

engineering is a crucial and complex part of any system development, not just object-oriented projects. It is not possible to do justice to the whole of requirements engineering within the scope of this book, but if you are interested in the topic and want to read more about it, you will find a list of useful texts at the end of the chapter and in the bibliography. In this chapter we simply give a brief description of the main stages of requirements engineering, and show how some of the most useful techniques can be applied to the Wheels case study.

Towards the end of the chapter you will find a list of requirements that must be satisfied by the new Wheels system. These requirements form the starting point for the object-oriented development of the Wheels system that is described in the rest of the book.

Requirements engineering

Interest in requirements engineering as a topic in its own right is relatively recent compared to system design or programming, but it is now universally agreed that getting the requirements right is a crucial part of any system development project. We can see this most clearly by imagining what happens if we get the requirements wrong: it will not matter how well the system is designed or how elegant the code, if the system does not do what the clients and users want, it is useless. It is therefore essential that users, designers and programmers have a clear, comprehensive and agreed specification of requirements to use as a basis for developing the system; the goal and purpose of requirements engineering is to produce such a specification.

Requirements engineering is traditionally divided into three main stages:

- Elicitation, when information is gathered relating to the existing system, current problems and requirements for the future
- Specification, when the information that has been collected is ordered and documented
- Validation, when the recorded requirements are checked to ensure that they are consistent with what the clients and users actually want and need.

Requirements elicitation

During requirements elicitation, the focus is on collecting as much information as possible about what the clients and users want and need from the new system. This usually involves a large amount of