Variable

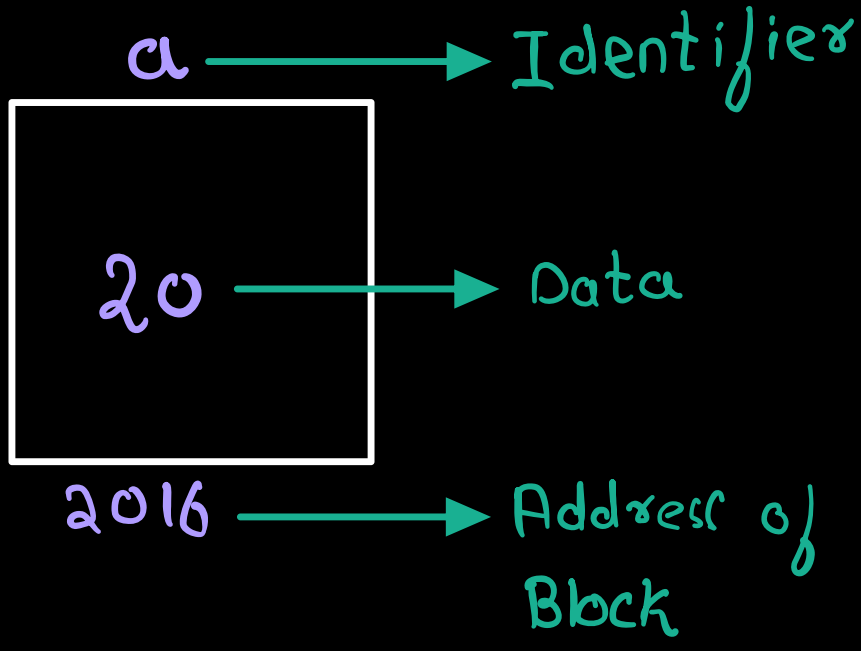
It is a name given to a memory location. It is the basic unit of storage in a Program.

The value stored in a variable can be changed during Program execution.

A variable is only a name given to a memory location, all the operations done on the variable effects that memory location.

To store diffrent types of value like integer, float, character etc So to store diffrent types of value there are various data types.

int a = 20



As the data is stored randomly in the memory, we should give name to a variable in which data is stored, so that we can easily retrieve it.

Variable Naming Convention

i) It should begin with alphabet

ii) There may be more than one alphabet, but without any spaces between them.

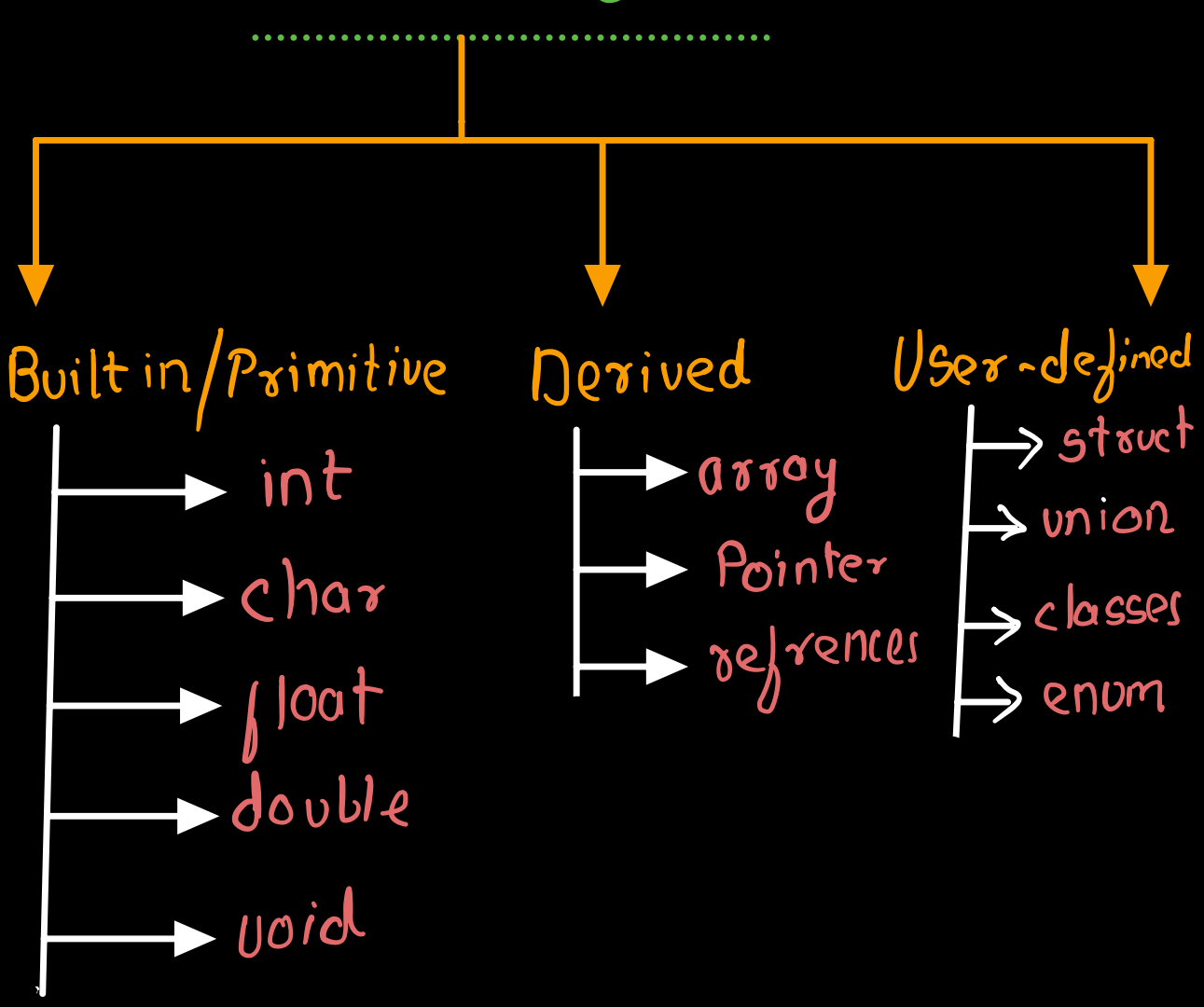
iii) Digits may be used but only after alphabet

