MatchMe

Learning Outcomes

RMIT University

COSC2408: Programming Project 1

Who is the reader?

The intended audience of this document:

1. Project supervisor and client
2. An external examiner

Enabling Knowledge

During our first meeting, group members discussed previous web programming experience, as well as software development experience more generally and what courses we had done. Previous knowledge had been acquired by group members from the following courses.

- Programming 1
    - Basic OO programming concepts
- Web Programming
    - Introduction to web development concepts such as HTML/CSS/JS, as well as server side programming to enable basic user functions.
- Software Engineering Fundamentals
    - Software design and planning via UML diagrams
- Database Concepts
    - Introduction to SQL programming
- Cloud Computing
    - Use of cloud-platform technologies for deployment of web applications.
- Software Engineering Project Management
    - Basics of Agile and SCRUM as well as document writing
- Advanced Programming Techniques
    - OO programming with C
- User centred design
    - UI and UX concepts

Others had previously undertaken studies at different institutions. Xieyang studied Information Technology in China. There he learned the basics of OO programming and web programming. Hao studied Software Engineering in Malaysia, where he learned basics of web programming and SQL.

Critical Analysis

What is your assessment of the project management methodology you used?

During this project we used the Agile SCRUM methodology. At the start of the project we create a list of tasks and added them to the Project Backlog on Trello. We would then decide what we were going to do week by week by adding tasks to the Sprint Backlog. Members were assigned to each task. At the end of each Sprint, we demoed what we had done to the client. We also held regular Scrum meetings such as the stand up and Sprint planning meetings.

Overall the use of the two backlogs and Trello to assign and allocates tasks was effective because it made it clear and easy for team members to understand what tasks they were assigned to and when those tasks should ideally be completed. The meetings also had a consistent structure in which team members discussed what they had accomplished previously and what they will work on going forward. This made it easier to keep track of each team member and quickly identify which tasks had fallen behind and why.

There were however some aspects of SCRUM which were not fully utilised. Although we would regularly demoed what we had completed, the product owner did not prioritise the sprint backlog. Rather our meetings with the product owner were more free form and for the most part team members were left to prioritise what tasks should be completed next. We were also unable to partake in daily standups due to the fact that members had other classes and assignments to work on. We instead held bi-weekly stand ups, one of which was also combined with the sprint review and sprint planning meeting.

In short, while the SCRUM framework provided a certain degree of structure to the way in which we conducted this project, we did not follow the methodology perfectly but rather adapted it to our circumstances.

What were the design options and how did you choose the one to implement?

Haotian Xu was assigned as the front-end designer and developer of our application based on his previous experience. He selected three suitable templates he found on external sites, including nulledtalk.net, apploadz.ru and codepen.io. Of the three templates, we then met as a group and decided on which we liked best. Haotian then customised and re-designed the template to better suit our needs. To aid in the design process, Haotian also created several wireframes using Moqups and logos using Free Logo Services. As with the templates, we voted

on which logo to use as a group. This way everyone got their say in the look and feel of the application.

How well does the developed system meet the requirements?

We were required to develop a “matching system”. Requirements were as follows:

- Permit users to register
- Provide the necessary transactions for data entry
- Provide appropriate matching algorithms
- Operate from desktops and mobile devices
- Provide appropriate admin functionality

The application currently allows users to register, login, and edit their account information. Data used for the matching algorithm is acquired from the user’s profile data. The user’s matches are accessible via their “Matches” page, which is ordered by match percent. These matches are automatically updated when the user updates certain fields in their profile. There is also admin functionality, wherein admins have access to the Users Index. This index lists all users in the database and is searchable by name. Admin can also delete users. Lastly, the application is accessible via mobile. Several of the elements are “responsive” and as such no part of the layout extends beyond the width of the screen. However, in it’s current form there are several improvements that need to be made to the mobile version of the application.

Problem Solving

A major problem throughout the duration of this project was the differing levels of expertise on the part of team-members. Because of this, some team members took on more of the overall workload to give others more time to research certain topics. Roles were also assigned according to level of expertise on a particular topic, such as front-end development, or how quickly said group member could potentially pick up on the material related to their task, such as software testing. This helped in that it reduced the learning curve required in order for some members to contribute. However, the time it would take for some members to learn the material was under-estimated by the leader, and because of this some struggled to contribute. To compensate for this, group members with more knowledge on certain topics would do pair programming sessions to help others learn in a more timely and effective manner. In retrospect however, it perhaps would have been a better idea to only stick with material that the majority of group members were comfortable with.

Another problem we encountered was events outside of school affecting the ability of individual group members to contribute and attend meetings. Because these events were unexpected, they were impossible to mitigate. In response to these events, some of the work of the affected group member was redistributed to other team members. We also discussed this issue with the client, who allowed for more time to work on deliverables.

Communication

Describe the communication methods you adopted for the project including within group communication and communication between the group and the client/ supervisor.

Communication methods utilised include:

- Slack / WeChat - written communication
- Trello - Kanban board to keep track of, and allocate, tasks
- Biweekly meetings - Face to face discussions with both group members and the client

How effective were they?

Slack and WeChat were both effective means of communication. Each group member installed WeChat on to their phones and mainly used Slack on desktop. WeChat was used when a faster response was required. Slack was preferable when sharing code, files, and links to websites.

Trello made it incredibly easy to remember and assign tasks. We borrowed some ideas from SCRUM by using both a Product and Sprint Backlog. We also had a column for reporting bugs. Each card was assigned to a group member. Tasks were, for the most part, assigned during meetings to ensure everyone understand what they were expected to work on that week. Trello also made it easy to communicate what was in and out of scope. Each week, tasks that were completed were marked as such and moved to the column representing the week they were completed. This had the added benefit of painting a clear picture of what each person had done week by week.

The meetings had a certain structure in that during each we would discuss what we had accomplished and what we plan to accomplish by next meeting. Once a week we would also meet with the client to demonstrate what we had completed during the "Sprint". After which point the client would give us feedback and guidance, as well as give us a idea of what we should be working on next. Both meetings were a useful way to touch base with everyone and gain input, give feedback, and make important decisions together.

How could they be improved?

The meetings could have been improved via preparation, sticking to a certain topics and then allowing free-form discussion toward the end rather than throughout the meeting. This may have improved the productivity of the meetings and the reduced the amount of time required to complete them.

Teamwork

What were the roles?

1. Haotian Xu: Front-end designer and developer
2. Hao Li: Developer
3. Jasmine Ellis: Project Manager, Lead developer
4. Xieyang Wu: Developer and tester

How did you deal with different cultural backgrounds and life circumstances and differing levels of technical expertise?

As discussed previously, differing levels of expertise were mitigated to a certain extent via pair programming sessions, careful allocation of roles and tasks, and by sharing useful learning material and resources amongst each other to bolster the learning process. Life circumstances did come up, and when they did we responded by re-allocating certain tasks by and discussing

the issue with the client. At times, communication was difficult due to the language barrier. However for the most part we understood each other. At no point was anyone out of the loop on the direction of the project nor the tasks allocated, thanks in part to communication tools such as Trello and Slack.

Responsibility

Although our application was not developed for commercial use, we nonetheless kept some things in mind when designing it. To ensure privacy of our users, we made sure several pages of our website could only be accessed by the user authorised to view it, e.g. the “View Matches” page. We also require the users be ages 18 or older to register for the site.

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