

adding at this stage; for example, classes to manage the interface and control the sequence of execution. Issues that were less important during analysis such as the technical details of associations between classes and the visibility of classes, attributes and operations are now specified in detail. We revisit interaction diagrams to discuss how to model the creation and deletion of objects and how to specify condition and control.

The class diagram

One of the differences between an analysis class diagram and a design class diagram is the amount of detail shown in the models. During analysis, models are deliberately kept simple and free of implementation decisions; this makes the diagrams uncluttered and therefore easier to read and discuss with the client. It also avoids premature implementation decisions. As we move towards coding, we need to make and document decisions about the implementation. Detailed design activities include:

- Adding classes, such as interface, control and collection classes¹ to help deliver the solution
- Specifying in detail the links between objects
- Specifying the visibility of attributes and operations
- Specifying attributes in detail
- Specifying operations in detail.

During analysis, the focus is on what the organization does and what it wants the new system to do. In an analysis class diagram, most of the classes are entity classes, i.e. they model features of the problem domain. Identifying boundary and control classes can be started during analysis but detailed consideration of these classes is primarily a design and an implementation activity. One of the main reasons for separating the control and interface functions from the information and behaviour of the entity classes, is to isolate the effect of changes. For example, any changes to how the interface works should not affect the entity classes.

Boundary and control classes

As we mentioned above, boundary classes handle the system's interface with the user; they are used, for example, to translate the

1. *The selection of classes from the implementation language library, such as classes to implement windows, buttons, mouse-listeners, etc., should be left to the programmer.*