# Development and Implementation of Innovation and Entrepreneurship Project Management System for College Students

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***Abstract*—To enhance the functions including declaration, comment, medium-term inspection, concluded verification and funds management, it is necessary to implement modern computer technology to develop the system of college students' innovation and entrepreneurship training plan management. The system adopts B/S structure and programming development which is established on object-oriented advantages of JAVA language. Certain maintenance operations such as system data storage are completed by applying MSSQL2015 database. Our system offers general design and functional module design of each sub-modules. Furthermore, it introduces database design in the system and basic data table design as well as corresponding realization. The mapping of entity-association graph from entity to table and mapping between entity relationships are used to design the database. After trial for certain time, the system is effectively operated to basically realize the design target**

***Keywords-innovation; B/S ;management system; modules***

## I. INTRODUCTION

In modern society, information technology rapidly develops and it is broadly applied in university teaching. The technological development also improves people's requirement in a series of complex management system. The innovation as well as entrepreneurship is also an important index to measure university teaching. Furthermore, with development of innovation and entrepreneurship in universities of Zhejiang province, if the advantage of information technology is applied at this time, it will play an important role in management and university students' employment as well as graduation.

Guided by management status, characteristics and specific requirements of innovation and entrepreneurship of university students, this paper applies employment content and specific handling process in universities to direct system design and uses reasonable and complete scheme to solve low-efficiency problems which are brought by traditional tools for separated management to establish technological realization platform. In order to achieve zero-maintenance of client, this system adopts B/S data framework, applies system programming development to be set up on advantages of JAVA language-oriented object and completes maintenance operation of system data storage through MSSQL2015. The system development is completed with J2EE framework application, data share and common features of internet. In addition to software application, this paper attempts to explore structure, science, data share and portability of database design in managing information system during software design and finally generates positive influence on stability, security, feasibility and life cycle of software from database design perspectives.

## II. DEMAND ANALYSIS OF SYSTEM

### A. System Implementation Scheme

Students' innovation and entrepreneurship courses gradually develop and are brought in selective courses. With courses quantity increases, courses are more and more popular for students. With development of university students' entrepreneurial activity, teaching quality of courses also rapidly improves. The combination between university students' entrepreneurial training and undergraduate teaching plan promotes university students' entrepreneurship to become one part of course systems. Courses construction, students' courses selection, credit determination and achievement management will be operated according to related regulations of courses management so that university students' entrepreneurial management will be more standardized and systematic.

To bring university students' entrepreneurial project management into teaching management system of university needs to set up scientific and reasonable confirmation system for instructors' workload. Universities are actively discussing and studying university entrepreneurship mentors' coordination and supporting measures such as qualification certification, diploma identification, experience certification, authority certification, responsibility certification, workload certification, experiment and practice base teachers' workload certification, etc, to improve teachers' activity in engaging university students' entrepreneurship direction. Universities are still actively contacting related departments to formulate various policies support and institutional reform. Through each aspect coordination, teacher's enthusiasm to participate in university students' entrepreneurship will be guaranteed and supervising teachers' high quality and high ability will also be ensured to form authentic and excellent instructors' team.

### B. Requirement Analysis of Affairs

We divide the system into several below modules: online project management, achievement management, supervisor's answering management, project information management and system management. Next, we are reasonably planning project management system of entrepreneurship and innovation for system analysis in

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business function. In terms of online project management, there are totally four main steps in the whole process:

（1）project establishment application;

（2）medium-evaluation application;

（3）concluded verification application；

（4）process management stage.

Achievement management: achievement evaluation of online management in each stage.

Supervisor answering management: in order to more effectively promote communication between supervisor and student and guarantee progress in entrepreneurship and innovation progress, this module is mainly used for supervisor's opinions, publishing related notices and each aspect of communication.

Project information management: project information management modules mainly display project progress, specific information, attention points of projects, related tables, users' operation, project establishment and concluded verification. Main process in this module is to submit school managers' project progress and related tables, check student user's project progress, download and browse related tables and information.

System management: It contains user management and security management. User management also contains user character management, information management and authority management

### *C. Non-functional Requirements in System*

Non-functional requirements of this system include:

(1) User's Operating Requirements: the designed system can satisfy user's convenient and simple realization in human-machine friendship. For instance, a mouse's selection function is used to replace user's keyboard input so as to avoid illegal input.

