

IMPROVING COURSEWORK FOR WEB ENGINEERING BASED ON MVC PATTERN

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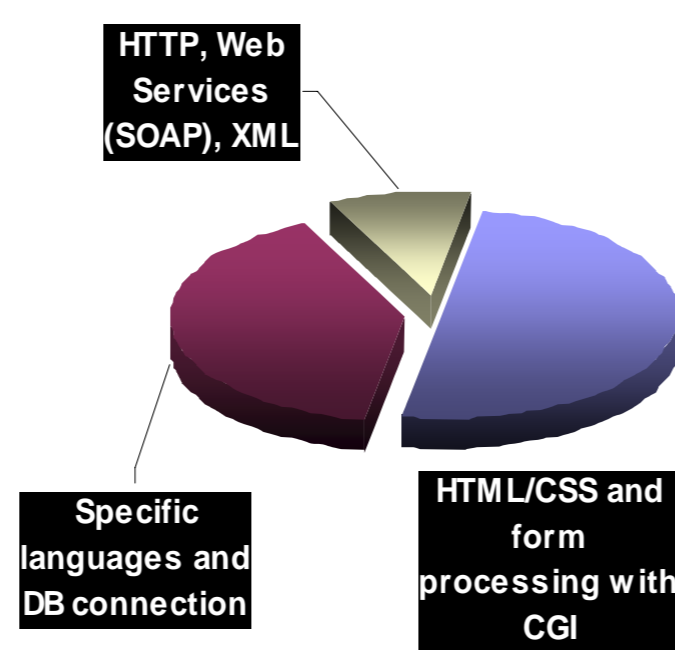
Overview

This research improves a syllabus that offers a systematic viewpoint based on a MVC pattern in both server and client, database-less programming to develop mash-up applications with open APIs for easy understanding web services. We applied this approach to two classes and found out this approach increase motivation and satisfaction of students significantly.

Motivation

The technology trend has been rapidly changed with adopting emerging technologies such as Web 2.0 consisting of AJAX, open API, REST or web standards.

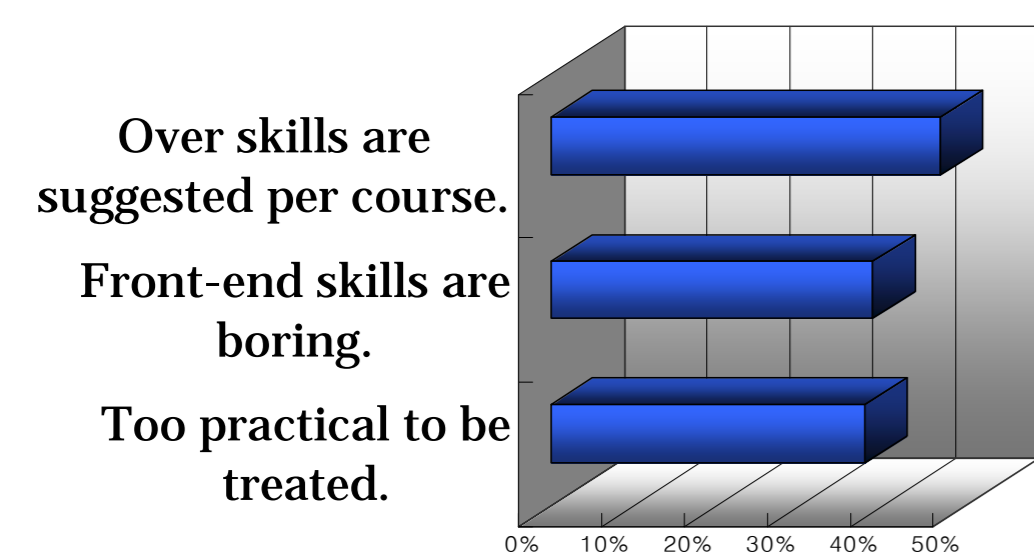
Conventional college syllabuses for coursework of web engineering are not updated yet although the Web has been evolved. Via surveying 43 web programming courses of US universities, most of all consisted of specific languages such as HTML and CGI and of database management..



The ratio of main topics for web class by surveying 43 web programming courses of US and Korean universities.

Problems

Why do not students attend to courses for web programming?



By surveying to 135 CE students of Yabian University of Science and Technology, Yanji, China and Jeju National University, Jeju, Korea.

We surveyed the students that majored in computer engineering (CE) by polling methods.

As a result, most of them do not have interests in terms of web engineering lectures.

- they do not have systemic skills to develop web sites
- they do not understand why they have to learn HTML and CSS in CE.

It needs to reduce burden for students to make interested proto-type with small skills.

Method: Redesigning a course

MVC pattern in front-end technologies

Applying web standards techniques such as HTML as a structure, CSS as presentation and JavaScript as behavior. Enable to a server-less prototype using Ajax techniques mapping Model (HTML) – View (CSS) – Controller (JavaScript) pattern.

