

Himanshu'sClasses

JAVA ASSIGNMENT – LOOPS

1. Write a program to accept 20 numbers from the user. Count and print the number of:
 - (a) Positive Numbers
 - (b) Negative Numbers
 - (c) Zeroes
2. The acceleration due to gravity g as a function of altitude h is given by:
 $g = 32.17(4390/4390+h)^2$ if $h \geq 0$
 $g = 32.17(1+h/4390)^2$ if $h \leq 0$
Where 'h' is the height above sea level. Write a program to print out the value of h and corresponding value of g for h ranging from -4 to 10 in steps of 2.
3. Write a program to multiply two numbers using Russian peasant method. The Russian peasant method of multiplication of two numbers involves three operations:
 - (a) Multiply by 2
 - (b) Divide by 2
 - (c) Addition

Here the first number is divided by 2 (truncating the fractional part) and second number is multiplied by two until the first number reduces to 1. Suppose, we want to multiply 19 by 25, we write the results of multiplication and division in two columns like this:

19	25
9	50
4	100
2	200
1	400

Now to get the result, we look at the odd numbers in column 1 that are 19, 9 and 1, corresponding to these numbers we have 25, 50 and 400 in second column. Adding 25, 50 and 400 gives us 475 which is product of 19 and 25.

4. Write a program to find the HCF and LCM of two numbers
5. A Harshad number is the one that is divisible by sum of its digits. For example, 21 is the Harshad number. Sum of Digits = $2 + 1 = 3$ and 21 is divisible by 3. Another Harshad number is 378 as sum of its digits = 18 and 378 is divisible by 18.

Write a program to input a number and check whether the number is a Harshad Number or not.

6. Write a program to display the Floyd's Triangle:

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1
2 3
4 5 6
7 8 9 10
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