Comparing Two numbers

C:\Users\hp\Documents\Untitled1.cpp - [Executing] - Dev-C++ 5.11

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TDM-GCC 4.9.2 64-b

(globals)

Project Classes Debug

Untitled1.cpp

```
#include<stdio.h>

int main()
{
    int a, b;

    a = 5;
    b = 6;

    if (a > b)
    printf("a is greater then b");
    else
    printf("a is not grater b");
    return 0;
}
```

C:\Users\hp\Documents\Untitled1.exe

```
a is not grater b
--------------------------------
Process exited after 0.3168 seconds with return value 0
Press any key to continue . . .
```

Finding Factorial of given numbers:

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TDM-GCC 4.9.2 64-b

(globals)

Project Classes Debug

Untitled1.cpp

```c
#include <stdio.h>
int main() {
    int n, i;
    unsigned long long fact = 1;
    printf("Enter an integer: ");
    scanf("%d", &n);


    if (n < 0)
        printf("Error! Factorial of a negative number doesn't exist
    else {
        for (i = 1; i <= n; ++i) {
            fact *= i;
        }
        printf("Factorial of %d = %llu", n, fact);
    }

    return 0;
}
```

C:\Users\hp\Documents\Untitled1.exe

```
Enter an integer: 18
Factorial of 18 = 6402373705728000
--------------------------------
Process exited after 38.8 seconds with return value 0
Press any key to continue . . .
```

Finding table of given numbers:

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TDM-GCC 4.9.2

(globals)

Untitled1.cpp

```
#include <stdio.h>
int main()
{
    int n;
    printf("eneter any number which table you want");
    scanf("%d", &n);
    for (int i = 1; i<=10; ++i){
        printf("%d * %d = %d \n", n, i, n *i);
    }
    return 0;
}
```

C:\Users\hp\Documents\Untitled1.exe

```
eneter any number which table you want0
0 * 1 = 0
0 * 2 = 0
0 * 3 = 0
0 * 4 = 0
0 * 5 = 0
0 * 6 = 0
0 * 7 = 0
0 * 8 = 0
0 * 9 = 0
0 * 10 = 0

--------------------------------
Process exited after 19.22 seconds with return value 0
Press any key to continue . . .
```

Even and odd finding program:

```
#include <stdio.h>
int main()
{
    int n;
    printf("eneter any number which table you want");
    scanf("%d", &n);
    for (int i = 1; i<=10; ++i){
        printf("%d * %d = %d \n", n, i, n *i);
    }
    return 0;
}
```

```
eneter any number which table you want0
0 * 1 = 0
0 * 2 = 0
0 * 3 = 0
0 * 4 = 0
0 * 5 = 0
0 * 6 = 0
0 * 7 = 0
0 * 8 = 0
0 * 9 = 0
0 * 10 = 0

--------------------------------
Process exited after 19.22 seconds with return value 0
Press any key to continue . . .
```

```
#include <stdio.h>
int main(){
    int a;
    printf("enter an integer: ");
    scanf("%d", &a);
    if (a % 2 == 0)
    printf("%d is even. ", a);
    else
    printf("%d is odd. ", a);
    return 0;
}
```

```
enter an integer: 1
1 is odd.
--------------------------------
Process exited after 16.87 seconds with return value 0
Press any key to continue . . .
```

Generating / Summing of simple series (even / odd)

```
#include<stdio.h>
int main()
{
    int n, sum;
    printf("enter the n vvalue: \n");
    scanf("%d", &n);
    sum = 1;
    printf("%d", sum);
    for (int i =2; i<=n; i++)
    {
        printf("+%d",i);
        sum += i;
    }
    printf("=%d", sum);
```

```
C:\Users\hp\Documents\Untitled1.exe
enter the n vvalue:
10
1+2+3+4+5+6+7+8+9+10=55
--------------------------------
Process exited after 15.12 seconds with return value 0
Press any key to continue . . .
```

Scanf Program example:

