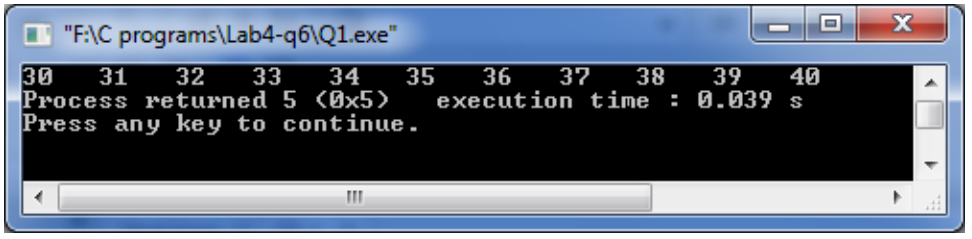
Lab 4

Objectives:

- Knowing how to use **for loop** statement
- Knowing how to use **while loop** statement
- Knowing how to use **do while** statement
- Applications on looping

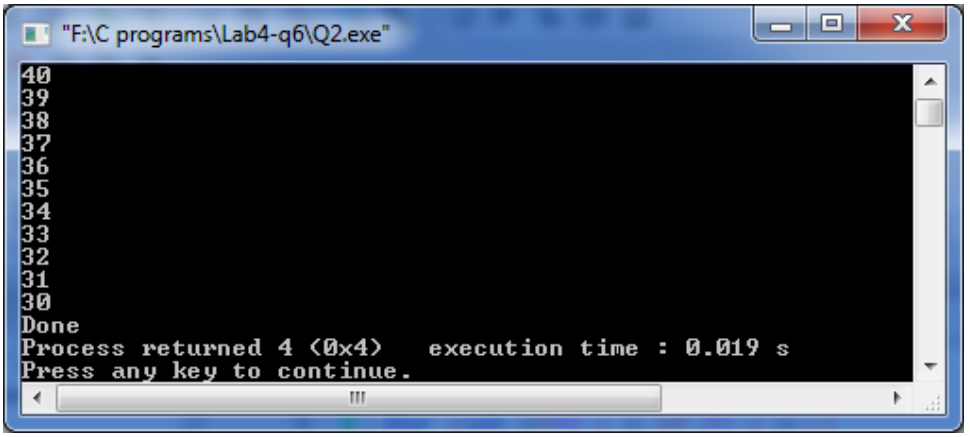
1. Write a program using looping to print the numbers from 30 to 40 on the same line with three spaces between numbers.

```
#include <stdio.h>
void main(){
        for (int i=30 ; i <= 40 ; i++)
            printf("%d   ", i);
}
```



2. Write a program using looping to print the numbers from 40 down to 30 every number in new line then print "Done".

```
#include <stdio.h>
void main(){
        for (int i=40 ; i >= 30 ; i--)
            printf("%d\n", i);
            printf("Done");
}
```

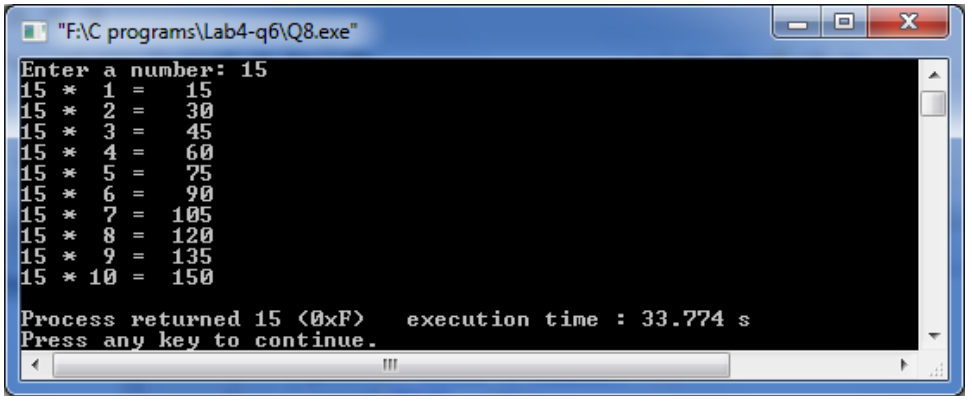


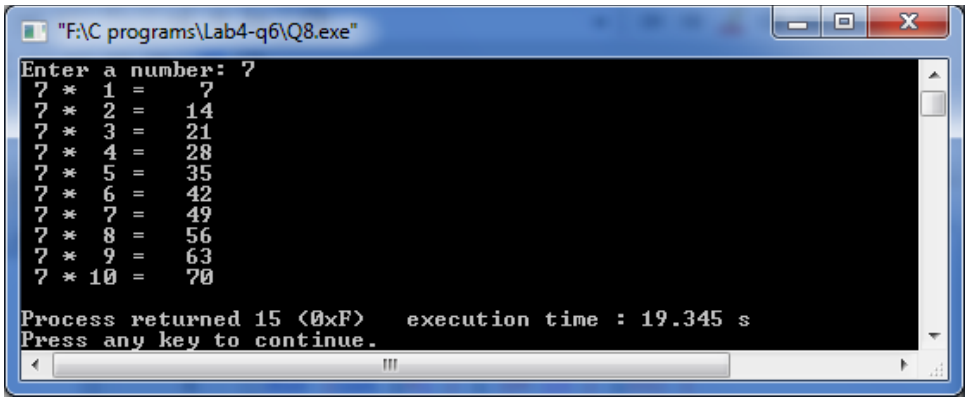
3. Write a program that displays the multiplication table of a given integer.

