NKUNet Design Document

Last Modified: April 17th, 2017

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1. Introduction

1.1 Background

NKUNet is a forum system designed for people within the NKU community. The ideal outcome of this is to provide a forum for faculty, students and registrars which are able to ask questions and get answers from others within the community. The idea behind this is to grant a social area for both faculty and students to share their questions and thoughts and to be able to communicate with people on a wider network.

1.2 Design Goals

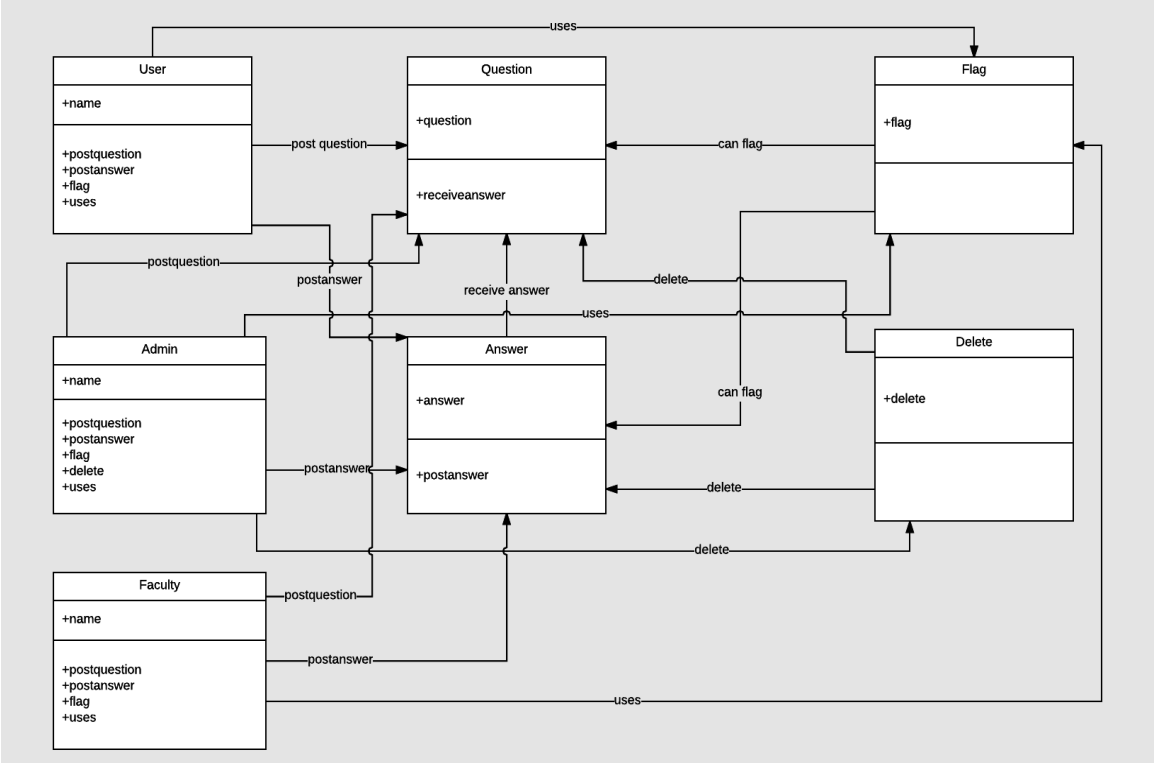
The basic design goal is the creation of a forum for those within the NKU community. The users should have the ability to post questions, receive answers, upvote/downvote responses, have their schedules attached to their user account and add friends, for personal messaging. The idea has potential to expand further beyond this, given development time and resources available should initial implementation be done ahead of schedule.

1.3 Changes From Iteration 1

A large portion of the changes made this iteration revolved around functionality and operations. The basic premise from our original design was to implement features and controls. As a result of that, users are now able to be added/removed from the system,

login/logout of the system, upvote or downvote posts and answer questions. Registrars were added and given the ability, on top of some listed above, to create courses, add users to courses and remove users from courses. Lastly, admins were given the option of being able to un-flag a post if required.

