

are both well regarded and widely used in object-oriented development today. We will look first at the concept of a responsibility and how this leads to identifying operations, and we will then describe how the CRC card technique works in practice.

### *Class responsibilities and operations*

At this stage of constructing a class diagram, our aim is to look at the overall functionality of the system, as identified in the use cases, and divide it up between the classes that we have identified in the class diagram. Each class is regarded as having certain responsibilities to provide services to the user of the system (such as maintaining a customer record) or to another class (such as supplying data for a calculation). Each responsibility identifies something that a class is expected to do; it is an obligation on the class to provide some kind of service.

### *CRC cards*

The aim of the CRC card technique is to divide the overall functionality of the system into responsibilities which are then allocated to the most appropriate classes. Once we know the responsibilities of a class, we can see whether it can fulfil them on its own, or whether it will need to collaborate with other classes to do this.

The actual CRC cards are usually index cards about 10 cm × 15 cm in size, and each card represents one class in the system. The size of the card is important because it restricts the amount that can be written on it. On the front of the card is a high-level description of the class, and the back of the card records the class name, responsibilities and collaborations (if any). An example of a CRC card for the Customer class in the Wheels system is shown in Figure 6.1. We can see from the figure that the Customer class has two responsibilities; it is able to carry out the first of these (Provide customer information) on its own, but in order to carry out the second responsibility (Keep track of hire transactions) it will have to collaborate with the Hire class.

Customer	
Responsibility	Collaborator
Provide customer information	
Keep track of hire transactions	Hire

Figure 6.1 CRC card for the Customer class in the Wheels system