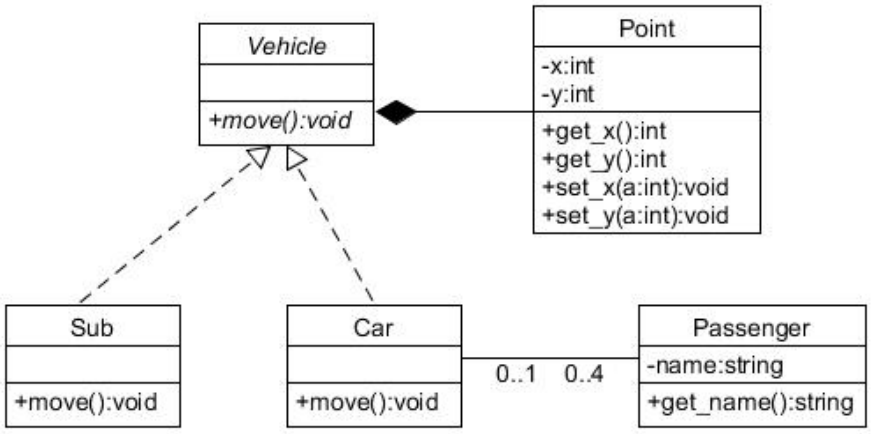
[OOP and Design Methodologies]
[CS-224]

Fall 2017
[Time: 1 hour 30 minutes]
[**Your queries will only be entertained in the first 30 minutes from the start of the exam.**]

Question 1: (2+3 marks)

a. Given the UML, code the interfaces (just he .h files) for the classes mentioned.
b. The interfaces should reflect the relationships between the classes.



Question 2: (4+1 marks)

a. The class Car above is supposed to keep track of passengers riding in the it. A Car can have a maximum of 4 passengers. Create the Car.cpp and Passenger.cpp to reflect these changes. Add the default constructors, overloaded constructors, copy constructors copy assignment operators and destructors in Car.cpp and Passenger.cpp ***where needed***.
b. Write a Car::display() function which should display the names of its passengers.

Question 3: (4+1 marks)

a. We need to add passengers to the Car. Overload the "+" operator in such a way that if in main() one writes:

```
Car c;
Passenger p1("abc"), p2("def"), p3("ghi");
c+p1;
c.display();
```

The + operation should ads the passenger p1 to the passengers of Car c. Now c.display() should show p1 among the passengers in the Car c. In case there already are 4 passengers in the car, the + operator should output a message saying no room in car and should not add p1 in c.

b. How would you modify the code if the user wants to add multiple passengers to a car in one line as:

```
c+p1+p2+p3;
```