

Basic Input and Output in C

C language has standard libraries that allow input and output in a program. The **stdio.h** or **standard input output library** in C that has methods for input and output.

`scanf()`

The `scanf()` method, in C, reads the value from the console as per the type specified. **Syntax:**

`scanf("%X", &variableOfXType);` where **%X** is the [format specifier in C](#). It is a way to tell the compiler what type of data is in a variable and **&** is the address operator in C, which tells the compiler to change the real value of this variable, stored at this address in the memory.

`printf()`

The `printf()` method, in C, prints the value passed as the parameter to it, on the console screen. **Syntax:**

`printf("%X", variableOfXType);` where **%X** is the [format specifier in C](#). It is a way to tell the compiler what type of data is in a variable and **&** is the address operator in C, which tells the compiler to change the real value of this variable, stored at this address in the memory.

How to take input and output of basic types in C?

The basic type in C includes types like int, float, char, etc. In order to input or output the specific type, the **X** in the above syntax is changed with the specific format specifier of that type. The Syntax for input and output for these are:

- **Integer:**

Input: `scanf("%d", &intVariable);`

Output: `printf("%d", intVariable);`

- **Float:**

Input: `scanf("%f", &floatVariable);`

Output: `printf("%f", floatVariable);`

- **Character:**

Input: `scanf("%c", &charVariable);`

Output: `printf("%c", charVariable);`

Please refer [Format specifiers in C](#) for more examples.

- **C**

```
// C program to show input and output
```

```
#include <stdio.h>

int main()
{

    // Declare the variables

    int num;

    char ch;

    float f;

    // --- Integer ---

    // Input the integer

    printf("Enter the integer: ");
    scanf("%d", &num);

    // Output the integer

    printf("\nEntered integer is: %d", num);

    // --- Float ---

    //For input Clearing buffer

    while((getchar()) != '\n');

    // Input the float

    printf("\n\nEnter the float: ");
    scanf("%f", &f);

    // Output the float

    printf("\nEntered float is: %f", f);

    // --- Character ---
```

```

// Input the Character

printf("\n\nEnter the Character: ");

scanf("%c", &ch);


// Output the Character

printf("\nEntered character is: %c", ch);


return 0;

}

```

Output:

```

Enter the integer: 10
Entered integer is: 10

```

```

Enter the float: 2.5
Entered float is: 2.500000

```

```

Enter the Character: A
Entered Character is: A

```

How to take input and output of advanced type in C?

The advanced type in C includes type like String. In order to input or output the string type, the **X** in the above syntax is changed with the **%s** format specifier. The Syntax for input and output for String is:

```

Input: scanf("%s", stringVariable);
Output: printf("%s", stringVariable);

```

Example:

- C

```

// C program to show input and output

#include <stdio.h>


int main()
{

```

```

// Declare string variable
// as character array
char str[50];

// --- String ---
// To read a word

// Input the Word
printf("Enter the Word: ");
scanf("%s\n", str);

// Output the Word
printf("\nEntered Word is: %s", str);

// --- String ---
// To read a Sentence

// Input the Sentence
printf("\n\nEnter the Sentence: ");
scanf("%[^\\n]\\ns", str);

// Output the String
printf("\nEntered Sentence is: %s", str);

return 0;
}

```

Output:

Enter the Word: GeeksForGeeks

Entered Word is: GeeksForGeeks

Enter the Sentence: Geeks For Geeks

Entered Sentence is: Geeks For Geeks

