四川大学期中考试试题（开卷）

（2020~2021 学年第 2 学期）　　A 卷

课程号：311232030　课程名称：软件工程导论　任课教师：

适用专业年级：软件工程 2019 级　学号：　姓名：

考生承诺

我已认真阅读并知晓《四川大学考场规则》和《四川大学本科学生考试违纪作弊处分规定（修订）》，郑重承诺：

1、 已按要求将考试禁止携带的文具用品或与考试有关的物品放置在指定地点；

2、 不带手机进入考场；

3、 考试期间遵守以上两项规定，若有违规行为，同意按照有关条款接受处理。

考生签名：

题　号	一 (5%)	二 (10%)	三 (10%)	四 (15%)	五 (12%)	六 (20%)	七 (8%)	八 (20%)
得　分								
卷面总分			阅卷时间					

注意事项：1. 请务必将本人所在学院、姓名、学号、任课教师姓名等信息准确填写在试题纸和添卷纸上；
2. 请将答案全部填写在本试题纸上；
3. 考试结束，请将试题纸、添卷纸和草稿纸一并交给监考老师。

1. What is software engineering in your opinion? Please use five sentences to describe it.(5 Points)
2. Consider the software categories, such as system software, application software, embedded software etc., do you think that the same approach of software engineering can be applied for each software development? Why? (10 Points)
3. What is the relationship between framework activities and umbrella activities? When a WebApp such as an Online Shopping （购物网站） system are build, how do you think they are applied during development? (10 Points)
4. Please develop a complete use case for buying an item from a Vending Machine（自动售货机） according to the template for detailed descriptions of use cases in the textbook.(15 Points)
5. When you develop an effective analysis model using ULM, how do you use UML diagram to represent all four elements of the analysis models, including Scenario-based models, Class models, Flow models, Behavioral models? (12 Points)

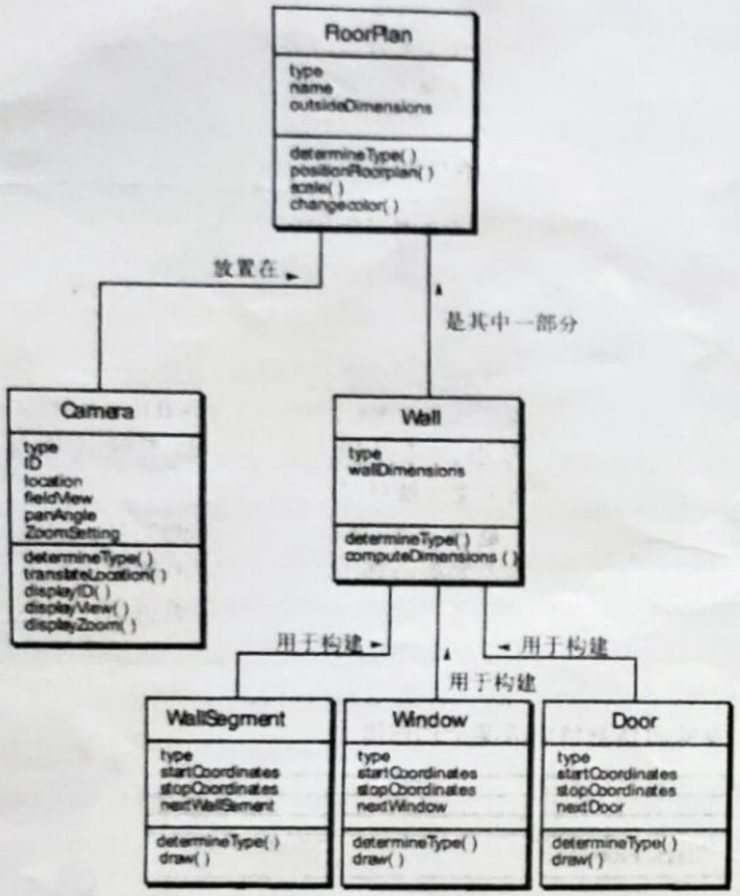
6. The department of public works for a large city has decided to develop a Web-based potholes tracing and repair system (PHTRS 城市道路坑洼跟踪和修复系统). A description follows (20 Points):

