

Module-01

► Introduction

- * Father of C → Dennis Ritchie → 1972
- * C is the origin/mother of all programming languages.

► What's header file?

A header file is like a calculator through which we can calculate anything faster than our brain.

► First C program

```
#include <stdio.h> // standard input and output,
int main()
{
    printf("Hello World");
    return 0;
}
```

Terminal

Hello world

► Understand how to print in C

Two types of function: ① User defined ② built-in

Steps to write a function:

- ① return type
- ② name of func.
- ③ (input)
- ④ {
 - process
 - return —;
}

Example:-

```
#include <stdio.h>
int main()
{
    printf("Hello");
    return 0;
}
```

Confusion: Difference between main function and printf function.

<u>main function</u>	<u>printf function</u>
① → User defined	→ built-in
② → Controls the flow and behaviour of entire C program	→ One of many functions for performing specific tasks
③ → Entry point	→ Only gives output

► Special characters (ESCAPE):

\n → new line

\t → tab

\| → |

\% → %

→ different types of container

- ### ► Data types:
- ① int → -100, 0, 100
 - ② float → -2.5, 5.46
 - ③ Char → 'a', 'A', '@'
 - ④ bool → True, False

► Variables and data types

int rahim; // declaration
 ↓
 data type variable

} int rahim = 100%;
 // initialization

rahim = 100;
 ↗ assignment

1 KB = 1024 byte
 1 byte = 8 bit

Format specifier: %d → int

%f → float, %lf → double

%c → char

Ex- printf ("%d", rahim);

Important Case (float)

float chol = 2.557;
 printf("%0.2f", chol);
 Output → 2.55

We need this when we want the exact number of decimal digits.

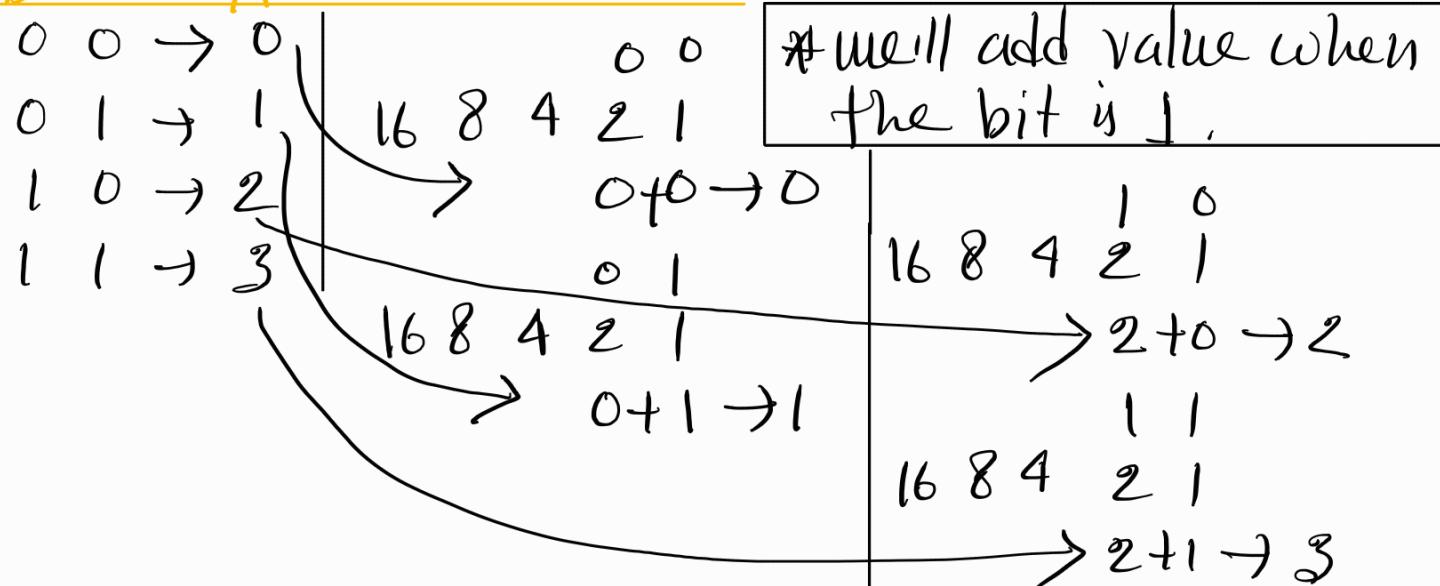
Note: char takes on character at a time.

char name = 'A';
 output → A

► Syntax for taking input:

int rahim; → address of
 scanf("%d", &rahim);
 printf("%d", rahim);

► Data type Limitations:



likewise,

$\frac{4 \ 2 \ 1}{0 \ 0 \ 0} \rightarrow 0$

0 0 1 → 1

0 1 0 → 2

0 1 1 → 3

1 0 0 → 4

Relation of bit: $2^n - 1$ → number of bit

$$4 \text{ bit} = 2^4 - 1 = 16 - 1 = 15$$

* int datatype can give num of integers between $10^9 + 10^9$

0 → 5
1 1 0 → 6
1 1 1 → 7

- * long long int → -10^{18} to 10^{18}
- * float data type can give num of float digits between -8 to 8
- * double → -16 to 16

Along with the digits of point's left and right.

► Rules of naming variables:

- ① Variable name must start with a letter or underscore.
- ② Variable name must contain letter, digits or underscore
- ③ keyword cannot be used as variable.

