National University of Computer and Emerging Sciences, Lahore Campus

Course:	**Programming Fundamentals**	**Course Code:**	**CS 118**
Program:	**BS(Computer Science)**	**Semester:**	**Fall 2020**
Due Date	**22-Nov-2020 at 11:59 pm**	**Total Marks:**	**20**
Section:	**CS-1G**	**Page(s):**	**1**
Type:	**Assignment 3**		

Important Instructions:

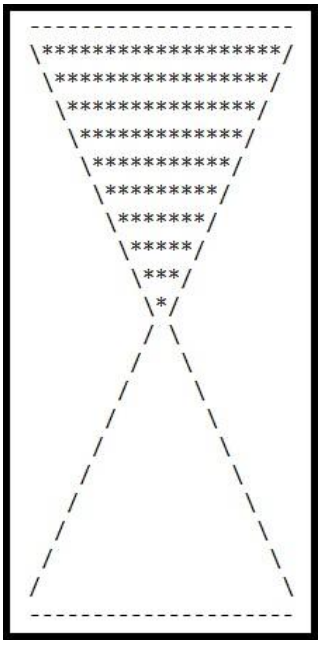
1. Submit your solution named as your roll number, i.e., 20_1111.cpp. Do not zip your file.
2. You are not allowed to copy solutions from other students. We will check your code for plagiarism using plagiarism checkers. If any sort of cheating is found, negative marks will be given to all students involved.
3. Late submission of your solution is not allowed

Question 1. Write a C++ **function** to simulate an hourglass. The function takes the following parameters:

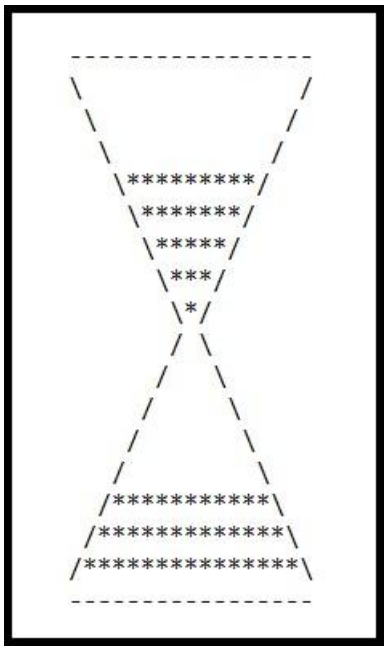
1. **`totalTime:`** Total time (in seconds) that can be measured/simulated using this hourglass.
2. **`ch:`** The character to represent sand in the hourglass.

The simulation works in this way: after one second, some sand from the upper portion of the clock drops into the lower portion of the clock. For your program, you can implement it in this way: after every second, remove one row from the upper portion of the clock and add a new row in the lower portion of the clock. The simulation stops when no sand remains in the upper portion of the hourglass. Also create a main function and call this function. Ask the required parameters for the function from the user. You can use the **sleep** function to stop execution of the program for 1 second.

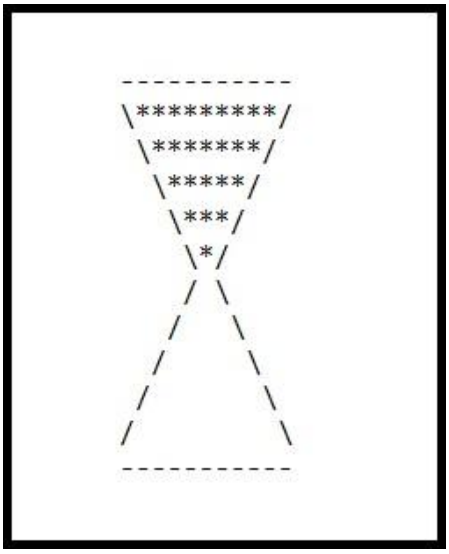
Some illustrations of hourglass are given on the next page.



simulateHourglass(10, '*');



After 3 seconds.



simulateHourglass(5, '*');