**OOP Midterm2 Exam**

Spring, 2019

01 June 2019, 13:10 pm – 17:10pm

**The questions are on the second page.**

**File:** <https://ssl-gitlab.csie.ntut.edu.tw/root/oop2019s-midterm2_question>

**Please do the following steps before you start.**

1. **Change to the directory you want**:   
   $ cd {YourWorkingDirectory}
2. **Initialize git configuration:**   
   $ git config --global user.name “Name”   
   $ git config --global user.email example@example.com
3. **Clone your gitlab project**:   
   $ git clone https://ssl-gitlab.csie.ntut.edu.tw/{學號}/{學號}\_HW.git
4. **Change to you project directory**:   
   $ cd {學號}\_HW
5. **Copy the files given by TA to your directory, and REPLACE all the conflicting files.**
6. **Add changes to commit**:   
   $ git add .
7. **Commit your changes**:   
   $ git commit –m “Midterm2: initialize”
8. **Push the commits to gitlab**:   
   $ git push –u origin master
9. **Start coding and commit every 10 to 20 minutes.**
10. **Check the result on Jenkins.**Jenkins url: [https://ssl-jenkins.csie.ntut.edu.tw/](https://ss-jenkins.csie.ntut.edu.tw/)

因為很重要所以用中文聲明，本次不接受最後補交(即JENKIS關閉就結束)，請各位自行拿捏PUSH的時機。即使最後因為JENKINS塞車導致上傳失敗也不會再開放補交。

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**Problem:**

Write a course system for use by NTUT administrator to manage the relationship between courses and students. To implement the system, you’ll need two classes: **Student** and **Course.** There are two types of students: **Undergrad** and **Grad.**

**Specifications:**

1. A **Student** has a **name** and **id**.
2. The administrator should be able to **add** one or more students in to a **Course**, and **get a list of students by names in increasing alphabetical order**. When a **Student** is added to a **Course**, he/she will get an initial score of -1 for the course.
3. The scores of students in a **Course** can be **set** with a list of student-IDs and a matching a list of scores. After setting, scores of corresponding **Student** objects should be updated.
4. The administrator should be able to get the list of **failed students** of a **Course**.
5. An **Undergrad** passes a course if the score is at least 60 while a **Grad** student passes if the score is at least 70.

**Additional requirements:**

1. Please push your program to your gitlab account and go to Jenkins to check the execution result.
2. Please put all your source code in src/student.h and unit tests in test/ut\_student.h

**Resources you are allowed to use:**

- cplusplus.com [http://www.cplusplus.com/]

- Cambridge Dictionary [https://dictionary.cambridge.org/zht/]

- Code from the course on gitlab

- Your own code in homework repository on gitlab

**Attention!! Do not visit other website, otherwise, you’ll be considered as cheating.**