Citizens can log onto a website and report the location and severity of potholes.（市民可以登录网站，报告道路坑洼的位置和严重程度。）As potholes are reported they are logged within a "public works department repair system" and are assigned an identifying number , stored by street address, size(on a scale of 1 to 10),location(middle, curb, etc.),district(determined from street address),and repair priority (determined from the size of the pothole).（当报告了道路坑洼时，系统会在"公共工程部门维修系统"内记录信息，分配一个识别号码，记录坑洼的地址、大小(范围从 1 - 10)、位置(路中间、路边等)、地区(根据街道地址确定)和修复优先级(根据坑洼的大小确定)。）Work order data are associated with each pothole and include pothole location and size ,repair crew identifying number, number of people on crew, equipment assigned, hours applied to repair, hole status(work in progress, repaired, temporary repair, not repaired), amount of filler material used, and cost of repair(computed from hours applied, number of people, material and equipment used).（工作订单数据与每个道路坑洼相关联，并包括道路坑洼位置和大小，修理小组识别号码，修缮小组的人数，分配的设备、修复的小时数，修复的状态(正在修复、已经修复、临时修复、没有修复)， 使用的填充材料和维修的成本(按照所用小时数、使用的人员数、使用的材料和设备来计算)。)Finally, a damage file is created to hole information about reported damage due to the pothole and includes citizen's name, address, phone number, type of damage, and dollar amount of damage.（最后，将创建一个赔偿文件，以记录由于道路坑洼而造成的损失信息，包括公民的姓名、地址、电话号码、损坏类型和赔偿金额。）PHTRS is an online system; all queries are to be made interactively.（PHTRS 是一个在线系统；所有查询都是交互式进行的。）

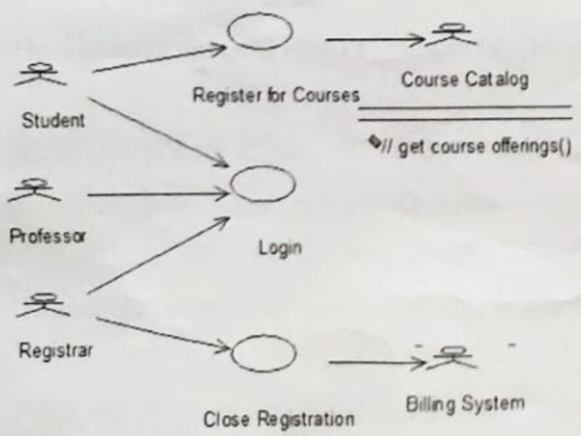
(1) Please create a E-R Diagram or Class Diagram to describe the data for the PHTRS system.
(2) Please draw a UML Use Case Diagram for the PHTRS system.
(3) Please develop an Activity Diagram to describe the citizens' reporting an issue of potholes in PHTRS system.
(4) Please develop a sequence Diagram to describe the citizens' logging in PHTRS system.

Notes：You'll have to make a number of assumptions（假设条件） about the PHTRS system.

