software 1 PRACTICAL

## Function & Selection

Week 2 – Practical

Exercise 1:

Imperial to Metric converter

1. Write a series of functions that convert weight, distance, and liquid measurement from Imperial to Metric system. For example, to convert weight:

* the function should two parameters, one for the number of stones (int), and one for the number of pounds (int),
* The function should return the weight in Kilograms (float).

1. Write the reverse conversion as a function:

* What parameter(s) the function has?
* What is the type of the returned value(s)

Exercise 2:

We have used input(str) during the lecture. Write a script using the functions from Exercise 1 to ask the user which conversion he/she want to do. Then the user should enter the measurement values he/she want to convert.

Exercise 3:

A fruit company sells bananas for £3.00 a kilogram plus £4.99 per order for postage and packaging. If an order is over £50.00, the P&P is reduced by £1.50. Write a function that will take the number of kilo of bananas and return the cost of the order in pence. Then write a script requesting the user to input the number of kilos for an order and print the cost of that order.

Exercise 4:

Write a function that takes the age (int) and rate (the heart rate as an int) as parameters and prints a description of a person's training zone based on his or her age and training heart rate, rate. The zone is determined by comparing rate with the person's maximum heart rate m:

| Interval range | | | | | Training Zone |
| --- | --- | --- | --- | --- | --- |
| rate | ≥ | 0.9 m |  |  | Interval training |
| 0.7 m | ≤ | rate | < | 0.9 m | Threshold training |
| 0.5 m | ≤ | rate | < | 0.7 m | Aerobic training |
| rate | < | 0.5 m |  |  | Couch potato |

The maximum heart rate in beats per minute is given by the formula:

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Exercise 5:

Write a function that takes the lengths of the sides of a triangle (a, b, and c) from the user and then print the area of the triangle using Heron's formula. (Look up Heron's formula if you do not remember it.). Note, to compute using Python, you could use the function pow(x,n).