Object-Oriented Analysis and Design

Team

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Abstract:

The main objective of this project is to design a website to provide information regarding course schemas in Sustech. Using this website, administrators can upload course schemas of their department by filling a uniform template, adding and modifying information of courses offered by their department. Students can access inquiry course information, as well as how many courses are required to graduate. The problem of inconsistencies in course schema appearances of different departments, majors, enrollment date, and nationalities are all resolved on this website. This website is supposed to be a convenient platform for administrators to publish information and for students to query information, read, and follow instructions. Also, a customized user interface is designed for each student to "follow" their interested majors and courses to simplify their usage.

Description:

Motivation

This project aims to achieve the following functions:

1. To serve the schoolmates and contribute the SUStech's education
2. Develop a user-friendly website regarding information, of course schemas in SUStech.
3. To broaden our knowledge horizon such as technologies like Vue, Bootstrap, CSS, HTML, JavaScript, JQuery, etc. and design patterns such as factory, singleton, bridge, etc.

Present problem in our school’s curriculum query and modify mode are these:

Student’s view:

1. The query process is complex. Student have to take multiple page jumps to find the curriculum document download links
2. Students can’t know which courses they have studied obviously(because the curriculum only a PDF document). It must be relied upon comparing manually with information on course select system(教务系统)

3. Curriculum out of time. The latest version is in April, 2018
4. Courses information query is not friendly to user.

Administrator's view:

1. Updating curriculum is a hard task. Relation between courses are complex and one update need to upload a complete curriculum table.
2. Prerequisite course relation in table or pdf document are not clear.

Our strategy

A customizable system which generate tree diagram to show the courses in curriculum.

Silver bullets: Cutomization

Students can put the major curriculum which they focus on in the user home page and curriculum administrator can modify tree diagram to update curriculum conveniently.

Feature Design

User story

Story 1:

Little Xiang is a third-year student at SUStech. He wanted to choose Computer Science as his major. However, Xiang found that he cannot register in the system of the CS department. The reason is that he still needs a pre-course, algorithm design. The course schema was changed, and no one told him. After he realized that, he was depressed all day.

Story 2:

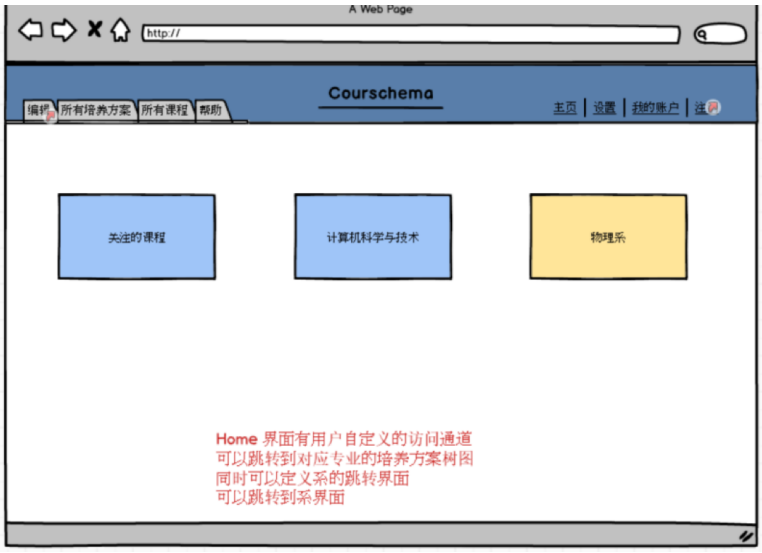
Little Qi hears about his friend, little Xiang's story. He was angry. He remembers one time he searched the information of a course given by wise professor Zhang and charming teacher Zhu, and he gets nothing. It is not because he is stupid, but it is the reason the window of searching is too hard to find. He discusses with Little Xiang, and both agree that the course schema website is nothing but shit. They try to work together and make a difference!

Mockup

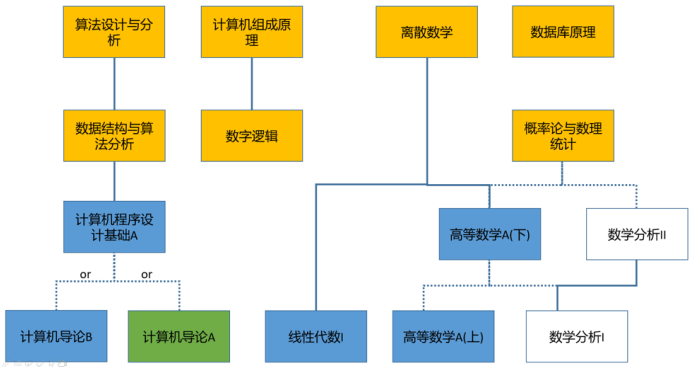
Now, we start from student point of view. Assume a student want to query some curriculums.

