Practice 2

Mandatory

1. Declare an integer variable and print its value. What is the initial value of a variable?

2. Assign some new value to the previous variable and print whether it's even or odd.

3. Print whether the number is positive, negative or zero.

4. Try to assign a real number, a character, a logical (bool) and a string value to an int variable. If the assignment succeeds, then print its value. Use -W -Wall and -Wextra flags during compilation.

5. Modeled on the previous task, check the interoperability between each two base types. Does every base type convert to another? What is the rule of conversion in these cases?

6. Determine the greatest and smallest possible integer values (sizeof). Store the greatest integer number in a variable and add 1 to this. What is the result?

7. Determine the average of two integers. Make sure that the result is a real number.

8. Create a Fahrenheit-Celsius transformer program. Print the Fahrenheit values of range [-20; 200] by step 10 and the corresponding Celsius degrees.

9. Print "Hello" and "world" words in two lines with one printf() call. Place these two words between quotation marks in the output.

10. Create a program which gets an integer as input and reverses it. Use only arithmetic operations. For example: 12345 -> 54321

Optional

1. Print all divisors of an integer.

2. Print a 10x10 multiplication table. Separate the numbers with a tab character.

3. Create a program which tells whether a character is a vowel or a consonant. No code lines should be longer than 80 characters.

4. Print real numbers between 0 and 1 with step 0.1.

5. Draw an empty chess board. Dark fields are denoted with [] and light fields are denoted with two spaces. Use divisibility by two.

6. Print how many bytes does an int, long int, unsigned int, unsigned long int, char, bool, float, double, long double represent.

7. Check whether a given number is palindrome. Use only arithmetic operations in the solution. For example: 12321 is a palindrome but 12345 isn't..

8. Draw a pyramid (isosceles triangle) of * characters to the screen. The height (number of lines) of the pyramid comes from the user.

Advanced

1. Determine whether two integers are amicable. A and B are amicable if the sum of divisors of A, less than itself equals B, and vice versa. For example.:220 and 284

2. Determine whether a number is a prime. Print prime numbers under 1000.

3. For the optional tasks, the size in bytes of the different basic types is displayed. Let's say the same for pointers pointing to these types and arrays containing elements of this type.