CS 4900 Senior Seminar

Spring 2016

Instructor Dr. Zhiguang Xu

**Semester Project**

**Formation of Teams, Project Spec, and Project Plan**

Last Updated: 04/21/2016

   

**1. Project Teams**

In this semester, 30 students in the Senior Seminar class will be working in **teams of three or four** on their semester long projects. Each team will design, implement, and deploy a system that provides web-based services with Ruby on Rails. See details in the next section.

Each team needs to inform the instructor their team formation by filling up the online spreadsheet at <http://1drv.ms/1JYU7gJ> by the class time on January 28 (Thursday). For those student(s) without a team by then, the instructor will step in and form teams for them.

Note:

* Each team has either three (preferred) or four team members.
* For those who decide to go with a team of four members, you need to understand that there is a possibility that I might have to break your team into two in case there are two students who couldn't find a team to join.
* For those who decide to go with a team of three members, you need to understand that there is a possibility that I might have to add one more member to your team in case there is one student who couldn't find a team to join.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Team #** | **Team Member 1** | **Team Member 2** | **Team Member 3** | **Team Member 4** |
| A | Krunal Patel | William Lamb | Harrison Epperson | Colby Veal |
| B | Patricio Vargas | Matt Cliatt | Chris Whelean | Chris Sanger |
| C | Christopher DiNofrio | Andrew Pirkle | Tayler Miller | Joseph Jones |
| D | Alexandru Malos | Benjamin Watson | Jamal Birt |  |
| E | Michael Hollis | Viktor Graczyk | Akshay Patel |  |
| F | Vincent Moore | Andrew Simpson | Micah Downs |  |
| G | Benjamin Goddard | Ramon Fajardo | Chandler Johnson |  |
| H | Fiifi Smith-Quayson | Gennady Evtovdiev | Jason Castillo |  |
| I | Raven Hiram | Biancco Gardner | Timothy Stutzman |  |

**2. Project Specification**

**FriendsNextDoor** – *Better a Close Neighbor than a Distant Brother*

FriendsNextDoor is a private social network service that allows users to connect with people who live in their neighborhood. FriendsNextDoor restricts communication to only those people who live close to one another; users are required to verify their identity and home address upon signing up, which is invitation based. Consider FriendsNextDoor a modern, more attractive, more secure, and more versatile version of a community email list service or Yahoo Groups, the popular message board. Users can post neighborhood news, offer items for sale, seek/provide babysitting opportunities, lend/borrow yard tools, ask for help finding lost pets, or organize a block party, just to name a few.

Services provided by FriendsNextDoor include but are not limited to

* A message board that all users can publish, reply, and bookmark messages. Such messages should be classified into different categories, such as classifieds, crime and safety, documents, free items, lost & found, kids etc.;
* A private message system that users can exchange messages among certain group of friends;
* An event calendar to announce neighborhood news, events, surveys, elections, etc.;
* A section that allows local agencies, local businesses, and HOA (Home Owner Association) to broadcast their information;

Users are classified into different categories with different roles, privileges, and responsibilities:

* Regular users
  + This is self-explanatory.
  + Groups of users can be formed and removed for specific purposes.
* Leads
  + FriendsNextDoor is a self-governing community.
  + Nextdoor Leads help this website running smoothly by organizing information posted by other users. Specifically, they can
    - Setup website policies
    - Remove inappropriate messages
    - Verify unverified users
    - Edit and maintain the neighborhood event calendar
    - And more…
  + Leads are selected through *a point system* where each user accumulates his/her points through (for instance) becoming the founding member of a FriendsNextDoor website, inviting people living in the same neighborhood to the website, being active and trust-worthy at publishing/replying neighborhood messages and participating events.
* Local Agencies/Businesses/HOA
  + These are local people who join the website on invitation basis.
  + In the “Local” section, they can spread the word around that matters to the users of the website, e.g. promotions and coupons, emergency information, amber alert, criminal activities, severe weather alarms, new HOA regulations, etc.
* System Admins
  + Basically you, the designers and implementers of this website.
  + Responsible for the overall support of the website, technologically speaking.