Example:

Enter a number: 15
15 * 1 = 15
15 * 2 = 30
...
15 * 10 = 150

```
#include <stdio.h>
void main(){
        int n ;
        printf("Enter a number: ");
        scanf("%d" , &n);
        for (int i=1 ; i <= 10 ; i++) {
            printf("%2d * %2d = %4d\n", n , i ,n * i);
            }
}
```



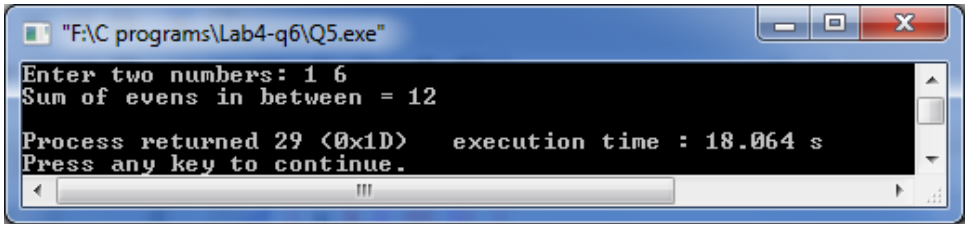


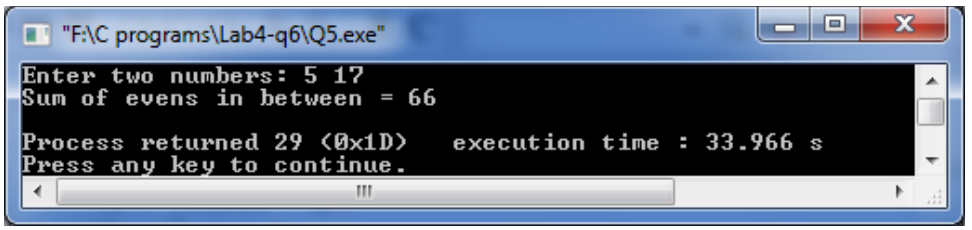
4. ***(Calculating the Sum of Even Integers***) Write a program that reads in two integers x, y and calculates and prints the sum of the even integers from x to y inclusive.

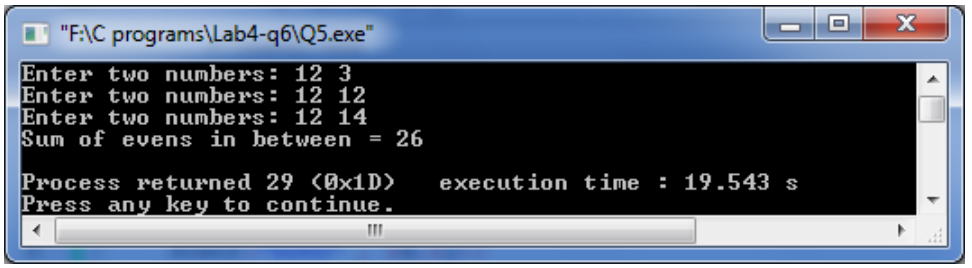
Example:

Enter two numbers: 1 6
Sum of evens in between = 12
(2+4+6)

```
#include <stdio.h>
void main(){
        int x , y , sum;
        int first , last;
        do {
            printf("Enter two numbers: ");
            scanf("%d%d" , &x,&y);
            } while (x >= y);
        if ( x % 2 == 0) {
            first = x;}
        else {
            first  = ++x ;}
        last = y;
        sum = 0;
        for (int i = first; i <= last; i +=  2) {
            sum +=  i;
        }
        printf("Sum of evens in between = %d\n", sum);
}
```





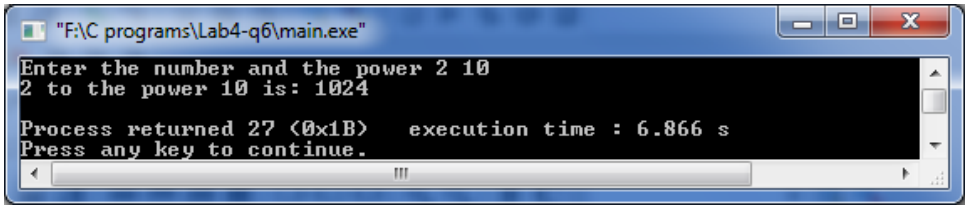


5. Write a program that reads two integers a and b, then calculates and prints a^b. You should solve it using Looping and not mathematical functions of "math.h" library.

Example:

Enter a number and its power:
5 3
5 to the power 3 is: 125

```
#include <stdio.h>
void main(){
        int a, b, counter;
        long result = 1;
        printf("Enter the number and the power ");
        scanf("%d%d" , &a , &b);
        counter = 1;
        while (counter <=b) {
            result = result * a;
            counter++;
        }
        printf("%d to the power %d is: %ld\n", a , b , result);
}
```



Assignment

1. Write a program to determine whether a given number is prime or not.
   Example 1:
   Enter a number: 13
   13 is a prime number
   Example 2:
   Enter a number: 28
   28 is not a prime number

2. Write a program that uses looping to print the following table of values.

N	10*N	100*N	1000*N
1	10	100	1000
2	20	200	2000
3	30	300	3000
4	40	400	4000
5	50	500	5000
6	60	600	6000
7	70	700	7000
8	80	800	8000
9	90	900	9000
10	100	1000	10000