

7. Operators and Errors

- Shivam Malhotra

Exercise

Write a program which takes a **positive integer** as input from user and prints its last 2 digits.

For example,

Input :

1224

Output :

Last digit : 4

Second last digit : 2

Input :

4

Output :

Last digit : 4

Second last digit : 0

Exercise

Write a program which takes a **positive integer** as input from user and prints its last 2 digits.

```
#include <iostream.h>
#include <conio.h>
int main()
{
    clrscr();
    int number;
    cout << "Enter a positive integer : ";
    cin >> number;
    int digit = number % 10;
    cout << "Last digit : " << digit << "\n";
    number = number / 10;
    digit = number % 10;
    cout << "Second last digit : " << digit;
    getch();
    return 0;
}
```

Tokens

The smallest individual unit in a program is known as token. For example, int, return, etc.

Tokens used in C++ are:

- Keywords : Special words reserved by compilers
- Literals : Constants with fixed values
- Identifiers : Name of variables, functions, etc.
- Punctuators : Separators
- **Operators** : **Used in expressions**

Operators

An operator is a symbol or character or word which trigger some operation (computation) on its operands, ex. +, *, <<, >> etc.

For binary operators, the expression looks like

(operand1) operator (operand2)

| | |
|----------------------|---------------------------------|
| cin >> number; | // >> is the input operator |
| digit = number % 10; | // = is the assignment operator |
| | // % is the modulus operator |
| cout << digit; | // << is the output operator |

Exercise

```
#include <iostream.h>
#include <conio.h>
int main()
{
    clrscr();
    cout << (2*3 + 5*9) << "\n";
    cout << ((6/2)*3) << "\n";
    cout << (6/(2*3)) << "\n";
    getch();
    return 0;
}
```

Output :

51

9

1

Errors

The compiler (along with translating your code) also checks for correctness of your program according to a pre-defined set of rules.

In case of any violation, it alerts with an **error** and the compilation is terminated.

Commonly seen errors in C++ are:

- Syntax error
- Logical error
- Runtime error

Syntax Errors

If we violate the rules and regulations of a particular language, or the syntax of a particular language, we get a syntax error.

For example,

```
cout >> 2*3;  
return 0
```

```
// Incorrect use of >> operator  
// No semicolon
```

Such errors are recognized during compile time

Runtime errors

Runtime error is an error that causes abnormal behaviour of program during run time.

For example,

```
int x = 2 - 2;
```

```
int y = 3 / x;           // Division by 0, can cause abnormal termination
```

Another example can be reading a file which does not exist

Such errors are not recognized during compile time

Logical errors

It is an error in a program's logic that results in incorrect or unexpected result.

For example,

```
int side = 5;
```

```
int area = 2*side;
```

```
// Computing area of square
```

Exercise : Find errors and correct it

```
int main()
{
    cout << "Enter length and breadth : "
    cin >> length >> breadth;
    area = length * breadth;
    cout << Area = << area;
    return 0;
}
```

What's ahead?

In the next video, we will study about data types