(2) System security requirement

(3) Maintainable

(4) Interface requirement

## III. SYSTEM DESIGN

### *A. General Hierarchical Structure Design*

The system framework adopts B/S mode and it is performed design realization in functional modules from different users' perspectives. Teaching secretaries in college complete 15 functional modules including completing the applying project quantity, distributing auditing experts, project audit in college and project publishing. Instructing teacher users' functions include 8 functional modules such as auditing project, medium-check of audit, conclusive report of audit, competition application, instructing journal, table output, information communication and passwords correction. Student user functions contain 12 functional modules such as project application, developing topic query, project certification report, medium check table, progress report, conclusive report, project list, project competition, table output, information communication, passwords correction and contact way correction. The overall hierarchy structure in system is shown as figure 1

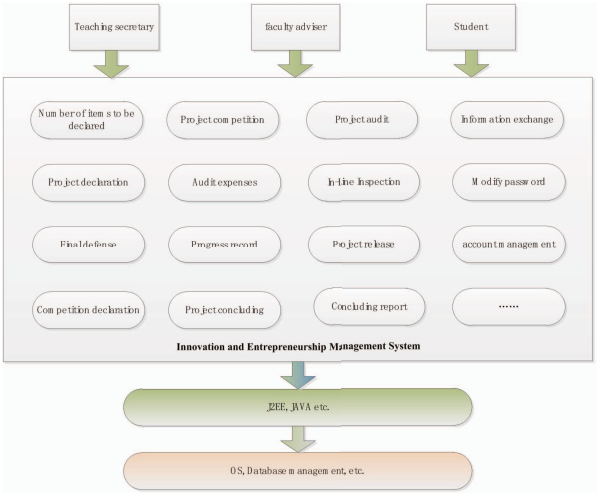


Figure 1. System architecture

The first layer is construction in software infrastructure and it mainly constructs various software systems in "operation and maintenance on communication" platform such as database, operation system, middleware, short message service. It is the most fundamental assurance in system operation. The second layer is secondary development and it adopts J2EE integrated development framework an B/S structure. The third layer, comprehensively considers different users' requirement and business practice. System Deployment Framework

The component figure in project management system mainly contains three-layer task standards and system database such as data access layer, logic processing layer and expressing layer. Web application standards contain components such as foreground sub-system, background sub-system and packet components in management. The relationship is shown as figure 2.

Web application program components in foreground sub-system are user log-in page, applying project page, medium report page of project, conclusive report page, passwords correction page, table output page, information communication page and dependence between components.

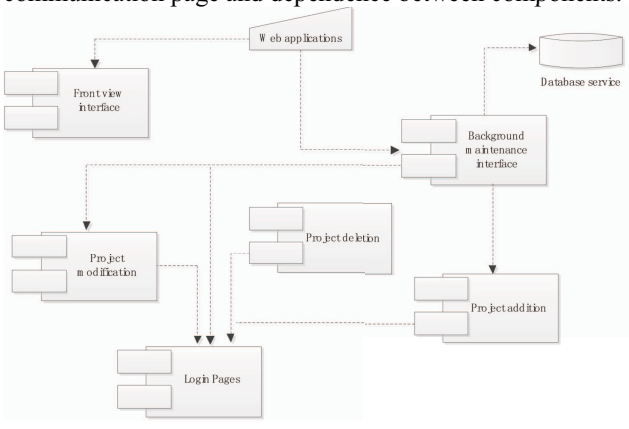


Figure 2. Component diagram

## B. Class Diagram

Static view is used to describe functional requirement of support system. This means the system offers final users' various systems but the static view in system will depend on class diagram application to complete its modeling. Class diagram will promote system developers to clearly describe each class in system and it assists detailed design codes to be realized for next step.

