

# IS352: Advanced Systems Development

## Exercise 1 Answer

Consider the following situation:

A laboratory has several chemists who work on one or more projects. Chemists also use certain kinds of equipment on each project. (A particular piece of equipment can only be used on one project at a time).

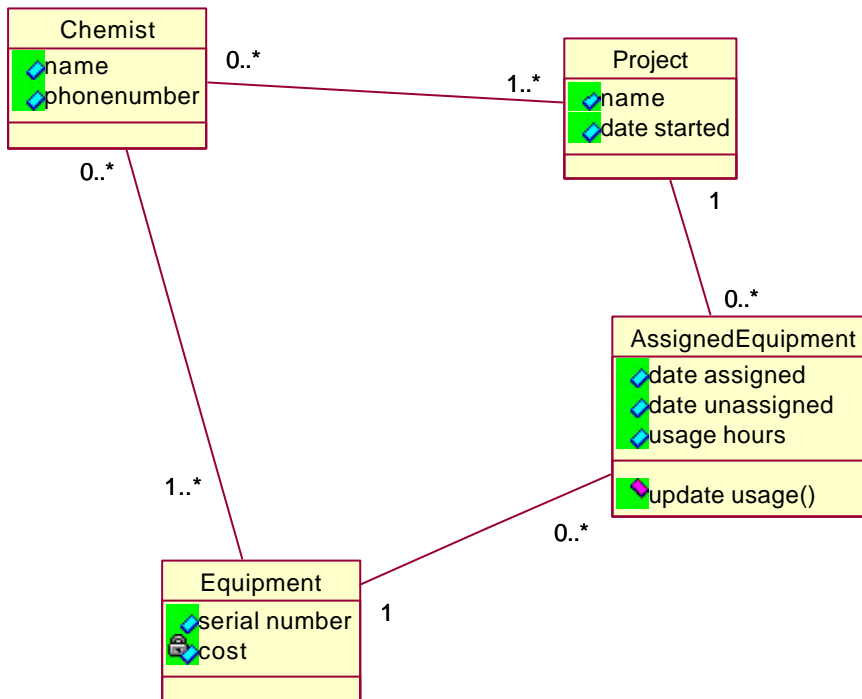
The attributes of Chemist include name and phone number. The attributes of Project include the project's name and the date it started. The attributes of Equipment include serial number and cost.

The organization wishes to record the date when a given piece of equipment was assigned to a particular chemist working on a specified project, as well as the total number of hours the chemist has used the equipment for that project.

A chemist must be assigned to at least one project and one equipment item. A particular equipment item need not be assigned either to a chemist or a project, and a given project need not be assigned either a chemist or an equipment item.

Draw a **class diagram** showing the relevant classes, attributes, operations and relationships. (If you believe that you need to make additional assumptions, state them clearly).

# Answer



For the “obvious” classes, Chemist, Project and Equipment, 2 marks each plus an additional 2 marks for the placement of the 2 attributes into each of those classes. SubTotal – 12 marks

For the “event remembered” class, Assigned Equipment, or similar, 4 marks plus 2 marks each for appropriate and useful attributes (up to a total of 6 marks), plus 3 marks for an appropriate operation. Sub Total – 13 marks

For each association, 1 mark plus 1 mark for getting both the multiplicities of that association correct, up to a maximum of 8 marks.

Where students use attributes incorrectly, i.e. try to post keys, 1 mark will be deducted for each such use.

TOTAL – 33 marks