

## Problem Set No. 4

**Instructions:** Write C programs as specified in the question. Remember the approach to problem solving: outline the solution first (flow chart), then code the program.

**Problem 4.1:** Write a program that reads in four integers a,b,c and d and then determines which is the biggest. Print the value of the biggest with an appropriate message. (\*)

**Problem 4.2:** Write a program to read in the sides of a triangle (l,m,n) and determine if it is a right angled triangle or not. If it is a right-angled triangle, then Pythagorus's theorem will hold for it. The program should display an appropriate message. Ask the user if s/he does not want to check another triangle and while so, repeat the procedure. (\*\*)

**Problem 4.3:** Write a program to read in three integers (1-100) and sort them in descending order. The program should print the values in descending order with appropriate messages. Repeat the problem while the user wants to. (\*\*\*)

**Problem 4.4:** Write a program to read in any date in format: day, month, year. The day must be from 1 to 31, month from 1 to 12 and year must be a number from AD 1800 onwards. Determine whether the year is a leap year and print appropriate messages. If year is before 1800 or greater than 9999, print "out of range" message. A leap year is defined as a centenary year divisible by 400 or a non-centenary year divisible by 4. Check if the day number corresponds to the maximum number accepted in that month, that year (E.g. 28 or 29 in February, 30 in November, etc.), otherwise print an error message. (\*\*\*\*)

**Problem 4.5:** Write a program to calculate the commission for a sales department and print the commission in an easily readable form. The program should read in the sales figure as a real number and compute the commission as follows:

- On sales of up to 10000 Euro, a commission of 5% is paid.
  - On sales over 10000 Euro and up to 20000 Euro, an additional 5% is paid on the amount exceeding 10000.
  - On sales over 20000 an additional 0.25% is paid on the amount exceeding 20000 Euro.
- Provide a menu that would allow you to recompute the commission, to enter a new sales figure, or to quit. (\*\*\*\*\*)