```
1   package Assign_6;
2
3   import BasicIO.*;                // for IO classes
4   import static BasicIO.Formats.*; // for field formats
5   import static java.lang.Math.*;  // for math constants and functions
6
7   /** This class reads a data file and then creates a report of the final grades
    based off the data file.
8     *
9     * @author Sawyer Fenwick
10    * @version 1.0 November 22 2016
    */
11
12  public class FinalGrade {
13
14    // instance variables
15    //private ASCIIDisplayer display;
16    private ASCIIDataFile reader;
17    private ReportPrinter report;
18
19    /** This constructor sets up a report using the method "reportSetUp" and grabs
    the data file to be used, it then
20      * reads the data, checking for EOF and sends it to the method
    "writeDetailLines" where the report is written,
21      * then it calculates the average of the final grades and writes the summary
    data using the method "summaryData".*/
22
23    public FinalGrade ( ) {
24
25      // local variables
26      String studentNum;
27      String name;
28      double a1;
29      double a2;
30      double test;
31      double exam;
32      double fin;
33      int count = 0;
34      double avg = 0;
35      double average = 0;
36
37      // statements
38      reader = new ASCIIDataFile();
39      report = new ReportPrinter();
40      reportSetUp();
41      reader.getFile();
42
43      reader.nextLine();
44
45      for ( ; ; ){
46
47          studentNum = reader.readString();
48          name = reader.readString();
49          a1 = reader.readDouble();
50          a2 = reader.readDouble();
51          test = reader.readDouble();
52          exam = reader.readDouble();
53          fin = finalGrade(a1,a2,test,exam);
54          avg = avg + fin;
55
56
57          if(reader.isEOF()){break;}
58
59          writeDetailLines(studentNum, name, a1, a2, test, exam, fin);
60
61          count += 1;
62
63        }
64
65        average = avg/count;
```

```
66        double roundOff = Math.round(average *10.0) / 10.0; //rounding to 1 decimal
    place
67        summaryData(roundOff, count);
68
69    }; // constructor
70
71    // methods
72    /*This method creates the outline of the report, setting the title and adding all
    the fields.*/
73    private void reportSetUp (){
74
75      report.setTitle("COSC 1P02 " , "Final Grades");
76      report.addField("studentNum","Student #",10);
77      report.addField("name","Name",21);
78      report.addField("a1","A1",5);
79      report.addField("a2","A2",5);
80      report.addField("test","Test",6);
81      report.addField("exam","Exam",6);
82      report.addField("fin","Final",5);
83
84    }
85
86    /*This method calculates the final grade of each student based on their marks on
    the assignments, tests and the exam
87     * and their respected weights. */
88    private double finalGrade(double a1, double a2, double test, double exam){
89
90      double finalGrade;
91      finalGrade = a1/10*10 + a2/10*10 + test/50*30 + exam/100*50;
92
93      return finalGrade;
94
95    }
96
97    /*This method writes to the report the student number along with the associated
    grades. */
98    private void writeDetailLines (String studentNum, String name, double a1, double
    a2, double test, double exam, double fin){
99
100     report.writeString("studentNum",studentNum);
101     report.writeString("name",name);
102     report.writeDouble("a1",a1);
103     report.writeDouble("a2",a2);
104     report.writeDouble("test",test);
105     report.writeDouble("exam",exam);
106     report.writeDouble("fin",fin);
107     report.newLine();
108
109   }
110
111   /*This method writes the average of the students final grades and writes the
    number of students in the class. It
112    * also closes the report printer and the data file. */
113   private void summaryData(double roundOff, int count){
114
115     report.writeLine("Average                                                    "
    + roundOff);
116     report.writeLine("Number of Students: " + count);
117     report.close();
118     reader.close();
119   }
120
121   public static void main ( String[] args ) { FinalGrade c = new FinalGrade(); };
122
123
124 } //FinalGrade
```