INTRODUCTION

TO METHODS

JAVA FUNDAMENTALS

# Lab 3, Introduction to methods

## Objective

The objectives of this practical session are as follows.

* To be able to write and invoke methods that have a varying number of parameters, some of which return a value.
* To accept user input in response to a prompt and process that data further including converting it to a different type of data.
* You'll also create and use a new class

## Part 1 – Authoring a helper method

### Step by step.

1. Back in the **labs** project, add a new package called **lab03**.

Please refer to Lab 1's instructions if you need help.

1. Add a new class called **Program** to the *lab03* package with a *main()* method.
2. Add a new method as **public** **static** **int** **getInt**(**String** prompt)

This method has a String parameter called *prompt*, which it displays before getting an integer input from the user. It then returns an **int**.

To get keyboard input (***System.in*** stream), you'll use the Scanner object as:  
  
 Scanner s = **new** Scanner(System.***in***);

**return** s.nextInt();  
  
 The Scanner class has to be resolved. Click on the word Scanner and press Ctrl-1 and choose *import Scanner*.

1. Create another method called **String** **getString**(**String** prompt)

This method is similar to the **getInt()** method except you should change the **s.nextInt** to **s.nextLine();**

1. Call both methods in the **main()** method and then print the result to test your code.

## Part 2 – Performing data conversions

The scenario is going to mimic a serving line at a lunch hall in that we are going to prompt the user to answer certain questions. What would you like as a main dish? Then how many Roast Potatoes? How many Brussel Sprouts? Then display what their lunch is.

### Step by step.

1. Create a method called **theLunchQueue**. In the Program class.
2. Call the **getString**() method to display the following   
    What main dish would you like(Fish, Burgers or veg) ?

And get the answer into a variable called **mainCourse**.

1. Use the **getInt**() method to display the following prompts and capture the values in suitable variable names.  
     
   How many roast potatoes would you like?  
   How many Brussel Sprouts would you like?

Display the description for producing a bill. Something like:  
**Hello, your lunch is xx with yy roast potatoes and zz Brussel sprouts.**

Replacing *xx*, *yy* and *zz* with your actual values of course!

1. Test your code by calling **theLunchQueue() method** from main().

## 

## Part 3 - Weight Conversions

1. Create a method as   
   **void convertInputToStonesPounds(int pounds).**

This method should

1. Ask the user for a total weight in pounds in **main**() and pass the result to this method.
2. Display the result (stones & pounds) in this method.

Note: there are 14 pounds in a stone.   
**Hint**: Use division (/) and modulus (%)

1. Create another method as   
   **void convertKgsToStonesPounds(int kg).**
2. Ask the user for a weight in kilograms.
3. Convert the weight and display it in stones and pounds

**Hint:** 1 kilo = 2.20462 pounds   
Tip: convert the Kg to pounds and then call convertInputToStonesPounds(int kg)

1. Test your code at each stage

## Stretch material:

## Part 4 – Move your code to a separate class

Does every method have to be in the Program class?  
In this part you'll create a new class and move all the code to that class.

1. Create a new Class called **Lab3Exercises** without a main() method in the lab3 package.
2. Cut all the code outside of the main() method (Program class) and paste them inside the *Lab3Exercise* class.
3. Remove the **static** word from every method definition.   
   We'll discuss static method at a later date. The only reason why every method was static was because main() is a **static** method() but we are now free of main()!
4. Back in the **main**() method, create an instance of ***Lab3Exrcises*** class and use it to call the methods.

**Lab3Exercise** **myLab3** = **new** **Lab3Exercise**();

1. At the start of each method call (in main) add "**myLab3**"   
   For example:  
   instead of **theLunchQueue()** type **myLab3.theLunchQueue()**
2. Run the application to make sure everything works.

**\*\* End \*\***