Case 1:

Login courschema website by student ID and password and go to user home page.

1. 

2. If the student **have customized**the home page, he/she can visit specific curriculum page by one clip

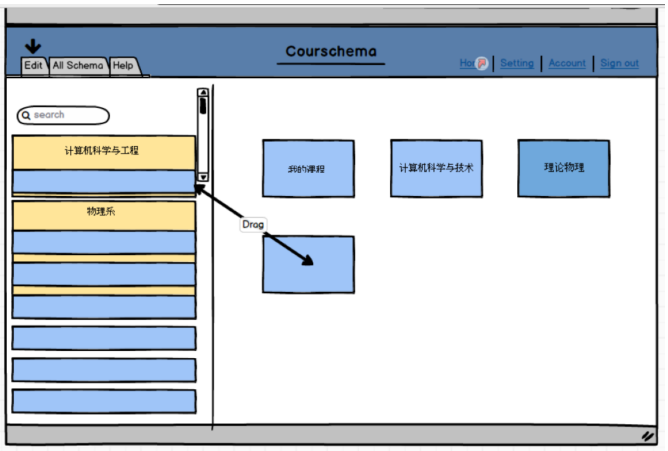


3. The curriculum is showed in tree-diagram like diagram. Dash line means OR relationship and full line means AND relationship. Different color indicate different type of course. In this example, blue means General required course(通识必修课), yellow means preprofessional courses(专业先修课), green means optional course(专业选修课), white means not required in this major. If the student has studied a course, the course would be set a flag.

4. Clipping the course icon can visit the information page of corresponding course, showing the abstract of course etc.

Case 2:

1. If a student doesn't customized the homepage, he/she can go to edit page to customize his major curriculums which he/she interested in.



In edit page, user can edit personal home page, like create some shortcuts of these curriculum

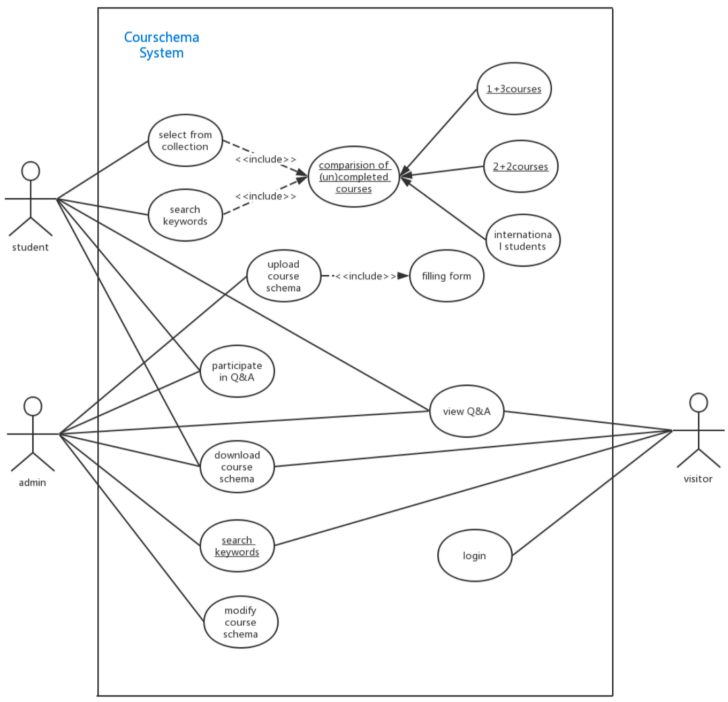
2. If the student is interested in some courses, he/she can visit all courses page to find all courses introduction.

