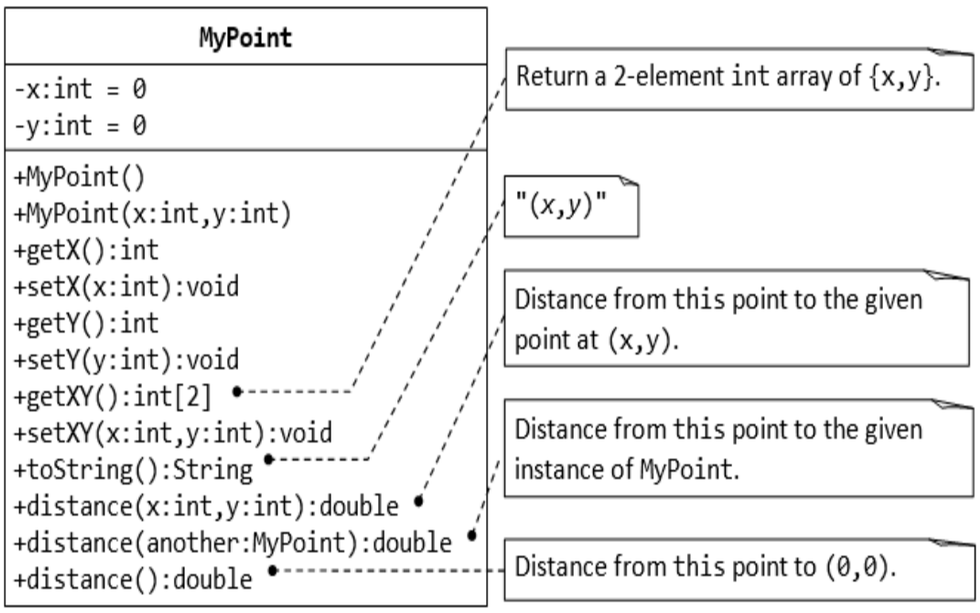
Institute of Information Technology
University of Dhaka

Course: Object Oriented Concepts I (SE-206)

Time: 120 Minutes Lab Examination -1 2017 **Marks**: 50

	Question	Marks
1.	Write a method named *armstrongCheck* that takes an integer number and checks is Armstrong or not. An Armstrong number of 3 digit is a number for which sum of cube of its digits are equal to number e.g. 371 is an Armstrong number because 3*3*3 + 7*7*7 + 1*1*1 = 371). Armstrong number: 153, 371, *407*, *etc.*	10
2.	Write an application that displays a table of the binary, octal and hexadecimal equivalents of the decimal numbers in the range 1 through 100.	20
3.		20

Consider a class called `MyPoint`, which models a 2D point with `x` and `y` coordinates. Give unique point_ID (e.g. Point1001, Point1002, Point1003, etc.) for each point object. The `MyPoint` class contains:

- A default ("no-argument") constructor that construct a point at the location of `(0, 0)`.
- overloaded constructor that constructs a point with the given `x, and y` coordinates.
- A method `getXY()` which returns the x and y in a 2-element `int` array.
- A `toString()` method that returns a string description of the instance in the format "`(x, y)`".
- A method called `distance(int x, int y)` that returns the distance from *this* point to another point at the given `(x, y)` coordinates
- An overloaded `distance(MyPoint another)` that returns the distance from *this* point to the given `MyPoint` instance (called `another`)
- Another overloaded `distance()` method that returns the distance from `this` point to the origin `(0,0)`

You are required to:

- ❖ Write the code for the class `MyPoint`. Write a test program (called `TestMainMyPoint`) to test all the methods defined in the class.
- ❖ Write a program that allocates `10` points in an array of `MyPoint`, and initializes to `(1, 1)`, `(2, 2)`, ... `(10, 10)`.