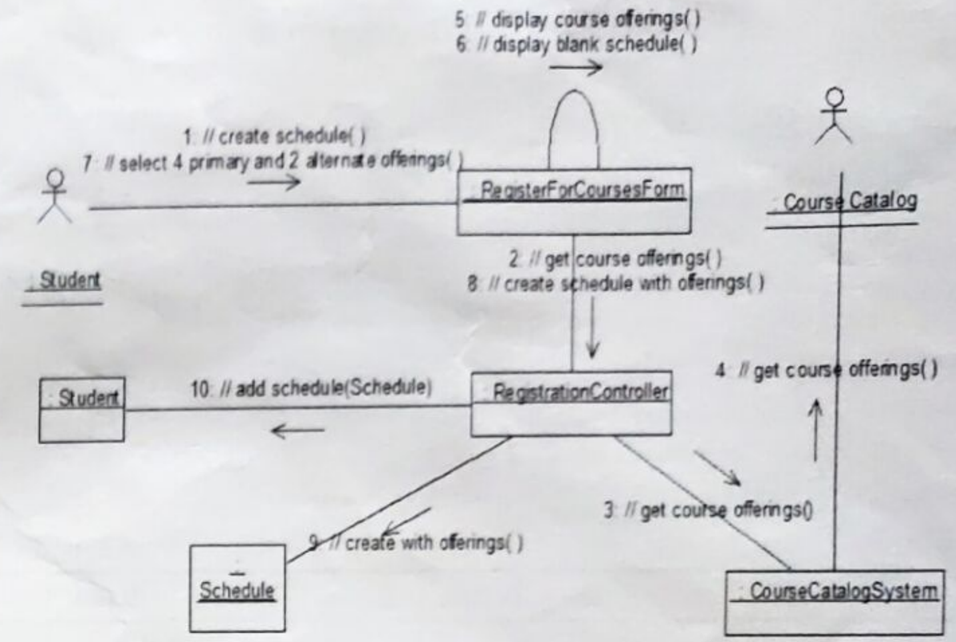
7. Please develop a CRC model index card for class "Wall" in following class diagram. (8 Points)



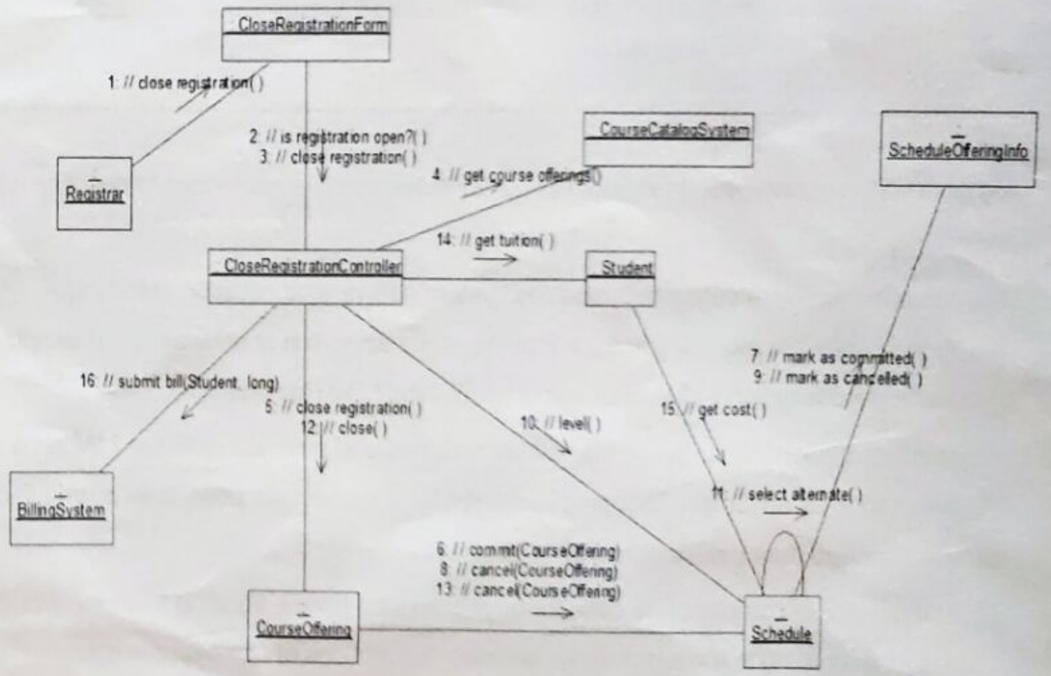
8. You have been asked to build A network-based course registration system for Sichuan University. Following are part of analysis models of this system. (20 Points)



