EAST WEST UNIVERSITY
Department of Computer Science and Engineering
B.Sc. in Computer Science and Engineering Program
Lab 3, Fall 2020 Semester

Course: **CSE 110 Object Oriented Programming, Section-2, 3, 4**
Instructor: **Mahamudul Hasan, Senior Lecturer, CSE Department**
Full Marks: **TBA**
Time: **3 Hours**

Note: There are **20** questions, write program for ALL of them.

1.	Write a program called **CheckOddEven** which prints "Odd Number" if the int variable "number" is odd, or "Even Number" otherwise. The program shall always print "bye!" before exiting.
2.	Write a program called **Fibonacci** to print the first 20 Fibonacci numbers F(n), where F(n)=F(n–1)+F(n–2) and F(1)=F(2)=1. Also compute their harmonic mean. The output shall look like: The first 20 Fibonacci numbers are: 1 1 2 3 5 8 13 21 34 55 89 144 233 377 610 987 1597 2584 4181 6765 The average is **
3.	Write a program called SquarePattern that prompts user for the size (a non-negative integer in int); and prints the following square pattern using two nested for-loops. Enter the size: 5 #
4.	Write 3 programs that prompts user for the size (a non-negative integer in int); and prints the pattern as shown: Enter the rows: 6 a) # b) # # # # # # # # # # #

5.	Write 4 programs that prompts user for the size (a non-negative integer in int); and prints the pattern as shown: Enter the size: 8 1 1 2 3 4 5 6 7 8 1 8 7 6 5 4 3 2 1 1 2 1 2 3 4 5 6 7 2 1 7 6 5 4 3 2 1 1 2 3 1 2 3 4 5 6 3 2 1 6 5 4 3 2 1 1 2 3 4 1 2 3 4 5 4 3 2 1 5 4 3 2 1 1 2 3 4 5 1 2 3 4 5 4 3 2 1 4 3 2 1 1 2 3 4 5 6 1 2 3 6 5 4 3 2 1 3 2 1 1 2 3 4 5 6 7 1 2 7 6 5 4 3 2 1 2 1 1 2 3 4 5 6 7 8 1 8 7 6 5 4 3 2 1 1 (a) (b) (c) (d)
6.	Write a program that generates a random number and asks the user to guess what the number is. If the user's guess is higher than the random number, the program should display "Too high, try again." If the user's guess is lower than the random number, the program should display "Too low, try again." The program should use a loop that repeats until the user correctly guesses the random number.
7.	Write a Java program by using three for loops to print the following pattern: 1****** 12***** 123**** 1234*** 12345** 123456* 1234567
8.	Write a Java program to find a given number is palindrome or not. You have to take the number in the range of integer. Input Data: Input number: 54789 Expected Output: Not a Palindrome. Input number: 02022020 Expected Output: It is a Palindrome.
9.	Write a Java program to separate even and odd numbers of a given array of integers. Put all even numbers first, and then odd numbers.
10.	Write a program to print following using while loop: i) 1 222 33333 4444444

	555555555 ii) 1 212 32123 4321234 543212345
11.	Write a program to calculate the sum of following series where n is the input given by the user. 1 + 1/2 + 1/3 + 1/4 + 1/5 +……1/n
12.	Find GCD of two numbers using for loop and if statement.
13.	Write a java program using while loop to print Pascal's triangle Input: 6 Expected Output: 1 1 1 1 2 1 1 3 3 1 1 4 6 4 1 1 5 10 10 5 1
14.	Write a Java Program to Find Factorial of a Number.
15.	Write a java program to reverse a Number using a do while loop. Input Data: Input number: 54789 Expected Output The reversed number is : 98745
16.	Write a Java program to display the number rhombus structure. Test Data Input the number: 7 Expected Output:

	1 212 32123 4321234 543212345 65432123456 7654321234567 65432123456 543212345 4321234 32123 212 1
17.	Write a Java program that takes an integer number between 1 to 7 and displays the name of the weekday. Test Data Input number: 3 Expected Output: Wednesday
18.	Write a Java program that takes a year from user and print whether that year is a leap year or not. Test Data Input the year: 2016 Expected Output: 2016 is a leap year
19.	Write a program to compute sinx for given x. The user should supply x and a positive integer n. We compute the sine of x using the series and the computation should use all terms in the series up through the term involving xn $\sin x = x - x^3/3! + x^5/5! - x^7/7! + x^9/9!$ .....
20.	Write a program to compute the cosine of x. The user should supply x and a positive integer n. We compute the cosine of x using the series and the computation should use all terms in the series up through the term involving xn $\cos x = 1 - x^2/2! + x^4/4! - x^6/6!$ .....