iv) No special symbol except underscore symbol

v) No keywords can be used as a variable name

vi) All statements in C++ language are case sensitive.

C++ Datatypes



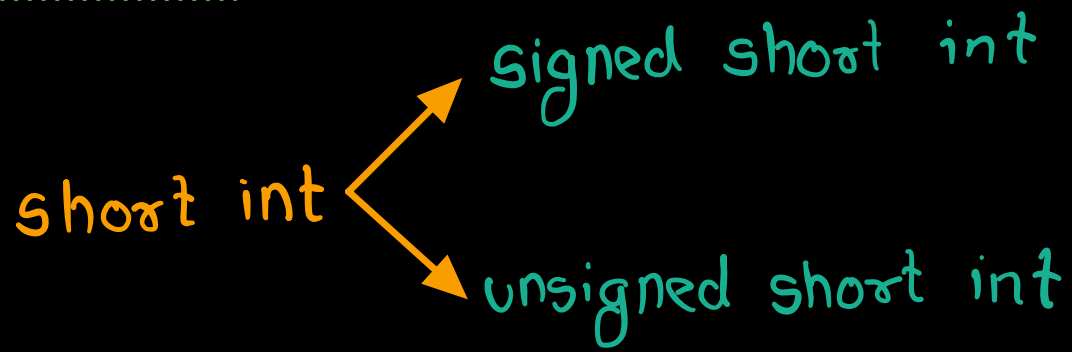

```
int num ;
```
declaration

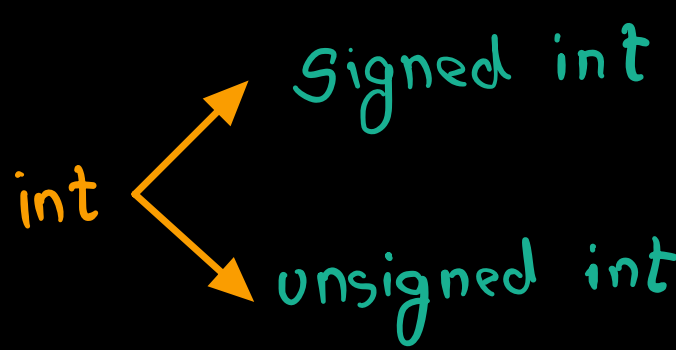
```
int num = 50;
```
initialization.

