

# CS100 Computational Problem Solving

## Fall 2019-20

Section 1

Tuesday, 29 October 2019

### Lab 09: Exercise

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### Lab Guidelines

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1. Make sure you get your work graded before the lab time ends.
2. You put all your work into the folder **Lab9\_YourRollNo\_TName** and submit it on LMS (Assignment>Lab9) before the time the lab ends.
3. Talking to each other is NOT permitted. If you have a question, ask the lab assistants.
4. The object is not simply to get the job done, but to get it done in the way that is asked for in the lab.
5. Phone is NOT allowed. Put it in bag or at instructor desk.
6. Any cheating case will be reported to Disciplinary Committee without any delay.

Coding Conventions:

1. Constants are ALL\_CAPS.
2. Variables are all\_small.
3. All curly brackets defining a block must be vertically aligned.

Learning Objective:

1. PO-02 Develop proficiency in the practice of computing.
2. CO-02 To help students analyze and solve programming problems
3. LO-02 Critical Thinking and Analysis
4. LO-03 Problem Solving
5. LO-05 Responsibility

Marks:      Name: \_\_\_\_\_ Roll #: \_\_\_\_\_

Task1									Total
									25

Task2									Total
									25

Task 3									Total
									25

Task 4	Q1	Q2							Total
	15	10							25

Total Marks  
Obtained

/100

TA: \_\_\_\_\_

Let's Begin

**Task 1:****[25 marks]**

Write a program to make such a pyramid like pattern. The height will be provided by the user.

**Sample output:**

Enter Input = 5

```
    1
   2 2
  3 3 3
 4 4 4 4
5 5 5 5 5
```

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**Task 2:****[25 marks]**

Write a C++ program to take a number from the user and then list all the prime factors of the given number using nested loops.

For example, if the input number is 24 the prime factors are 2 and 3. (4, 6 and 8 are not prime)

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**Task 3:****[25 marks]**

Write a C++ program which prints the following with the help of nested loops:

```
1      1
12     21
123    321
1234   4321
1234554321

Process returned 0 (0x0)   execution time : 0.205 s
Press any key to continue.
```

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#### Task 4:

[25 marks]

##### Part A:

[15 marks]

Write a C++ program to print left arrow star pattern:

```
Enter value of n : 5
```

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

##### Part A:

[10 marks]

Write a C++ program to print right arrow star pattern:

```
Enter value of n : 5
```

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

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