Phase-1

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1 Introduction

For this study, we investigated the user experience of CSE courses websites and MOOC and put forward a new, efficient design for project-based course management system.

1.1 Vision Statement

This project aims to develop a modularized course management framework to make it easier and time-saving for users to participate in course activities. The project focuses on work and productivity. From different perspectives of lecturers, mentors and students, kinds of tools are implemented to reduce organization cost, communication cost or repeated operations and relaxing online learning environment will be created.

1.2 General Goals

- Build a simplistic task design system so lectures can save same task contents as a "card" or record for reuse and a dynamic timeline will be adopted, which much simplify the process of task design, release, check and acceptance.
- Provide data visualization analysis tools to evaluate performance of students.
- Ensure public information or resources are classified reasonably and readily available for relative users.
- Create instant feedback system so import issues can inform users via email or messages immediately.
- Expand the current forum feature to add a multilayered discussion area where valuable posts could be quickly and accurately found according to variety of demands and auto-generate possible answers matching with some frequent appearing questions, which aims to save time of mentors and students.
- Add an online collaboration editor for students, avoiding copying documents from Google doc or forgetting submitting in time.

1.3 Group/Team Goals

Design team: (Han Zhang, Junnan Chen)

- User experience improving
- Layout and Functions detail design
- Functional module integrating

Technique team: (Junkai Huang, Zhiqin Zhang)

- Front end and back end architecture research
- Function feasibility and effectiveness analysis
- Further solutions design, including mobile platform solution or chat bot

1.4 Individual Team Member Goals

Han Zhang -> Layout design and integrate functions to make modules, overseeing development of management controls for lecturers.

Junnan Chen -> Reminder system and online collaboration editor, overseeing development of management controls for mentors and students.

Junkai Huang -> Backend and database design and mobile platform feasibility analysis.

Zhiqin Zhang -> Frontend and data visualization tools design and chat bot feasibility analysis.

2 Problem Statements

2.1 Problem Statements

(1) There is no project design tool for lecturer.

(2) There is no online data analysis tool for a course and relative projects.

(3) The reminder system now provides too much non-valuable message.

(4) The forums are messy and it takes time to get the wanted posts among all of them. Some same questions are often posted again and again.

(5) There is no resource management design and mentors have to upload it for new term.

(6) Students work on tasks separately or have to use third-party tools.

(7) Communication and working for students cannot be processed on the same platform. For mentors, it is hard to monitor the progress of a task and for students, it is troublesome to do document integration and save the record of communication.

2.2 Methods used to infer problem statements

We consider problems from two perspectives: what are the work progresses for different kinds of users in respect? And based on personal experience, what are the most wanted features to improve work efficiency?

We brainstormed, listed all what we could think of and found the forum undertakes most functions and also should be improved most. It is believed that forum should at least serve as information provider, communication platform and resources management system. Each part of a current forum works not so well and a new design should be made, more focusing on ease of use. In terms of second point, we consider it based on our own user experience and would like to introduce the most useful tools or functions into the project. We pick up the best part of Facebook, Scribd, Google docs, Gmail and so on and try to find the relationship with our project. Also, about techinial architecture, we did some research and micro-services architecture may make it easier to manage each part of the system when user amount increases and NoSQL + OldSQL is implemented to provide high availability and high-performance.