Swinburne University of Technology
Faculty of Engineering Computing & Science

Assignment (Stage 1)
HIT2037 Software Development in Java

Semester 1, 2014

DUE ON: Week 6, 5 April 2013 (before 5.00pm)

Assignment Worth: **10**% of total marks
This assignment is to be completed in a group of 2 – 3 members

Scope

Object & Class, Object Collaboration, Collections, and Software Testing & Debuging

Domain Vocabularies

Application – The prototype to be develop to fulfil this assignment requirements
Program – A course offered by university i.e. *Bachelor of Information and Communication Technology*
Unit – Commonly known as Subject for other university. i.e. *HIT2037 – Software Development in Java*
Pre-requisite –The Unit(s) a student must complete before enrolling the unit under discussion
Co-requisite – The unit(s) a student must enrol while enrolling the unit under discussion
Unit Type – Category of the unit under discussion, available option are core, major and elective
Core Unit – Compulsory unit that is required for all programs
Major Unit –Unit that is required form specific program only
Elective Unit – Optional unit that can be enrol by student in any program

Overview

You are required to develop a trivial console application to store and display university data such as programs, and units. This application allows Student Admin staff to add units and Develop program while students can read and view those programs and units later. This application will ease Admin staff in updating pre-requisite or co-requisite for a unit and map units into a programme. The application will also help student in planning their study path. Your application must have some sort of accessibility restriction. For example, only functionality for Admin is accessible if user chooses use the application as Admin (refer to "**Functional Requirements**" below).

Full list of required functionalities are listed in "**Functional Requirements**" section below (*You must fulfil the requirements to score marks*). Do take note that you can add in extra functionalities (other than stated in "**Functional Requirements**") in the program to earn extra marks. However you **MUST** consult and get approval from your tutor before you implement it to avoid waste of efforts.

No Graphical User Interface (GUI) is required at this stage but user experience on application navigation must be taken into consideration. Your application must be robust, user friendly, thoroughly tested and free from errors. Programs that do not have good error handling will be penalized.

Application Requirements

Coding Requirement **[1%]**

You are required to apply the following OO programming concepts (*Class and Object, Encapsulation, Function definition & function call, Object collaboration, collection (ArrayList class), Scanner class, and Javadoc documentation styles*) in your code. Inheritance concept is optional / not necessary. The solution must be implemented with at least 2 entities / data tier classes.

Functional Requirements **[5%]**

You are required to develop and complete the following functionality in order to make your application usable. You are free to design the flow of events for the application but do make sure the flow and navigation is not cumbersome. (Consult your tutor if in doubt). **You are also encourage to add extra functionality(ies) to gain extra marks upon approval from your tutor.**

Seq.	Functionality / Use Case	User / Actor	Remarks
1	Choose User Role	Admin / Student	Options are either "Admin" or "Student"
2	List All Program	Admin / Student	
2.1	View Program Details	Admin / Student	Display full program information (see Required Information)
2.1.1	Add Unit to Program	Admin	
2.1.2	Remove Unit from Program	Admin	
2.2	Develop New Program	Admin	
2.3	Remove Program	Admin	
3	List All Units	Admin / Student	
3.1	View Unit Details	Admin / Student	Display selected unit information (see Required Information)
3.1.1	Add Pre-requisite Unit	Admin	Select from all unit list
3.1.2	Add Co-requisite Unit	Admin	Select from all unit list
3.1.3	Remove Pre-requisite Unit	Admin	
3.1.4	Remove Co-requisite Unit	Admin	
3.1.5	View Related Program	Admin / Student	List down programs that required this unit
3.2	Add New Unit	Admin	Reject adding operation if unit already exist
3.3	Remove Unit	Admin	Removal is not allow if the unit contains pre or co-requisite unit
4	Close Application	Admin / Student	

Required Information:

1) **View Unit Details**
   Unit Code, Unit Name, Unit Type, Pre-requisite Units, Co-requisite Units, is Pre-requisite for, is Co-requisite for.
2) **View Program Details**
   Program Code, Program Name, Major, Core Units, Major Units, Elective Units

Non Functional Requirement **[4%]**

1. **Reliability** - The application must be error free
2. **Usability** - Application navigation should not be cumbersome i.e. user will not feel lost / frustrated when using the application
3. **Attractiveness**- The application must have clean and tidy text formatting (visualization)
4. **Accuracy** - The application must be able to store and display data correctly.
5. **Understandability** - The application must provide useful and understandable respond message(s).
6. **Maintainability** - The application must be develop with proper and standard coding style. Classes/ Methods Documentation is required.

Steps in developing this program

You are advice to plan your works in advance and the plan shall be agreed by team members. The plan shall include but not limited to task distribution, problem analysis, system design, implementation, testing, and progress review. Changing plan throughout the project development is normal. You may change your plan when it is necessary.

Submission Requirements

Your team are required to submit the following items to your tutor at the end of each project due date. **Coversheet must be signed by all members and submit in both hard and soft copy**.

1. Coversheet (Both Hardcopy & Softcopy is required)
2. Class/Methods Documentations (JavaDoc)
3. All source code and BlueJ project files
4. Application functionality checklist

Plagiarism

There will be **ABSOLUTELY NO TOLERANCE** to plagiarism. Any team that presents any work that is not their own or is not properly referenced will be awarded 0 marks for the assignment. The author(s) of each file must be included in the comment Stage at the top of every pages.

Useful Resources

Swinburne Sarawak BICT Program Page
http://www.swinburne.edu.my/courses/information-and-communication-technology.htm

Program Structure
http://en.wikipedia.org/wiki/Multitier_architecture

Software Testing
http://www.youtube.com/watch?v=ddiIm3TsBJg
http://www.youtube.com/watch?v=KVdo7tPea_M&feature=related

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Application Functionality Checklist.

Student ID : _____ Student Name : _____

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Functional Requirements

Seq.	Functionality / Use Case	Implemented	Remarks
1	Choose User Role		
2	List All Program		
2.1	View Program Details		
2.1.1	Add Unit to Program		
2.1.2	Remove Unit from Program		
2.2	Develop New Program		
2.3	Remove Program		
3	List All Units		
3.1	View Unit Details		
3.1.1	Add Pre-requisite Unit		
3.1.2	Add Co-requisite Unit		
3.1.3	Remove Pre-requisite Unit		
3.1.4	Remove Co-requisite Unit		
3.1.5	View Related Program		
3.2	Add New Unit		
3.3	Remove Unit		
4	Close Application		
	Extra Functionality:		Weight:
	Extra Functionality:		Weight:

Non Functional Requirements

Seq.	Attributes	Fulfilled	Remarks
1	Reliability		
2	Usability		
3	Attractiveness		
4	Accuracy		
5	Understandability		
6	Maintainability		

Submission Requirements

Seq.	Submission Items	Included	Remarks
1.	Coversheet (Hardcopy & Softcopy)		
2.	Class/Methods Documentations (JavaDoc)		
3.	All source code and BlueJ project files		
4.	Application functionality checklist		