Lab3: Loops

1) Write a C program that finds the number of capital letters in a sentence entered as an input. (The program must read the sentence character by character. The sentence terminates with dot (.))
2) In a farm, the number of rabbits is 1042 while the number of birds is 2272. While the yearly increasing rate of the rabbits is 3.8%, the same rate is 1.2% for the birds. Write a C program that finds how many years later the number of rabbits will pass the number of birds.
3) Develop a C program that finds the number of digits of an integer number.
4) Develop a C program that computes the sum of digits of an integer number.
5) Develop a C program that computes the factorial of an integer number. If the number is negative, the program should request a positive number from the user until a non-negative number is entered.
   a) Use while statement
   b) Use for statement
6) Develop a C program that prints all char constants with their ASCII codes.
7) Develop a C program that calculates approximately the constant π by using the series

   $\pi = 4\sum_{n=1}^{\infty}\frac{(-1)^n}{2n+1}$

   a) Use N term to terminate the series.
   b) Terminate the series if $|\pi_{n-1} - \pi_n| < \varepsilon$ where ε is a small number entered by the user and π_n is the calculated value of π for the nth iteration.
8) By using switch statement, develop a C program that finds the season for the given month.

   Output: Enter a month: 1
   Season: winter

Homework:

1) Develop a C program that computes the minimum, maximum and average of integer numbers. The program gets inputs until 0 is entered.
2) Develop a C program that determines if an integer number is prime or not.
3) Assume that there are banknotes of 5 TL, 10 TL, 20 TL, 50 TL, 100 TL and 200 TL in the circulation. A bank ATM gives money to the customers by using the minimum number of banknotes. Assuming that the money to be withdrawn from the ATM is a multiple of 5 TL, write a C program for the ATM that arranges the distribution of banknotes for the withdrawn money.

   Output: The withdrawn Money: 460 TL
   2 --> 200 TL
   1 --> 50 TL
   1 --> 10 TL