Computer Programming and Utilisation

Naming convention for identifiers

- You can use characters, number and underscores but you cannot start with numbers
- Specific words are reserved for C++ e.g. void, int, while
- Case sensitive hence int Sarcasm_tha_bro is different from int sArCaSm_tHa_bRo
- Spaces are not allowed in identifiers
- Other special characters like %, $, # etc.. are not allowed.

Data types in C++

int- shortform of integer

It has a standard size of 32 bits on most devices

2's complement method is usually utilised for storing data

unsigned int- For storing integers which will always be +ve

1 word (4 bytes/32 bits) would be allocated

Ordinary binary representation for data storage

char- Stores single characters in ASCII code

1 byte is allocated

float- For storing real numbers

32 bits/ 4 bytes/ 1 word is allocated

IEEE FP representation used (24 bit signed significand, 8 bit exponent/mantisa)

double- Used for real numbers

2 words/ double word/8 bytes/ 64 bits are allocated

IEEE FP used again (11 bits to exponent and 53 to signifcand cause why use nice non-prime numbers)

long and short- They are also data types with sizes 4 and 2 bytes respectively

```
Comparing sizes (in bytes)
int-4
long int-4
long long int-8
long-4
short-2
float-4
double-8
long float-Doesn't exist
long long float-Obviously doesn't exist either
long double-12
short int-2
short short int-Does not exist
short float-Float ki aukaat hi nahi long aur short jhelne ki

Process returned 0 (0x0)   execution time : 0.780 s
Press any key to continue.
```

Some important keywords

long- It isn't a datatype but rather a keyword that tells the system to allocate more space than usual (But long is a datatype if used alone)

So long int has 64 bits usually and long double has 96 bits usually

const- Same storage area as original data type except the initialisation value you give is its final value

A bit like "final" from Java. And hence would give a runtime error if you tried to change its value at any point

Some examples so that your ape brain can understand

```
float mass=2.0e7, acceleration; //2.0e7 is the way you show 2.0 x 10^7
long unsigned int t_shirts=12;
```

```
char tragedy='f', ASCII_showoff=97;
//char ASCII_showoff will now store 97 which actually corresponds to 'a', char tragedy will store 102
const double entendre=6.023e23
//long and short are datatypes of their own right as well
long dick=0;
short ofcourse_you_had_to_make_a_dick_joke=9;
```

Note #1 The Whitespace characters humans would enter would be ignored for int or double etc.. but in char it will just input the ASCII code of WhiteSpace

#2 If you just don't have a single endl command in your program, the compiler won't print any of your "cout"s cause fuck you. You need at least one endl statement somewhere in the program/ you need some cout<<"text"; else if you just have cout<<variables; throughout the program, C++ has this annoying habit of keeping track of what needs to be printed but not printing it.