# Lesson 2

* **Homework**
  + Read the textbooks
    1. ***Bailey: An Introduction to the C Programming Language and Software Design*** – pages 1 -24, except the chapter *2.9 Bitwise Operators* (p. 15), *2.11 Type Conversions and Casts* (p. 16), and *3.3 Switch* (p . 19).
    2. ***Belan***: ***Kurz Jazyka C*** – pages 5 – 18
  + Write answers for these questions
    1. What is a keyword in C? commands that make up the language, there are 32 of them only
    2. What symbols are allowed in identifiers? All letters including \_ underscore must be the first letter then letters and digits, and then 32 keywords in C(like int etc.) cannot be used as identifiers.
    3. “*C is a typed language*.” Clarify the statement. Its forces the programmer to explicitly define types for all variables, which actually reduces the number of possible bugs when a typo occurs. Every type in c has strictly defined how it is stored and what operations can be performed on it.
    4. Explicate the differences between these definitions  
       const int e = 2.71828; this is the declaration of a variable that cannot be changed, within the function, therefore it differs the second in placement  
       #define e = 2.71828; this is the declaration of a global variable outside of a function usually to avoid magic numbers, and its placement is usually right after library headers mistake is that there should be no equal sign and no semicolon
    5. What is the difference between ++i and i++? Identify the names of operators! Preincrement and it first adds 1 and then makes a given operation, and postincrement first makes the operation and then increases by 1.
    6. Clarify the term “*Dangling else problem*”! it is a problem which happens when not using brackets during the usage of if and else statements, and can be noted in a nested if statement when else is ment for the outer if and is instead assigned to the inner if actually.
    7. Transform into a verbal form

while (n) {

tmp = n;

n = m%n;

m = tmp;

}

Until n is valid loop the following statement, assign value of n to tmp, then assign the remainder of m divided by n to n and at last assign value of tmp to m

* + 1. Correct the code that should calculate n! :

...

printf("Enter a number.");

scanf("%d," &n);

fakt = 1;

while (n != 1) {

fakt \*= n--;

}

printf("Its factorial is %d.", fakt);

* + Create programs to solve the following problems
    1. Read 3 integers and find the maximum.
    2. Read a number pH – acidity of a solution. Display information, whether the solution is acidic (pH < 7), neutral (pH = 7), or alkaline (pH > 7). The program should also display info about abnormal states (pH < 0, pH >14).
    3. Read the first part of a *birth number* (rodné číslo) and decode the birth date and sex of its owner.
    4. Create a simple quiz with five questions, each given three or four options. List the final score at the end.