(1) Use Case Diagram



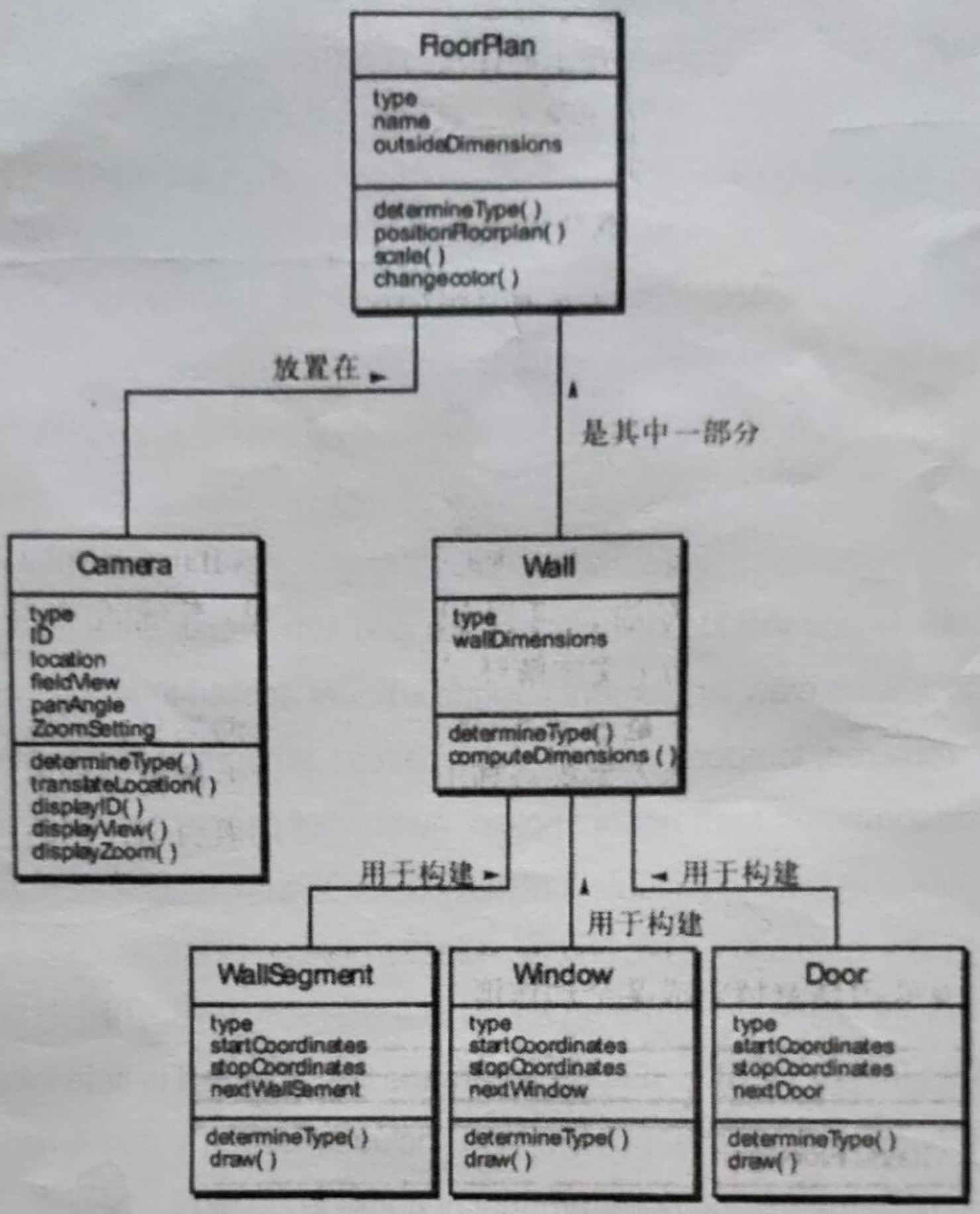
(2) Collaboration Diagram of "Register for Courses" Use Case



(3) Collaboration Diagram of "Close Registration " Use Case

Please develop an Analysis Class Diagram for the course registration system according to the analysis models mentioned above.

