C++ Programming

While Loops Homework

Mostafa S. Ibrahim
Teaching, Training and Coaching since 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)

Homework 1: Print Range

- Given a starting number X and an ending number Y, print all numbers between X and Y inclusive, each on a line.
- Input 3 7
- Output
  - 3
  - 4
  - 5
  - 6
  - 7

Homework 2: Line Of Characters

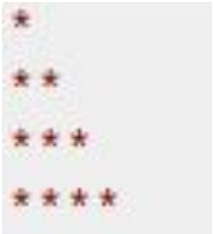
Line Of Characters

Problem Statement: Given a special character X the user would like to get it repeated N times beside each other.

Input Format: In the first and only line an integer N followed by a character X separated with a space.

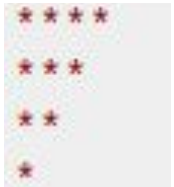
Example Input:
7 *
Example Output:
****

Homework 3: Print left angled triangle

- Given a number N. Print a left angled triangle that has N rows.
- Input 4
- Output
- 

Homework 4: Print face down left angled triangle

- Given a number N. Print a face down left angled triangle that has N rows.
- Input 4
- Output
-



Homework 5: Print diamond

- Given a number N. Print diamond of 2N rows as below.
- Input 4
- Output
-

Homework 6: Special Average

- Read integer N, followed by reading N numbers. Print 2 values
  - The average of the numbers in odd positions (1st, 3rd, 5th, …)
  - The average of the numbers in even positions (2nd, 4th, 6th, …)
- Input
  - 6 10 100 20 200 30 600
- Output
  - 20 300
- Explantation
  - (10+20+30)/3 = 20
  - (100+200+600)/3 = 300

Homework 7: Special multiples 1

- Read an integer N : print all numbers that satisfy the following property
  - Either number is divisible by 8
  - Or divisible by both 4 and 3
- Input: 100
- Output: 0 8 12 16 24 32 36 40 48 56 60 64 72 80 84 88 96

Homework 8: Special multiples 2

- Read an integer N (1 <= 30): Print the first N numbers that are
  - multiple of 3 but not multiple 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 ⇒ so excluded

Homework 9: Find NO

- Read integer N, then read N strings.
  - Print only the strings (of 2 letters).
  - These 2 letters must be letter ‘N’ and letter ‘O’ (regardless of lower/upper case/order)
  - E.g. print “No”, “ON”, “no” but ignore e.g. “YEs”, “Noooo”
  - That is, the word of 2 letters only N and O
- Input
  - 9 Yss NO noOO oN Mostafa no nN oOOooo oO
- Output
  - NO oN no

Homework 10: Reverse number

- Read an integer N, then find its reverse integer R
  - Print R R*3
- input ⇒ Output
  - 123 ⇒ 321 963

Homework 11: Minimum of values

- Read T for number of test cases. For each test case read integer N: number of integers. For each test case, print the minimum of the N integers.
- 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]
    - 3 10 5 30
- Output
  - 4
  - 5

Homework 12: Multiplication table

- Read an integer N and M, then print NxM lines for their multiplication table.
- Input 3 4
- Output
  - 1 x 1 = 1
  - 1 x 2 = 2
  - 1 x 3 = 3
  - 1 x 4 = 4
  - 2 x 1 = 2
  - 2 x 2 = 4
  - 2 x 3 = 6
  - 2 x 4 = 8
  - 3 x 1 = 3
  - 3 x 2 = 6
  - 3 x 3 = 9
  - 3 x 4 = 12

Homework 13: Special Sum

- Read T for number of test cases. For each test case read integer N. Then read N integers a, b, c, ….. and compute the **sum** of:
  - (a, b*b, c*c*c, d*d*d*d, e*e*e*e*e……)
  - That is the k-th number is repeated k times
- Input:
  - 2
  - 3 5 7 2
  - 4 1 2 3 4
- Output
  - 62 [as (5 + 7*7 + 2*2*2) = 62]
  - 288 [as (1+2*2+3*3*3+4*4*4*4) = 288]

"Acquire knowledge and impart it to the people."

"Seek knowledge from the Cradle to the Grave."