2002 Paper 10 Question 2

Foundations of Programming

The administrator of a playgroup maintains a database containing the names, ages and heights of children. A Java program is required which will sort the children into ascending order of height.

An early test version of the program begins thus:

Supply a suitable class Child. In addition to appropriate data fields and an appropriate constructor, this class should contain a compare() method (for use as implied in the sort() method above) and a toString() method. There is no need to write any further code for the methods main() and sort(). [10 marks]

The program is then modified so that the sort() method and the compare() method are each given a second formal parameter. When the modified sort() method is called, the second actual argument specifies whether sorting is to be in alphabetical order of name, ascending order of age or ascending order of height.

The modified program will require a new heading for the sort() method and a rewritten compare() method in class Child. Supply this new heading and the new compare() method in full. Supply any other necessary new code too and explain its purpose. There is again no need to write any further code for the methods main() and sort(). [10 marks]