Requirements

1. Multi-platform compatibility
2. Multi-browser compatibility
3. Mobile and PC compatibility

Design Documents

Use case diagram：



Database schema:

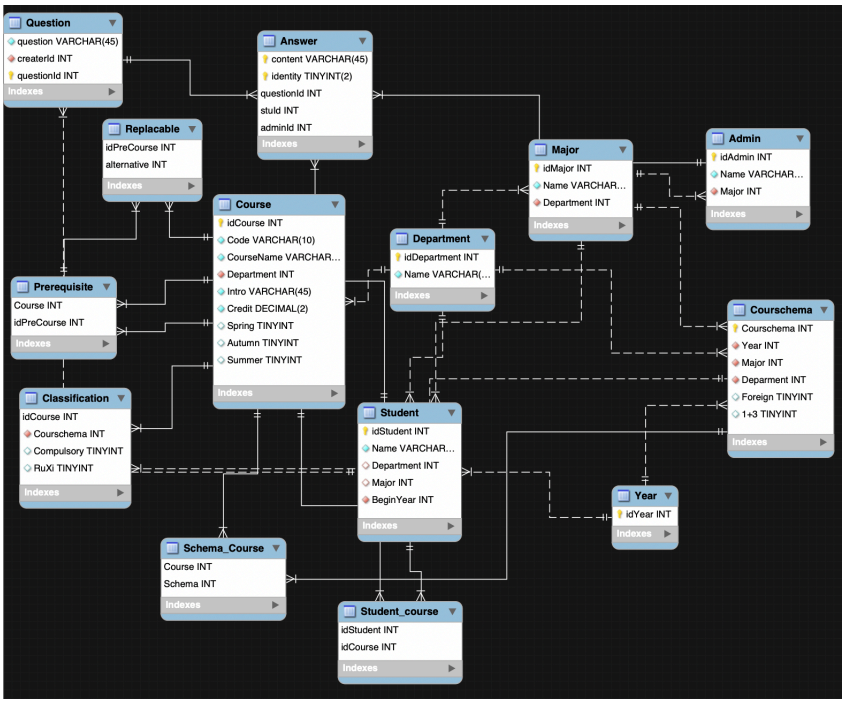
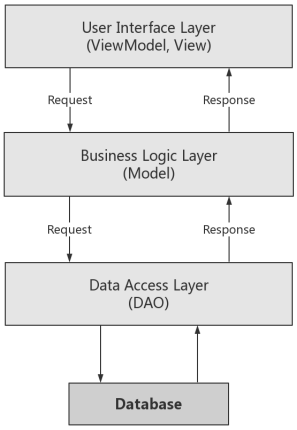


Table replacable: Our special design to represent the prerequisites courses, for example, course A has prerequisite (B and (C or D)), then in table prerequisite, A has pre B and pre Chunk1, and in replacable, chunk A has two relationships replacable C and D in two rows.

Table year is used to differentiate students of different entrance year and is used as foreign key in several tables and relationships.

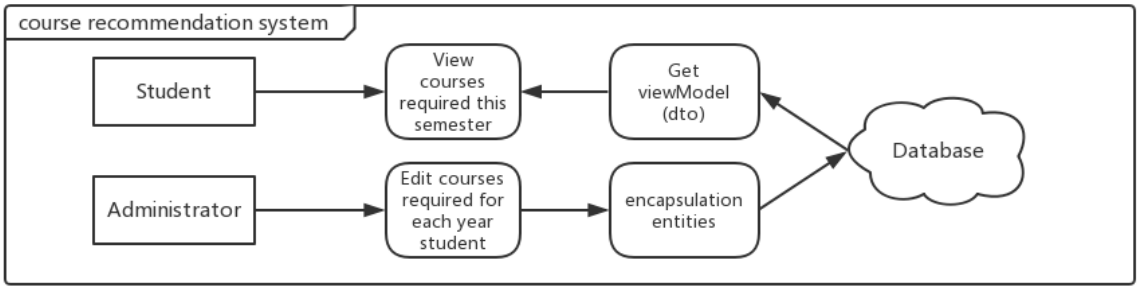
Hierarchy

Three hierarchies:



Systems

Course recommadation:



Feasibilities

Though I have tried my level best to design the system flawless and user-friendly by using modern technologies, some minor functional and design inconsistencies may exist in my order due to time constraints, design of the prototype, and cost constraints. The limitations of ”SUSchema” is: • The visualization of courses, schemas needs us to build a roadmap editor for the administrator. It might be a problem for us to create such a WYSIWYG editor(what you see is what you get.

Useful APIs and Services:

1. Vue

Useful APIs and Services https://vuejs.org/v2/guide/

2. Bootstrap

Build responsive, mobile-first projects on the web with the world’s most popular front-end component library. https://getbootstrap.com/

Technologies:

1. Doxygen http://doxygen.nl/