

問題一

State whether each of the following is true or false. If false, explain why.

(1) Base-class constructors are not inherited by derived classes.

False , Base-class 的 constructor 也會繼承到子 class

(2) An is-a relationship is implemented via composition.

False , The is-a relationship represents inheritance.

(3) A Student class has an is-a relationship with the Faculty and Course classes.

False , A Student class has an has-a relationship with the Faculty and Course classes.

因為學院、班級是由學生”組成”而非”繼承”

(4) Private members of a private base class are inaccessible to the derived class.

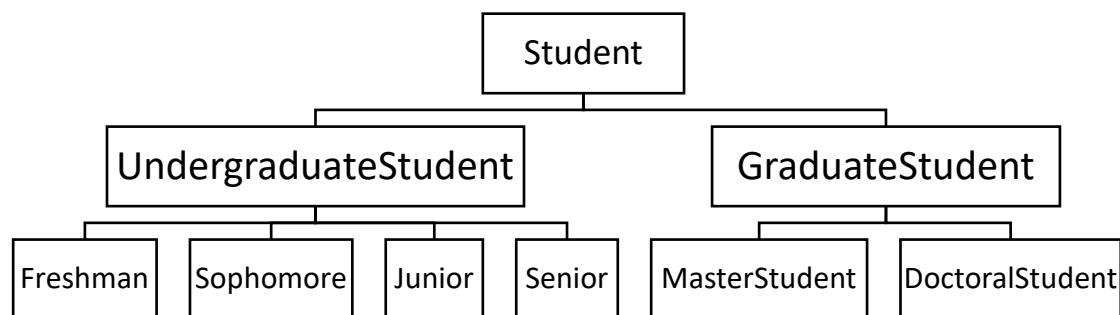
True

(5) A base class's protected members can be accessed in the base-class definition, in derived-class definitions and in friends of the base class and its derived classes.

True

問題二

Draw an inheritance hierarchy for students at a university. Use Student as the base class of the hierarchy, then include classes UndergraduateStudent and GraduateStudent that derive from Student. Continue to extend the hierarchy as deep (i.e., as many levels) as possible. For example, Freshman, Sophomore, Junior and Senior derive from UndergraduateStudent, and DoctoralStudent and MasterStudent derive from GraduateStudent. After drawing the hierarchy, discuss the relationships that exist between the classes. (Note: You don't need to write any code for this exercise.)



Student 是 base-class，而大學生(Undergraduate Student)與研究生(Graduate Student)則是繼承了 student，之從大一到大四生(freshman, sophomore, junior, senior)則是繼承了大學生這個 class，而碩士生(master student)與博士生(doctoral student)則是繼承了研究生這個 class，而從大一生到博士生也都是從 student 這個 class 裡繼承來的。