Programming Assignment-IV

(JAVA)

(Iterative Statements/Looping)

1. Write a java program that gets three integers from the user. Count from the first number to the second number in increments of the third number. Use a for loop.

Count from: 4

Count to: 13

Count by: 3

Output: 4 7 10 13

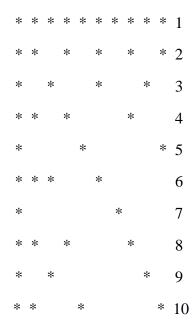
- 2. Write a java program that, using one for loop and one if statement, prints the integers from 1,000 to 2,000 with five integers per line. (Hint: Use the % operation).
- 3. If we list all the natural numbers below 10 that are multiples of 3 or 5, we get 3, 5, 6 and 9. The sum of these multiples is 23. Write a java program to find the sum of all the multiples of 3 or 5 below 1000.
- 4. Write a java program to find the difference between the sum of the squares and the square of the sum of the first N natural numbers. (N is the key board input value).

The sum of the squares of the first ten natural numbers is, $1^2 + 2^2 + ... + 10^2 = 385$

The square of the sum of the first ten natural numbers is, $(1 + 2 + ... + 10)^2 = 55^2 = 3025$

Hence the difference between the sum of the squares of the first ten natural numbers and the square of the sum is 3025 - 385 = 2640.

5. Write a java program to print the following pattern using nested loops.



6. Write a java program to compute the harmonic mean. The harmonic mean is defined by

$$H = \frac{n}{\sum_{i=1}^{n} (1/a_i)}$$

7. Write a java program to compute the sum of the first n terms (n>=1) of the series.

S=1-3+5-7+9-

- 8. Input a number n, write a java program to compute n factorial (written as n!) where $n \ge 0$.
- 9. For a given x and a given n, write a java program to compute $x^n/n!$.
- 10. Write a java program to generate and print the first n terms of the Fibonacci sequence where n>=1. The first few terms are: 0, 1, 1, 2, 3, 5, 8, 13,
- 11. Write a java program to generate and print the first n terms of the Fibonacci numbers using an efficient algorithm. In this case, you need to find a pair of Fibonacci terms, in each iteration and display them and adjust the preceding term b and the term before the preceding term a. Your program should handle all positive values of n. Example:

If n=10, it will display as: Fibonacci Series is: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34 If n=11, it will display as: Fibonacci Series is: 0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55

- 12. Write a java program that accepts a positive integer n and reverses the order of its digits.
- 13. Write a java program that puts the binary representation of a positive integer N into a String s.
- 14. Write a java program GCD that finds the greatest common divisor (gcd) of two integers using Euclid's algorithm, which is an iterative computation based on the following observation: if x is greater than y, then if y divides x, the gcd of x and y is y; otherwise, the gcd of x and y is the same as the gcd of x % y and y.
- 15. Write a java program to find the sum of the first n terms of the series fs=0!+1!+2!+3!+...+n! (n>=0)
- 16. Write a java program to compute the sum of the digits in an integer.
- 17. A perfect number is one whose divisors add up to the number. Example: The first perfect number is 6. because 1, 2, and 3 are its proper divisors, and 1+2+3=6 Write a java program that prints all perfect numbers in between 1 and 500.