



SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution



Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade
Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai

DEPARTMENT OF ELECTRONICS & COMMUNICATION ENGINEERING

19ECB211 – Microcontroller Programming & Interfacing

II YEAR/ IV SEMESTER

UNIT 3 – PIC PROGRAMMING IN C

TOPIC 2 – I/O Programming in C



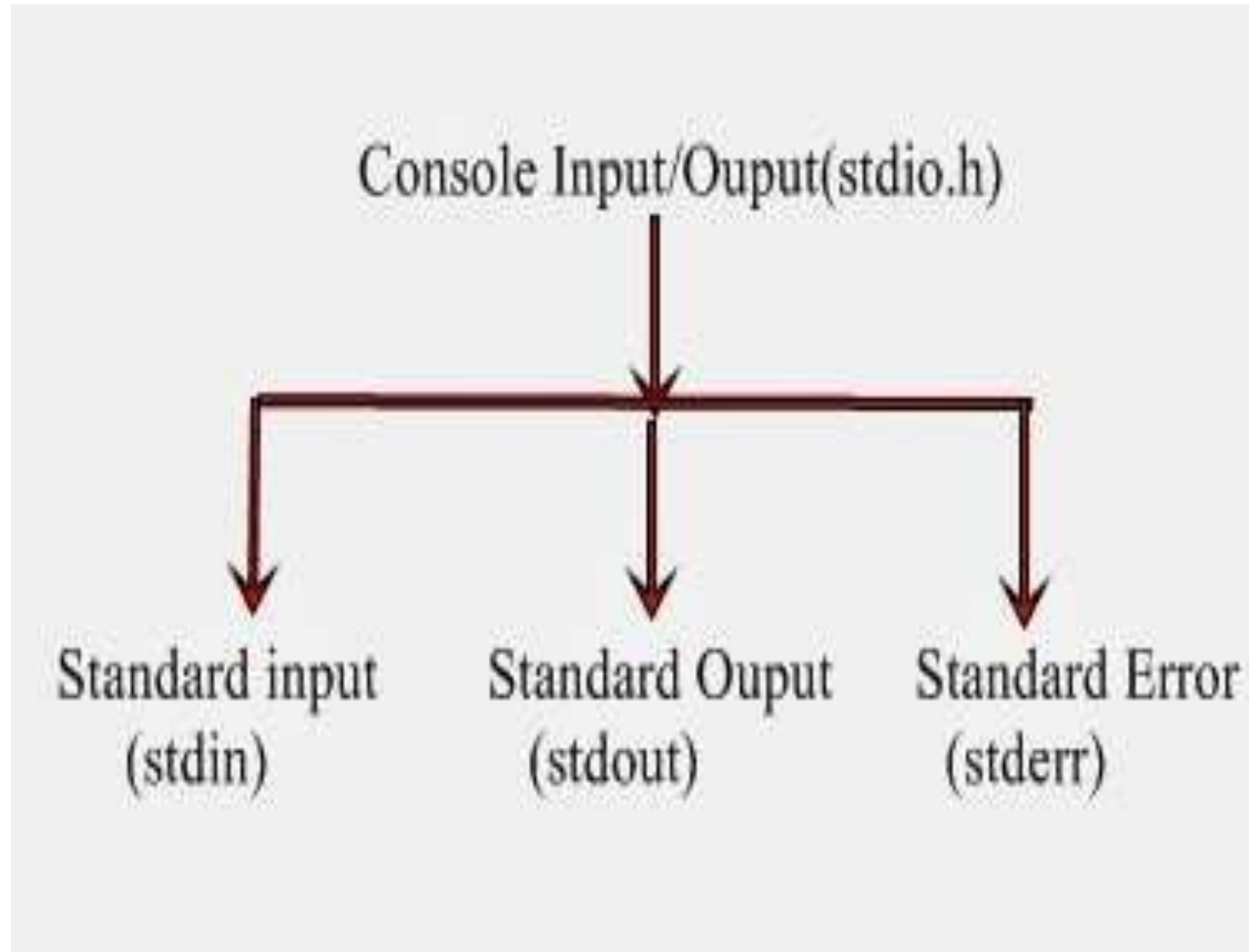
I/O PROGRAMMING IN C



- In C Language input and output function are available as C compiler functions or C libraries provided with each C compiler implementation.
- These all functions are collectively known as **Standard I/O Library function**. Here I/O stands for Input and Output used for different inputting and outputting statements.
- These I/O functions are categorized into three processing functions. Console input/output function (deals with keyboard and monitor), disk input/output function (deals with floppy or hard disk), and port input/output function (deals with a serial or parallel port).
- As all the input/output statements deals with the console, so these are also **Console Input/Output functions**.
- Console Input/Output function access the three major files before the execution of a C Program



I/O Programming in C





I/O Programming in C



stdin: This file is used to receive the input (usually is keyboard file, but can also take input from the disk file)

stdout: This file is used to send or direct the output (usually is a monitor file, but can also send the output to a disk file or any other device)

stderr: This file is used to display or store error messages.



I/O Programming in C



- Input and Output statement are used to read and write the data in C programming. These are embedded in `stdio.h` (standard Input/Output header file)
- **Input** means to provide the program with some data to be used in the program and **Output** means to display data on screen or write the data to a printer or a file
- C programming language provides many built-in functions to read any given input and to display data on screen when there is a need to output the result.

There are mainly two of Input/output functions are used for this purpose

1. Unformatted I/O functions
2. Formatted I/O functions



Unformatted I/O functions



There are mainly six unformatted I/O functions discussed as follows:

getchar()

putchar()

gets()

puts()

getch()

getche()

getchar()

This function is an Input function. It is used for reading a single character from the keyboard. It is a buffered function. Buffered functions get the input from the keyboard and store it in the memory buffer temporarily until you press the Enter key.

The general syntax is as

```
v = getchar();
```

putchar()

This function is an output function. It is used to display a single character on the screen.

The general syntax is as

```
putchar(v);
```




Unformatted I/O functions



gets()

This function is an input function. It is used to read a string from the keyboard. It is also a buffered function.

```
gets(v);
```

puts()

This is an output function. It is used to display a string inputted by gets() function. It is also used to display a text (message) on the screen for program simplicity. This function appends a newline (“\n”) character to the output.

```
puts(v);
```

getch()

This is also an input function. This is used to read a single character from the keyboard like getchar() function. But getchar() function is a buffered is function, getch() function is a non-buffered function

```
v = getch();
```

getche()

All are same as getch() function except it is an echoed function. It means when you type the character data from the keyboard it will visible on the screen.

```
v = getche();
```



Formatted I/O functions



➤ Formatted I/O functions which refers to an Input or Output data that has been arranged in a particular format.

➤ There are mainly two formatted I/O functions

scanf()

printf()

scanf()

The scanf() function is an input function. It used to read the mixed type of data from keyboard. You can read integer, float and character data by using its control codes or format codes.

The general syntax is as

```
scanf("control strings",arg1,arg2,.....argn);
```

Or

```
scanf("control strings",&v1,&v2,&v3,.....&vn);
```

printf()

This is an output function. It is used to display a text message and to display the mixed type (int, float, char) of data on screen.

The general syntax is as

```
printf("control strings",&v1,&v2,&v3,.....&vn);
```

Or

```
printf("Message line or text line");
```




THANK YOU