

# C Language

## Input and output instruction in C



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# Agenda

- ① About C language
- ② printf()
- ③ Write your first program
- ④ Escape sequences
- ⑤ Format specifiers
- ⑥ scanf()

## About C language

- ① C is a block structured programming language
- ② A c program can have any number of blocks
- ③ Usually outermost blocks are functions
- ④ function has some name for identification
- ⑤ Even the smallest C program has one function
- ⑥ All function names must be different
- ⑦ If there is only one function its name must be main()
- ⑧ If there are more than one function in the program then also one function name must be main.

## About C language

- ⑨ You can write declaration statements inside a block (function) or outside all functions.
- ⑩ Local variables vs Global variables
- ⑪ Action statements can reside only inside the block (function)
- ⑫ C is a case sensitive language.  
`int a;` <sup>lower case</sup>  
`A=5;` <sup>error</sup>   
<sup>Uppercase</sup>

int x; ← Global variable  
Global declaration

main()  
{  
 int a; ← local variable  
 Local declaration

{

f1()

{

int b; ← Local variable  
Local declaration

{

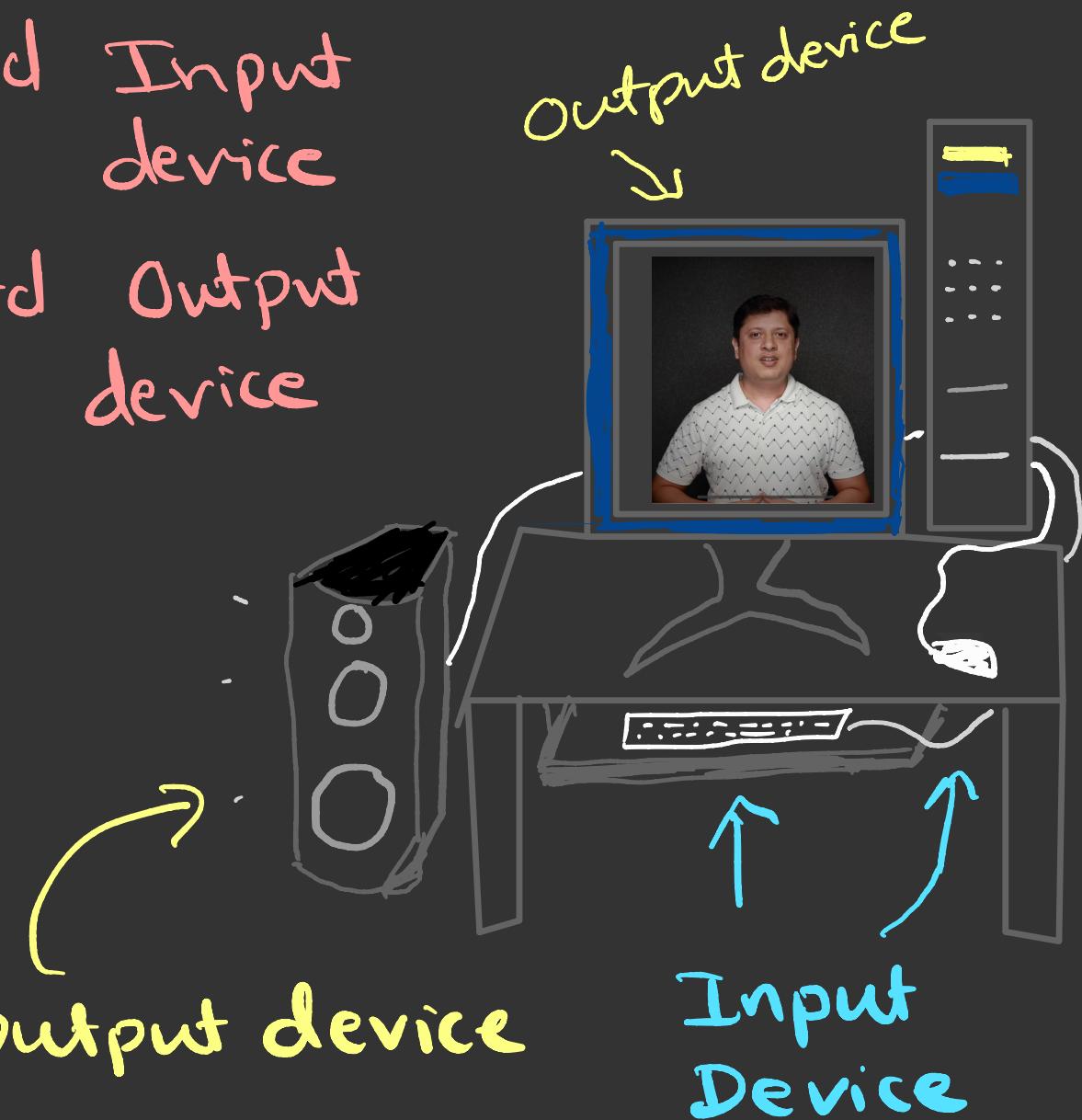
# Action Statements

- ① Input - Output instructions
- ② Arithmetic instructions
- ③ Control instruction

## Standard Input & Output devices

Keyboard → standard Input device

Monitor → standard Output device



## Output Instruction

printf() → predefined function

- ① To print text on the screen
- ② To print value of a variable  
or value of an expression

```
printf("MySirG");
```

Write a program to print **Welcome** on the screen.

```
#include<stdio.h> ← Header file  
int main()  
{  
    printf("Welcome");  
    return 0;  
}
```

↑  
it contains declaration of printf

Write a program to print **welcome students** on the screen. Print **welcome** on the first line and **Students** on the second line.

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

# Escape Sequences

- \n new line
- \t tab space
- \b back space
- \r carriage return
- \f form feed
- \\" print \\"
- \\" print \"
- \' print '

Write a program to print value  
of a variable.

```
#include <stdio.h>
int main()
{
    int a=5;
    printf("a");      wrong
    return 0;
}
```

Write a program to print value of a variable.

```
#include<stdio.h>
int main()
{
    int a=5;
    printf("%d", a);
    return 0;
}
```

Format String

## Format Specifiers

- %d int
- %c char
- %f float
- %lf double

Write printf statement to print following  
on the screen

Consider  $\rightarrow$  int a=5, b=6;

- ① 5 6
- ② a=5 and b=6
- ③ a=6 & b=5
- ④ value of a is 5 and value of b is 6
- ⑤ sum of 5 and 6 is 11
- ⑥  $5 + 6 = 11$

Consider  $\rightarrow$  int a=5, b=6;

- ① 5 6      printf("%d %d", a, b);
- ② a=5 and b=6      printf("a=%d and b=%d", a, b);
- ③ a=6 & b=5      printf("a=%d & b=%d", b, a);
- ④ Value of a is 5 and value of b is 6  $\downarrow$  expression
- ⑤ Sum of 5 and 6 is 11  $\rightarrow$  printf("Sum of %d and %d is %d", a, b, a+b);
- ⑥  $5+6=11$       printf("Sum of %d and %d = %d", a, b, a+b);

printf("Value of a is %d and value of b is %d", a, b);  
 $\rightarrow$  printf("%d + %d = %d", a, b, a+b);

scanf()

scanf() → predefined function

scanf("%d", &a);  
                    ↑ address of

Write a program to calculate sum of  
two integers.

Write a program to calculate sum of two integers.

```
#include<stdio.h>
int main()
{
    int a,b;
    printf("Enter two numbers");
    scanf("%d%d", &a,&b);
    printf("Sum of %d and %d is %d", a,b,a+b);
    return 0;
}
```