**CSC 7050 Programming 1**

Time limited 1 hour 40 minutes

**Task**

**As a junior programmer in a software development company you have been asked to complete a small Java program that will output and amend a series of grades for students. There are 10 students each with three assessment results. It is likely that the student results will be sourced dynamically from a DB in the actual system but they are currently hardcoded (randomly generated) in the java file for development purposes. The java class has been started by another developer and you are to complete it.**

**You have been asked to create the program on the basis of the example output as shown. Note the menu should be shown on completion of all options (except 6 – Quit)**

**Option 1**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Grade book

1. Show all results

2. Show lowest score

3. Show highest score

4. Average scores

5. Update student score

6. Quit

Enter option ...

1

Student 1 82 93 91

Student 2 42 6 54

Student 3 88 20 18

Student 4 79 95 98

Student 5 64 61 7

Student 6 11 86 9

Student 7 97 96 36

Student 8 39 6 75

Student 9 12 59 65

Student 10 62 53 10

**Option 2**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Grade book

1. Show all results

2. Show lowest score

3. Show highest score

4. Average scores

5. Update student score

6. Quit

Enter option ...

2

Lowest score : 6

**Option 3**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Grade book

1. Show all results

2. Show lowest score

3. Show highest score

4. Average scores

5. Update student score

6. Quit

Enter option ...

3

Highest score : 98

**Option 4**

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Grade book

1. Show all results

2. Show lowest score

3. Show highest score

4. Average scores

5. Update student score

6. Quit

Enter option ...

4

Student 1 : 88.67

Student 2 : 34.00

Student 3 : 42.00

Student 4 : 90.67

Student 5 : 44.00

Student 6 : 35.33

Student 7 : 76.33

Student 8 : 40.00

Student 9 : 45.33

Student 10 : 41.67

**Option 5**

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Grade book

1. Show all results

2. Show lowest score

3. Show highest score

4. Average scores

5. Update student score

6. Quit

Enter option ...

5

Enter student number :

9

Enter assessment number :

2

Enter new score :

100

Updated...

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Grade book

1. Show all results

2. Show lowest score

3. Show highest score

4. Average scores

5. Update student score

6. Quit

Enter option ...

1

Student 1 82 93 91

Student 2 42 6 54

Student 3 88 20 18

Student 4 79 95 98

Student 5 64 61 7

Student 6 11 86 9

Student 7 97 96 36

Student 8 39 6 75

Student 9 12 100 65

Student 10 62 53 10

**Option 6**

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Grade book

1. Show all results

2. Show lowest score

3. Show highest score

4. Average scores

5. Update student score

6. Quit

Enter option ...

6

Quitting

**Coding standards**

Your manager has emphasised that your code should include good code clarity, including white space, comments, indentation, possible use of constants and be suitably robust. Your code should be efficient and you should be aware of the likelihood that the number of students and/or the assessment may increase.

**Other instructions**

At the end of the assessment you should submit your Java Class for the program.   
You should email the source code (java file) to [aidan.mcgowan@qub.ac.uk](mailto:aidan.mcgowan@qub.ac.uk) and also upload via QOL.

ENSURE THAT YOU SUBMIT THE CORRECT FILE. (Check your email sent folder to ensure you have submitted the correct file).   
  
Ensure your code contains your **Student ID** and **name** within the *class* Javadoc comment.