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SE 350 ASYNC
Prof. V. Alizadeh
Midterm

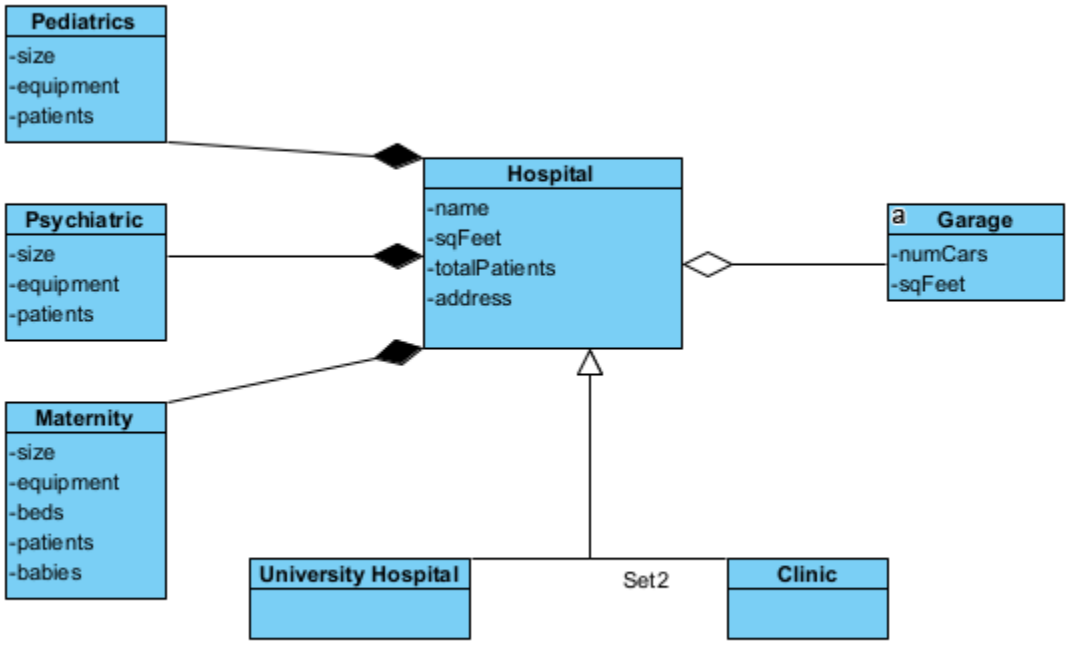
Question 1.

1. TRUE - The instance variable is created whenever the class is created and while it may be accessed by other sources outside of the class, it belongs to the class it was created in. If the class is destroyed, then the instance variable disappears as well.
2. FALSE – void is a return type and a constructor cannot have a return type.
3. FALSE – If you implement a specific constructor for your class then those constructors must be used. Default constructors are only created when you have not implemented any constructors of your own.
4. FALSE – A constructor cannot be used through a dot operator as it is a special kind of method.
5. FALSE – This is an incorrect usage of the global variable 'x' if it is not a public or static variable. This would also not modify p1 if that is the purpose. If the class Point has declared the global variable x as a public static int then this code should work.
6. FALSE – Static methods can be accessed outside of its package if it is first declared public.
7. TRUE – For similar reasons as question 6 the method becomes only accessible within the package if public is not prefixed.
8. FALSE – This is True only if there are no super constructors, but super constructors always come first.

9. TRUE – As they do not set the members of an object at a global scale but only withing the created object at runtime.
10. FALSE – If the keyword this is not used and there are variables with the same names the local variable will be used first within a method and not the global variable.

**Question 2**

Aggregation is a relationship in which one class can exist on its own without the need of the class it is associated too. The destruction of one class does not lead to the other. Composition is a relationship where the destruction of the parent class also deletes the child class.



