COMPUTER SCIENCE I   -   Exercise 6

Analyze the program below. Before you execute it try to find out
what value will be stored in the variable a after calling each of
the functions.

```c
#include <stdio.h>

void fun1( int b );
void fun2( int a );
void fun3( int* p );
int fun4( int d );

void main()
{
    int a = 1;
    int b = 2;
    fun1( a );
    printf( "%d\n", a );
    fun2( a );
    printf( "%d\n", a );
    fun3( &a );
    printf( "%d\n", a );
    a = fun4( a );
    printf( "%d\n", a );
}

void fun1( int b )
{
    b = 2;
}

void fun2( int a ){
    a = 3;
}

void fun3( int* p )
{
    *p = 4;
}

int fun4( int d )
{
    d = 5;
    return d;
}
```

2. Write a program which will make some operations on a set of
randomly generated numbers. First write a function generating n
random numbers of type double from the range <0,1> and stores them
inside an array. The array should be declared local inside main
function. The size of the array should be defined by preprocessor
command #define. The array and its actual size should be passed to
the function as arguments. Write a function which will print all the
values from the array.

3. Extend the program from previous point by adding two functions:
first should calculate the average value of the array of the
generated numbers and second should calculate standard variation.

average: $\bar{s} = \frac{1}{n}(s_1 + s_2 + ... + s_n) = \frac{1}{n}\sum_{i=1}^{n} s_i$; standard variation: $\sigma = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(s_i - \bar{s})^2}$.

4. Add a function which finds maximum from the array of random
numbers and returns also the index of the maximum element.

5. Add a function reversing order of the elements inside the array.
Do not use additional array during reversing operation.