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```
#include <stdio.h>

int sum (int a, int b)
{
    return a+b;
}

int main()

{
    int num1, num2, num3;
    printf("Enter firt number");
    scanf("%d", &num1);
    printf("enter the second");
    scanf("%d", &num2);

    //calling the function
    num3 = sum(num1, num2);
    printf("sum of entered number: %d", num3);
    return 0;

}
```

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\hp\Documents\Untitled1.exe
- Output Size: 128.119140625 KiB
- Compilation Time: 0.66s
```

Output:

```
C:\Users\hp\Documents\Untitled1.exe
Enter firt number5
enter the second5
sum of entered number: 10
--------------------------------
Process exited after 59.99 seconds with return value 0
Press any key to continue . . .
```


Solving Arithmetic problem

C:\Users\hp\Documents\Untitled1.cpp - Dev-C++ 5.11

Untitled1.cpp

```c
#include<stdio.h>

int main()
{
    int a = 3.7, b = 5.8, res;

    //printing a and b

    printf("a is %d and b is %d\n", a, b);

    res = a + b; //addition
    printf("a + b is %d\n", res);

    res = a - b; //subtraction
    printf("a - b is %d\n", res);

    res = a * b; //multipication
    printf("a * b is %d\n", res);

    res = a / b; //division
    printf(" a / b is %d\n", res);

    res = a % b; //average
    printf("a %% b is %d\n", res);

    return 0;

}
```

Compile Log

```
Compilation results...
--------
- Errors: 0
- Warnings: 0
- Output Filename: C:\Users\hp\Documents\Untitled1.exe
- Output Size: 128.431640625 KiB
- Compilation Time: 0.45s
```

Output:

C:\Users\hp\Documents\Untitled1.exe

```
a is 3 and b is 5
a + b is 8
a - b is -2
a * b is 15
 a / b is 0
a % b is 3

--------------------------------
Process exited after 0.3102 seconds with return value 0
Press any key to continue . . .
```

Quadratic program in C

If the discriminant > 0,

$$root1 = \frac{-b + \sqrt{(b^2 - 4ac)}}{2a}$$

$$root2 = \frac{-b - \sqrt{(b^2 - 4ac)}}{2a}$$

If the discriminant = 0,

$$root1 = root2 = \frac{-b}{2a}$$

If the discriminant < 0,

$$root1 = \frac{-b}{2a} + \frac{i\sqrt{-(b^2 - 4ac)}}{2a}$$

$$root2 = \frac{-b}{2a} - \frac{i\sqrt{-(b^2 - 4ac)}}{2a}$$

```c
#include <math.h>
#include <stdio.h>
int main() {
    double a, b, c, discriminant, root1, root2, realPart, imagPart;
    printf("Enter coefficients a, b and c: ");
    scanf("%lf %lf %lf", &a, &b, &c);

    discriminant = b * b - 4 * a * c;

    // condition for real and different roots
    if (discriminant > 0) {
        root1 = (-b + sqrt(discriminant)) / (2 * a);
        root2 = (-b - sqrt(discriminant)) / (2 * a);
        printf("root1 = %.2lf and root2 = %.2lf", root1, root2);
    }

    // condition for real and equal roots
    else if (discriminant == 0) {
        root1 = root2 = -b / (2 * a);
        printf("root1 = root2 = %.2lf;", root1);
    }

    // if roots are not real
    else {
        realPart = -b / (2 * a);
        imagPart = sqrt(-discriminant) / (2 * a);
        printf("root1 = %.2lf+%.2lfi and root2 = %.2f-%.2fi", realPart, imagPart, realPart, imagPart);
    }

    return 0;
}
```

Output:

C:\Users\hp\Documents\Untitled1.exe

```
Enter coefficients a, b and c: 4
5
10
root1 = -0.63+1.45i and root2 = -0.63-1.45i
--------------------------------
Process exited after 7.404 seconds with return value 0
Press any key to continue . . .
```