4.10   If a CatRobot object, from the Robot hierarchy defined in the Technical points section on polymorphism, is called jojo, what message would you send to get him to perform? Hint: remember you have to address the object as well as the operation.

4.11   Complete Table 4.5 (relating to the Robot hierarchy) which shows object names, classes, attribute values and responses to the perform() message.
         As well as the information in Table 4.4, you can assume the following:

   ◆ all DomesticRobots and their descendants have 2 legs

   ◆ all AlienRobots and their descendants have wheels

   ◆ all WierdoRobots have several heads

   ◆ all AnimalRobots and their descendants have 4 legs.

         Where attribute values are unspecified (e.g. names, languages, no.OfWheels, noise, etc.) you can choose whatever value you like for the objects.

4.12   Which of the classes in the Robot hierarchy are abstract and why? (Hint: Table 4.4 will help you here.)

4.13   What would the output be from the code sections in Figures 4.31 and 4.32? (Hint: Table 4.4 and the answers to Question 4.11 will also help you here.)

4.14   Amend the Robot hierarchy in Figure 4.29 by adding a class HorseRobot as a subclass of AnimalRobot; do not redefine the perform() method. (Hint: remember that for a class to be a specialization of its parent, it must have some distinguishing feature.)

   i   What attributes would the HorseRobot class inherit?

   ii   What implementation of perform() would it inherit?

4.15   a   Add an object of the HorseRobot class to the array of Robot objects in Figure 4.31 and adjust the code to accommodate it.

         b   Adjust the code in Figure 4.32 to process the updated array.