**Question 3**

[1] “Second2”

[2] “Third2”

[3] “Fourth2”

[4] “Third2”

[5] “Second2”

[6] “Third2”

[7] “Fourth2”

[8] “Third2”

[9] error

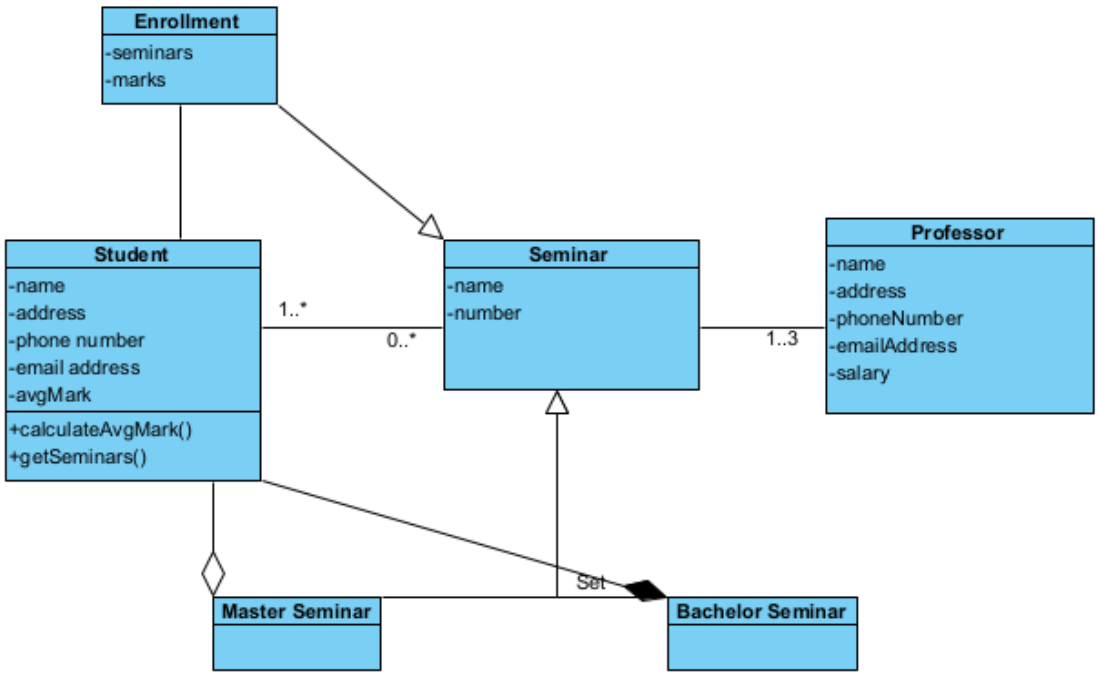
[10] “Third1/Second2”

**Question 4**

Code Found in Folder

**Question 5**

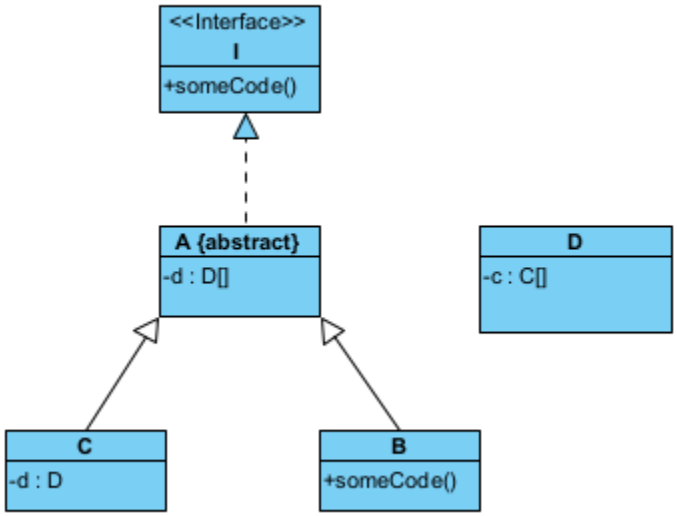
The UML showcases the dynamics of a seminar. The seminar has a name and a number. There are two types of seminars a Master Seminar and a Bachelor Seminar that have the same attributes of the seminar class. Seminars have Students and Professors. There can be only between 1-3 professors per seminar and 1 or more students (Assuming a seminar is not taught if there are no students taking it). The enrollment of a student contains the seminars they are taking and what their marks are for each seminar. From the student class we should be able to obtain a list of the seminars they are taking and what the average mark is for them based on the marks they've received in the seminars they are enrolled to. A student cannot drop a bachelors course but they can drop a master's one.



**Question 6**

Part A: Code can be found in folder

Part B:




**Question 7**

Code can be found in folder