COMPUTER SCIENCE I

Exercise 5

1.   Write a program which prints all factors of number n. The code which prints the factors should be placed inside a function. Print information if n is a prime number.

2.   Modify the program in such a way that it finds all prime numbers inside a range 1...m. Modify function which prints factors so it only returns information that a number is a prime number or not.

3.   Write a program to see how you can use pointers and arrays:
   - declare integer variable d;
   - initialize d with 10;
   - declare integer pointer p;
   - initialize pointer p with the address of the variable d (p points to d);
   - print value of d and value which is pointed by p (use operator *);
   - change value of d to 20;
   - print value of d and value which is pointed by p;
   - change value pointed by p;
   - print value of d and value which is pointed by p;
   - print address of d and value of the pointer p (remember that pointer stores the address); (use printf function, e.g..: printf("%p", &d);
   - declare array tab of integers with two elements; (int tab[2];)
   - initialize elements of the array with: 333 and 444;
   - assign to the pointer p address of the array tab;
   - fill the following table:

address of the variable (L-value)	name of the variable	value of the variable (R-value)
%p	d	%d
%p	p	%p
%p	p[0]	%d
%p	t	%p
%p	t[0]	%d
%p	t[1]	%d

   - find the distance (in bytes) between addresses of the first and the second element of the table tab