المحارف الخاصة:

هي رموز محجوزة تعبر عن الحروف غير المطبوعة وتستخدم مع الدوال مثل (cout) و (printf) وتكون ضمن إشارتي تنصيص مزدوجة أو مفردة.

المحرف	المعنى	توضيح
\n	New line	سطر جديد
\t	8 Spaces (Tap)	٨ مسافات فارغة
\b	Backspace	الرجوع للخلف
\a	Sound "beep"	إصدار صوت من الجهاز

مثال:

```
1  cout << '\n';

2  cout << "Ahmed \t 20";

3  cout << "khaled\nSaleh";
```

الناتج: النزول إلى سطر جديد فارغ

الناتج :

```
Ahmed    20
```

الناتج:

```
khaled
Saleh
```

دوال تقوم بعمل المحارف الخاصة:

تستخدم مع الدالة (cout) .

الدالة	المعنى	توضيح
endl	New line	سطر جديد
ends	8 Spaces (Tap)	٨ مسافات فارغة

مثال:

```
1  cout << "Ahmed" << ends << "20";

2  cout << "khaled" << endl << "Saleh";
```

الناتج :

```
Ahmed    20
```

الناتج:

```
khaled
Saleh
```

INPUT AND OUTPUT STATEMENTS

- **The input statement has the following syntax:**

  cin>> variable_name;

  cin>> var1>> var2>> var3>>…… ;

  Examples:

```
cin>>age;
cin>>x1>>x2>>x3;
```

- **The output statement has the following syntax:**

  cout<<variable_name;

  cout<<var1<<" "<<var2<<" "<<var3<<……;

  cout<<var1<<endl<<var2<<endl<<var3; [***endl*** means new line]

  Examples:

```
cout<<age;
cout<<x1<<" "<<x2<<" "<<x3;
cout<<x1<<endl<<x2<<endl<<x3;
cout<<"x1="<<x1;
cout<<"Hello my friends";
```

the following program prints the value of a variable in decimal, octal, and hexadecimal.

```
#include <iostream.h>
void main()
{
      int i = 500;
      cout << dec << i << endl;
      cout << hex << i << endl;
      cout << oct << i << endl;
}
```

This produces the following output:

```
 500
 1F4
 764
```

setw( ) : The 'setw( )' manipulator is used to set the field width for the next insertion operator. The header file <iomanip.h> must be included in the program as follows:

```
#include <iostream.h>
#include <iomanip.h>
main()
```

```
{
        int i = 100;
        cout << setw(6) << dec << i;
        cout << setw(6) << hex << i;
        cout << setw(6) << oct << i;
        return 0;
}
```

This produces the following output:

```
   100    64   144
```

OPERATORS IN C++ LANGUAGE

1. Assignment Operator:

The basic assignment operator is (=) which is often called *equal to*. Consider the following assignments.

```
int x = 5,y = 10, z, w; // Declaration and initialization
z = x;                          // assignment
w = x + y;                 // assignment
x=(b=3, b+2);//first assign 3 to variable b and then calculate x
y =(x = 5)+2 ;  //assign the value 5 to x, then assign x+2 to y
a = b = c = 5;  // assign the value 5 to a, b, and c
```

2. Arithmetic Operators:

Arithmetic operators are used to perform the basic arithmetic operations. They are explained in the following table:

Operator	Usage	Examples
+	Used for addition	`Sum = a + b`
-	Used for subtraction	`Difference = a - b`
*	Used for multiplication	`Product = a * b`
/	Used for division	`Quotient = a / b`
%	This operator is called the remainder or the modulus operator. It is used to find the remainder after the division. This operator cannot be used with floating type variables.	`Remainder = a % b`