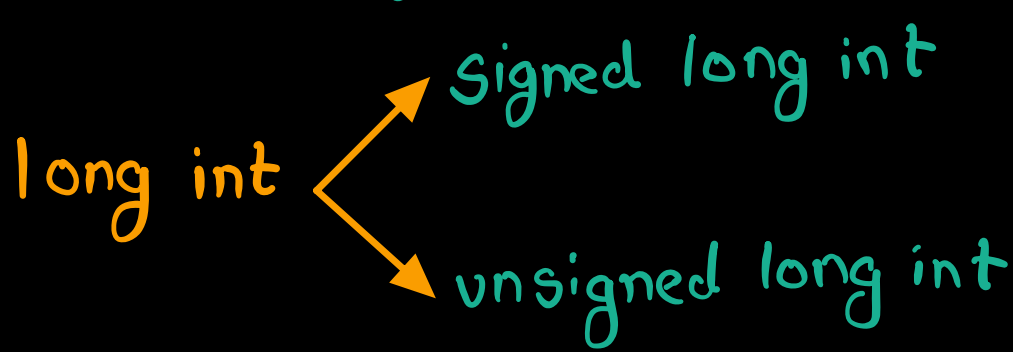
When we only declare a variable
Some garbage value is available.

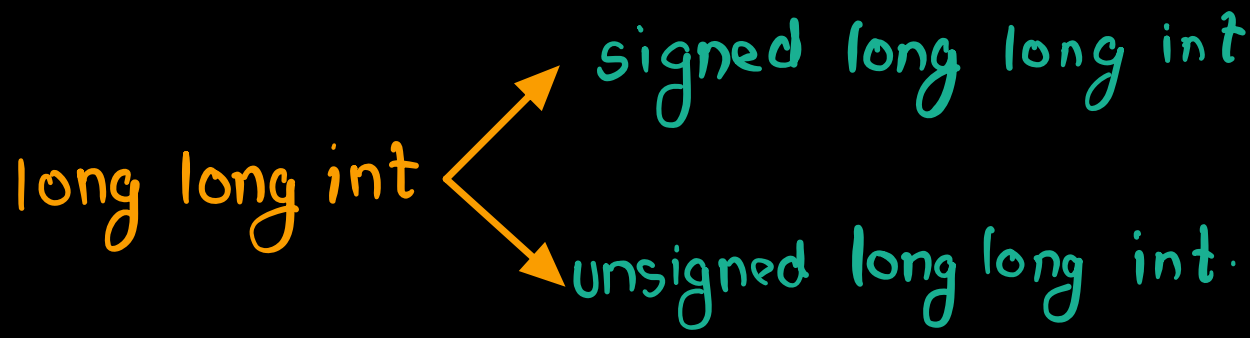
Integer

i)









