SE Lab-Class Diagram

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How to make a Class Diagram

- **Identify classes**
  - These are the abstract or physical "things" in our system which we wish to describe. Find all the nouns and noun phrases in the domain descriptions you have obtained through your analysis. Consider these class candidates.
- **Find associations**
  - Now find the verbs that join the nouns. e.g., The professor (noun) teaches (verb) students (noun). The verb in this case, defines an association between the two nouns. Identify the type of association. Use a matrix to define the associations between classes.
- **Draw rough class diagram**
  - Put classes in rectangles and draw the associations connecting the classes.
- **Fill in multiplicity**
  - Determine the number of occurrences of one class for a single occurrence of the associated class.
- **Identify attributes**
  - Name the information details (fields) which are relevant to the application domain for each class. (assume getter and setter methods for each attribute.)
- **Identify Behaviours**
  - Specify the operations that are required for each class. **Review your diagram and fine tune it.**
  - Look for inconsistencies and errors. Fix them. Make sure you have captured everything required from the domain you are studying - that your diagram is complete.

Task for today's Lab

- ✓ Identify classes for your s/w project.
- ✓ Find associations
- ✓ Draw a rough class diagram.

- **Important Points**
- REMEMBER the notation arrows for the Association, Composition, Aggregation relationships.
- When confused used Association, later refine it.
- You migh thave to refer to the lecture slides on OOD.
- This is also a good opportunity to revise OOD concepts.

example

- IIIT Pune has several departments.
- Each **department** is managed by a **chair**, and at least one **professor**.
- Professors must be assigned to one, but possibly more departments.
- At least one professor teaches each **course**, but a professor may be on sabbatical and not teach any course.
- Each course may be taught more than once by different professors.
- We know of the department name, the professor name, the professor employee id, the course names, the course schedule, the term/year that the course is taught, the departments the professor is assigned to, the department that offers the course

Identify classes

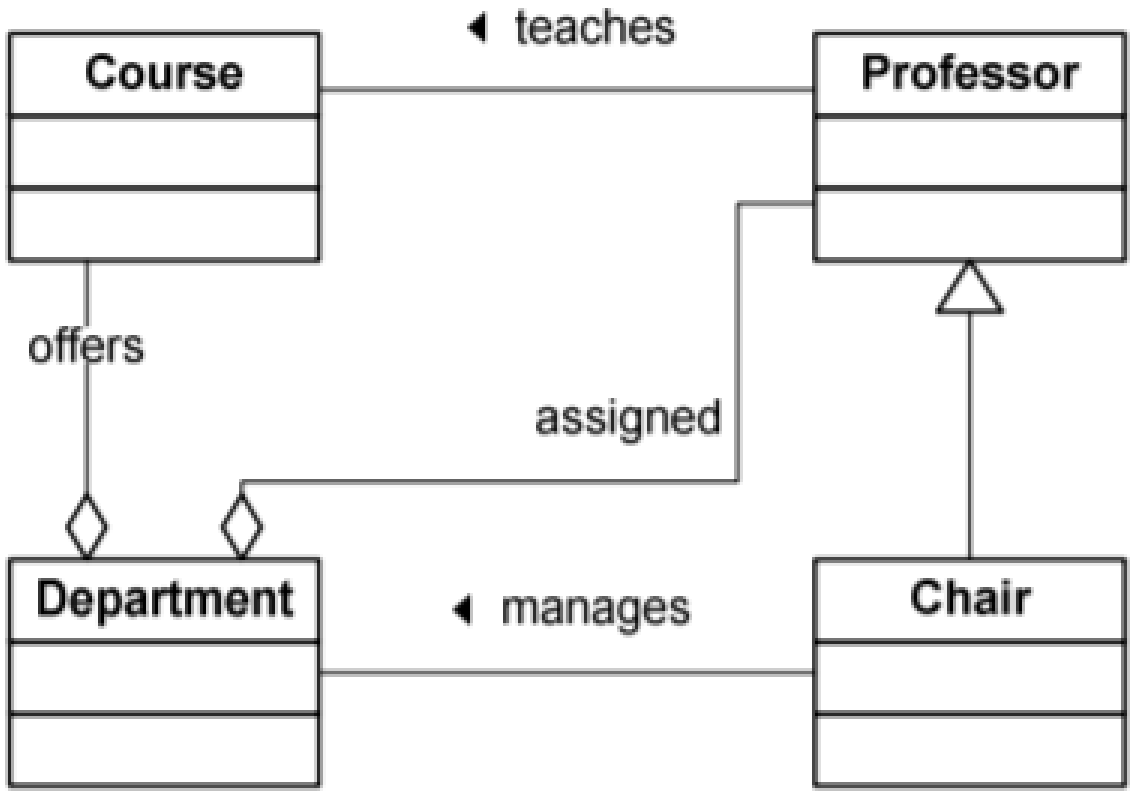
- These are the abstract or physical “things” in our system which we wish to describe. Find all the nouns and noun phrases in the domain descriptions you have obtained through your analysis.
- Consider these class candidates. The class candidates are
- Departments
- Chair
- Professor
- Course

