**XJTLU Entrepreneur College (Taicang) Cover Sheet**

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| --- | --- | --- |
| Module code and Title | **DTS102TC Programming with C++** | |
| School Title | **School of Artificial Intelligence and Advanced Computing** | |
| Assignment Title | **Coursework 2 (CW 2)** | |
| Submission Deadline | **5 pm China time (UTC+8 Beijing) on Fri. 3rd. Nov. 2023** | |
| Final Word Count | **NA** | |
| If you agree to let the university use your work anonymously for teaching and learning purposes, please type **“yes”** here. | |  |

I certify that I have read and understood the University’s Policy for dealing with Plagiarism, Collusion and the Fabrication of Data (available on Learning Mall Online). With reference to this policy I certify that:

* My work does not contain any instances of plagiarism and/or collusion.  
  My work does not contain any fabricated data.

**By uploading my assignment onto Learning Mall Online, I formally declare that all of the above information is true to the best of my knowledge and belief.**

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| **Scoring – For Tutor Use** | | | | | | |
| **Student ID** | | | |  | | |
|  | | | | | | |
| **Stage of Marking** | | **Marker**  **Code** | **Learning Outcomes Achieved （F/P/M/D）**  **(please modify as appropriate)** | | | **Final**  **Score** |
| **A** | **B** | **C** |
| 1st Marker – red pen | |  |  |  |  |  |
| Moderation  – green pen | | **IM**  **Initials** | The original mark has been accepted by the moderator (please circle as appropriate): | | | Y / N |
|  | Data entry and score calculation have been checked by another tutor (please circle): | | | Y |
| 2nd Marker if needed – green pen | |  |  |  |  |  |
| **For Academic Office Use** | | | **Possible Academic Infringement (please tick as appropriate)** | | | |
| **Date**  **Received** | **Days late** | **Late Penalty** | **Category A** | | Total Academic Infringement Penalty (A,B, C, D, E, Please modify where necessary) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | |
|  |  |  | **Category B** | |
| **Category C** | |
| **Category D** | |
| **Category E** | |

**Students**

**(Please modify where necessary)**

The assignment must be typed in an MS Word and converted to a PDF document. The document must be submitted via Learning Mall Online to the correct drop box. Only electronic submission is accepted and no hard copy submission.

All students must download their file and check that it is viewable after submission. Documents may become corrupted during the uploading process (e.g. due to slow internet connections). However, students themselves are responsible for submitting a functional and correct file for assessments.

**DTS102TC Programming with C++**

**Coursework 2 (Group Assessment)**

**Due: 5:00 pm China time (UTC+8 Beijing) on Friday 3rd. Nov. 2023**

**Weight: 50%**

**Maximum score: 100 marks (60 group marks + 40 individual marks)**

**Groupings: Each group consists of 4-5 students. The detailed grouping table is published in the group assessment section.**

**Assessed learning outcomes:**

**C. Develop software development skills covering program design, coding, testing, debugging, and executing.**

**D. Demonstrate understanding of the principles of object-oriented programming.**

**Overview**

The purpose of this task is to gain experience in C++ programming and develop software development skills. You are expected to write a C++ program to develop a book system.

The module management system is a classic data management system. The system covers three categories of personnel: academic staff, module teachers, and students, as well as functions such as student object, teacher object, and staff object. The following is a detailed description of each role's functionality.

**Students object:**

1. Students can log in to the system through their account and password on the login interface;

2. Students can modify their phone and address after selecting personal information;

3. Students can see a list of all elective modules on their personal homepage;

4. Students can select a module to view final grade of the module;

**Teachers object:**

1. Teachers can log in to the system through their account and password on the login interface;

2. Teachers can modify their phone and address after selecting personal information;

3. Teachers can see a list of all modules taught on their personal homepage;

4. Teachers can select a module, then enter and modify the students’ grades. Once the students’ grades are published, teachers are not allowed to modify the student’s grades for one module.

