# ECS705/ECS717

## Lab Sheet 1: Java Basics

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## Essential exercises:

Exercise 1.

Write a Java program that prints *your name*, *student number* and *email address* in the following format:
your name
your student number
your email

Name your program *MyInfo.java*

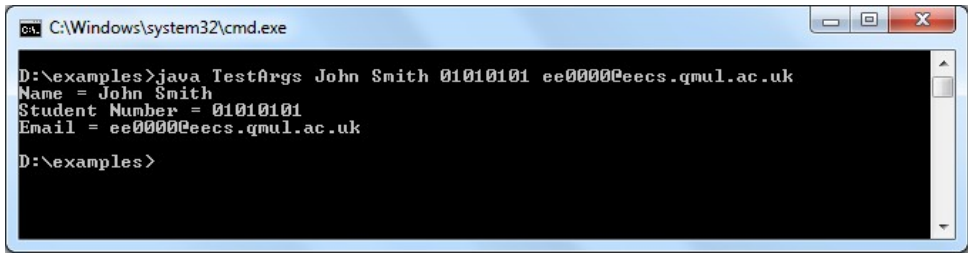
Exercise 2.

In a Java application's `main` method, `String args[]` indicates that this method can take in one or more `String` parameters. Consider the following Java program:

```
public class TestArgs{
      public static void main (String args[]){
            System.out.println("args[0] = "+args[0]);
      }
}
```

This program outputs the following when called with `java TestArgs hello`


i) Modify `TestArgs.java` so that when called with `java TestArgs John Smith 01010101 ee0000@eecs.qmul.ac.uk` it outputs:




Your program should be named *`TestArgs.java`*

ii) Call the program you just wrote, `TestArgs.java`, with your own details.

iii) Call the program again with your own details. What happens if you omit your email in the program call? For example, call the program with `java TestArgs John Smith 01010101`. Try this with your details. Why do you think you got the results you did?

Exercise 3.

Write a Java program that reads an integer value between 1 and 12 from the command line and prints out the corresponding month of the year. *[Hint: The type of the data you read from the command line argument is* `String`*, the following line of code will convert the string value read from the command line to an integer. ]*

```
int month = Integer.parseInt(args[0]);
```

So calling the program as follows:

```
java MonthConverter 1
```

will output:

```
Month 1 is January.
```

Exercise 4.

Write a program to compute the circumference and the area of a circle when a radius is given from the command line (in cm). The formulas are given below:

circumference = 2*radius*PI
area = 4*radius$^2$*PI
PI=3.1415926

The output should be as below for a radius of 5 cm. (java MyCircle 5)

The radius of the circle is 5 cm.
Its circumference is 31.415926 cm
And its area is 314.15926 cm$^2$

Name your program *MyCircle.java*

*[Hint: The type of the data you read from the command line argument is* `String`*, the following line of code will convert the string value read from the command line to a double. ]*

```
double radius = Double.parseDouble(args[0]);
```

Exercise 5.

Write a program to calculate your BMI and give weight status. Body Mass Index (BMI) is an internationally used measurement to check if you are a healthy weight for your height. The metric bmi formula accepts weight in kilograms and height in metres. `BMI= weight(kg)/height²(m²)`

BMI Weight Status Categories table

| **BMI range - kg/m2** | **Category** |
|---|---|
| Below 18.5 | Underweight |
| 18.5 -24.9 | Normal |
| 25 - 29.9 | Overweight |
| 30 & Above | Obese |

Use the command line arguments to give weight in kilograms and height in centimetres. For example:

```
java BMICalculator 75 170
```

should output:

```
Your weight: 75 kg
Your height: 170 cm
Your BMI: 25.95
You are in the overweight range.
```

## Desirable exercises:

Exercise 6.

Write a program that verifies that the user enters an even integer value. If not, print out an appropriate error message.

## Optional exercises:

Exercise 7.

Write a program that reads an integer value that represents a year. Determine if the year is a leap year. (A year is a leap year if it is divisible by 4, unless it is also divisible by 100 but not 400).