

The **ctype.h** header file of the C Standard Library declares several functions that are useful for testing and mapping characters.

All the functions accepts **int** as a parameter, whose value must be EOF or representable as an unsigned char.

All the functions return non-zero *true* if the argument *c* satisfies the condition described, and zero *false* if not.

Library Functions

Following are the functions defined in the header ctype.h –

S.N.	Function & Description
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- | | |
|---|---|
| 1 | <u>int isalnum(int c)</u>
This function checks whether the passed character is alphanumeric. |
| 2 | <u>int isalpha(int c)</u>
This function checks whether the passed character is alphabetic. |
| 3 | <u>int iscntrl(int c)</u>
This function checks whether the passed character is control character. |
| 4 | <u>int isdigit(int c)</u>
This function checks whether the passed character is decimal digit. |
| 5 | <u>int isgraph(int c)</u>
This function checks whether the passed character has graphical representation using locale. |
| 6 | <u>int islower(int c)</u>
This function checks whether the passed character is lowercase letter. |
| 7 | <u>int isprint(int c)</u>
This function checks whether the passed character is printable. |
| 8 | <u>int ispunct(int c)</u>
This function checks whether the passed character is a punctuation character. |

9

[int isspaceintc](#)

This function checks whether the passed character is white-space.

10

[int isupperintc](#)

This function checks whether the passed character is an uppercase letter.

11

[int isxdigitintc](#)

This function checks whether the passed character is a hexadecimal digit.

The library also contains two conversion functions that accepts and returns an "int".

S.N.	Function & Description
1	<u>int tolowerintc</u> This function converts uppercase letters to lowercase.
2	<u>int toupperintc</u> This function converts lowercase letters to uppercase.

Character Classes

S.N.	Character Class & Description
1	Digits This is a set of whole numbers { 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 }.
2	Hexadecimal digits This is the set of { 0 1 2 3 4 5 6 7 8 9 A B C D E F a b c d e f }.
3	Lowercase letters This is a set of lowercase letters { a b c d e f g h i j k l m n o p q r s t u v w x y z }.
4	Uppercase letters This is a set of uppercase letters {A B C D E F G H I J K L M N O P Q R S T U V W X Y Z }.
5	Letters This is a set of lowercase and uppercase letters.
6	Alphanumeric characters

This is a set of Digits, Lowercase letters and Uppercase letters.

7 **Punctuation characters**

This is a set of ! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { | } ~

8 **Graphical characters**

This is a set of Alphanumeric characters and Punctuation characters.

9 **Space characters**

This is a set of tab, newline, vertical tab, form feed, carriage return, and space.

10 **Printable characters**

This is a set of Alphanumeric characters, Punctuation characters and Space characters.

11 **Control characters**

In ASCII, these characters have octal codes 000 through 037, and 177 *DEL*.

12 **Blank characters**

These are spaces and tabs.

13 **Alphabetic characters**

This is a set of Lowercase letters and Uppercase letters.