ii) By default signed is used

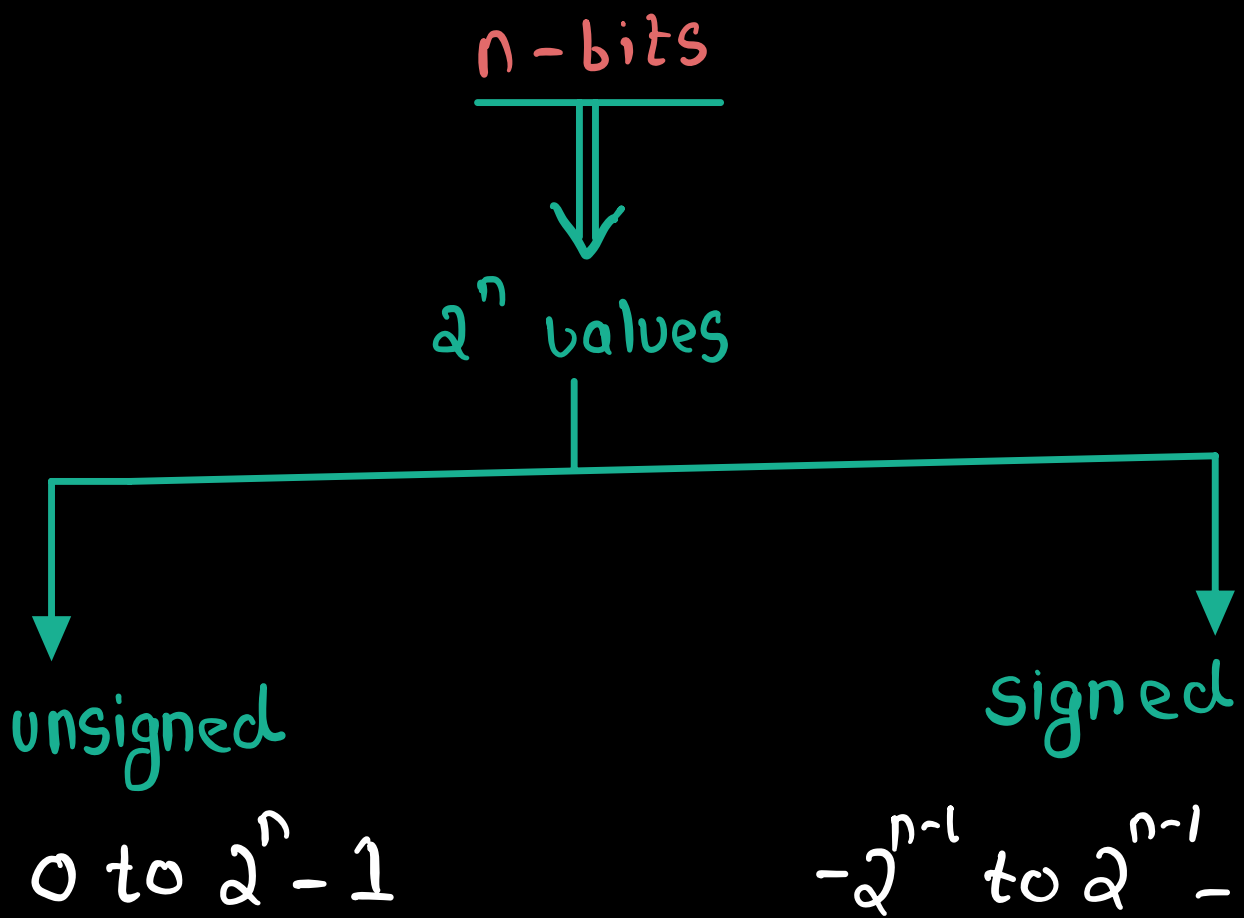
signed int ⟺ int

iii) signed → includes all values +ve & -ve both

unsigned → includes only +ve values

iii) If size of data type = n-bits

Range



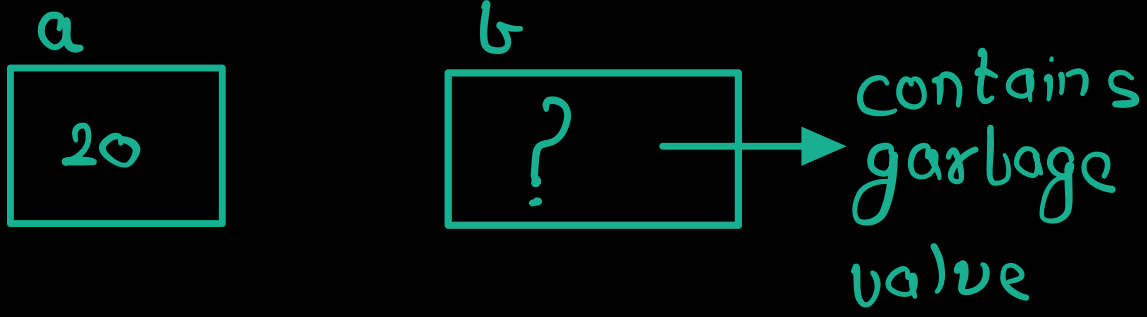
iV) Declaration of short int

```
short int a;
signed short int a;
short a;
signed short a;
```

This all declaration are valid for long, long long

V) short int a = 20;
short int b;

