



Figure 7.1 Class BankAccount and two BankAccount objects

States and events

A state diagram models the different states that objects of a class can be in, and the events that cause an object to move from one state to another. In order to be able to draw these diagrams, we therefore need to understand what is meant by state and event in this context.

As we have already seen, a class provides a template or pattern for all the objects of that class. As an example, Figure 7.1 shows a class, BankAccount, and two objects of the class.

Each object of a class such as BankAccount will have the same attributes (although with different values) and the same operations. This means that each object of the class is potentially capable of the same range of behaviours. However, the actual behaviour of an object during the life of the system depends not only on its operations, but also on the events which determine the state that it is in. We can see an example of this if we look at the two BankAccount objects in Figure 7.1. The current balance in John Bate’s account is £196.73; it is in the state of being in credit. Clare Stevens’ balance, on the other hand, is -£14.50, and her account is therefore in the state of being overdrawn. If John Bate tries to withdraw £40 from his account this will trigger the withdraw money operation and the remaining balance will be £156.73. However, Clare Stevens does not have enough money to withdraw £40 without exceeding her overdraft limit of £50. These two objects are of the same BankAccount class and undergo the same