Apparently, this is an open-ended project where you, as a team of three or four, have an opportunity to demonstrate your creativity and originality not only in the technical fields of software design and programming but also in business and marketing.

Admittedly, the project spec above is non-technical, vague, and ambiguous here and there. I made it that way on purpose. ☹ It is then your responsibility to “technologicalize” and implement it. Also, as the project progresses, I might add/drop/modify some of the project requirements just like what a real client “Joe” who has zero technical background is very likely to do in the real life. DEAL WITH IT! ☺

**3. Project Plan**

In general, we will develop this project in **two** phases.

**Phase I (01/28 ~ 04/07)** – Work on the server-side of the application with Ruby on Rails. You should focus on completing majority if not all **functionalities** of your project.

**Phase II (04/08 ~ 04/28)** – Work on bug-fixing and professionalizing/prettifying the **user interface (UI)** of your project using Twitter Bootstrap, jQuery, and optionally jQuery Mobile.

The project will be concluded with formal project demos tentatively scheduled on 04/26 and 04/28. I will arrange mock demos a week earlier to get you all ready for the real deals and eliminate last minute surprises.

Notice that during the second phase, it is quite natural and understandable that in order to fix bugs, change data formats, and/or enhance existing features, etc., modifications (some of which might be even major) have to be made to some of the components in your project that you have already completed before; also, by no means you are prohibited from incorporating UI techniques used in the latter phase into the earlier phase of your design and development. The bottom line is: the two phases above are not necessarily mutually exclusive and clearly separated.

Table below outlines a tentative project plan including important dates, milestones, deliverables, and demos.

|  |  |  |  |
| --- | --- | --- | --- |
| Week of | Activities | Thursday Deliverables | Comments |
| 01/28 | Project kicked off;  Teams formed; Team project repositories on Github made ready |  |  |
| 02/02 ~ 02/04 | Initial project design |  |  |
| 02/09 ~ 02/11 | Initial project design | Project demo (5 minutes/team) – Use cases, page flows, and application data. Note: everything above must be electronic and presentation-ready. |  |
| 02/16 ~ 02/18 | Project development |  |  |
| 02/23 ~ 02/25 | Project development |  |  |
| 03/01 ~ 03/03 | Project development | Project demo (5 minutes/team)  Source Code pushed to the “Phase\_I” branch on Github; Working project on Heroku |  |
| 03/08 ~ 03/10 | Project development |  |  |
| 03/15 ~ 03/17 | Project development |  | Spring no-break |
| 03/22 ~ 04/24 | Project development | Project demo (5 minutes/team);  Source Code pushed to the “Phase\_I” branch on Github; Working project on Heroku. |  |
| 03/29 ~ 03/31 | Project development |  |  |
| 04/05 ~ 04/07 | Phase I completed. | Project demo (15 minutes/team);  Source Code pushed to the “Phase\_I” branch on Github; Working project on Heroku  Note: some teams might have to do their demos on 04/05 (Tuesday) |  |
| 04/12 ~ 04/14 | Project development |  |  |
| 04/19 ~ 04/21 | Phase II completed. | Mock demos (15 minutes/team)  Note: some teams might have to do their demos on 04/19 (Tuesday) |  |
| 04/26 | Final demos (the real deal) | Final demos (15 minutes/team)  Final Source Code on the “master” branch on Github; Project Report and Demo Slides sent through BlazeVIEW; and Working Project on Heroku |  |
| 04/28 | Final demos (the real deal) | Final demos (15 minutes/team)  Final Source Code on the “master” branch on Github; Project Report and Demo Slides sent through BlazeVIEW; and Working Project on Heroku |  |

**4. Project Management**

Mandatorily, you need to use Github to version-control you project. Warning: when working on your code and making commits, **please make sure that every team member has a fair share of the workload** since Github will automatically keep track of it. Optionally, you could use Pivotal Tracker to help managing your team project.

