2004 Paper 1 Question 10

Programming in Java

Consider the design of a Java application for the automated marking of exam questions on Java. The answer to each question consists of Java source code. Your application should read the text of each answer from a file, and check that actual lines of code expected by the examiner are included at any point in the answer. The examiners will want to calculate the average mark (out of 20) for each question, and also the total mark (out of 100) achieved by each candidate in a paper consisting of 5 questions. Model answers should take the form of an executable Java class, for example a class called `question1model` might contain the following method:

```
protected void defineAnswer()
  { expectedLines.add("import java.io.*;");
    expectedLines.add("public class helloWorld");
    expectedLines.add("system.out.println(\"hello world\");");
  }
```

Provide a UML diagram showing the classes in the application, and write the basic code for each class, in order to achieve the above functionality. You may ignore error processing, and indicate repetitive passages of code by an ellipsis "...".

[20 marks]