



**ALL FUNCTIONS
OF `ctype.h`
HEADER FILE
WITH EXAMPLE
IN C++**

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EXAMPLE OF isalnum() builtin function in C++

- **Syntax**

- This function is used to check whether the entered character is alphanumeric (means alphabet or number) or not and returns 1 or 0 according to the condition
- **int isalnum(int c);**

Code:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>
4. int main ()
5. {
6. char ch;
7. cout<<"\n\tEnter any character : ";
8. cin>>ch;
9. if( isalnum(ch) )
10. cout<<"\n\tCharacter : "<<ch<<" is Alphanumeric"<<endl;
11. else
12. cout<<"\n\tCharacter : "<<ch<<" is Not Alphanumeric"<<endl;
13. return 0;
14. }
```

\\page programs\ctype library.exe

```
Enter any character : A
Character : A is Alphanumeric
```

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```
Enter any character : $
Character : $ is Not Alphanumeric
```

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```
Enter any character : 1
Character : 1 is Alphanumeric
```

EXAMPLE OF isalpha() builtin function in C++

- **Syntax**

- This function is used to check whether the entered character is alphabet or not and returns 1 or 0 according to the condition.
- **int isalpha(int c);**

Code:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>

4. int main ()
5. {
    a. char ch;
6. cout<<"\n\tEnter any character : ";
7. cin>>ch;

8. if( isalpha(ch) )
9. cout<<"\n\tCharacter : "<<ch<<" is Alphabet"<<endl;
10. else
11. cout<<"\n\tCharacter : "<<ch<<" is Not Alphabet"<<endl;
12. return 0;
13. }
```

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```
Enter any character : f
Character : f is Alphabet
```

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```
Enter any character : 3
Character : 3 is Not Alphabet
```

EXAMPLE OF iscntrl() builtin function in C++

- **Syntax**
- This function checks if the passed character is a control character.
- According to standard ASCII character set, control characters are between ASCII codes 0x00 (NUL), 0x1f (US), and 0x7f (DEL). Specific compiler implementations for certain platforms may define additional control characters in the extended character set (above 0x7f).
- **int iscntrl(int c)**

Code:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>

4. int main ()
5. {
6. //example 1
7. string ch ="";
8. if( iscntrl(ch[0]) )
9. cout<<"\n\t"<<ch<<" is Control character"<<endl;
10. else
11. cout<<"\n\t"<<ch<<" is Not Control character"<<endl;
12. //example 2
13. string st="I am programmer ";
14. if( iscntrl(st[0]) )
15. cout<<"\n\t"<<st<<" is Control character"<<endl;
16. else
17. cout<<"\n\t"<<st<<" is Not Control character"<<endl;
18. return 0;
19. }
```

\page programs\ctype library.exe

```
is Control character
I am programmer is Not Control character
```

EXAMPLE OF isdigit() FUNCTION in C++

- **SYNTAX**

- This function is used to check whether the entered character is decimal number (0,1,2,...,9) or not. It returns positive value if true else 0.
- `Int isdigit(int c);`

CODE:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>
4. int main ()
5. {
    a. char ch;
6. cout<<"\n\tEnter any character : ";
7. cin>>ch;
8. if( isdigit(ch) )
9. cout<<"\n\tCharacter : "<<ch<<" is Decimal Number"<<endl;
10. else
11. cout<<"\n\tCharacter : "<<ch<<" is Not Decimal Number"<<endl;
12. return 0;
13. }
```

`\page programs\ctype library.exe`

```
Enter any character : 5
Character : 5 is Decimal Number
```

`\page programs\ctype library.exe`

```
Enter any character : f
Character : f is Not Decimal Number
```

EXAMPLE OF isgraph() and isprint() FUNCTION in C++

- **SYNTAX**

- **Both functions have same functionality**
- This function **int isgraph(int c)** checks if the character has graphical representation.
- The characters with graphical representations are all those characters that can be printed except for whitespace characters (like ' '), which is not considered as **isgraph** characters.

CODE:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>
4. int main () {
    a. char ch='A'; //example 1
5. if( isgraph(ch) || isprint(ch))
6. cout<<"\n\tCharacter : "<<ch<<" can be printed"<<endl;
7. else
8. cout<<"\n\tCharacter : "<<ch<<" can't be printed"<<endl;
9. //example 2
    i. ch=' ';
10. if( isgraph(ch) || isprint(ch))
11. cout<<"\n\tCharacter : "<<ch<<" can be printed"<<endl;
12. else
13. cout<<"\n\tCharacter : "<<ch<<" can't be printed"<<endl;
14. return 0;
15. }
```