**5. Project Requirements**

This section is to clarify which set of features among the ones list in Section 2 above are the required features.

* For any potential user, signing up to your Website should be subject to some sort of verifications, e.g. location/address, invitation, approval by the community leads, or a combination of them.
* Users are of different roles with different privileges/responsibilities that you design
  + Regular
  + Lead
  + Business/Agency/HOA…
  + System Admin
* Users can form, join, and leave groups.
* Two types of message/post boards
  + Public ones
  + Group-specific private ones
* Events section where event organizers and participants can share information (e.g. through calendar, map, photo album, etc.)
* Community leads should be elected through a point system that you design. They can NOT be simply appointed.
* Optionally, a RSS feed publish/subscribe system

|  |  |
| --- | --- |
| Feature | Implemented (Yes/No/Partially) |
| User verification |  |
| Users of different roles |  |
| Public message board |  |
| Private message board |  |
| Events section |  |
| Point based community lead election system |  |
| Optional RSS |  |

**6. Project Demonstrations**

All mock/final project domos will be in NH 2124, our classroom.

6.1 Mock Demos (04/19 and 04/21)

Five groups will do their mock demos on **04/19 from 3:30pm to 5:10pm**. Four groups will do their mock demos on **04/21 from 3:30pm to 4:50pm**. Instead of letting you to pick your demo times, I scheduled all the demos for you as shown in the chart below. Each group will have 15 minutes to demonstrate their project, followed by 5 minutes of Q/A. So in total, the entire demo class on 04/19 will run for about 1 hour and 40 minutes; the entire demo class on 04/21 will run for about 1 hour and 20 minutes.

|  |  |  |  |
| --- | --- | --- | --- |
| Team C | Christopher DiNofrio, Andrew Pirkle, Tayler Miller, Joseph Jones | 04/19 | 3:30pm ~ 3:45pm (then Q/A) |
| Team E | Michael Hollis, Viktor Graczyk, Akshay Patel | 3:50pm ~ 4:05pm  (then Q/A) |
| Team G | Benjamin Goddard, Ramon Fajardo, Chandler Johnson | 4:10pm ~ 4:25pm  (then Q/A) |
| Team F | Vincent Moore, Andrew Simpson, Micah Downs | 4:30pm ~ 4:45pm  (then Q/A) |
| Team H | Fiifi Smith-Quayson, Gennady Evtovdiev, Jason Castillo | 4:50pm ~ 5:05pm  (then Q/A) |
| Team D | Alexandru Malos, Benjamin Watson , Jamal Birt | 04/21 | 3:30pm ~ 3:45pm (then Q/A) |
| Team B | Patricio Vargas, Matt Cliatt,  Chris Whelean, Chris Sanger | 3:50pm ~ 4:05pm  (then Q/A) |
| Team I | Raven Hiram, Biancco Gardner, Timothy Stutzman | 4:10pm ~ 4:25pm  (then Q/A) |
| Team A | Krunal Patel, William Lamb, Harrison Epperson, Colby Veal | 4:30pm ~ 4:45pm  (then Q/A) |

Here are some details for each group:

* Each group only needs to show up during your demo time slot, please arrive 5 minutes earlier before your start time though. Other groups are encouraged to be in the audience but not required.
* All servers must be running on heroku. So please push your code (with DB tables seeded with necessary data for the demo) to heroku ahead of time.

During the demo, have the server up and running on one of the laptops of yours as the backup, just in case of Internet interruptions.

* The demo needs to be road-mapped by power point slides. The slides need to contain no more than 8 pages, 4 of which cover
  + an introduction to your project;
  + high-level structure of your project **with unique designs highlighted**;
  + in-depth explanations of **ONE** key data structure/algorithm/class in the core of your project;
  + a list of scenarios that you will demonstrate, which clearly demonstrate the required features (and additional ones if any) listed in Section 5 above. **Such scenarios need to be organized, systematic, revealing, and take up the majority of the entire 15 minutes of your demo time.**

The rest of the slides are then up to you.

