**北京邮电大学 本科毕业设计（论文）任务书**

**Project Specification Form**

**Part 2 - Student**

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| **学院**  **School** | International School | **专业**  **Programme** | Choose an item. | | |
| **姓**  **Family name** |  | **名**  **First Name** |  | | |
| **BUPT学号**  **BUPT number** |  | **QM学号**  **QM number** |  | **班级**  **Class** |  |
| **论文题目**  **Project Title** | Design and Implementation of Collaborative -Learning Web Platform | | | | |
| **论文概述**  **Project outline**  **Write about 500-800 words**  **Please refer to Project Student Handbook section 3.2** | **Project Aim**:  The main goal of this project is to design and build an online learning platform.  The main users of the platform are：  students who want to review the content of the classroom,  students who want to learn the extended content,  and even individuals who do not have the opportunity to go to high school or college.  The main purpose of the platform is to make learning an autonomous process,：Students or their classmates can upload course or topic-related materials, test papers, and answers to the test papers, ask questions and comments on the relevant study materials, and then give peer review of the answers to the questions. Students will not be interrupted by the relentless class time when they are studying problems at classroom. And the goal of this system is to help students deepen their understanding by accessing learning content and lectures anytime them want. This system allows students to study no longer just for exams, but through the connection and recommendation of knowledge, there can be more organic connection between the content for students. With the assistance of our system, students have the freedom of time from classroom, and they are guided by their own curiosity and follow the path of interest, because the recommendation part of the system and the knowledge map can better connect the learning content.  **Project Objectives**:  The E-Learning system functions currently consist of the following:  1. User registration/login/  Users can register according to email/phone/username, etc., can have nickname, password  2. Personal homepage  Users can have their own personal profile, and the profile can modify the information of various first steps  3. Permission division (administrator/common user)  Administrators can see the upload material detail list, add, delete, modify and check courses  4. The introduction page of the material (title, content)  5. exam paper and questions related material upload function, material download function  6. give comments and add questions on the material page and related area.  7. The home page of the website displays the learning material, go to registration, login, personal homepage, various places  8. Some advanced functions, such as the information of the E-learning whole station course, do the knowledge graph function (analysis, knowledge graph association and visualization, **Optional**, advanced features to implement if we have time)  9. Recommendation system (using collaborative filtering recommendation algorithm based on offline data of other users, recommending courses that users may be interested in/should learn **Optional**, advanced features to implement if we have time)  The current educational system divides knowledge into disciplines and further divides disciplines into separate units. There is a potential risk in this division, which creates the illusion that each point of knowledge is scattered and unrelated. This is a very serious problem, but a more fundamental problem is that the knowledge points may not be fully covered, this is because the school decides the learning progress according to the learning time of each knowledge point, not according to the mastery of each student degree to arrange the study plan. After finishing a knowledge point according to the allotted time, the teacher will quiz the students and start to move on to the next knowledge. And through collaboration tools, learners can share experiences and complement each other's knowledge gaps.  In this environment, learners face the problems of "information overload". Personalized recommendation system is an effective way to solve "information overload". The recommendation system mines the learner's potential interest preference according to the learner's historical behavior, calculates the similarity between the learner and the resource, and recommends the teaching resources that may be of interest to the learner.  The learning process of learners has the characteristics of gradual progress and knowledge from shallow to deep. There are rich logical relationships between the knowledge points contained in the teaching resources. Therefore, it is necessary to consider the relationship between the knowledge points.  I've always felt that with the help of online video courses /related learning materials that are self-paced by students, already interactive and assisted by big data, coupled with computer feedback and the help of a team of teachers, students only need to spend 1-2 hours a day on basic courses, but they are free hours to work on individual or group innovative projects, such as writing poetry, writing computer code, making movies, building robots, painting, or conducting small experiments related to physics or mathematics.  **Expected outcomes**: A real system that is usable and practical to help review and learn related knowledge outside of the classroom. It can really help students, this is what I expected it to be. Through collaborative platforms, learners can share experiences, help each other and become friends of learning! | | | | |
| **道德规范**  **Ethics**  **Please discuss ethical issues with your supervisor using the ethics checklist in Project Handbook Appendix 1.** | Please confirm by checking the box:  I confirm that I have discussed ethical issues with my supervisor. | | | | |
| Summary of ethical issues:  (write “None” if no ethical issues)  None | | | | |
| **中期目标**  **Mid-term target.**  **It must be tangible outcomes,**  **E.g. software, hardware or simulation.**  **It will be assessed at the mid-term oral.** | **Finished Initial areas of research**:  Initially, I plan to build the main framework of the website(flask/bootstrap/vue/Sqlchemy), including video uploading and downloading of online courses, as well as user registration and login systems. I think this is the initial basic function.图像  Follow-up advanced features: knowledge graph system, I will decide whether to add it later  Main Function 1: Build the main structure and permission system of the website  Create basic wsgi server to server requests  Create user related function: create/edit/delete/search/manage user object  Create login user function  Create loginout user function  Create register user function  Main Function 2: Building the website's UI and template system  Create home page template  Create user-profile page( show page, edit page)  Create learning-meterial list home page  Create learning-meterial detail page  Create add/edit/delete /list pages of user object  Create add/edit/delete /list pages of learning-meterial object  Create database related class of user object  Create database related class of earning-meterial object  Main Function 3: Building Website Backend and CROS APIs  Main Function 4: Building the Sharing comments and reviews widges part o f Website special parts | | | | |
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**Work Plan (Gantt Chart)**

