to complete his work. In the meantime, he has to wait for a long time for the design to proceed. The designer always put off his work, and finally the developer has to design himself. Administration documents are not often completed and submitted on time with high quality, and the other guy has to take this responsibility later on. All the delays have given the leader very negative feelings of his managing ability.

This situation continues all the project time, which makes the planning much harder especially when the academic deadline is coming. The only way to get everything back to normal is the other guy’s much harder working. To conclude, the accuracy of our planning is pretty low.

**1.2.4 Responsibility Assignment**

The basic rule of our planning of assigning work is

* Firstly giving each the tasks that meet his skill set; and,
* Secondly scheduling the tasks as parallel as possible to avoiding deadlock where one person cannot proceed waiting for the other’s completion of work.

The original plan is that the experienced member makes plans, monitors the progress and controls the risk, and also does the technical stuff; while the other is responsible for designing pages and databases, and then produces administrative documents.

In fact, as described in the personnel section, one of the team member has past IT working experience, while the other is not a software engineering student. The project coordinator left the team a big trouble when introducing the networking student into the team and gave no permission to refuse. It was quite ridiculous, and it was the only reason for the team to rework the proposal and wasted much time planning and waiting for unhelpful work which was always put off.

Well, life has to go on and problems have to be solved. In order to succeed this project, the other has to take on the responsibility and work more hours to make up for it.

* 1. **Design**

Designs are of two types:

Web design

Graphics Design

Database Design

Design consist of may components such as page layout, Graphics, fonts, and Coding. Here, we used ReactionCommerce as our platform, Meteor as our framework, and MongoDB as our database. This platform provides more functionalities, nut we only focus on client requirements.

Web Design:  
Web designers use a variety of different production processes it in which a part of the various tools is involved. These tools are new standards and update software over time, but the principle behind it is the same. We used ReactionCommerce as our website platform and Meteor as our framework.

User, the content of the site is, in many cases, the site is in how it works, we understand, depending on the user's understanding. This is the part of the user experience. User experience, layout on the site, are related to the clear instructions and labels. They also how to understand the user how to interact with your site, we are dependent on the design of interactive web site. At the time of the advantages of the site, the user's perception, they are more likely to continue to use. You are not unique, who enjoy the knowledge to users of the web site where you can find too intuitive interface, the following user-friendly web site is still useful.

Another important factor in web design is page layout.   
A portion of the user interface design quality by the layout. For example, designers, layout design is to consider whether the site layout to take into account, if the page is to keep the page a different consistency.

Home page design is one of the important factor for the success of website and good home page design creates good impression on users at first time. Home page should be consistent in terms of graphics, typography, layout.

Graphics Design:

Graphic design is visual communication processes and issues through the appropriate use of typography, space, image and colour to solve. Use a graphic designer to create a variety of ways, and the combination of texts, ideas and visual information symbols and images to create a presentation. Graphic designers can produce the end result combines typography, visual arts and page layout - use techniques. Graphic design often refers to both the method of communication (Design) are formed and the products they make (Design).

Database Design:

The database design is to create a detailed data model of the database process. This data model contains structural data definition language of all logical and physical choices necessary design and physical storage parameters needed to develop, and can then be used to create a database. A complete model of attribution data contains detailed attributes for each unit. The long term database design can be used to describe the various parts of the structure of the database system. Logical data main design and appropriate considered used to store database structures.

We used MongoDB as our database because ReactionCommerce supports MongoDB. In this phase we only focus on Products schema collection. We created a table for Product schemas, identified relationship within them. Once the relationship between the various information and dependencies have been identified, then the data may be mapped to arrange from the database management system to support the memory object logical structure.

**1.4 Communication**

As for team communication and cooperation, we think we have done a good job. The team has organized meetings with client and advisor. And we have kept our communication channel all green and can contact each other whenever we have issues.