Find associations

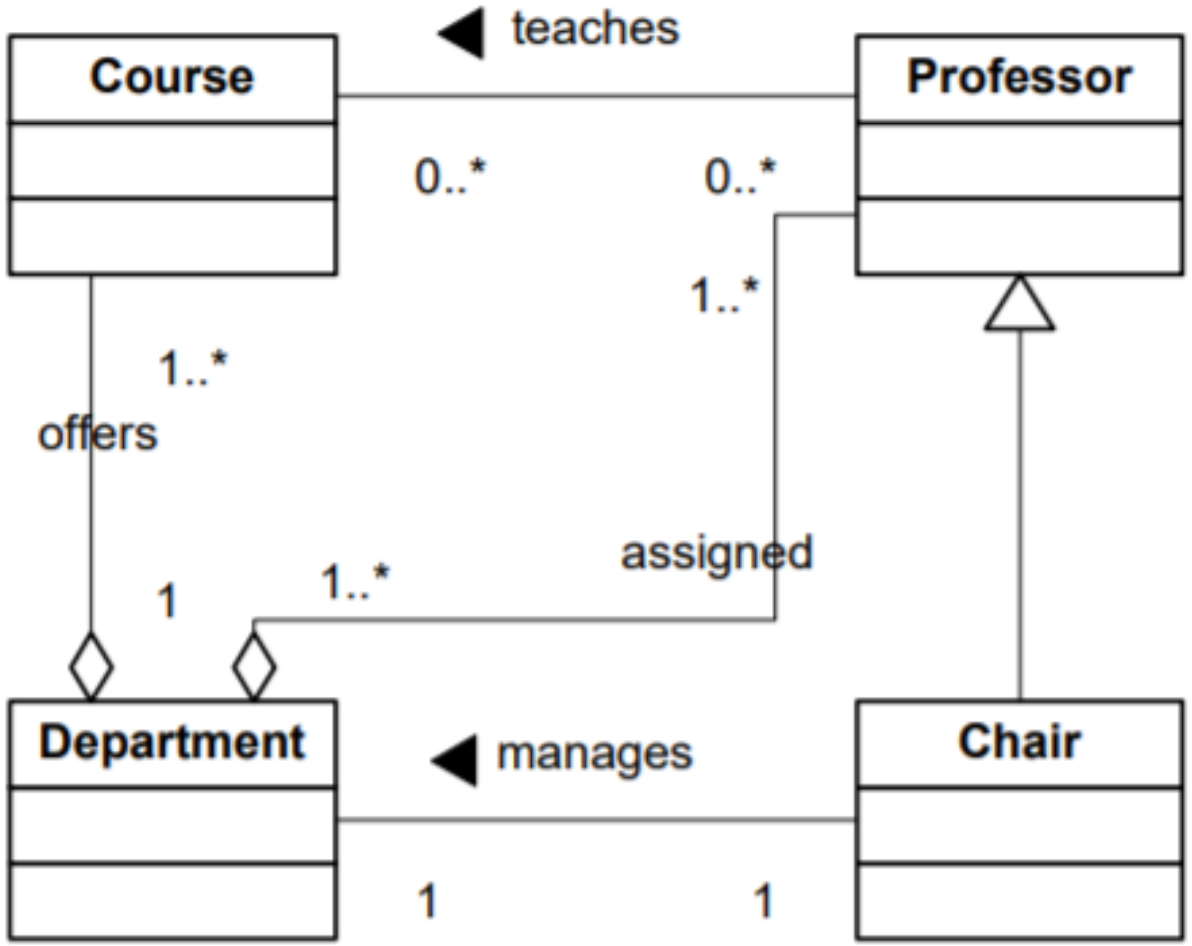
- Now find the verbs that join the nouns.
- e.g., The professor (noun) teaches (verb) students (noun).
- The verb in this case, defines an association between the two nouns.
- Identify the type of association. Use a matrix to define the associations between classes.

