



Figure 8.1     *The Bike class from the Wheels class diagram*

transitions between the states. However, in an activity diagram, all the states are activities (i.e. a state of doing something) and the transitions between them are triggered by the completion of the activity, rather than by an external event.

Activity diagrams show the internal flow of control in a process. They can be used to model processing at different levels, such as high-level workflows in an organization, the detail of what happens in a use case (as an alternative to a use case description), or they can specify in detail how an operation works (as an alternative to a process specification). Activity diagrams can be used to represent sequence, selection and iteration (structures that are found in nearly all programs) and they can also illustrate where different activities can be carried out in parallel.

## Modelling a sequence of activities

The first example of an activity diagram is a simple model of the operation to calculate the amount to be paid when a bike is hired. Figure 8.1 shows the Bike class from the Wheels class diagram (for the complete diagram, see Figure 6.6 on page 155).

One of the operations on the Bike class is 'getCharges()', but the class diagram only records the name of the operation. There are no details of what actually happens in the 'getCharges' operation. These can be specified in an operation specification (see Chapter 6) or an activity diagram.

Figure 8.2 shows an activity diagram illustrating the sequence of actions involved in the 'getCharges()' operation.

This is a very simple sequential diagram; most activity diagrams model more complex processing and use a fuller notation as shown in Figure 8.3.