



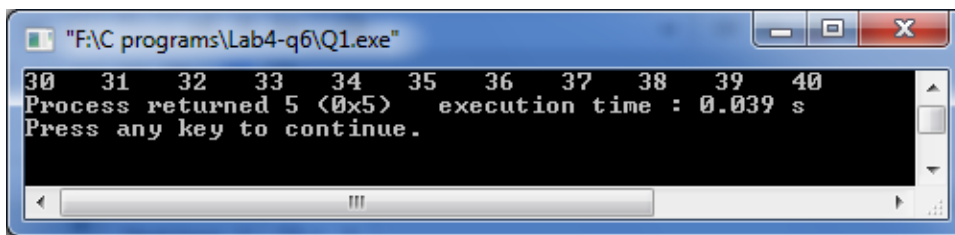
Lab 4

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

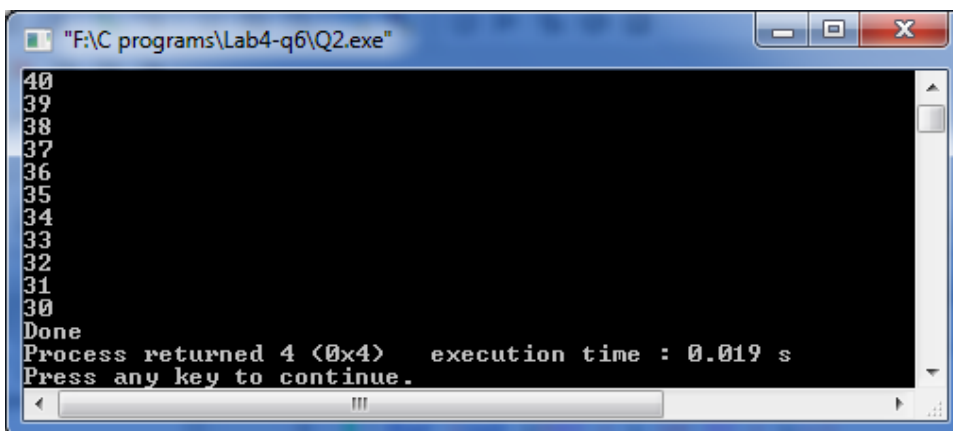
1. Write a program using looping to print the numbers from 30 to 40 on the same line with three spaces between numbers.

```
#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);
    }
}
```

A screenshot of a Windows command prompt window titled "F:\C programs\Lab4-q6\Q8.exe". The window shows the output of a program that takes the number 15 as input and displays its multiplication table from 1 to 10. The output is as follows:

```
Enter a number: 15
15 * 1 = 15
15 * 2 = 30
15 * 3 = 45
15 * 4 = 60
15 * 5 = 75
15 * 6 = 90
15 * 7 = 105
15 * 8 = 120
15 * 9 = 135
15 * 10 = 150

Process returned 15 (0xF)   execution time : 33.774 s
Press any key to continue.
```

A screenshot of a Windows command prompt window titled "F:\C programs\Lab4-q6\Q8.exe". The window shows the output of a program that takes the number 7 as input and displays its multiplication table from 1 to 10. The output is as follows:

```
Enter a number: 7
7 * 1 = 7
7 * 2 = 14
7 * 3 = 21
7 * 4 = 28
7 * 5 = 35
7 * 6 = 42
7 * 7 = 49
7 * 8 = 56
7 * 9 = 63
7 * 10 = 70

Process returned 15 (0xF)   execution time : 19.345 s
Press any key to continue.
```



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);
}
```

A screenshot of a Windows command prompt window titled "F:\C programs\Lab4-q6\main.exe". The window shows the program's output: "Enter the number and the power 5 3", "5 to the power 3 is: 125", "Process returned 25 (0x19) execution time : 6.952 s", and "Press any key to continue.".A screenshot of a Windows command prompt window titled "F:\C programs\Lab4-q6\main.exe". The window shows the program's output: "Enter the number and the power 2 10", "2 to the power 10 is: 1024", "Process returned 27 (0x1B) execution time : 6.866 s", and "Press any key to continue.".A screenshot of a Windows command prompt window titled "F:\C programs\Lab4-q6\main.exe". The window shows the program's output: "Enter the number and the power 2 20", "2 to the power 20 is: 1048576", "Process returned 30 (0x1E) execution time : 6.607 s", and "Press any key to continue.".



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