**Exercises [Work in pairs]**

**Create an algorithm (PSEUDOCODE  or FLOWCHART) for the following problems. Main function handles all the input (read, scan) and output (write, display, print) processes. Observe proper use of functions/modularity to the given problems (parameter passing and return).**

**LE6\_11 Add Digits.** Create a program that extracts and adds the two least significant digits of an integer.

***Function Prototypes:***

* *int extractFirstLSD (int num);*
* *int extractSecondLSD (int num);*
* *int sumDigits (int x, int y);*

Sample/Test Output  
Enter a number : 12345  
Sum : 4 + 5 = 9  
===========================  
Enter a number : 789  
Sum : 8 + 9 = 17

**LE6\_12 *Vowel and Consonant***. Determine whether the letter entered by the user is vowel or consonant. *Do not use predefine functions (isAlpha, tolower, toupper, etc.).*

***Function Prototypes:***

* *bool isLetter (char ch);*
* *bool isVowel (char ch);*

Sample/Test Output  
Enter a letter: A VOWEL!  
==========================================  
Enter a letter: a VOWEL!  
==========================================  
Enter a letter: G CONSONANT!  
==========================================  
Enter a letter: $ INVALID INPUT!  
==========================================  
Enter a letter: 5 INVALID INPUT!

**LE6\_13*Problem Solver Menu***. Create a program that lets the user choose an operation (power problem solver, factorial problem solver, or finding roots for quadratic equations using quadratic formula) from the menu. The program will always go back to the menu and lets the user choose again an operation until the user would like to quit using the app.

* + **Note:** For quadratic problems, it still follow the rules below:
    - If both a and b are zero, there is no solution
    - If a is zero, there is only one root (-c/b).
    - If the discriminate (b2-4ac) is negative, there are no real roots
    - For all other combinations, there are two roots.

***Function Prototypes:***

* *void displayMenu ();*
* *int powerSolver (int base, int p);*
* *int factorialSolver (int num);*
* *int quadraticSolver (int a, int b, int c); ===> you may set two root variables as global*