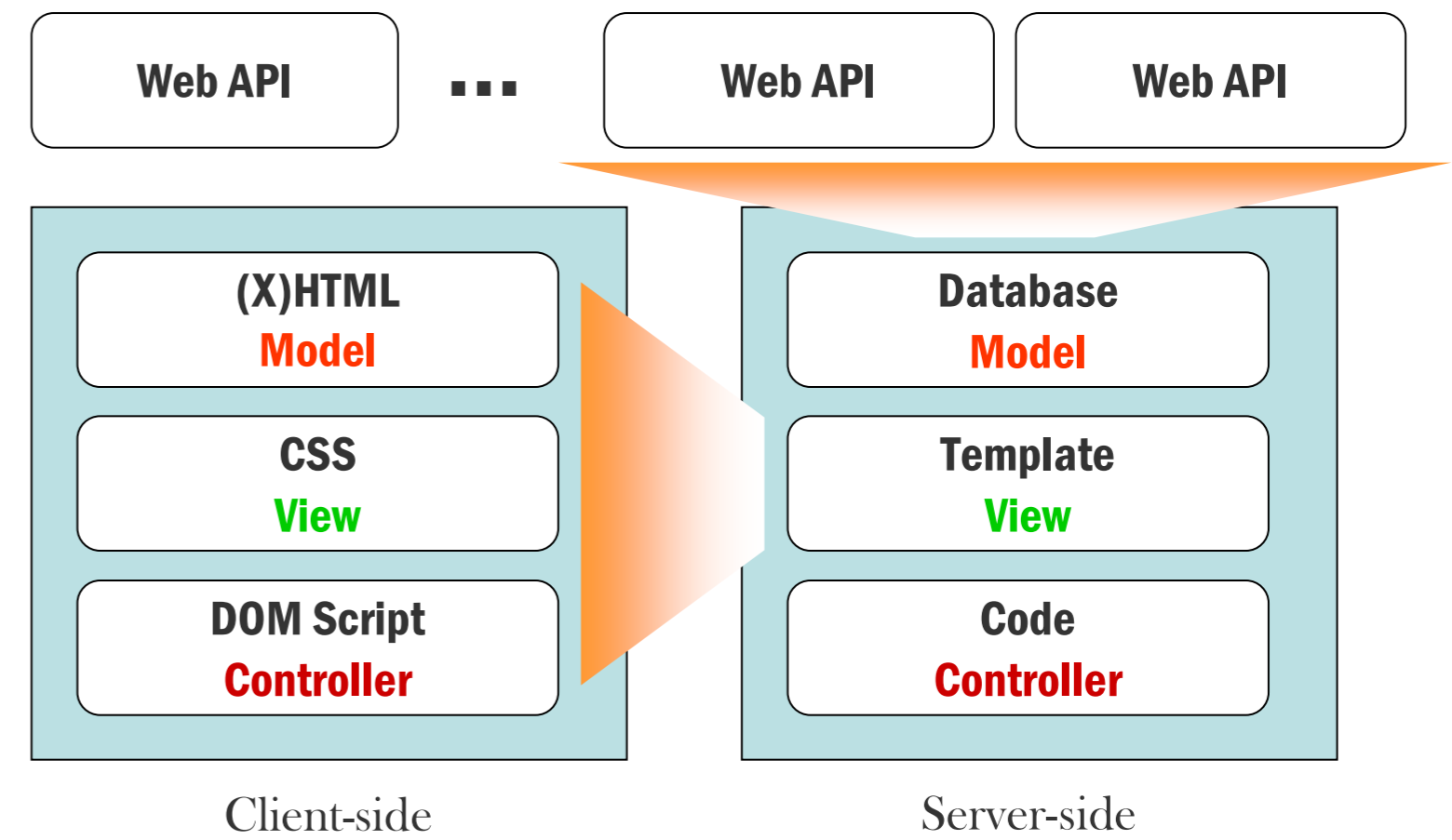
MVC enabled light-weight framework for rapid development

Recommendation of a development framework to make (construct) a rapid prototype such as PHP (CakePHP), Ruby (Ruby on Rails) and Python (Django).

Database-less programming to make mash-up application

Students can realize their idea by mashing up various Open APIs using XML/REST protocol.

Systematic learning elements



Implementation

CE312 Advanced Web Programming:

Participated 43 junior students majored in CE of spring semester in Jeju National University, Jeju, Korea in 2008.

<http://code.google.com/web-eng-class>



CE031 Internet Engineering:

35 Junior students majored in CE of summer semester in Yabian University of Science and Technology, Yanji, China in 2007connection.

<http://yust.wikispaces.com>



Results

Increasing satisfaction

- Respectively, 85% and 88% students had satisfied this coursework and **wanted to study web programming further.**
- Respectively, 83% and 92% students **understood importance of front-end technologies** in the modern web services.
- Respectively, 73% and 83% students wanted to **divide this course into three or more intensive courses.**

Induction of interests

- Students could make simple web applications via Ajax and Open APIs without server-side programming.
- They were interested in screen-cast such as “Making blog in 10 minutes” and could make their own ideas by using concrete code excises offering by Google Ajax Search and Yahoo! Maps API.

Conclusion

- Most of students could understand conventional MVC patterns can be applied in whole processes of web applications both server and client side.
- They could approach to more methodological web programming in comparison of conventional ones.
- They understood the importance of emerging front-end technologies and are initial motivated studying web engineering furthermore.
- We found out this approach increase motivation and satisfaction of students significantly.

Further works : We have to make the independent courseware of web engineering for students of computer engineering including modeling, implementation and qualifying web applications as well as redesigning entrance coursework motivating them.

Contact to channy@snu.ac.kr if you're interested in discussion!