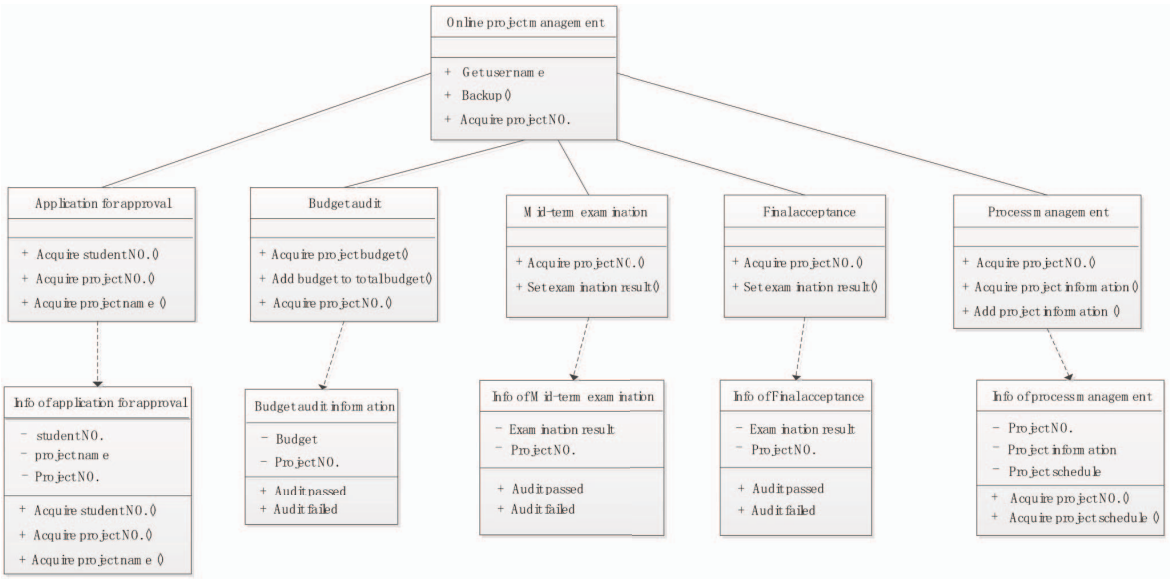


Figure 3. Class diagram of online projects management

## C. Database Design

Database needs to define database mode at first, then input data and operate the data according to needs. The database definition refers that logic mode defining database is formed by specific tables, defined its storing structure, that is, storing method and path. Complete restriction condition is defined referring to security mechanism of defining data and backup mechanism of defining data. After previously contents are defined, by inputting data we can add, delete, modify and query data according to business requirement. Meanwhile, database backup and recovery strategy will be set up according to specific situation of system.

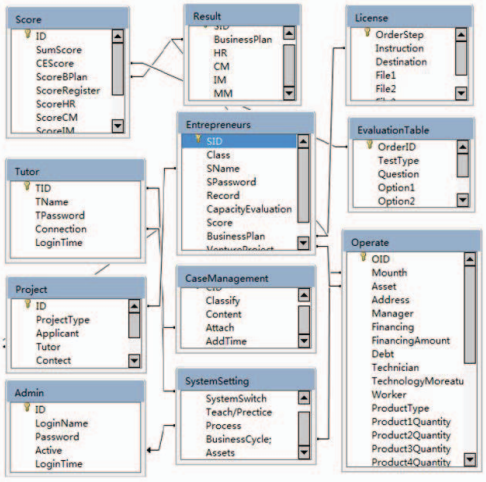


Figure 4. Data relation diagram

project process, project budget, supervisor, comprehensive achievement, project achievement, project, expert evaluator, college manager, table information ,student, etc. According to features of innovation and entrepreneurship project management system, there are user table, project table, project information table, achievement table, table-table, etc. The data relationship is shown as following figure:

# IV. System Realization and Application

Figure 5 is functional realization interface after student log-in system. Left side of interface is specific operation authority of students' user function. Middle students in interface can check system manager's publishing college information and check college teaching secretary's publishing announcement information in college.

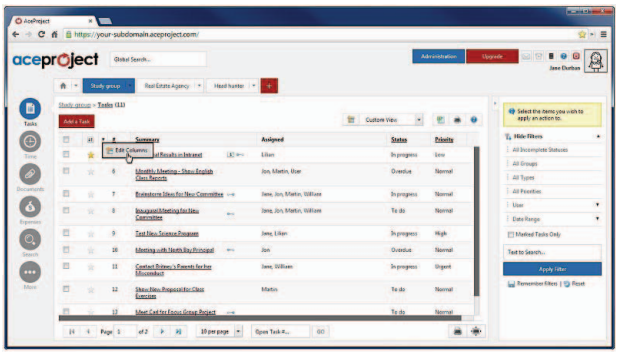


Figure 5. Student login interface

The upper interface displays currently log-in students identity information in rolling. It indicates users' current operation authority and it also indicates this user is operating this system.

