agreement about the precise stages in the development process, the activities that take place at any particular stage, or what is produced at the end of it. This is hardly surprising, since factors such as the type of system being built, the software being used, the timescales and the development environment will all influence decisions about the detailed stages of a project.

However, at a higher level, there is agreement that there are certain life cycle stages that all projects must go through in order to reach a successful completion. Historically these stages have been referred to as requirements, analysis, design, implementation and installation. Each stage is concerned with particular issues and produces a set of outputs or deliverables, as shown in Table 1.2.

Traditional life cycle models

Over the years there have been a number of life cycle models based on the development stages outlined in Table 1.2. In this section we briefly introduce some of the most widely used models. You can find more information about traditional system life cycles in some of the books in the bibliography, for example Pfleeger (1998) and Sommerville (2000).

Waterfall. This early life cycle model represents the stages of development as a straightforward sequence, where one stage must be completed before the next begins. It was the first model to identify the different stages that make up the system development process, and its simplicity has made it a useful model for many years. However, the waterfall model is not really a true reflection of what actually happens in system development, since it does not emphasize the need to iterate over the stages.

V-model. This is a variation of the waterfall, where the stages are visualized in the form of the letter 'V'. It emphasizes how later stages of development are related to earlier stages; for example, how testing should be derived from the activities that are carried out during requirements and analysis.

Spiral. This model is also derived from the waterfall. It incorporates iteration of life cycle stages and focuses on identifying and addressing the risks involved in development.

Prototyping. In the prototyping life cycle, implementation takes place early in the development process. The working model produced is subsequently refined and enhanced during a series of iterations until it is acceptable to the client.