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Introduction to Ternary Operator in C

In the C language ternary operator is allowing for executing or running any code based given value to the condition, and the condition result value of the expression returned to the output. The important use of a ternary operator decreases the number of lines of code and





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condition, and Expressions will hold false value evaluated by Expression1 condition.

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- It reduces the code.
- Improves performance.
- Overcome conventional use of if and else condition always.

How does ternary operator work in C language?

C language ternary operator works based on the ternary operator(?), If the condition is evaluated true then it executes the true expression value at the left-hand side of the colon(:) symbol and if the condition is evaluated false then it executes false expression value at the right-hand side of the colon(:) symbol.

Syntax:

```
Expression1?Expression2:Expression3;
```

Or

```
Condition?true value:false value;
```

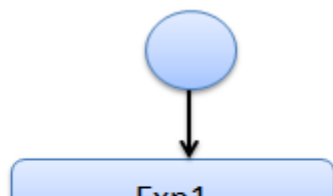
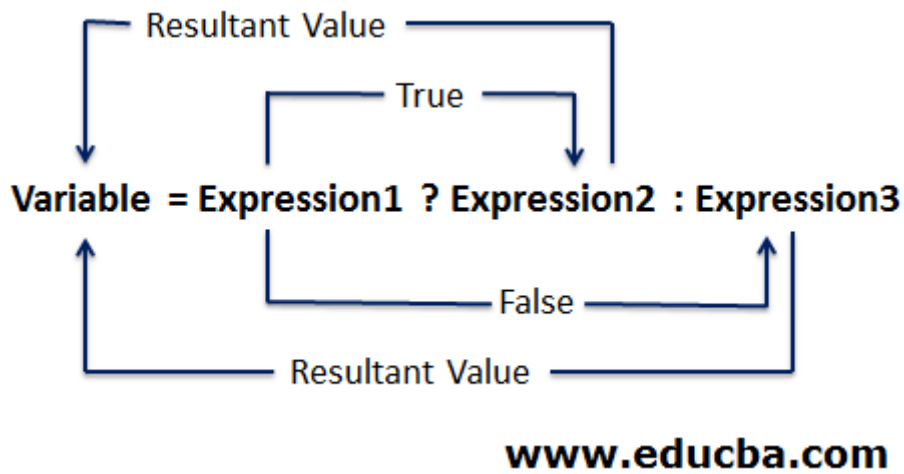


What is the return value of the ternary expression?



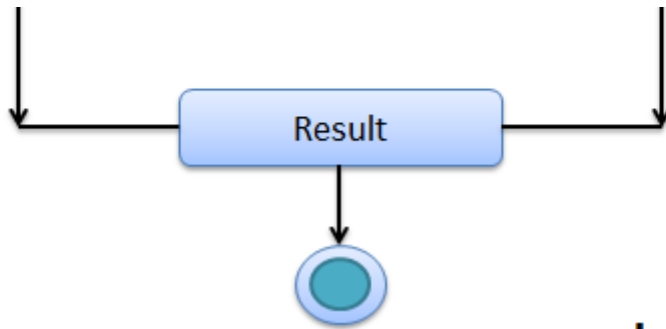
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See the below images for better understanding of ternary operator:





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Examples of Ternary Operator in C

Here are the following examples mention below

Example #1

Larger number without ternary operator

Code:

```
#include<stdio.h>//informing to c language include c library files
int main()//main method
{
//declaraing two variables
int first,second;
//printing output
printf("Please provide 2 numbers=>\n");
scanf("%d %d", &first , &second);//%d is integer values
if(first>second)//checking if condition
{
printf("%d",first);//printing the larger output
```





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```
printf("%d",second),
printf(" is larger number than %d",first);
}
return 0;
}
```

Output:

```
Please provide 2 numbers=>
2
3
3 is larger number than 2
```

Example #2

The largest number from 2 numbers with the ternary operator

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Code:

```
#include<stdio.h>//line1
main();//line2
{
int first,second,largest;//line3
printf("Please provide 2 numbers=>\n");//lin4
scanf("%d %d", &first , &second);//line5
largest = (first > second) ? first : second;//line6
printf("%d", largest);//line7
printf(" is the largest number from %d and %d",first,second);
}
```

Output:

```
Please provide 2 numbers=>
100
102
102 is the largest number from 100 and 102
```

Explanation:

- **Line1** includes required library files to run the C language application
- **Line2** is the main method where the application starts from this main () method





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operator.

- **Line6** is the ternary operator compares to 2 numbers which is largest.
- **Line7** printing the output on the console.

Example #3

Largest numbers from 3 numbers with the ternary operator

Code:

