Following on from Hello World from your previous practical...

Part 1

Some special characters

- A newline (line feed) character ('\n')
- A Tab delimiter ('\t')

Exercises :

Modify the code to output the following text:

1.

```
Hello world !  I am alive.
```

2.

```
Hello world!  I am alive.
I can write on two lines!
```

3.

```
Hello world!  I am alive.

I can write on two lines!
```

4.

```
        Happy Christmas

                *
               ***
              *****
             *******
            *********
```

5. Using the tab delimiter **\t**

```
First Witch     When shall we three meet again?
                In thunder, lightning, or in rain?

Second Witch    When the hurlyburly's done,
                When the battle's lost and won.

Third Witch     That will be ere the set of sun.
```

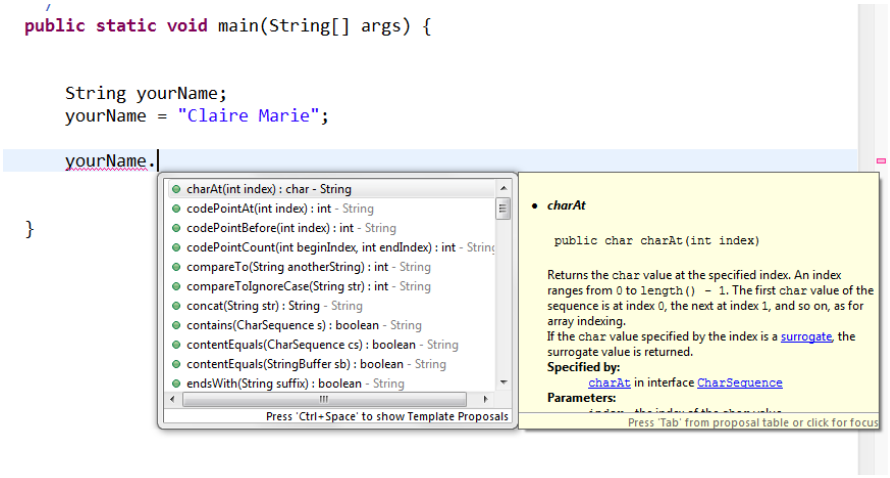
Part 2

Java has many built in **String** methods (actions that can be performed on the **String**). Once a string is declared, for instance like this …

String yourName;
yourName = "Claire Marie";

you can then access methods that can be carried out on the String …

Using the **dot operator** directly after the **variable identifier** (in this case **yourName**) in Eclipse will enable you to view the associated methods (Auto completion popup).



Write a Java program that declares a String. Assign your **own name** to the String. Then output to screen the following information and perform the following operations on the string:

- Print out the string
- Print out the number of characters in the string
- Print out the first and second characters in the string
- Print out the string with the lowercase characters replaced by uppercase characters
- Print out the string with all occurrences of the letter 'a' replaced by '%' (if you don't have an 'a' in your name then use a difference letter).
- Print out the position within the string of the first and last occurrences of the character 'n'.

For example if the input string is: Aidan McGowan
Then the output should be:

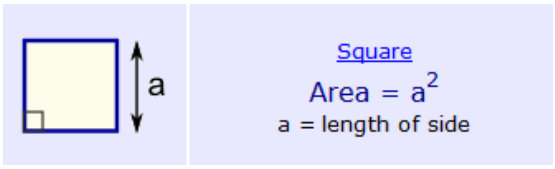
The input String : **Aidan McGowan**
The number of characters in the string : **13**
The first character in the string is **A** and the second character in the string is **n**
The string in uppercase : **AIDAN MCGOWAN**
The string with the letter a replaced with % is : **%id%n McGow%n**
The character 'n' first occurs in position **4**

A good reference point for all Java classes is :
http://docs.oracle.com/javase/8/docs/api/index.html

Part 3

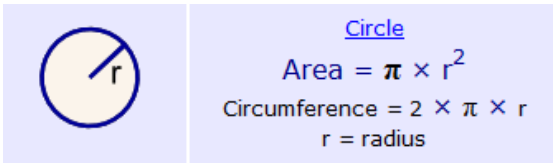
Primitive types – remember there are 8 types in Java

int



1. Write a Java program that will declare the length of a side of a square as an **int** and calculate and print out the **area**. Set the length to **6**.

double



2. Write a Java program that will declare the radius of a circle as a **double** and calculate and print out the **area** (to two decimal points). Hint use **System.out.printf()…** consider **PI** to be **3.142.** Set the radius to **9.**

IF statement

3. Write a Java program that will declare two **int** variables. Use the variable identifiers **number1** and **number2**. Initialise **number1** to 3 and **number2** to 10. Use a series of **if** statements to print to screen the biggest value..

   Now change number1 to be 44. Run the program again and check if the biggest value is identified.

   Now change both numbers to be the same. Run the program again does your program recognise this? If not change it to do so.

4. Write a Java program that declares the following variables.

```
int yearOfBirth, yearWhenITurn21, yearWhenITurn40, yearWhenIRetireAt60;
```

Initialise the yearOfBirth e.g. 1980. Now calculate the three other int variables based on the yearOfBirth value.

e.g. yearWhenITurn21 = yearOfBirth + 21

Output should look something like this …

```
System.out.println("Birth    : "+yearOfBirth);
System.out.println("Turn 21  : "+yearWhenITurn21);
System.out.println("Turn 40  : "+yearWhenITurn40);
System.out.println("Retire   : "+yearWhenIRetireAt60);
```