# Basics of Python/Java coding

## Basic Reading Material

Please use the following basic reading material:

1. http://www.tutorialspoint.com/python/
2. http://www.tutorialspoint.com/java/

## Introduction : What will we learn here ?

Efficient coding techniques.

## The Problem Statement

### Problem 1 (Compulsory - 100 marks, difficulty level: *)

There is a mass of land containing some finites number of water bodies. Let the piece of land be represented by a 2-D matrix, whose each cell represents a unit area. Value '0' of a cell denotes that it comes under land area and '1' denotes that it comes under water body.
If the cells connected by a 4-point connectivity forms a single water body, find the total number of water bodies.

### Optional bonus problems

These following problems are optional and have higher levels of difficulty. Bonus marks (indicated against each) will be given for attempting these.

#### (**/5 points) Problem O1 :

If the cells connected by a 8-point connectivity forms a single water body, find the total number of water bodies.

#### (***/10 points) Problem O2 :

Label the water bodies so that if user specifies a cell (m,n), the program must tell whether it comes under a water body.

## Submission Instructions

Please follow the submission instructions below:

1. Upload on Sakai before 1715 hours

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## Material to read for next week's lab

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## Try these sample / representative questions for next week

Based on the above reading material for next week, please attempt the following sample / representative problems:

1. (Difficulty level *)
2. (Difficulty level **)
3. (Difficulty level ***)