BACHELOR OF SCIENCE IN COMPUTING AND DIGITAL MEDIA
YEAR 1

SOFTWARE DEVELOPMENT 1

ASSESSMENT 2 – JAVA LAB PRACTICAL

ADDITIONAL INFORMATION PERTAINING TO THIS ASSESSMENT:

- The maximum duration of the assessment is 1 and a half hours.
- You can use the Internet to access Moodle and other sources, but not for messaging/communications purposes.
- Network is monitored during assessment.
- You will have restricted internet access for the duration of the assessment
- No talking during the assessment.
- Phones must be put on silent and away for duration of the assessment.
- Once you have completed and submitted the assessment you are required to leave.
- Include comments in your code.
- Upon submission of this assignment, you may be required to participate in an interview to discuss and explain the work you have submitted. Failure to participate in the interview or to provide an adequate explanation during the interview of your work will result in a grade less than 40% for this assignment.

EXAMINATION FORMAT

6 Exercises in Total
Attempt Any 5
All exercises carry equal marks

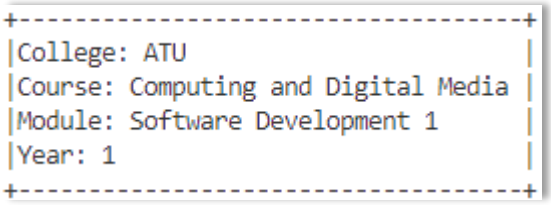
TIME ALLOWED: 1.5 HOURS

Exercise 1

Write a program, named Exercise1.java, which includes variables for:

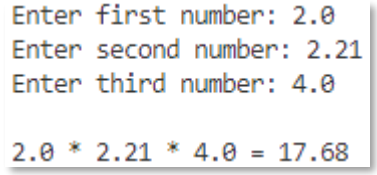
- College
- Course
- Module
- Year

Assign values to these variables and output the details to the screen in a similar format as shown in the screenshot below:



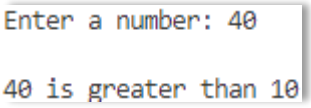
Exercise 2

Write a program, named Exercise2.java, which prompts a user to enter 3 decimal numbers (type double). Output the product of these 3 numbers to the screen. See example screenshot below:



Exercise 3

Write a program, named Exercise3.java, which prompts a user to enter a whole number (type int), and checks if the number entered is greater than 10. See example screenshot below:



As an additional task, confirm if the value entered by the user is a value of type int.

Exercise 4

Write a program, named Exercise4.java, which prompts the user to enter a number, and adds a value to that number. The value to add to the number entered by the user is determined from the following rules:

- Number entered is between 1 and 5, then add 1 to the number.
- Number entered is between 21 and 25, then add 2 to the number.
- Number entered is between 41 and 45, then add 3 to the number.
- Number entered is not in any of the ranges specified above, then double the number.

When appropriate rule is applied to number entered, print the result to the screen.

Example output from this program:

```
Enter a number: 22
22 is updated to 24
```

Exercise 5

Write a program, named Exercise5.java, which prompts a user to enter the following information:

- Their final score in a module
- If they fully participated in all class activities for the module.
- If they submitted all their projects for the module.

Output to the screen, their grade along with some feedback. Grade and feedback are based on score, participation and submission. See the following table for rules to apply:

Score	Fully Participated	Submitted all projects	Grade	Feedback
90 to 100	Yes	Yes	A+	Excellent work
	Yes	No	A	Great job, but make sure to submit all projects
	No	Yes	A	Great job, but make sure to particiapte in all classes
	No	No	A-	Well done, but make sure to submit all projects and participate more
70 to 90	Yes	Yes	B+	Well done, great job
	Yes	No	B	Good job, but make sure to submit all projects
	No	Yes	B	Good job, but make sure to particiapte in all classes
	No	No	B-	Well done, but make sure to submit all projects and participate more
50 to 70	Yes	Yes	C+	Not bad, decent effort
	Yes	No	C	Need to ensure all projects are submitted
	No	Yes	C	Need to participate more
	No	No	C-	Need to make sure to submit all projects and participate more
40 to 50	N/A	N/A	D	Need to improve. Just about getting by
<40	N/A	N/A	F	Need to work harder

An example out from this program is as follows:

```
Enter score: 82
Did you submit all projects (yes/no): yes
Did you participate in all classes (yes/no): no

Grade: B
Feedback: Good job, but make sure to participate in all classes
```

Exercise 6

When it comes to salary, different tax bands are applied. Write a program, named Exercise6.java, which prompts a user to input their gross annual salary and bonus. Calculate tax based on the following rules:

- First 30,000 is taxed at 25%.
- Any earnings between 30,000 and 100,000 is taxed at 35%.
- Any earnings above 100,000 thousand is taxed at 50%.
- Bonus is taxed at 40%.

For example, if gross salary is 120,000, then 20,000 is taxed at 50%, 70,000 at 35%, and 30,000 at 25%.

Once total tax is calculated, output details of gross salary, bonus, taxes due, and net salary ((gross salary + bonus) - tax).

An example out from this program is as follows:

```
Enter your gross annual salary: 120000
Enter your bonus: 10000

Gross Salary: 120000.0
Bonus: 10000.0
Taxes Due: 46000.0
Net Pay: 84000.0
```

Add all files from the assessment to a zip file and upload it using the link available in Assessment 2 section on the Module Moodle page.