



Figure 4.9 The Bike class from the Wheels system

Every object of a given class will have the same set of attributes and the same set of operations. However, although they have the same information structure and the same set of possible behaviours, each will have its own set of values for its attributes, and each will have its own identity. In the Wheels system every bike owned by the shop and every customer who hires a bike will be represented by an object in the software.

Figure 4.9 shows the Bike class from the Wheels system.

The UML symbol for a class is a rectangle divided into three sections. The top section is used for the class name, the middle section for the attributes and the bottom section for the operations. The UML does not have any naming rules; in this book we use a naming convention, used by most object-oriented practitioners, that is based on object-oriented programming style. Class names begin with a capital letter with the rest of the name in lower case. If a class name comprises two or more words the words are run together without spaces and the first letter of each word is capitalized, e.g. BikeList, FlowerArrangingTalk. Class names are always singular.

Notice that attribute names are written in lower case. If an attribute name comprises two or more words the words are run together without spaces and the first letter of each word, except the first one, is capitalised, e.g. dailyHireRate. Operations use the same notation, e.g. getCharges( ).

## Relationships between classes

There are three types of relationship between classes: association, aggregation and inheritance.

*Association.* One of the main characteristics of an object-oriented system is that its objects co-operate to achieve the required functionality. For this to happen, they have to be able to communicate with one another. They do this by message passing. Objects will not be able to pass messages to each other unless we build in links between classes, a route for them to talk to one another – a navigable path.