

# Programming

## While Loops Homework 2

**Mostafa S. Ibrahim**

*Teaching, Training and Coaching for more than a decade!*

*Artificial Intelligence & Computer Vision Researcher*

*PhD from Simon Fraser University - Canada*

*Bachelor / MSc from Cairo University - Egypt*

*Ex-(Software Engineer / ICPC World Finalist)*



Materials have **COPYRIGHTS** - Can't use without direct **PERMISSION**

# Problem #1: Print Diamond

- Read in a positive integer  $N$ , then print a diamond of  $2N$  rows, as below:

5

```
  *
 ***
*****
*****
*****
*****
*****
*****
 *****
  *****
   *****
    *
```

## Problem #2: Special Multiples 1

- Read in a positive integer N, and print all integers from 0-N that satisfy the following properties:
  - Either the number is perfectly divisible by 8
  - Or it is divisible by **both 3 and 4**
- Input: 100
- Output: 0 8 12 16 24 32 36 40 48 56 60 64 72 80 84 88 96

## Problem #3: Special Multiples 2

- Read in a positive integer  $N$  ( $1 \leq N \leq 30$ ): print the **first  $N$**  integers that are:
  - Multiples of 3, but **not** multiples of 4
- Input: 11
- Output: 3 6 9 15 18 21 27 30 33 39 42
- Notice
  - 12 is divisible by both 3 and 4  $\Rightarrow$  so it is excluded

# Problem #4: Minimum of Values

- Read in a positive integer T; this denotes the number of test cases
- For each test case, read in a positive integer N, followed by reading N integers
- For each test case, print the **minimum** of all of the input N integers
- Example input:
  - 2 6 10 50 20 70 30 4 3 10 5 30
  - Notice here we have 2 test cases
    - 6 10 50 20 70 30 4 [6 numbers to read] ⇒ min is 4
    - 3 10 5 30
- Output
  - 4
  - 5

*“Acquire knowledge and impart it to the people.”*

*“Seek knowledge from the Cradle to the Grave.”*