2. Class Diagram



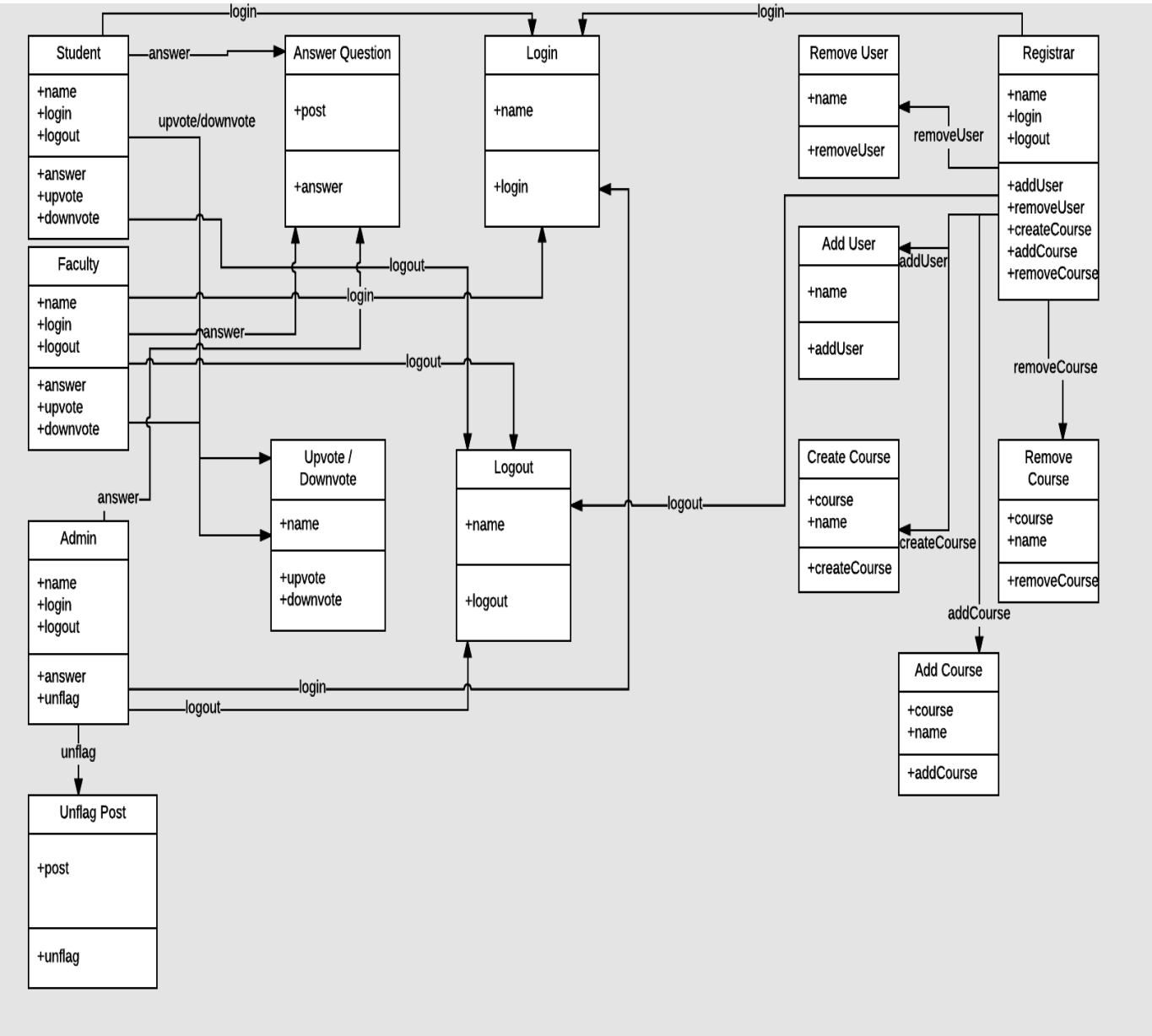
The basic premise behind the class choices here is to get a functional, early model of the system up and running. The user, when posting, will have their names displayed and the ability to post questions or answers on NKUNet. They will also have the ability to use the flag command for posts that need possible looking into for various reasons. Faculty will follow the same permissions as the user currently. The Admin will have the ability to see everything, including posts that are flagged. Admin will also be the class that is granted the delete functionality, for removing either an answer or an entire question. These will likely be expanded upon as time progresses forward.

