



CL-1002 Programming Fundamentals Lab # 5

Objectives:

- Practice on pseudocode
- conditional statements
- Flow charts

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. Use understandable names of variables.
2. First think about statement problems and then write/draw your logic on copy.
3. Please submit your file in this format **23F-1234_L1**.
4. Do not submit your assignment **after the deadline**.
- 5. Do not copy code from any source otherwise you will be penalized with negative marks.**

Problem 1: loop/ counter control variable

Write a program that will print the table of user choice.

For example

Input:

Please enter table you want to print: 2

Please enter the nth value: 5

Output:

2*1 = 2

2*2 = 4

2*3 = 6

2*4 = 8

2*5 = 10

Problem 2: Table/ loop

Write a program that will calculate the average of n numbers. Input all number(s) from user and display there average.

For example

Enter limit of numbers= 2 Enter number 1= 10

Enter number 2= 10 Average of numbers = 10



Problem 3: Loop

Write a program that presents the user choice of 5 favorite beverages (Coke, Fanta, Sprite, Pepsi, mineral water) then allow the user to choose a beverage by entering a number 1-5. Output which beverage they chose. User can give choices until he/she has money in his/her account and display message "out of money" with remaining balance when user has not enough money to buy a minimum cost drink.

Note:

1. Price of each drink is different and greater than zero (You can input prices).
2. Input Balance from user.
3. Input balance must be greater than minimum price drink.
4. Each time user enters his/her choice either he/she want to buy drink or not (use bool data type).

Display number of drinks with remaining balance if user did not want to buy drink or out of balance.

Problem 4: Armstrong number/ loop

An Armstrong number is a number that is equal to the sum of its own digits, each raised to the power of the number of digits in the number. In other words, an n-digit number is considered an Armstrong number if the sum of its digits, each raised to the nth power, equals the number itself.

Here's an example to illustrate what an Armstrong number is:

Let's consider the number 153:

It has 3 digits (1, 5, and 3).

Raise each digit to the power of 3 (the number of digits): $1^3(1*1*1) = 1$, $5^3(5*5*5) = 125$, $3^3(3*3*3) = 27$.

Sum these results: $1 + 125 + 27 = 153$.

Read a number and display if it is an Armstrong number or not.

Problem 5: Fibonacci sequence / loop

The Fibonacci sequence is a series of numbers in which each number is the sum of the two preceding ones, usually starting with 0 and 1. In other words, it's an infinite sequence that begins like this:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, ...

Here's how it works:

Start with the first two numbers, 0 and 1.

The next number in the sequence is found by adding the two previous numbers. So, $0 + 1 = 1$.

The next number is found by adding the last two numbers in the sequence. So, $1 + 1 = 2$.

Continue this process indefinitely to generate the Fibonacci sequence.

Mathematically, the Fibonacci sequence can be defined by the following recurrence relation:

$$F(n) = F(n-1) + F(n-2)$$

where:

$F(n)$ is the nth Fibonacci number.

$F(n-1)$ is the Fibonacci number just before $F(n)$.

$F(n-2)$ is the Fibonacci number two positions before $F(n)$.

Now input a nth term and print the Fibonacci series

Best of luck 😊