4 Homework

Write a C program that finds the square root values of any positive real number by using **bisection method.** Actually you are going to find the roots of the function given below;

$$f(x) = x^2 - n$$

All parameters of the program will be given in command line.

Input arguments are

1. The value of the number n in the function $f(x)$.
2. Start of the interval to search the root.
3. End of the interval to search the root.
4. Convergence tolerance between the input value and the square value of the found roots.
5. Maximum iteration to search.

Example:

Convergence tolerance (c) = 0.1
Input value (n) = 9

example root 1 (er1) = 3.04
example root 2 (er2) = 2.998

$|n - er1^2| = |9 - 9.25| = 0.25 > c$ NOT ACCEPTED (Unless maximum iteration is exceeded)

$|n - er2^2| = |9 - 8.988| = 0.012 < c$ ACCEPTED

Screenshot of the command line for the program:

```
C:\Projects>bisect "9" "0" "5" "0.1" "15"
found roots are 3.007813 and -3.007813
```