```
Character : A can be printed
Character :   can't be printed
```

EXAMPLE OF islower() and isupper() FUNCTION in C++

- **SYNTAX**

- **Int islower(int c);**
- This function is used to check weather the entered character is lower case (a,b,c,...,z) or not and returns positive value if true else 0.
- **Int isupper(int c);**
- This function is used to check weather the entered character isupper case (A,B,C,...,Z) or not and returns positive value if true else 0.

CODE:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>
4. int main ()
5. {
6. char ch;
7. cout<<"\n\tEnter any character : ";
8. cin>>ch;
9. if( islower(ch) )
10. cout<<"\n\tCharacter : "<<ch<<" is lower case"<<endl;
11. else if(isupper(ch))
12. cout<<"\n\tCharacter : "<<ch<<" is upper case"<<endl;
13. else
14. cout<<"\n\tCharacter : "<<ch<<" is not an alphabet"<<endl;
15. return 0;
16. }
```

```
Enter any character : a
Character : a is lower case
```

```
Enter any character : F
Character : F is upper case
```

```
Enter any character : ^^
Character : ^ is not an alphabet
```

EXAMPLE OF ispunct() FUNCTION in C++

- **SYNTAX**

- This function is used to check whether the entered character is from punctuation characters (! " # \$ % & ' () * + , - . / : ; < = > ? @ [\] ^ _ ` { | } ~) or not and returns positive value if true else 0.
- **Int ispunct(int c);**

CODE:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>
4. int main ()
5. {
6. char ch;
7. cout<<"\n\tEnter any character : ";
8. cin>>ch;
9. if( ispunct(ch) )
10. cout<<"\n\tCharacter : "<<ch<<" is Punctuation character"<<endl;
11. else
12. cout<<"\n\tCharacter : "<<ch<<" is not Punctuation character"<<endl;
13. return 0;
14. }
```

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```
Enter any character : ,
Character : , is Punctuation character
```

page programs\ctype library.exe

```
Enter any character : r
Character : r is not Punctuation character
```

EXAMPLE OF isxdigit() FUNCTION in C++

- **SYNTAX**

- This function is used to check whether the entered character is decimal number (0,1,2,...,9,A,B,C,D,E,F,a,b,c,d,e,f) or not and returns positive value if true else 0.
- `Int isxdigit(int c);`

CODE:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>
4. int main ()
5. {
    a. char ch;
6. cout<<"\n\tEnter any character : ";
7. cin>>ch;
8. if( isxdigit(ch) )
9. cout<<"\n\tCharacter : "<<ch<<" is HexDecimal Number"<<endl;
10. else
11. cout<<"\n\tCharacter : "<<ch<<" is Not HexDecimal Number"<<endl;
12. return 0;
13. }
```

\\page programs\ctype library.exe

```
Enter any character : f
Character : f is HexDecimal Number
```

\\page programs\ctype library.exe

```
Enter any character : t
Character : t is Not HexDecimal Number
```

EXAMPLE OF isspace() FUNCTION in C++

- **SYNTAX**

- This function is used to check weather the entered character is white space or not
- **Int isspace(int c);**

CODE:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>
4. int main ()
5. {
6. char ch='h';//example 1
7. if( isspace(ch) )
8. cout<<"\n\tCharacter : "<<ch<<" is white space"<<endl;
9. else
10. cout<<"\n\tCharacter : "<<ch<<" is not whitespace"<<endl;
11. ch='\t';//example 2
12. if( isspace(ch) )
13. cout<<"\n\tCharacter : "<<ch<<" is white space"<<endl;
14. else
15. cout<<"\n\tCharacter : "<<ch<<" is Not whitespace"<<endl;
16. return 0;
17. }
```

:\page programs\ctype library.exe

```
Character : h is not whitespace
Character :      is white space
```

EXAMPLE OF tolower() FUNCTION in C++

- **SYNTAX**

- This function is used convert a letter to lower case
- **Int tolower(int c);**

CODE:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>
4. int main ()
5. {
6. string s;
7. cout<<"\n\tEnter any sting: ";
8. getline(cin,s);
9. cout<<"\n\tLower case string is : ";
10. for(int i=0;s[i]!='\0';i++)
11. cout<<char(tolower(s[i]));
12. cout<<endl;
13. return 0;
14. }
```

\\page programs\ctype library.exe

```
Enter any sting: MY NAME IS JAUERIA
Lower case string is : my name is javeria
```

EXAMPLE OF toupper() FUNCTION in C++

- **SYNTAX**

- This function is used convert a letters to upper case
- **int toupper (int c);**

CODE:

```
1. #include<iostream>
2. using namespace std;
3. #include <ctype.h>
4. int main ()
5. {
6. string s;
7. cout<<"\n\tEnter any sting: ";
8. getline(cin,s);
9. cout<<"\n\t Upper case string is : ";
10. for(int i=0;s[i]!='\0';i++)
11. cout<<char(toupper(s[i]));
12. cout<<endl;
13. return 0;
14. }
```

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```
Enter any sting: my name is javeria
Upper case string is : MY NAME IS JAUERIA
```

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