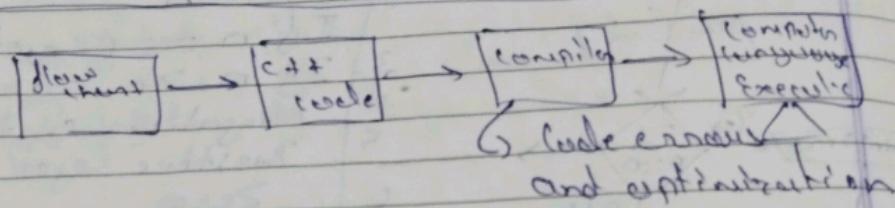
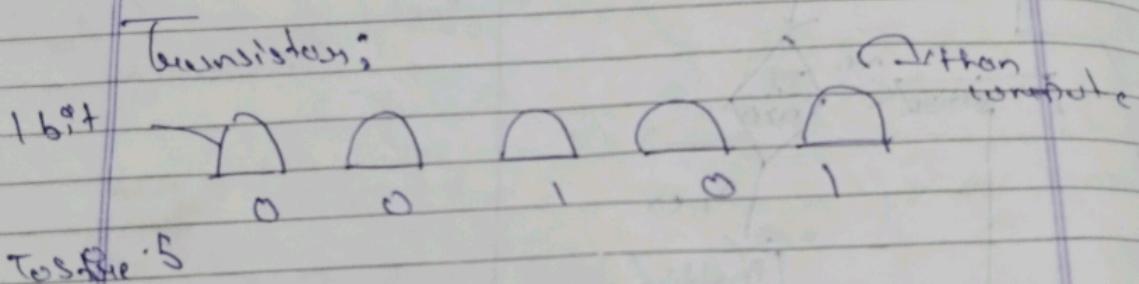


Day - 03 20.04.2023

Start C++ with Zero and
Write Your First Program



Best time
To cover
Topics
In the
my class
was
Example



Smallest memory unit = 1 Bit

1 bit = Binary

8 bit = 1 bytes

(2^{10}) 1024 bytes = 1 KB

(2^{10}) 1024 KB = 1 MB

1024 MB = 1 GB

2^{10} GB = 1 TB

Total
we use
names

To store a concert into binary (000)
and store in Transistor.

But how to store A
To overcome this problem we
give int value for character
bcz that it can be stored in
my computer memory. And it
was given by ASCII

Example:

$$A = 65$$

$$B = 66$$

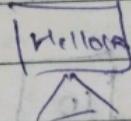
$$C = 67$$

$$128, 129, 130, 131, \dots, 127$$

* Write first code in C++

#include <iostream> // Header file having
using namespace std; // info of cout

start
here
{
int main ()



To know we are using namespace std; ~~~~~
we are using cout << "Hello CA";
cout << " nice";

cout << 2+3; 115

cout << "2+3" ; 11.2+3

\ styling

3 End

Variabls and Datatype

while defining give two alphabets,
Numbers, symbols, gesture.

- ① Int = 1, 2, 3, 4,
- ② Char = a, b, c, \rightarrow Alphabet
- ③ float = 1.2, 2.8, 3.68
- ④ double: 1234.2.685

⑤ Boolean = 0 or 1 \rightarrow Gesture

→ int : name = 10;
datatype variable \rightarrow assignment
 $\&$ percent

[10]

Name, memory allocated: 4 Bytes

4 Bytes = 32 bit

6	0	0	0	0	0	0.	0	1	0	1	0
Number											
1	0	1	0	1	0	.	0	1	0	1	0
1	1	1	0	1	0	1	0	1	0	1	0

We choose 4 bytes because if big
byte number come we can easily
store and also make in

memory locations as → first name are
true for some values exhibit.

char Name

contains

(0) Alpha

(1) (c)

(2) (-) underscore

and cannot start

with number should be
nearly full.

char c = 'c' calculate the size

= 1b

= 1c

= 1t

= 1f

= 1t

C-3 Float : 1.2, 2.6, 7.822

Float f = 1.28;

4 bytes

float 32 bit

$\frac{1.28}{f} = \underline{\underline{0}} \downarrow \underline{\underline{0}} \underline{\underline{1}} \underline{\underline{0}} \dots - \frac{32}{32}$

int b = 218763458

into binary
need 32 bits

→ Is it stored in 32 bit of int
No

Hence we use long int b =
8 bytes → 64 bits

double d = 4.488776

double
we use for more precision
after point

We should use electronic equipment for their use to save money.

