



UNIVERSITY OF COLOMBO SCHOOL OF COMPUTING
SCS 2104 - Programming III

Take Home Assignment - 2018

Getting a good grade:

All questions require you to write an object-oriented program, making full use of classes, objects and all their associated features. Marking will take into account the quality of the program you write. particularly pay attention to the following:

- Proper declaration and use of classes.
- Proper use of objects
- The layout and presentation of the program code
- Appropriate selection of variables and method names
- Exception Handling
- Good use of comments to make sure that your code is properly documented

A clean straightforward working program, making good use of classes and objects, is considered better than a larger and more complex but less well-organized program.

***** **IMPORTANT** *****

All work must be your own. All forms of plagiarism and cheating (for example downloading programs/content directly from the Internet or copying from another student) are regarded seriously and could result in **heavy penalties including failure in the assignment.**

Assignment

Scenario:

NSBM Green University (NSBM) requests you to design a course enrolment system. The NSBM enrollment system is expected to store and maintain enrolment activities and records for all students in three faculties: School of Business, School of Computing and School of Engineering.

NSBM accepts two intakes every year, one occurs in February and the other is in July. All faculties provide a number of Bachelor and Master Courses. The Bachelor course normally take three years to complete for Business and Computing, except Engineering Bachelor course requires four years. But based on students' performance of first two years, a selected number of students will be able to follow four year degree courses under Business and Computing faculties. All master courses take students two years to finish all requirements. Every year, Students will have two semesters. Each semester, a full-time student with 100% study load needs to take four subjects. Subject carries 2 or 3 credits. That is, for a three-year Bachelor course, student should complete 30 credits in each year; for a four-year Bachelor course, students will complete 32 credits in each year. A master course requires students to complete 24 credits in each year.

When a new student is coming to NSBM, some basic information will be collected and stored. Undergraduate students need to provide previous education records such as A/L result, rank etc. For postgraduate students need to provide previous education records including qualification type, institute, year of completion etc.

Once a student enroll into a course in February, he or she needs to select at most four subjects for Semester 1 and another four subjects for Semester 2. Students are allowed to change their subjects four weeks before every semester starts. If a student enroll in July, when he or she only needs to select four subjects for Semester 2. Re-enrolment for both semesters will be opened next year. Once students successfully enroll into the required subjects, he or she will be given a list of the enrolled subjects and fees to pay for the coming semester. The payment is requested for one semester, up to four subjects at most. Each subject will charge from Rs. 2500 to Rs.4000 accordingly.

The subjects are recorded by subject code and subject name. A subject will be taught by one lecturer and one or more instructors. According to the number of the enrolled students, one or more labs will be offered in one subject. Each lab will be taken by instructors. Each lab has a capability to have at most 40 students. The teaching allocation of all lectures and instructors will be saved in each semester. Their basic information and their class allocation information (including subjects to teach, room, location, etc.) are collected as well. All students will take lecture at the same time, but labs may not start for the same time. According to different subjects, a lecture lasts for one to two hours; and a lab takes two hours.

Each subject requires students to finish a number of assignments, reports, in-class assignments and examinations. Practical subjects consist of a number of lab assignments, practical demonstrations, project and examinations. The results of all the assessments will be recorded. Grades will be granted based on the final results. All the students will receive a report of their results of the enrolled subjects three weeks after the examination via their university email.

Task 1:

Implement a stand-alone application for the above scenario.

The system must be implemented using object oriented concepts and database connectivity in Java. You may design user interfaces according to your solution.

Task 2:

Prepare a suitable **project documentation** (i.e. a soft copy). Your report should include the followings:

- All the implementation details of the system (Describe all activities in totality related to the solution)
- Screen shots of the user interfaces

You need to submit **your report with a soft copy of your implementation** to the UGVLE on or before the deadline. Make sure that you have uploaded all the necessary files associated with your implementation.

Task 3:

You will be having a 10 minutes viva session.

Assignment Deadline on 24th June 2018

Assignment Marking Criteria

Implementation of the application and Viva (80)

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| ▪ Proper usage of object orientation concepts and exception handling | 20 |
| ▪ Creativity of the solution | 10 |
| ▪ Quality of the overall system | 10 |
| ▪ Database Connectivity | 20 |
| ▪ User Interfaces | 20 |

Report (20)