**1.4.1 Meetings**

* **Frequency of meetings.** Team meetings and advisor meetings are held every week, client meeting is held at the end of every phase. The well-scheduled meetings are helpful to synchronize information and progress, thus making ourselves professional and trustworthy to the client.
* **Meeting lengths.** Each meetings is kept one hour long maximum. Usually the meetings are finished sooner than that.
* **Meeting records.** All the meetings cut to the chase and notes of agreements are taken.

We all very happy about the meetings, and we all agreed that our meetings to be effective and efficient.

**1.4.2 Information Sharing**

We have a couple of chances to share information, because we are supposed to meet each other several times each week, such as meeting time and team working 2pm – 4pm every day. We intentionally make it so to reinforce team interpersonal relationship and communication.

But we got problems. The main reason still was our mismatch of available working time. Once a time, we had reached an agreement during the meeting time, say, modification of some part of one document which should done by Vineet, and we were supposed to check that next day. But he did not complete it before next meeting for some reason due to his work. And he just did not tell the team and even worse did not go to the meeting we appointed. It made the other teammate confused and the work was delayed, affecting the progress of the project.

Sometimes he got errors when running the project, but he did not say, and no one knew what was going on. But he again did not tell anybody until he missed the deadline and it was too late to help him. We talked about it, he admitted his mistakes but he never changed.

**1.4.3 Instructions**

The instructions were not delivered well for this project. Instructions were often forgotten or misunderstood, which led to unhelpful work and more time to explain and rework.

Members were told to take notes about what to be done. At first this helped much, but later this habit was not kept anymore, tasks forgotten, documents forgotten or made in wrong formats, passwords lost. Such kinds of small but annoying mistakes happened all the time.

**1.5 Monitoring and Controlling**

**1.5.1 Progress Monitoring**

Officially the progress is examined every week during the team meetings when we check each other’s work and fill in the progress report. We did it very well not only because we performed this on time but also we gained much from it by finding what was going well and badly and the reasons why. It can be seen as a serious way to report performance to the teammates and advisers.

At the moment we produced the progress reports, it was really tricky to think up why we were doing well or not. It was easier to tell why things were not good enough, since different issues resulted from different reasons, and the reasons were relatively specific, like “not enough background knowledge”, “got errors when building the project and spent hours to search for a solution” or “hurt by three local drunk men and stayed in hospital for a week”. But when it came to why good was not that direct. Being self-disciplined could be a frequently-used reason, and it seemed that nothing else was applicable.

**1.5.2 Quality Control**

Quality control is a process through which we can review all the functions, services or processes in project. There are many elements which can be included in quality management process such as:

* Identification of records, performance and criteria are elements of quality control
* Having suitable knowledge, skills, and experience.
* Having human issues or errors such as Personal, integrity, confidence, motivation, team spirit, good relationships.

Quality control can include testing product where every side of products are examined in details and try to remove all errors and bugs before it launches into public. Testing will be provided with the detailed description of operations, expectations and results which is known as Test Cases and Test Reports. After testing each area of products, we need to produce Unit test case and unit test report. At the end when all test gets over, we need to combine all unit test cases in to single final test cases document.

After examine the products and if found errors that quality assurance come in place as quality assurance has two principles that is “Fit for purpose” (The product should be suitable for the intended purpose) and “Right first time” (Mistakes should be eliminated). Suitable quality is determining by customers, product users or client.

Prepare a survey for user testing and tell them to test a product and answer the questions into survey form, and write suggestions or opinions into the suggestions form. We decided to work for minimum 30 hours per week and our goal to finish testing into deadline as per our project plan. Time management is also important to maintain quality.

**1.5.3 Change Control**

As our methodology is quite flexible and change tolerant, it is quite possible to arrange changes during the project life cycle. What is more, our schedule is designed into phases, and changes are acceptable at the beginning of each phase, since incremental and adaptive models are particular for that purpose. Also, our requirements are put into product versions. In each version, one requirement is developed based on the completion of requirements from previous versions. That means, there is no overall design existing and plans are made for individual versions, so there is actually no scope change.

The changes we have are mainly related to the processes, such as changes of document formats, changes of meeting timetables. They are all internal changes and do not need change control requests.

**1.5.4 Audit**

Technical topics

General recommendations for future projects