	department	chair	professor	course
department		managed by	is assigned (aggregate)	offers
chair	manages		is a	
professor	assigned to (aggregate)			teaches
course	offered by		taught by	

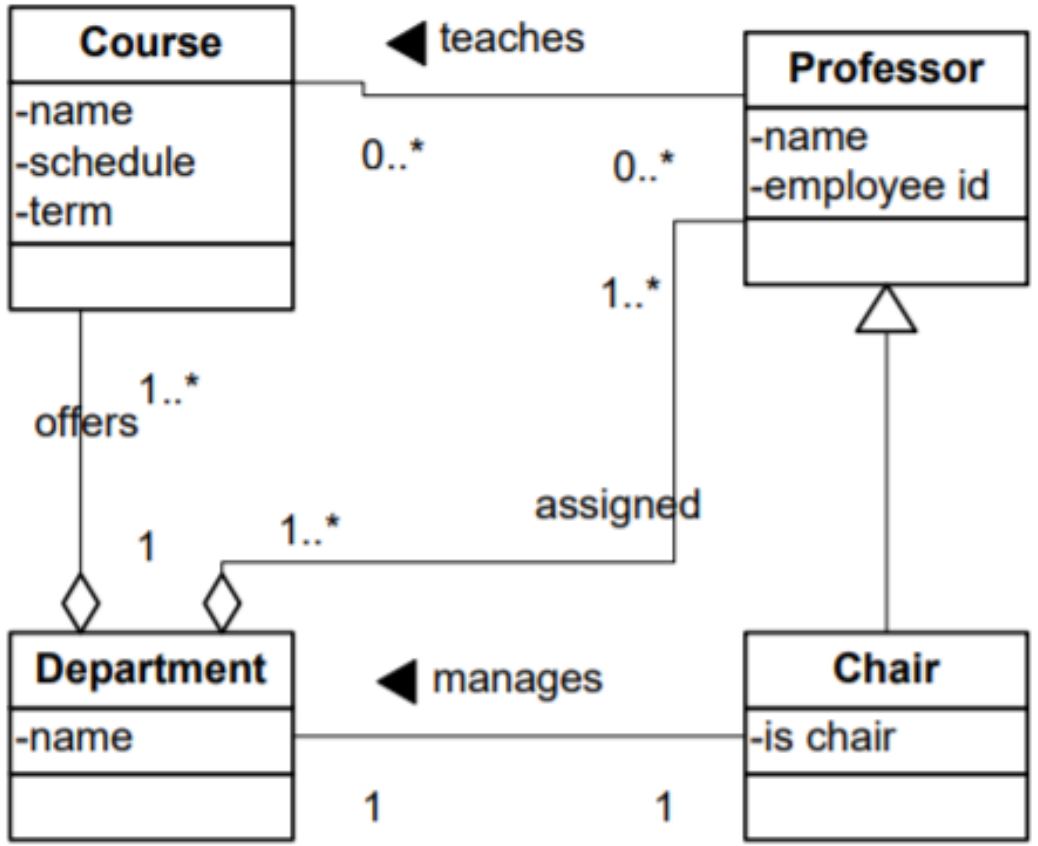
Draw a rough class diagram



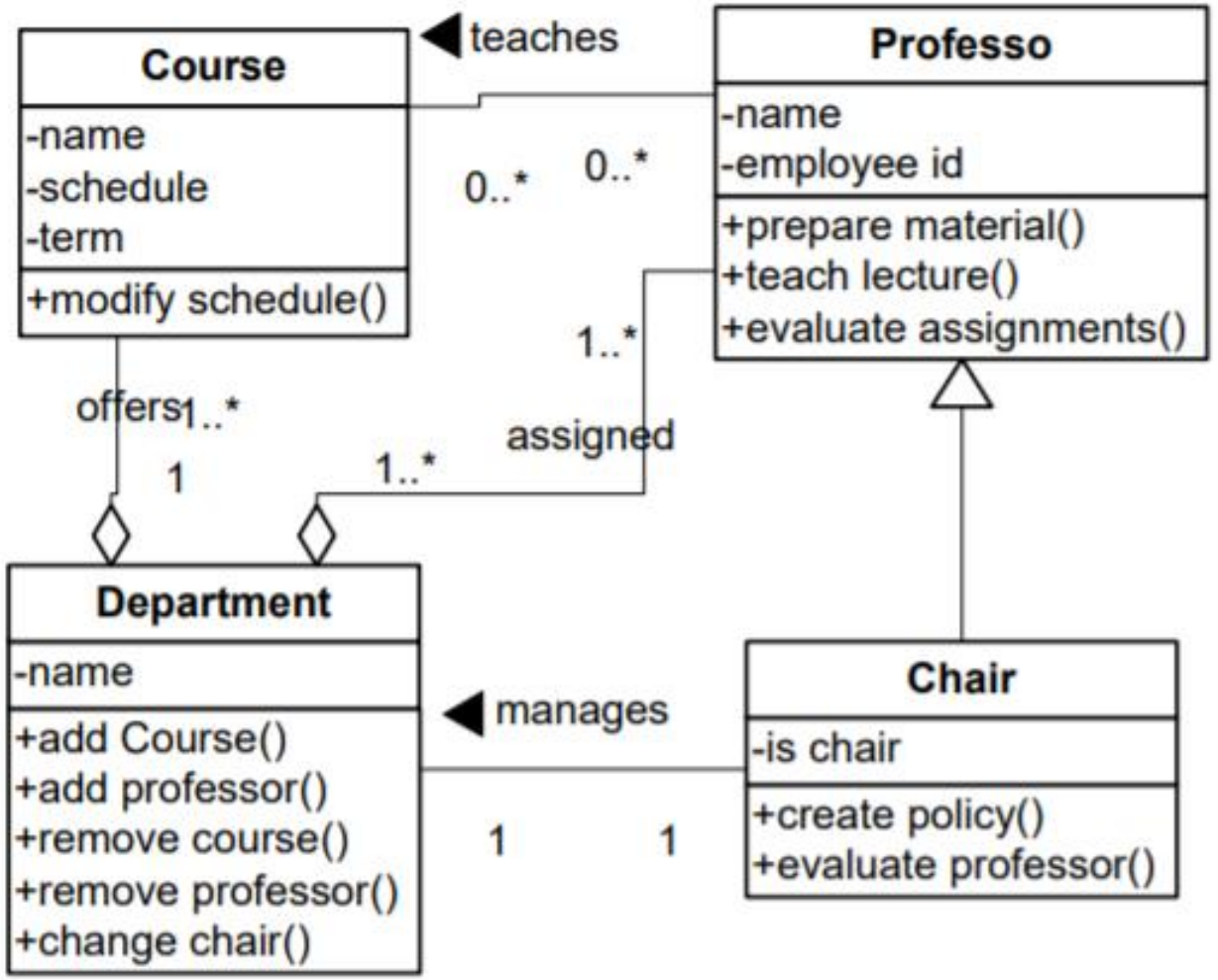
Fill in multiplicity



