Lebanese University
IUT - Saida
CCNE II

# OOP
# Assignment 3 : Exception

## I) Exceptions

```
try{
        block that may generate an exception
} catch (Exception e){
        Block that manage an exception
}

Next instruction ....
```

How try…catch works:

- If there isn't an exception, we never go to the catch block and we continue execution of the next instruction.
- **e** is an object of the class Exception. There are different kind of exceptions : ***IndexOutOfRangeException, FormatException, SystemException,*** etc…

Example:

```
public static void Main(string[] args)
        {
                int nb;
                string r;
                do{
                        try {
                        Console.WriteLine("Give a number");
                        nb=int.Parse(Console.ReadLine());
                        } catch (Exception ex) {
                        Console.WriteLine("error message {0}",ex);
                         }
                        Console.WriteLine("continue ? Y/N");
                        r = Console.ReadLine();
                 }while(r=="Y");

                Console.Write("Press any key to continue . . . ");
                Console.ReadKey(true);
        }
```

**CREATE an exception :**

We have to use : `throw new Exception(message d'exception)`

Example:

```
public static void Main(string[] args)
                {
                        int nb;
                        string r="Y";

                        do{
                                try {
                                Console.WriteLine("Give a number");
                                nb=int.Parse(Console.ReadLine());
                                } catch (Exception ex) {
                                Console.WriteLine("the error message is {0}",ex);
                                }
                                Console.WriteLine("Continue Y/N");

                                r = Console.ReadLine();
                                if(r!="Y" || r!="N")
                                throw new Exception(" error : "+r+" not valid ");


                         }while(r=="Y");

                        Console.Write("Press any key to continue . . . ");
                        Console.ReadKey(true);

                }
```

**If  r is different from  « Y » or « N », an exception is generated.**

**Exercise 1:**

**Part 1 :**

We suppose that a point is an array that contains 2 elements. Then this array contains the coordinates
Example : P is an array as following:
P[0]=2 et P[1]=5

Write a code that asks the user to give the coordinates of three points.

**Part 2 :**

Create the function Distance_2(P1,P2) that takes two points as parameters (2 arrays) and return the square of the distance between P1 and P2. If the points are similar, this function will generate an exception which has the following message: « points are similar ».

| | | | | | |
|---|---|---|---|---|---|
| P1 | 2 | 7 | P2 | 2 | 5 |

Distance_2(P1,P2) returns 2 : $\overline{P_1P_2}^2$ = $(X_1 - X_2)^2 + (Y_1 - Y_2)^2$

**Part 3 :**

Create a function called **Triangle** which takes three Points as parameters.
Then it returns an integer as following.
1=> equilateral triangle.
2=> isosceles triangle
3=> right triangle
4=> isosceles right triangle.
5=> any triangle.

**Part 4 :**
Write a program that asks a user to enter 3 points and displays the type of the triangle formed.