

PDS LAB – 3 (Section-5) Date: 23rd January 2017.

Tutorial Problems

1. Write a C program to read a sequence of characters (terminated by new line character '\n') and count the number of vowels entered through keyboard.
2. Write a C program to find the sum of the squares of first N natural numbers. Accept the value of N from the user through key board.
3. Write C code which reads a floating point number 'x' and an integer 'n' from keyboard and computes the following: $x + (x+1) + (x+2) + (x+3) + \dots + (x+n)$. Print the value of x and Sum.
4. Write a C program to determine the number of positive and negative numbers entered through keyboard. The key-board entry will be terminated by 0.
5. Read any 4 digit number and print the sum of its digits.

Assignment Problems

- 1) Write a C program to find the sum of the first N terms of the following series:
 $1 - 2 + 3 - 4 + 5 \dots$
- 2) Write C code which reads an integer number x and an integer n from keyboard and computes the following: $x*(x+1)*(x+2)*(x+3)* \dots * (x+n)$. Run the program by increasing the value of 'n' in steps of 5 with the starting value as n = 2. Assume x = 10. Observe the results and justify.
- 3) Write a C program that reads two positive real numbers. Now, enter an operator from the keyboard and perform the operation. The operator can be any of the following:
 - + (addition)
 - (subtraction)
 - * (multiplication)
 - / (division) and
 - % (remainder)

If the operator is not the valid one, print the same message. Otherwise print the expression as follows: num1 OP num2 = result (ex: $x + y = z$, $x - y = z$,).

- 4) Write a C program to test whether the given number (consider a max of 999999) is divisible by 2, 3, 4, 5, 6, 7, 8, 9, 10 and 11. (use the first principles of division)

Divisibility by	Rule
2	Last digit (digit in one's place) should be even number
3	Sum of all digits of the number to be divisible by 3
4	The number formed by last 2 digits (one's and ten's place) should be

	divisible by 4
5	Last digit (digit in one's place) of the number should be either 0 or 5.
6	The number should be divisible by both 2 and 3
7	Double the last digit and subtract it from the remaining leading truncated number. If the result is divisible by 7, then so was the original number. Apply this rule over and over again as necessary.
8	If hundred's place is even check whether the number formed by last 2 digits is divisible by 4. If hundred's place is odd, add 4 to the number formed by last 2 digits and check whether it is divisible by 4.
9	Sum of all digits of the number to be divisible by 9
10	Last digit should be zero
11	Difference of sum of even and sum of odd digits should be divisible by 11.