Identify attributes

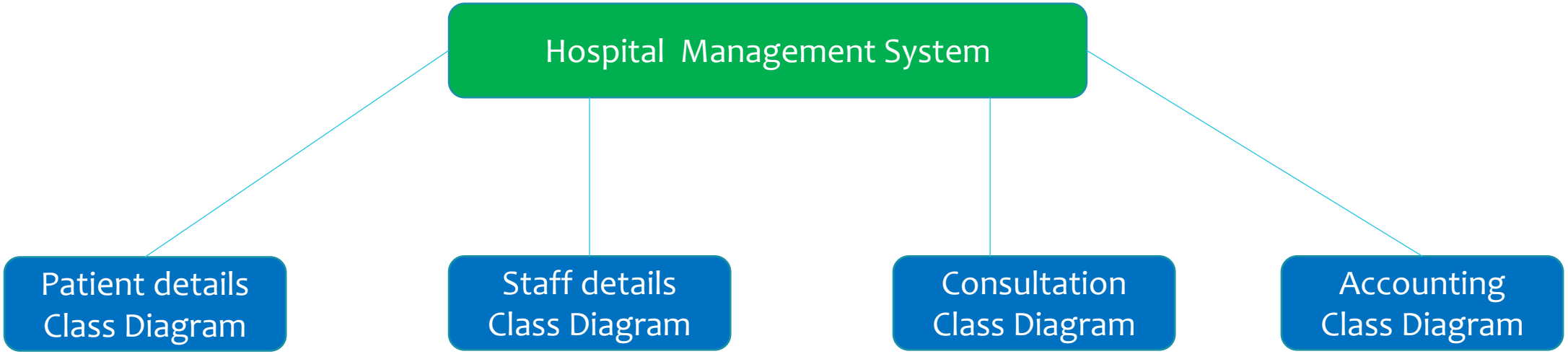


Identify behaviours

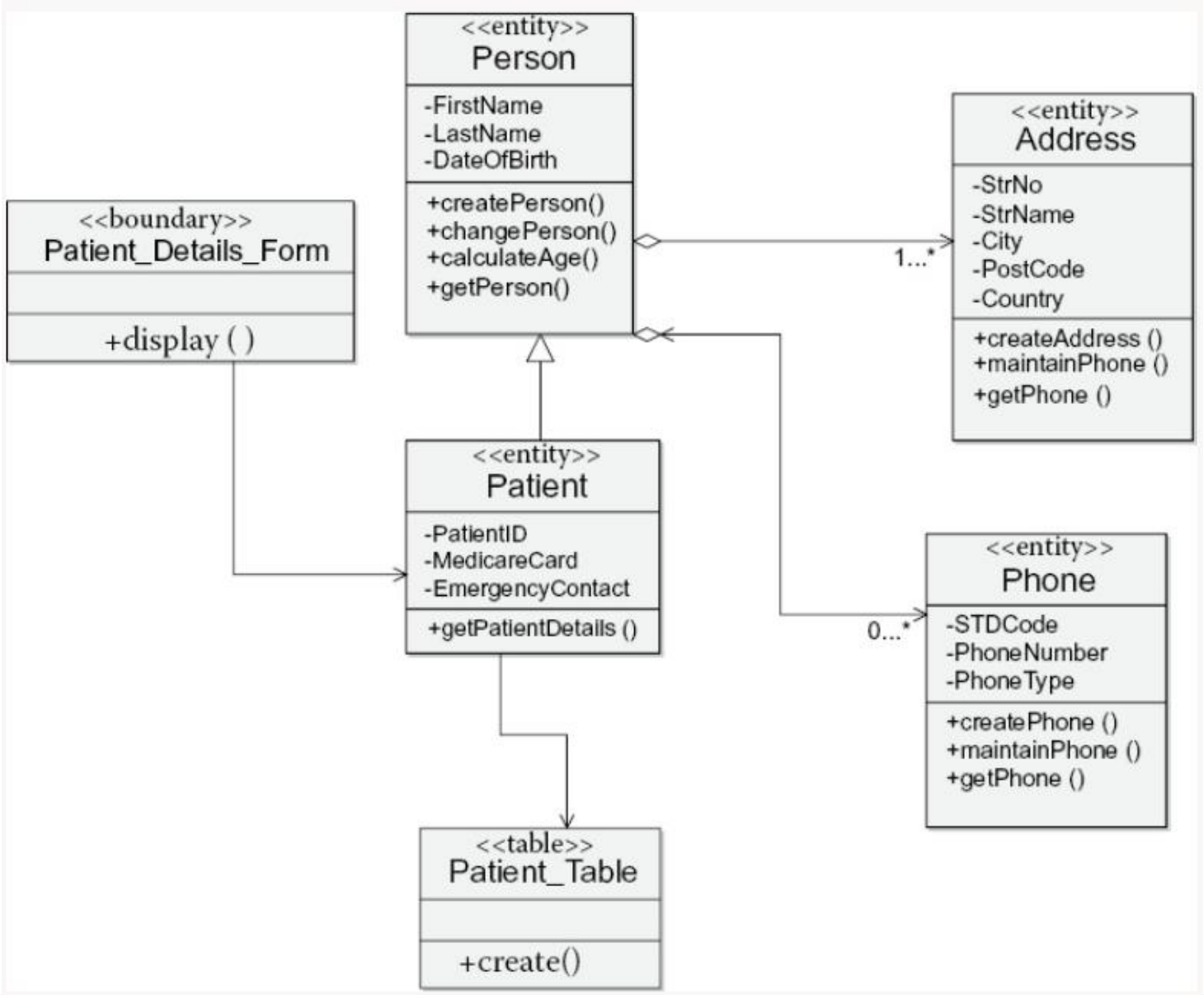


Disaggregating class diagrams