**Staff object:**

1. Staff can log in to the system through their account and password on the login interface;

2. Staff can add, modify, and delete the information in user table, including adding all personal information about staff, students and teachers;

3. Staff can add, modify, and delete module information in the module table, including module ID, module name, use name, use category, and use grades;

4. Staff can publish or retrieve module grades on the module interface.

**Sample of User Information Table in “user.txt” file.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| index | use\_id | use\_name | use\_password | use\_category | use\_phone | use\_address |
| 1 | Sf001 | Fang Ming | 123456 | staff | 0512-25634500 | Suzhou |
| 2 | Te002 | Tommy J. | 124578\* | teacher | 0512-25634578 | London |
| 3 | St003 | Gao Wen | Dount\_t8 | student | 13654892541 | Suzhou |

**Sample of Module Information Table in “module.txt” file.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| index | module\_id | module\_name | teacher\_id | student\_id | student\_grades | status |
| 1 | DTS102TC | C++ | Te002 | St003 | 79.5 | Released |
| 2 | DTS102TC | C++ | Te002 | St023 | 55.0 | Released |
| 3 | DTS002TC | Big Data | Te005 | St003 | 60.0 | Not Released |

**Tasks**

You are required to use the Internet resources and refer to the e-bridge of XJTLU to design a simple student module management system, and complete the system development with C ++ program language, and test the system process.

**1 Program Design (10 group marks)**

Read the overview of the project carefully,use flowcharts tools for system process design. The system process design covers:

a) Process design for normal operation of all objects. **(8 marks)**

b) Process design of abnormal operation of all objects. **(2 marks)**

**2 Program Implementation (40 group marks)**

Complete the program implementation using C++ language based on the program design. This sub-task covers:

i) code implementation of login functions for different objects. **(5 marks)**

ii) code implementation of personal information operation functions for different objects. **(5 marks)**

iii) code implementation staff's operation function on user information table. **(5 marks)**

iv) code implementation staff's operation function on module information table. **(5 marks)**

v) code implementation of the teacher's operation on the module information table. **(5 marks)**

vi) code implementation for students to view module information tables. **(5 marks)**

vii) code quality covering naming rules of variables and comments of functions. **(5 marks)**

viii) object-oriented program development covering object definition and object encapsulation.

**(5 marks)**

**3 Program Testing (10 group marks)**

Execute the developed system and complete the system function test.

i) normal operation testing of all objects. **(8 marks)**

ii) abnormal operation testing of all objects. **(2 marks)**

**4 Peer Review (40 individual marks)**

Review your peers based on the project contribution. This will be done on LMO anonymously, each of the group members should log in to their LMO account and submit the marks individually. Marks should be submitted within a week after the group work submission is done. Peer review rubrics are attached in the Appendix.

**Submission**

One of the group members must submit the following files:

* A ***Group\_ID***.***pdf*** file contains a cover letter with your group member information, and all the program design, all source code and test results.
* A ***Group\_ID.zip*** file contains your program implementation and output files, such as ***user.cpp, user.h,*** ***module.cpp, module.h, main.cpp, user.txt, and module.txt****.*

**Appendix**

Table 1 Peer Review Rubrics

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Marks | 8 | 6 | 4 | 2 | 0 |
| Contributions | Routinely provides useful ideas when participating in the group discussion. A leader who contributes a lot of effort. | Usually provides useful ideas when participating in the group discussion. A strong group member who tries hard! | Sometimes provides useful ideas when participating in the group discussion. A satisfactory group member who does what is required. | Rarely provides useful ideas when participating in the group discussion. May refuse to participate. | No contribution or no submission. |
| Problem- solving | Actively looks for and suggests solutions to problems. | Refines solutions suggested by others. | Does not suggest or refine solutions, but is willing to try out solutions suggested by others. | Does not try to solve problems or help others solve problems. Lets others do the work. | No contribution or no submission. |
| Attitude | Is never publicly critical of the project or the work of others. Always has a positive attitude about the task(s). | Is rarely publicly critical of the project or the work of others. Often has a positive attitude about the task(s). | Is occasionally publicly critical of the project or the work of other members of the group. Usually has a positive attitude about the task(s). | Is often publicly critical of the project or the work of other members of the group. Is often negative about the task(s). | No contribution or no submission. |
| Focus on the task | Consistently stays focused on the task and what needs to be done. Very self-directed. | Focuses on the task and what needs to be done most of the time. Other group members can count on this person. | Focuses on the task and what needs to be done some of the time. Other group must nag, remind to keep this person on task. | Rarely focuses on the task and what needs to be done. Lets others do the work. | No contribution or no submission. |
| Working with others | Almost always listens to, shares with, and supports the efforts of others. Tries to keep people working well together. | Usually listens to, shares, with, and supports the efforts of others. Does not cause "waves" in the group. | Often listens to, shares with, and supports the efforts of others, but sometimes is not a good team member. | Rarely listens to, shares with, and supports the efforts of others. Often is not a good team player. | No contribution or no submission. |

**End of Coursework**