```
#include<stdio.h>//line1
int main();//line2
{
int firstNumber, secondNumber, thirdNumber, largest;//line3
printf("Enter any 3 numbers\n");//line4
scanf("%d %d %d", &firstNumber, &secondNumber,
&thirdNumber);//line5
largest= (firstNumber > secondNumber) ? (firstNumber >
secondNumber ? firstNumber : thirdNumber) : (secondNumber >
thirdNumber ? secondNumber : thirdNumber);//line5
printf ("%d", largest);//line6

printf (" is the largest number from %d, %d and
%d",firstNumber,secondNumber,thirdNumber);//line7
}
```





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```
-2
5 is the largest number from 2, 5 and -2
```

Explanation:

- **Line1** includes required library files to run the C language application
- **Line2** is the main method where the application starts from this main () method.
- **Line3** is an integer variable declaration for storing 3 integer numbers (non-decimal numbers).
- **Line4** is the asking user to enter 3 numbers text.
- **Line5** is stored in the entered 3 integer numbers within the scanf method with the %d operator.
- **Line6** is the ternary operator compares to 3 numbers which is largest.
- **Line7** printing the output on the console.

Example #4

Decimal Smallest number and smallest number as the radius

Code:

```
#include<stdio.h>//line1
float getMyCircleArea (float radius);//lin2
int main();//line3

{
float x,y,smallest;//line4
printf("Please provide 2 numbers=>\n");//line5
```





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```
float circleArea= getMyCircleArea (smallest); // line10
printf("Circle area from smallest number as radius is=%f",
circleArea); //line11
}
float getMyCircleArea (float radius) //lin12
{
float result=3.14*radius*radius; //line13
return (result); //lin14
}
```

Output:

```
Please provide 2 numbers=>
23.5
5.2
5.200000 is the smallest number from 23.500000 and 5.200000
Circle area from smallest number as radius is=84.905594
```

Explanation:

- **Line1** includes required library files to run the C language application.
- **Line2** importing the user-defined method, here getMyCircleArea() is the method.
- **Line3** is the main method where the application starts from this main () method.
- **Line4** is a float variable declaration for storing 2 float numbers (non-decimal numbers).
- **Line5** is the asking user to enter 2 decimal numbers text.
- **Line6** is stored in the entered 2 decimal numbers within the scanf method with % operator.
- **Line7** is the ternary operator compares to 2 decimal numbers which is the smallest.





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- Line13 is circle area logic.
- Line14 is returning resultant value from the getMyCirclceArea() method.

Example #5

Largest number with Factorial

Code:

```
#include<stdio.h>//line1
int getMyFactorial(int l);//lin2
int main();//line3
{
int x,y,largest;//line4
printf("Please provide 2 numbers=>\n");//line5
scanf("%d %d", &x , &y);//line6
largest = (x > y) ? x : y;//line7
printf("%d", largest);//line8
printf(" is the largest number from %d and %d \n",x,y);//line9
int factorial=getMyFactorial(largest);//line10
printf("Factorial of the largest number is=%d",
factorial);//line11
}
int getMyFactorial(int l)//lin12
{
int f=1;
for (int p = 1; p <= l; p++){
```





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Output:

```
Please provide 2 numbers=>
4
5
5 is the largest number from 4 and 5
Factorial of the largest number is=120
```

Explanation:

- **Line1** includes required library files to run the C language application.
- **Line2** importing the user-defined method, here getMyFactorial() is the method.
- **Line3** is the main method where the application starts from this main () method.
- **Line4** is an integer variable declaration for storing 2 integer numbers (non-decimal numbers).
- **Line5** is the asking user to enter 2 integer numbers text.
- **Line6** is stored in the entered 2 integer numbers within the scanf method with %d operator.
- **Line7** is the ternary operator compares to 2 integer numbers which is largest.
- **Line8** and **Line9** are used to print the largest integer number.
- **Line10** is calling getMyFactorial () with the largest number passed as the argument.
- **Line11** is printing the result of the circle area with the largest number as an argument.
- **Line12** is getMyFactorial () method declaration.
- **Line13** is factorial logic.
- **Line14** is returning the resultant value from the getMyFactorial () method.



Conclusion



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RECOMMENDED ARTICLES

This is a guide to Ternary Operator in C. Here we discuss an introduction to ternary operators along with the working and examples for better understanding. You may also look at the following articles to learn more –

1. Ruby Operators (<https://www.educba.com/ruby-operators/>)
2. Conditional Operator in C (<https://www.educba.com/conditional-operator-in-c/>)
3. C Literals (<https://www.educba.com/c-literals/>)
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