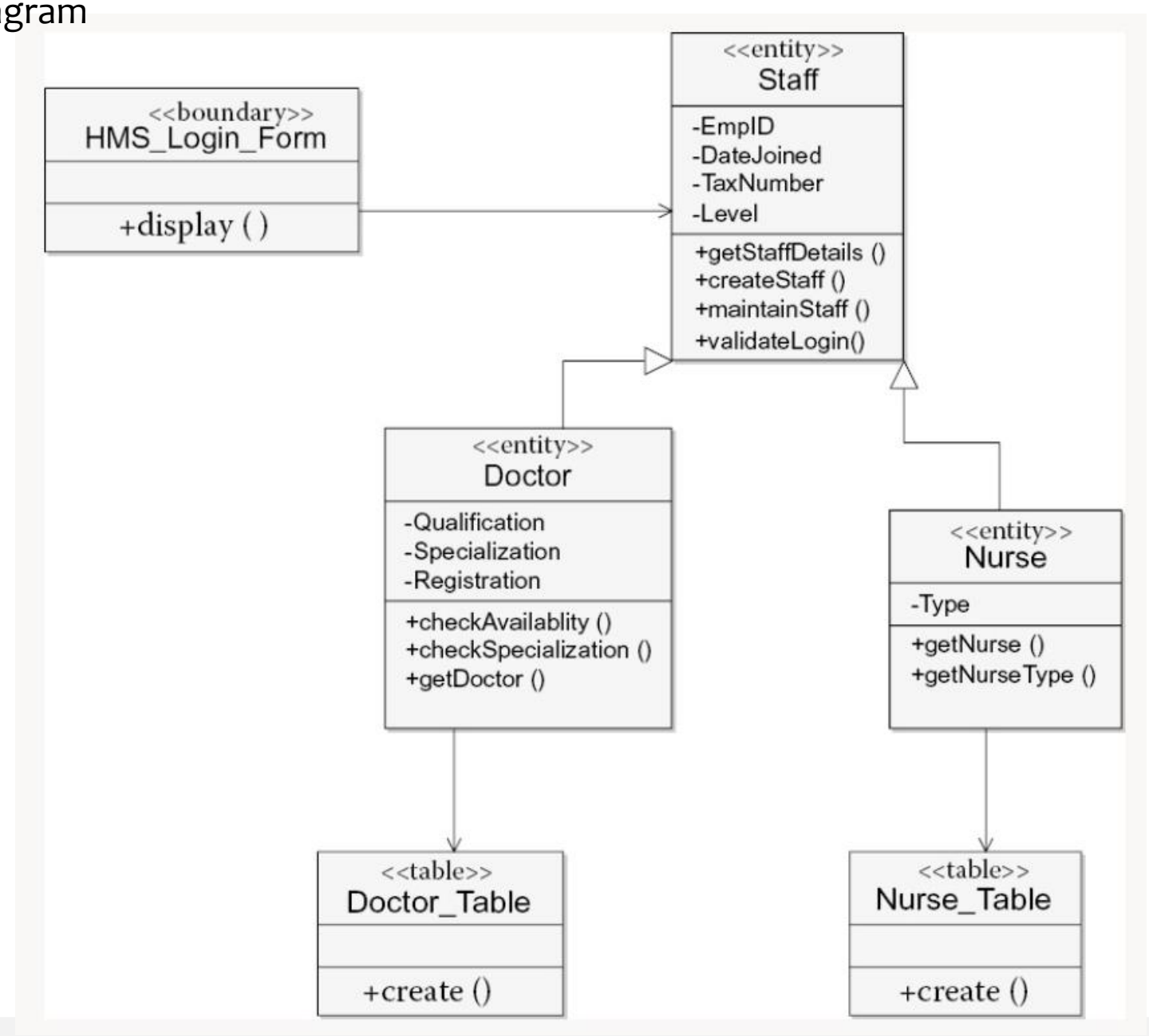
- Sometimes a system may be too complex, so you may need to break your class diagram into sections.