Here



vi) Format Specifier

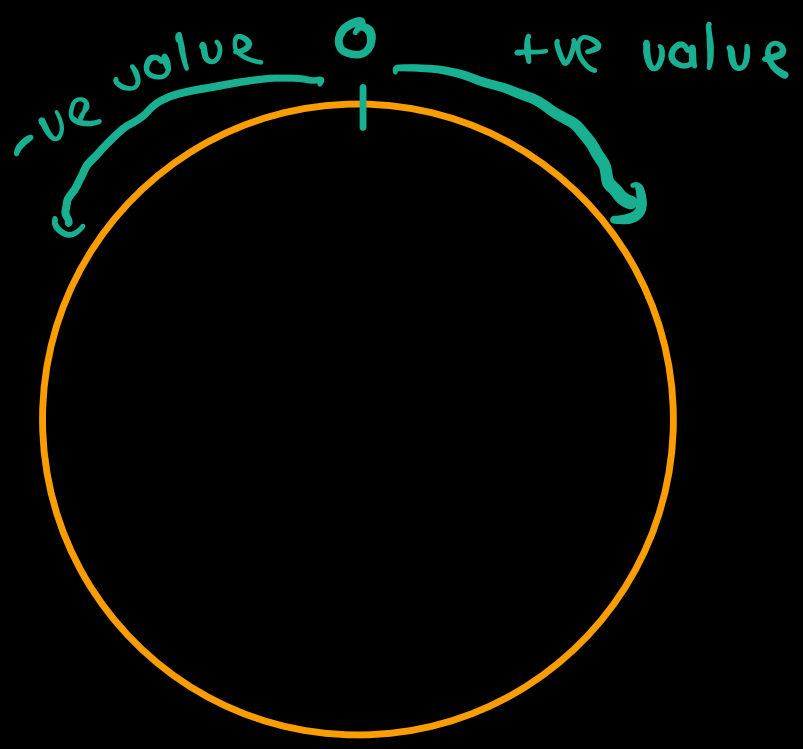
%d → short int, int

%ld → long int

%lld → long long int

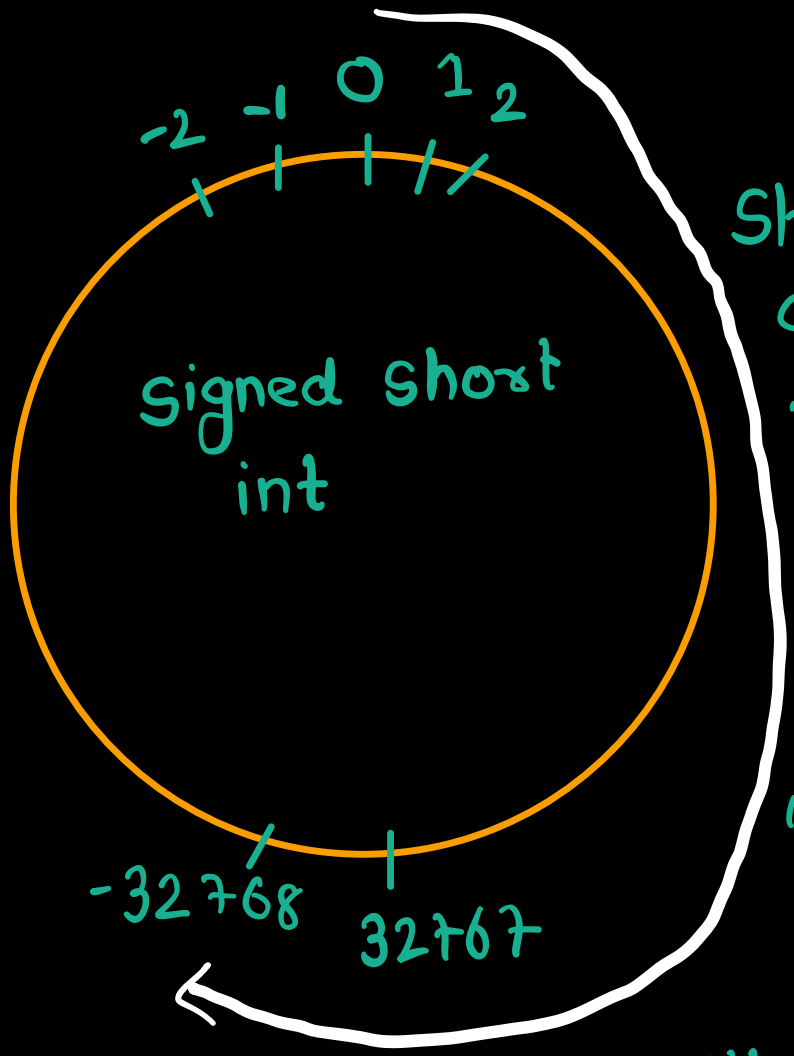
%u → unsigned short int, unsigned int.

vii)



Eg

Short int → 2 bytes



Short int
a = 32769

The value is out of range in the variable a, but it will not give error

a will contain
=) -32767.

Character

Size ⟶ 1 Bytes
= 8 bits
⇓
256 values

Signed char ⟶ -128 to 127
unsigned char ⟶ 0 to 255

ASCII values

A = 65	a = 97	0 = 48
Z = 90	z = 122	9 = 57

\n ⇒ 32, it moves the cursor to the beginning of next line.