Assignment 4

A workflow is a set of loosely-coupled tasks with a set of dependencies. Workflows are adopted as a powerful modeling technique to represent various High-Performance Computing (HPC) applications. In this assignment, the goal is to deal with workflows in OpenWhisk.

Exercize1:

Design and implement a workflow containing 4 functions as follows:

Function1: Let's call this function as Watermark function. This function should get an image and add a watermark on it (for example write your name as watermark on it), then invoke and send the watermarked image to function 2 and 3.

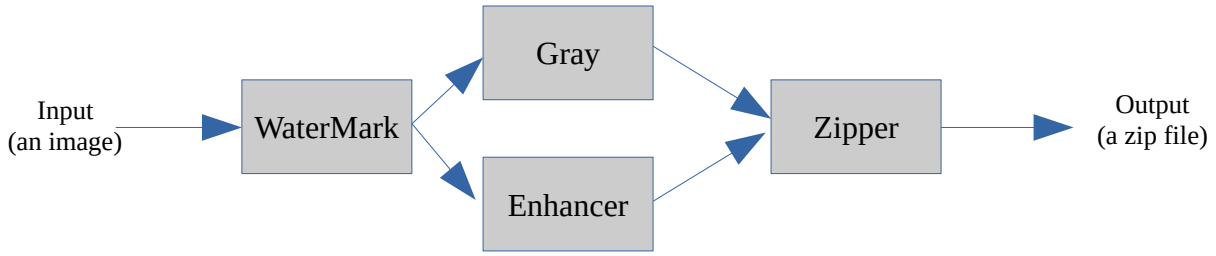
According to workflow, function 2 and 3 can be executed concurrently.

Function 2: Lets call this function as Gray function. This Function should get an image and perform a GrayScale Conversion on it then send the output to function 4.

Function 3: Lets call this function as Enhancer functions. This Function should get an image and enhance its contrast and invoke and send it to function 4.

Function 4: Lets call this function as Zipper. This function should get 2 images and compress them as a zip file. Note that this function should wait for receiving both images from function 2 and 3.

The below scheme can be useful. The code of all the functions are implemented in java and are available in this link.



Exercize2:

In the first exercise we invoke the successor function(s) from inside of the predecessor, whereas, in the second exercise you should write a workflow engine which gets a given workflow and manages the order of execution of the functions of the workflow, meaning that in the code of functions no other functions of the workflow should be invoked. Indeed, the workflow engine sperates the code of the tasks from the execution order of tasks resulting in a higher flexibility.