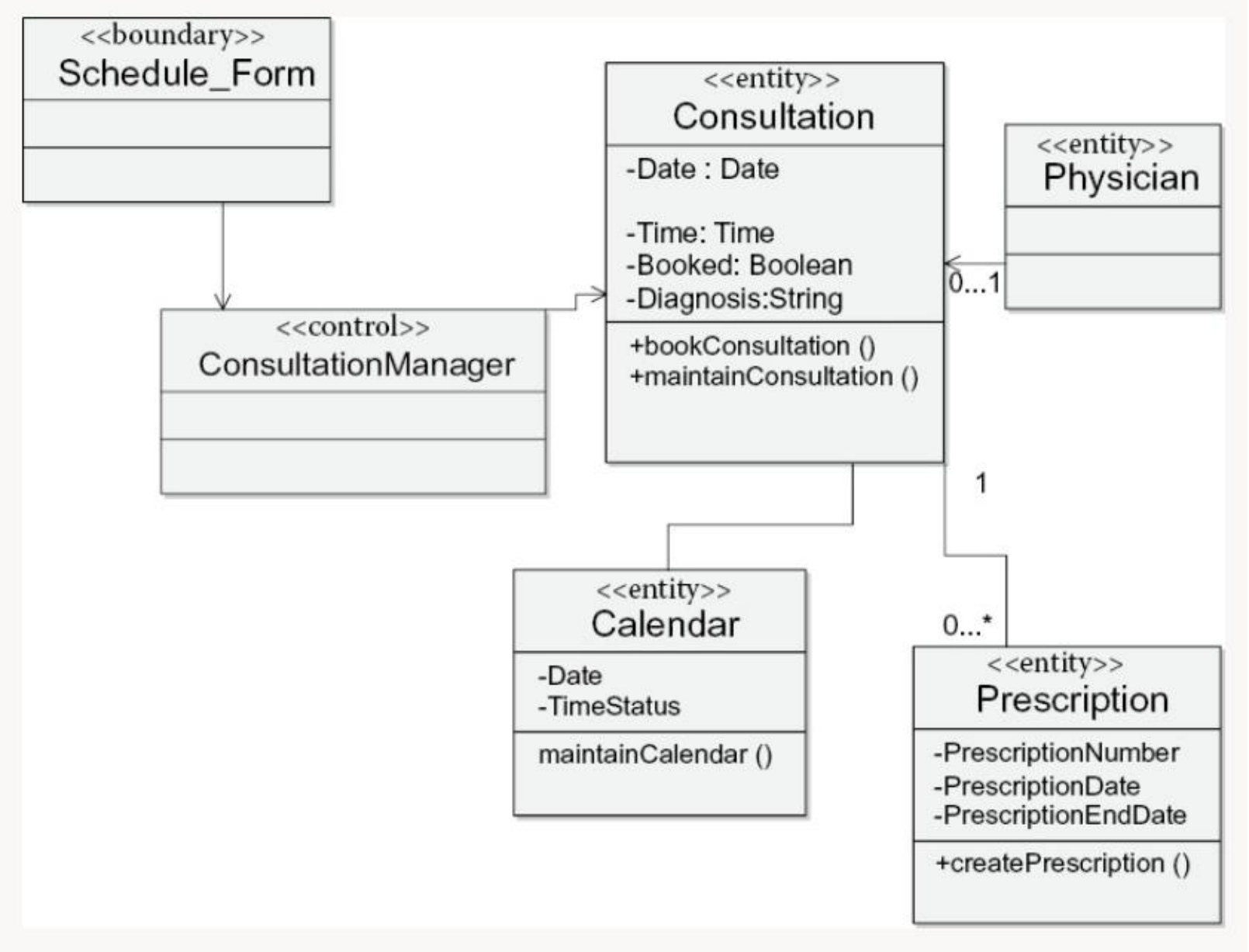
Patient Details Class Diagram



Staff Details Class Diagram



Consulting Class Diagram



Payment Class Diagram