
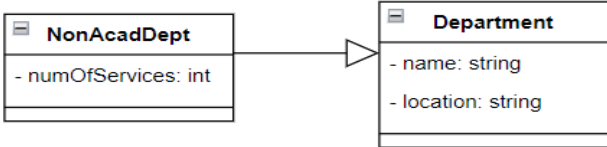
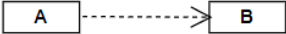
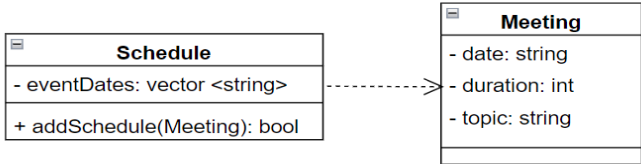


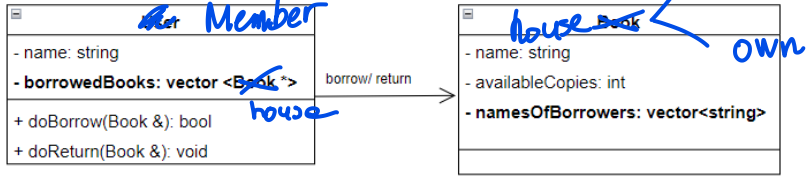
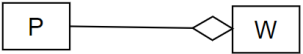
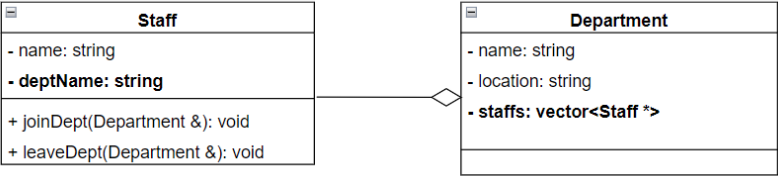

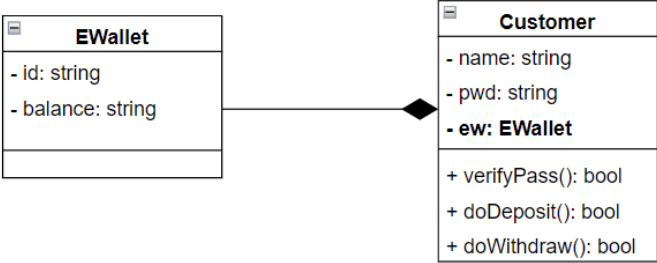


EEET2482/COSC2082- HELP NOTE FOR CLASS RELATIONSHIPS

written by Linh Tran, 2022

Relationship	Meaning	Example
Inheritance (is-a) 	<p>Class D is a subtype of Class B.</p> <p>Class D inherits all attributes of methods of Class B (and can have its own attributes and methods).</p>	 <pre>class NonAcadDept: public Department { };</pre>
Dependency (depends/uses) 	<p>Class A depends on Class B Change in definitions of Class B will cause changes to Class A (but not vice versa)</p> <p><i>General case: a method of class A take objects of class B as input parameter (but they are not stored in any attribute of class A)</i></p>	 <pre>class Meeting{....} class Schedule{ public: addSchedule(Meeting m){....}; };</pre>
Association (associates) Bi-directional Association  Directed Association 	<p>Class A associate with Class B (have connection between them).</p> <p><i>General case:</i> Almost always implies that one class has objects of the other class as reference attributes.</p> <p>It does not imply ownership (one object of class A may have connections with MANY objects of class B and vice versa).</p>	 <pre>class Book{ vector <string> nameOfBorrowers; }; class User{ vector<Book* > borrowedBooks; };</pre>

<p>Aggregation (has a/belongs to + weak part-whole) (a subtype of association)</p>  <p>P is a part of W. Each P has a/belongs to one W.</p>	<p>A class belongs to another class (weak part-whole association).</p> <p>Delete the whole may/may not delete the part</p> <p><i>General case: an object of class P usually can belong to only ONE object of class W as reference attribute.</i></p>	 <pre> class Staff{ - name: string - deptName: string + joinDept(Department &): void + leaveDept(Department &): void }; class Department{ - name: string - location: string - staffs: vector<Staff*> }; </pre>
<p>Composition (has a/belongs to + strong part-whole) (a subtype of Aggregation)</p>  <p>P is a dependent part of W.</p>	<p>A class is a dependent part of another class (strong part-whole association).</p> <p>Delete the whole will always delete the part</p> <p><i>General case: an object of class P can belong to only ONE object of class W as vaue attribute.</i></p>	 <pre> class EWallet{ - id: string - balance: string }; class Customer{ - name: string - pwd: string - ew: EWallet + verifyPass(): bool + doDeposit(): bool + doWithdraw(): bool }; </pre>

Note: when analyze requirement, Nouns are class/ attributes, Verbs (actions) are methods.