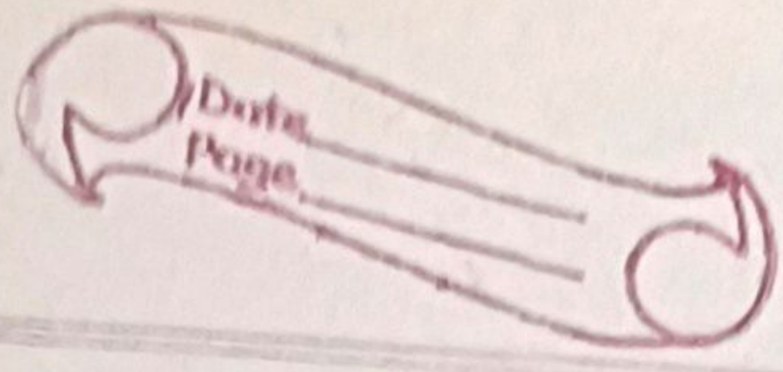
# CPP




C++ Bjarne Stroustrup at Bell labs - 1979

## Data types

- Primitive
  - integer
  - float
  - character
  - Boolean
- Derived
  - function
  - Array
  - Pointer
  - Reference
- User defined
  - class
  - Structure
  - Union
  - Enum

→ **int** 4 Bytes / 2 bytes
↓
4×8 bits

Range (unsigned) = 0 to $2^{32}-1$
Range (Signed) = $-2^{31}$ to $2^{31}-1$
↖ 1 bit for Sign (+/-)
1/0

→ float Size = 4 byte (upto 7 decimal digits)
→ Double Size = 8 byte (upto 15 decimal ")
→ char Size = 1 byte ASCII TABLE 'd=97
'A'=65

## Type Modifiers

| | | |
|---|---|---|
| Signed | 4 bytes | -2147483648 to 2147483647 |
| Unsigned | 4 bytes | 0 to 4294967295 |
| Long | 8 bytes | -9223372036854775808 +9223372036854775807 |
| Short | 2 bytes | -32768 to 32767 |

Continue :- Skip to the next iteration of the loop.
Break :- Terminate the loop.

Date
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Prime numbers b/w range :-

```
#include <iostream>
using namespace std;
int main()
{
int a, b, i;
cin >> a >> b;
for (int num = a; num <= b; num++) {
    for (i=2; i<num ; i++) {
        if (num % i == 0) {
            break;
        }
    }
    if (i == num) {
        cout << num << endl;
    }
}
return 0;
}
```

O/p → 1 10

2
3
5
7

switch case :-

```
switch (button)
{
  case 'a':
    ==
    break;
  case 'b':
    ==
    break;
  default:
    ==
}
```

operators :

(i) Arithmetic operator

- Binary operators  +, -, *, /, %
- Unary operators  ++, --

(ii) Bitwise operator :

AND (&)

OR (|)

XOR (^) ⟶ 0101 / 0110 / 0011

Ones complement (~)

Left shift <<  (a<<n ⟶ a*2^n)

Right shift >>  (a/2^n ← a>>n)

(iii) Miscellaneous operator :

sizeof()

Condition ? x : y  (Ternary)

Cast → Convert one datatype to another

Comma (,) → cause a sequence of operation to be perform

& address variable

* pointer to a value.

char ch='a';
int(ch)=97 ←

cout<<a,b,c;

operators precidence

Drive