**物件導向程式設計**

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| **命題者︰ Pin-Shao Chen** |
| **題目名稱(中文/英文)：Student Course System** |
| **主要測試觀念：**   |  |  | | --- | --- | | **Basics** | **Functions** | | ■ C++ BASICS  ■ FLOW OF CONTROL  ■ FUNCTION BASICS  □ PARAMETERS AND OVERLOADING  ■ ARRAYS  □ STRUCTURES AND CLASSES  □ CONSTRUCTORS AND OTHER TOOLS  □ OPERATOR OVERLOADING, FRIENDS, AND REFERENCES  ■ STRINGS  □ POINTERS AND DYNAMIC ARRAYS | □ SEPARATE COMPILATION AND NAMESPACES  □ STREAMS AND FILE I/O  □ RECURSION  □ INHERITANCE  □ POLYMORPHISM AND VIRTUAL FUNCTIONS  □ TEMPLATES  □ LINKED DATA STRUCTURES  □ EXCEPTION HANDLING  ■ STANDARD TEMPLATE LIBRARY  □ PATTERNS AND UML | |
| **題目說明：**  Design a course registration system, which can do the following things:  1. Add or delete a student.  2. Add or delete a course.  3. List the schedule of every student.  To be specific, please implement the commands below:  **AddStudent <Student\_name>**  Add a student. If the student already exists, output “**The student's name is duplicate.**”  **AddCourse <Student\_name> <Course\_name> <class\_time1> <class\_time2>…**  Add a course for the student, if the course will conflict with the schedule, output “**Course conflict.**”  **DelStudent <Student\_name>**  Delete a student.  **DelCourse <Student\_name> <Course\_name>**  Delete the course from the student's schedule.  **Print StudentList**  List all student's names in insertion order. Output “**The** **Students list is empty.**” if the StudentList is empty.  **Print <Student\_name>**  Print the schedule for the student in insertion order. Output **empty schedule** if the schedule is empty.  Example of empty schedule:  M:  T:  W:  R:  F:  Example of schedule:  M: 2:Math 3:Math 4:Math  T:  W: 1:DeepLearning 2:DeepLearning  R: 4:DeepLearning  F:  **Print <Student\_name> <Course\_name>**  Print information of the course.  Example:  >Print Jason Math  Math M2 M3 M4  If the input is trying to delete or print a non-existent student, output “**The student's name does not exist.”**  If the input is trying to delete or print a course that is not on the schedule, output “**The course does not exist.”**  **Schedule format:**   |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | |  | **M** | **T** | **W** | **R** | **F** | | **1** |  |  |  |  |  | | **2** |  |  |  |  |  | | **3** |  |  |  |  |  | | **4** |  |  |  |  |  | | **5** |  |  |  |  |  | | **6** |  |  |  |  |  | | **7** |  |  |  |  |  | | **8** |  |  |  |  |  | | **9** |  |  |  |  |  | | **10** |  |  |  |  |  |   **輸入說明：**Input some commands to operate course registration system.  **輸出說明：**Print expected output or error message of commands.  **IO範例 :**   |  |  |  | | --- | --- | --- | |  | **Sample Input** | **Sample Output** | | 第一組測資與輸出 | AddStudent Jason  Print Jason  AddCourse Jason Math M2 M3 M4  AddCourse Jason DeepLearning W1 W2 R4  Print StudentList  Print Jason Math  Print Jason  DelStudent Jason  DelCourse Jason Math  Print StudentList | M:  T:  W:  R:  F:  Jason  Math M2 M3 M4  M: 2:Math 3:Math 4:Math  T:  W: 1:DeepLearning 2:DeepLearning  R: 4:DeepLearning  F:  The student's name does not exist.  The Students list is empty. |  | | 第二組測資與輸出 | AddStudent Mike  AddStudent Mike  Print Mike  Print StudentList  DelCourse Mike Math  AddCourse Mike DeepLearning W1 W2 R4  AddCourse Mike Math W1 W2 W3  AddCourse Jason DeepLearning W1 W2 R4  Print Mike English  Print Mike  DelStudent Jason  DelCourse Jason Math | The student's name is duplicate.  M:  T:  W:  R:  F:  Mike  The course does not exist.  Course conflict.  The student's name does not exist.  The course does not exist.  M:  T:  W: 1:DeepLearning 2:DeepLearning  R: 4:DeepLearning  F:  The student's name does not exist.  The student's name does not exist. | | … |  |  | |
| **附屬資料︰**  🗹 解答程式：01\_CourseRegistrationSystem.cpp  🗹 測試資料：input1.txt, output1.txt, input2.txt, output2.txt, input3.txt, output3.txt,input4.txt, output4.txt |
| □易，僅需用到基礎程式設計語法與結構  ■中，需用到多項程式設計語法與結構  □難，需用到多項程式結構或較為複雜之資料型態或結構 |
| **解題時間： 30**分鐘。 |
| **其他註記：** |
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