The students fill in application information and submit while instructors will check project. College teaching secretary will establish project and audit. The upper interface lists three types of project application time. If it is more than this time, the project will not be applied again. If project is returned for correction, it will not be restricted by time.

The interface offers functions of correction and detailed checking. Through selecting "modify" button, users complete applying project modification and complete detailed information of applying project through choosing "detailed information" button.

Figure 6. User interface of process management of project application

Teacher-user realizing interface after instructor teachers' user login system is shown as figure 7. The left side at main interface is teacher user function to realize specific operation authority and instructors in main interface can check system manager's publishing intramural information to check college teaching secretary's announcement information in college. The upper interface displays the log-in teachers' identity information and it indicates this teacher's operating authorities. Meanwhile, it also refers that this teacher is using this system.

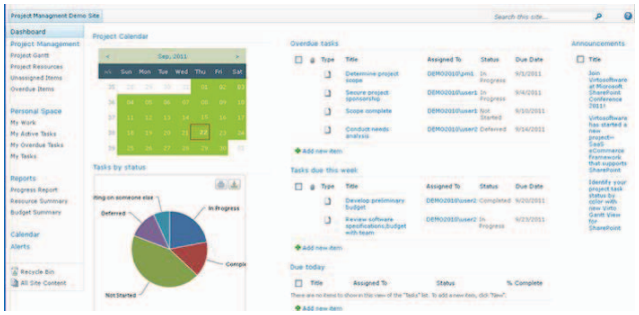

Figure 7. Main interface of guide teacher function

The auditing project interface is shown as figure 8 and the interface offers audit opinions and audit project function. The instructors choose to check audit opinions to enter browsing interface in order to browse the detailed information of audit project. Instructors choose audit operation to complete project audit towards the failed auditing project.

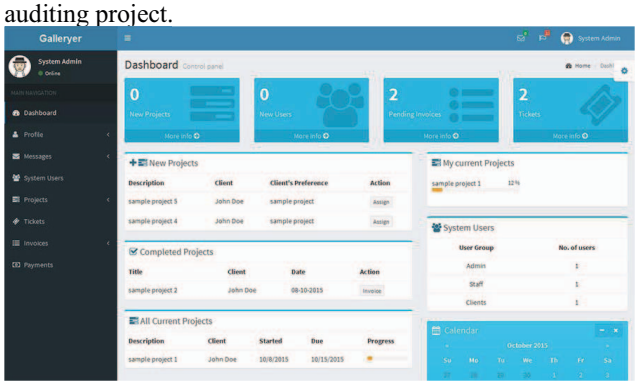


Figure 8. Project interface of management and audit

## V. CONCLUSIONS

College students' innovation and entrepreneurship project management system adopts currently popular J2EE development platform, JAVA programming technology, sets up B/S college students' innovation and entrepreneurship project management system, integrates quality and process of university employment, designs and analyzes in detail so as to put forward a complete and reasonable scheme in order to solve low efficiency of traditional excel for dispersive management. During the process of analyzing and design system, software engineering rules will be strictly operated to introduce problems definition, reliable research, request analysis, overall design, detailed and system interface design according to software thought for development. The system design adopts module function division and modulized design idea. The practice proves that system is easy to be expanded if this design is adopted to basically satisfy development requirements in science, process, standard and efficiency.

## REFERENCES


[1] Salwen P. Fostering Innovation and Entrepreneurialism in a Value-Driven Organization. Leadership & Management in Engineering, 2003, 3(3):153-158

[2] Xu J, Houssin R, Caillaud E, et al. Fostering continuous innovation in design with an integrated knowledge management approach. Computers in Industry, 2012, 62(4):423-436

[3] Bielenia-Grajewska M, Carayannis E G, Campbell D F J. Linguistic Dimension of Creativity, Invention, Innovation, and Entrepreneurship. Encyclopedia of Creativity Invention Innovation & Entrepreneurship, 2013, 7(1):77–78

[4] Zhang wen, wu zongxi.Journal of power science and technology,2015,30(4):71-77

[5] Edwards-Schachter M, García-Granero A, Sánchez-Barrioluengo M, et al. Disentangling competences: Interrelationships on creativity, innovation and entrepreneurship. Thinking Skills & Creativity, 2015, 16:27-39

[6] Miles I D. Cultures and Innovation. Journal of Nuclear Cardiology, 2011, 16(5-6):1-3