7. Please develop a CRC model index card for class "Wall" in following class diagram. (8 Points)



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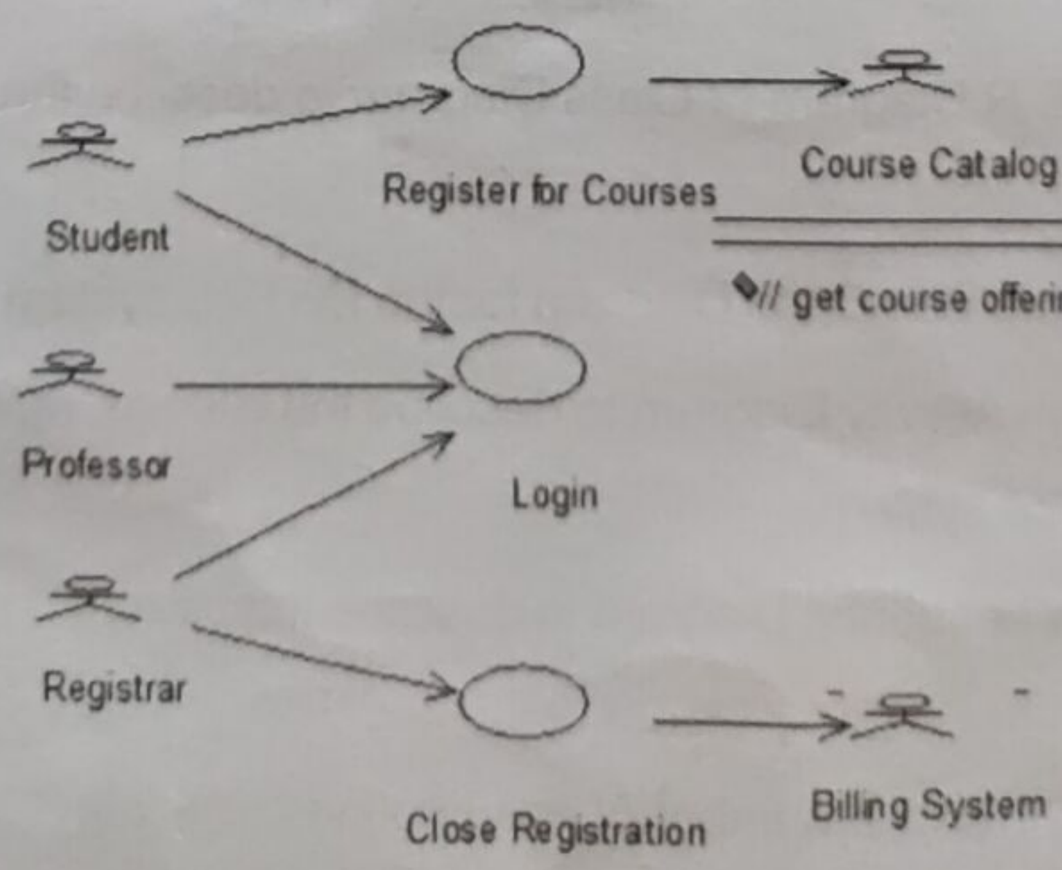
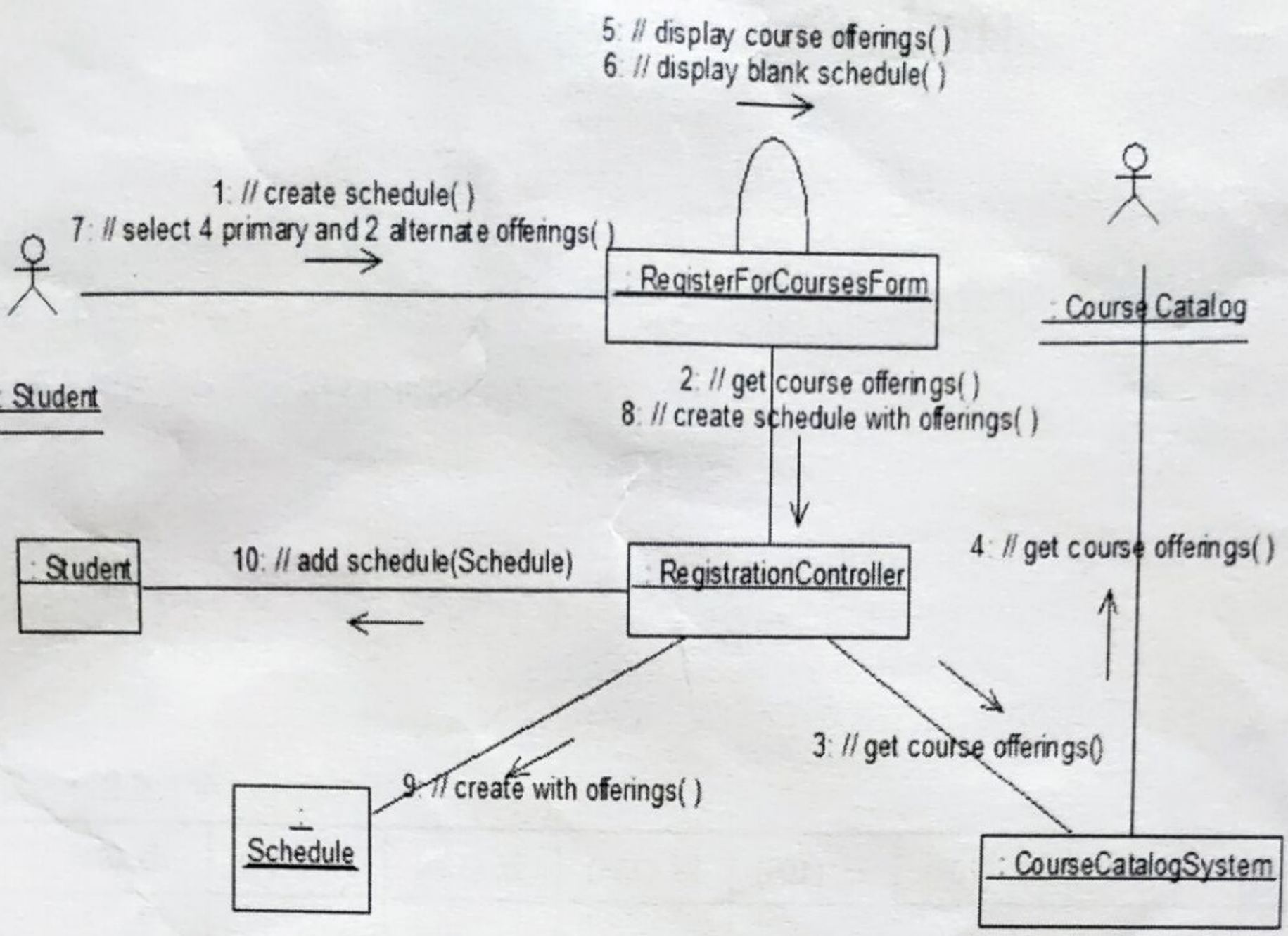
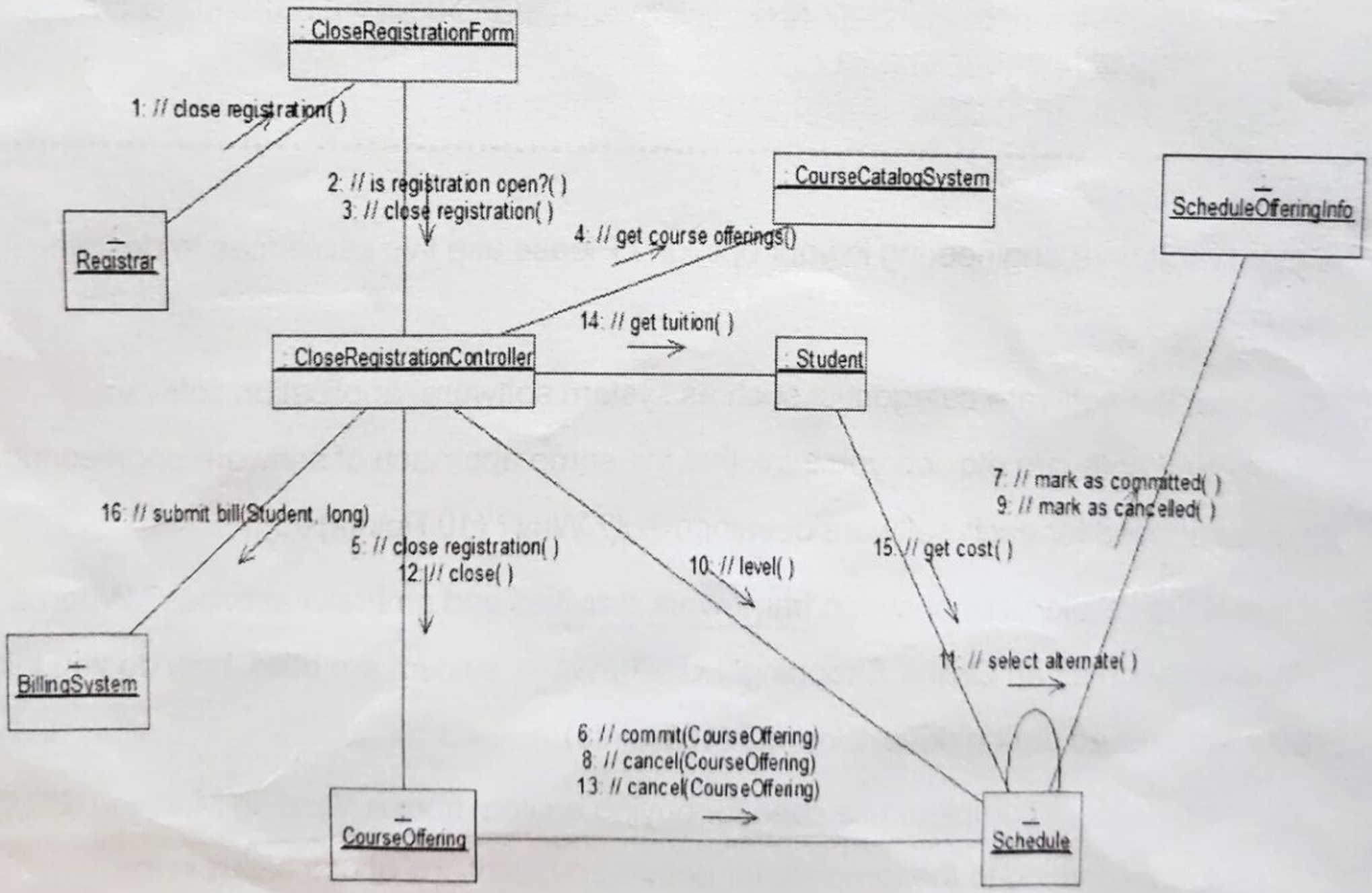


(1) Use Case Diagram



(2) Collaboration Diagram of "Register for Courses" Use Case



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