Bonlein h = 0.01

data type variable

$b \geq 0, b \neq 1, b \neq -1, b \neq -2$

10 → Byte

۷

How negative numbers store

int a = 23, 57, 128;

- - S, - C, - G, - . addressee
III = base scene

$$\text{Int} = 32 \text{ bytes} = 2^{32}$$

We distribute Epsilon meniday for both

Death

$$8 \geq 1$$

Q. Let's first bit tell me about number of types we have

Aussicht

$$0 \cup / \cup = \cup$$

○ ○ 1 = 1 +

$$0 \text{ odd} = 21$$

$$0+1=3$$

Neopeltidae

$$5^{\circ} = 0$$

$$|C_1| = -1$$

$$110 = -2$$

$$1 \times 1 = -3$$

•

but O comes 2nd time

So now I taught of negative numbers

$$100 = -4$$

$$101 = -3$$

$$110 = -2$$

$$111 = -1$$

(-6) in Binary

Step-① Convert only number into binary

$$\text{number} = 6$$

$$\text{Bin. of } 6 = 110$$

Step-② Taking 1's complement successively
0 to 1 and 1 to 0

$$\text{Original: } 0110$$

$$1^{\text{'}} \text{ complement: } 1001$$

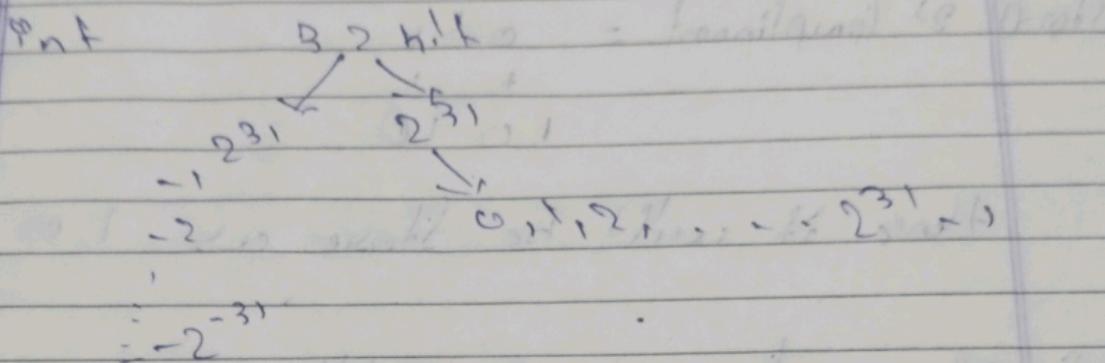
Step-③ Taking 2's complement by
adding 1 in 1's complement

$$1^{\text{'}} \text{ complement: } 1001$$

$$+ \begin{array}{r} 1 \\ \hline 1010 \end{array}$$

$$\underline{-} (C-6)$$

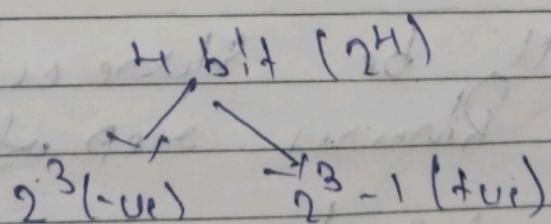
Computer will check if 1's bit is zero, it simply find unless but if first bit is 1 then it will take 2's complement and find Nature.



Homework [1, 2, 3 in laptop]

Q4 If we have only 4 bits, how 3 and -6 will be written in 4 bits.

=) If we have 4 bit So we equally divide for negative and positive



Now 3 will store in form

0 0 1

-6 will store, can be find using 2's complement

$$\text{Step ①} \quad \text{Binary of } 6 = 0110$$

$$\text{Step ②} \quad 1^{\text{st}} \text{ Complement} = \cancel{0}110$$

$$\text{Step ③} \quad 2^{\text{nd}} \text{ Complement} = \begin{array}{r} 011 \\ + 1 \\ \hline 1010 \end{array}$$

Hence it will be stored as 1010

Q-5 If we have only 5 bits, then 13 and
-16 will be written in 5 bits

\Rightarrow

$$\begin{array}{c} \overset{5 \text{ bits}}{5(2^4)}(2^5) \\ \swarrow \quad \searrow \\ 2^4 \quad 2^4 \\ -1, 2, \dots \quad 0, 1, 2, 2^{4-1} \end{array}$$

$\begin{array}{|c|c|} \hline 2 & 13 \\ \hline 2 & 6 \\ \hline 2 & 3 \\ \hline 2 & 1 \\ \hline 0 & \end{array}$ 13 will be stored as 0 1 1 0 1

$\begin{array}{|c|c|} \hline 2 & 16 \\ \hline 2 & 8 \\ \hline 2 & 4 \\ \hline 2 & 2 \\ \hline 0 & \end{array}$ -16 will be stored as 10000

$\text{Step ①} \quad \text{Binary step of } 16 = \underline{\underline{\text{_____}}}$

$\text{Step ②} \quad 1^{\text{st}} \text{ Complement} : 0111,$

$\text{Step ③} \quad 2^{\text{nd}} \text{ Complement}$

sheet
9

$$\begin{array}{r} 0 \ 1 \ 1 \ 1 \\ + \quad \quad \quad 1 \\ \hline 1 \ 0 \ 0 \ 0 \end{array}$$

Hence -16 will be stored as 10000