106學年度第1學期資訊管理研究所博士班資格考

科目:高等軟體工程

1. Software configuration management (SCM) plays a critical role in guaranteeing software quality assurance. Please explain what it is for the importance and how it can be better executed in some approaches. Please also provide a simple example to explain your approach. (11%)
2. Please discuss requirements modeling in software development for its importance and relative approaches. The approaches need to be explained in a detailed manner. (11%)
3. Please discuss the differences between the methods of structural analysis/design and object-oriented analysis/design in terms of the general approach in an overall perspective and the specific approach in a detailed perspective. Furthermore, how are these two methods similar in certain degrees in terms of the stage of analysis, design, and implementation? For example, this may be important for using structural analysis/design with object-oriented programming. (11%)
4. To achieve rapid development, the RAD model assumes the existence of one thing. What is it, and why is the assumption not always true? In such cases, what other development approaches are better options? (11%)
5. How are the concepts of coupling and software portability related? Provide examples to support your discussion. (11%)
6. Explain the difference between a database that services one or more conventional business applications and a data warehouse. (11%)
7. The following dialogs happen to you in days before a projects deadline. (11%)

programmer A said: “Oh ! My God! I do not know I need to write that part ! When did we have a deal?”

programmer B complains to others: “We have an agreement (in words) on the interface and specification, when did you change that?”

programmer C complains: “How come his module (procedures) is not tested? how can we do the integration testing?”

programmer D complains: “Why F’s module do different things when called several times?”

programmer E is in charge of debugging and he complains: “How come programmer X can write such a lousy program that I cannot even read?”

Programmer F complains: “How come during integration, there are so many bugs and isolate the bugs are difficult?”

Programmers G complains: “how come the design is wrong and does not work in the beginning?”

Programmer H complains: “How come the product manager keep enforce us to change specification in the middle of development?”

Suppose you are in charge of another project. All people is under your supervision. What will you do to avoid the mess incurred by the programmers from A to H?

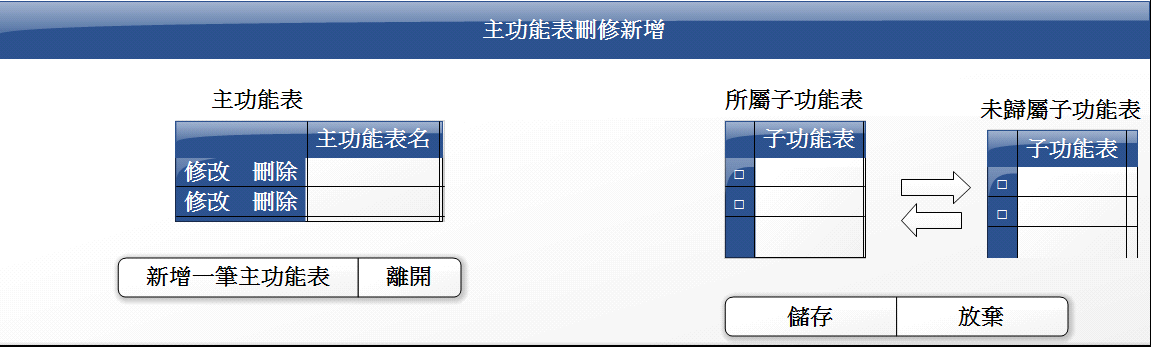
1. The following figures are parts of SA documents for the alumnus system of College. The screen layout in the first figure is for the Creating/deleting/modifying a group; the second is for the selecting/unselecting an employee from a group. The group is used to define which employees belong which group. (11%)

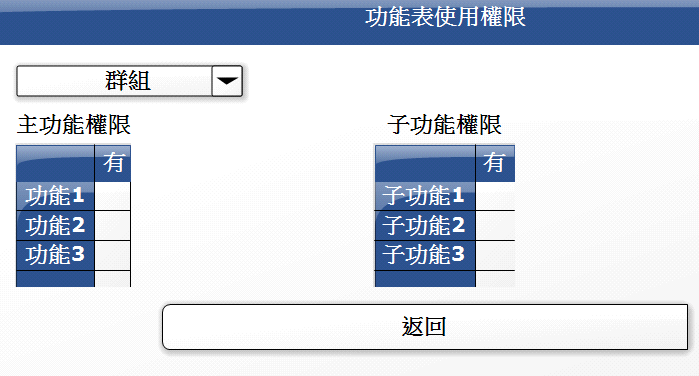




The third figure is used for add/delete a main menu, and modify the name of the main menu; in addition, the right in the third figure is to define which submenu functions belong the main menu being focused (i.e., clicked).

The fourth figure in the bottom indicates the submenu’s name, icon, and method’s name. The fifth figure indicates what group has what functions of main menu functions and indicates, for each main function, the group has what functions of submenu. Please design the group, menu and privilege classes to support the group operation, privilege assignment and main menu and submenu create/delete/modify operations.



1. For the following methods vs. test cases. In test sequence 1, the test case set {T1, T2, T3} passes method A+B. In test sequence 2, the test case set {T1, T2, T3, T4} will test method A+B+C. Assume test case T4 invokes method C. Assume T4 fails and test case set {T1, T2, T3} also fails in A+B+C. Can we imply method C has a problem? What is the reason? (11%)