* Although I encourage each group member to have a chance to talk during the demo, but this is not required.

**One last thing, make sure somewhere on the first slide I can find the url of your server on heroku.**

6.2 Final Demos (04/26 and 04/28)

Five groups will do their final demos on **04/26 from 3:30pm to 5:10pm**. Four groups will do their final demos on **04/28 from 3:30pm to 4:50pm**. The demo time for each group is the same as the mock one as shown in the table below. Each group will have 15 minutes to demonstrate their project, followed by 5 minutes of Q/A. So in total, the entire demo class on 04/26 will run for about 1 hour and 40 minutes; the entire demo class on 04/28 will run for about 1 hour and 20 minutes.

|  |  |  |  |
| --- | --- | --- | --- |
| Team C | Christopher DiNofrio, Andrew Pirkle, Tayler Miller, Joseph Jones | 04/26 | 3:30pm ~ 3:45pm (then Q/A) |
| Team E | Michael Hollis, Viktor Graczyk, Akshay Patel | 3:50pm ~ 4:05pm  (then Q/A) |
| Team G | Benjamin Goddard, Ramon Fajardo, Chandler Johnson | 4:10pm ~ 4:25pm  (then Q/A) |
| Team F | Vincent Moore, Andrew Simpson, Micah Downs | 4:30pm ~ 4:45pm  (then Q/A) |
| Team H | Fiifi Smith-Quayson, Gennady Evtovdiev, Jason Castillo | 4:50pm ~ 5:05pm  (then Q/A) |
| Team D | Alexandru Malos, Benjamin Watson , Jamal Birt | 04/28 | 3:30pm ~ 3:45pm (then Q/A) |
| Team B | Patricio Vargas, Matt Cliatt,  Chris Whelean, Chris Sanger | 3:50pm ~ 4:05pm  (then Q/A) |
| Team I | Raven Hiram, Biancco Gardner, Timothy Stutzman | 4:10pm ~ 4:25pm  (then Q/A) |
| Team A | Krunal Patel, William Lamb, Harrison Epperson, Colby Veal | 4:30pm ~ 4:45pm  (then Q/A) |

Here are some details for each group:

* ALL STUDENTS ARE REQUIRED TO ATTEND THE DEMOS ON BOTH 04/26 AND 04/28.  
    
  I will invite the CS faculty and the department head although some might come late and some might not stay for the entire classes. You may invite anyone you want to the demos but just be aware of the capacity of the classroom.
* All servers will be running on Heroku. So please push your code (with DB tables seeded with necessary data for the demo) to Heroku ahead of time.

During the demo, have the server up and running on one of the laptops of yours as the backup, just in case of Internet interruptions.

* The demo needs to be road-mapped by power point slides. (See details in section 6.1 above)

**7. Final Project Deliverables**

By 3:30pm on 04/26 (Tuesday) for groups C, E, G, F, and H, and by 3:30pm on 04/28 (Thursday) for groups D, B, I, and A:

* Push the final version of your project to the **master** branch of your group repository on Github
* Push the final version of your project on Heroku with all DB tables appropriately created and seeded
* Zip up the following files into a zip file and send it to me through BlazeVIEW email (one per group):
  + Slides (with URL of your project on heroku clearly marked on the first slide)
  + A project report (2-3 pages).   
    I don’t have a format/template for the report. Put all you want me to read in it such that I can have more insights into your project.   
    **However, three things that I DO expect are** 
    - **A section that clearly lays out each individual team member’s contributions to the project.**
    - **A section that lists all the commands to run before firing up the server of your project on a local computer. It is your responsibility to ensure the commands are complete and accurate because I will run them when testing your project.**
    - **A section that lists all the user names, passwords, and their roles that are ready for testing on Heroku.**

**All items above must be completed in order for your project to be even graded. So take them very very seriously please.**