Fill in the sub-tasks and insert a letter X in the cells to show the extent of each task

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|  | **Nov**  **1-15** | **Nov**  **16-30** | **Dec**  **1-15** | **Dec**  **16-31** | **Jan**  **1-15** | **Jan**  **16-31** | **Feb**  **1-15** | **Feb**  **16-28** | **Mar**  **1-15** | **Mar**  **16-31** | **Apr**  **1-15** | **Apr**  **16-30** |
| **Task 1 [Replace this line with the task 1 from the Spec part 1]** | | | | | | | | | | | | |
| This is an example sub-task (please delete it). Please enter your sub-task here. | X | X | X |  |  |  |  |  |  |  |  |  |
| Search web pages and papers about the collaborative learning theory by keywords |  |  |  |  |  |  |  |  |  |  |  |  |
| Research the existing technologies used in collaborative learning platform and analyze these technologies. |  |  |  |  |  |  |  |  |  |  |  |  |
| Compare the technologies used by these tools and choose the technology that is more suitable for the development of the project |  |  |  |  |  |  |  |  |  |  |  |  |
| **Task 2 [Replace this line with the task 2 from the Spec part 1]** | | | | | | | | | | | | |
| Through analyzing the comments and opinions of the platform's main users, namely university students, on the cooperative learning tool, the user needs are analyzed. |  |  |  |  |  |  |  |  |  |  |  |  |
| Decompose the project functions in the project description, modularize the functions, and use the form of case diagram to describe user requirements. |  |  |  |  |  |  |  |  |  |  |  |  |
| Design online cooperative learning tools according to the above analysis |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Task 3 [Replace this line with the task 3 from the Spec part 1]** | | | | | | | | | | | | |
| implement the back-end based on function modules(restful api/ cros api) |  |  |  |  |  |  |  |  |  |  |  |  |
| Design and implement the database(Identify the main entity and define the attributes of the entity) |  |  |  |  |  |  |  |  |  |  |  |  |
| Implement the ui interface according to the design and connect with the project back-end |  |  |  |  |  |  |  |  |  |  |  |  |
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| **Task 4 [Replace this line with the task 4 from the Spec part 1]** | | | | | | | | | | | | |
| We would commit some unit test/ Regression Test to make sure the system is what we want. |  |  |  |  |  |  |  |  |  |  |  |  |
| Carry out functional testing to verify the functional modules of the product. We will try to use some learning materials (such as multimedia knowledge) to interact with classmates to see if the interaction and functions need to be adjusted |  |  |  |  |  |  |  |  |  |  |  |  |
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