Iteration 1 → Iteration 2

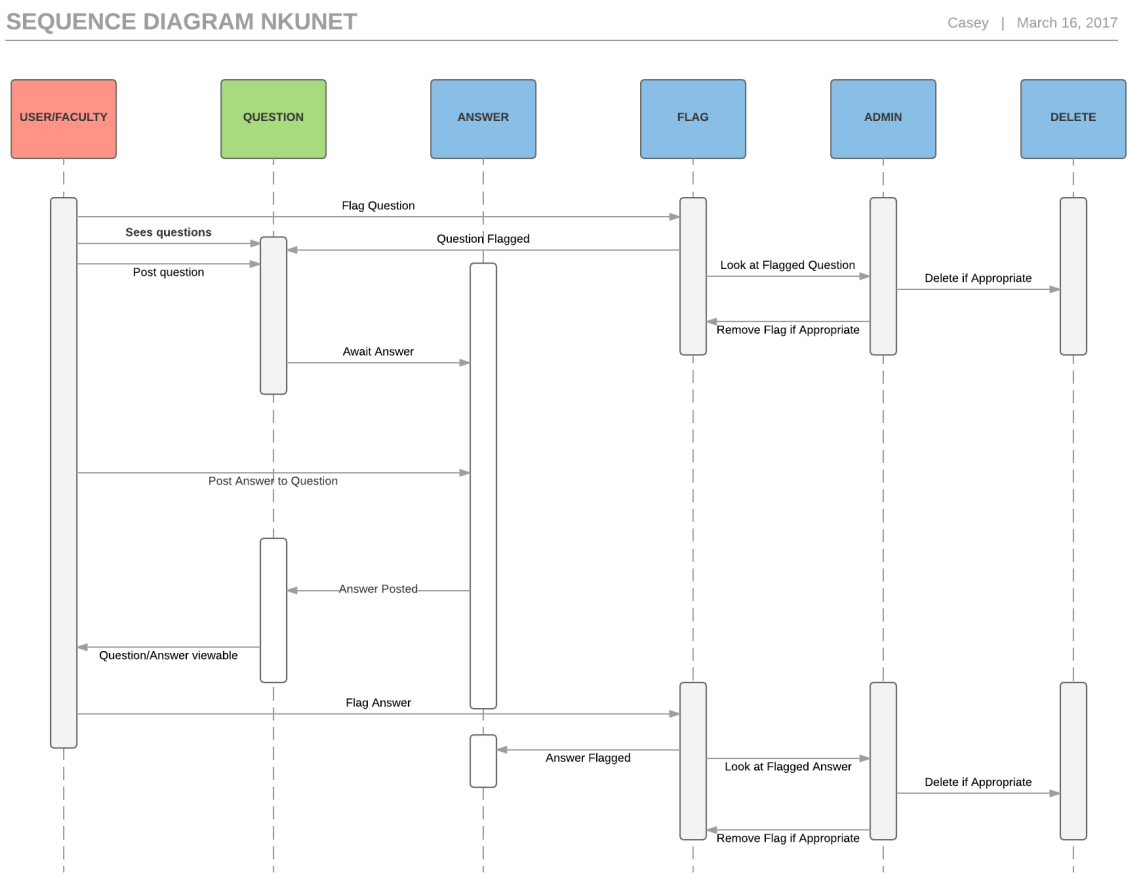
For this iteration, we added a bunch of functionality. The registrar was added into the system, allowing users to be added and removed, along with having the functionality to add course schedules to a given user as well. This design in essence helps to give users access to certain forums and open up the forum as

a whole. Also added in this iteration was a large chunk of missing functionality. We have added the ability to answer questions, upvote or downvote posts, login and logout, create/add/remove courses from a user and unflagging a post. The result is that the forum has more sorting potential, accessibility and comes off as a more polished version of the original design.

Class Diagram Iteration 2:



3. Design Sequence Diagram



The Sequence diagram is a current basic flow chart for the current design. The idea starts with a user/faculty having the ability to see questions and answers. If either a question or answer is inappropriate, misplaced or not needed then it can be flagged to be looked at by the admin. The admin has the right to observe the flagged question or answer and if desired delete the answer or the entire question and subsequent answers attached to it. User/Faculty also has the ability to post a question, post an answer, and observe current questions and answers and whom posted them.

4. Rails Commands

4.1 – rails generate scaffold User name: string email: string

This command has a name field and an email field.

4.2 – rails generate scaffold Question content: text user_id: integer

This command we have a content field and an id to differentiate questions

4.3 - rails generate model Question content: text user: references –force

This command we have a content field and a user reference foreign key so that we can easily see who asked. The –force means we overwrite the db table.

4.4 - rails generate scaffold Answer content: text user_id: integer

This command we have a content field and an id to differentiate answers.

4.5 – rails generate model Answer content: text user: references question: references –force

This command we have a content field and a user reference foreign key so that we can easily see who asked. The question reference also has a key to the question foreign key. The –force means we overwrite the db table.

5. GRASP Patterns

The session class is largely a pattern based on the "expert" class. This is largely in part due to the nature of the class and it requiring to know information and functionality of other classes. Aside from this, most other classes feature a job or task of some nature to be performed, so all of them have purposes for the overarching design of the system.

6. Database Design

The database design is currently fairly simplistic in nature. It consists of 9 tables: Courses, Users, Course2Users, Questions, Answers, Friends, Messages, Question_votes, Answer_votes.

- The tables Courses, Users, Questions, and Answers are fairly straightforward.
- The junction table Course2Users is what allows us to attach courses to a user and users to a course.
- The junction table Friends is what allows us to link users together as friends.
- The messages table is where we store the private messages sent between users.
- The junction tables Question_Votes and Answer_Votes are what allows us to limit the number of times a user may vote on a given question/answer.