

This lesson is on control structure branching

**OVERVIEW**

The following are the coverage for Control structures - Branching

- Relational and Logical Operators
- if, if-else, if-else if-else Statement
- Nested if Statement
- The switch Statement
- Conditional Operator

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### **Basic C Programming**

There are 5 main sections to cover for Control structures (branching).

This video lesson focuses on the fifth part: conditional operator



Learning objectives

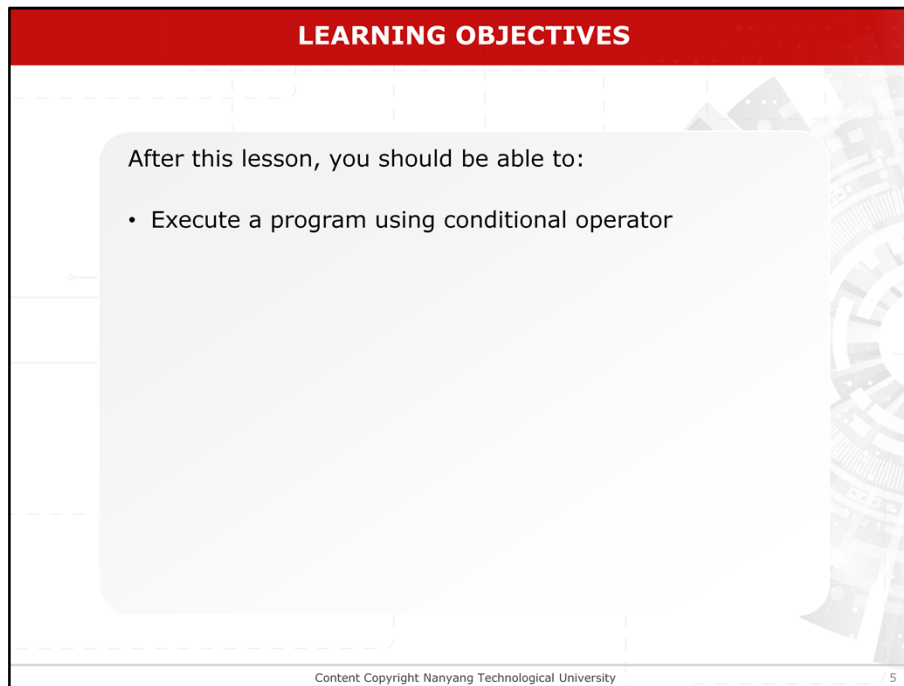
**LEARNING OBJECTIVES**

After this lesson, you should be able to:

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The slide features a red header with the text 'LEARNING OBJECTIVES'. Below the header is a large, light gray rectangular box with rounded corners, intended for listing learning objectives. The background of the slide has a faint, stylized architectural pattern on the right side. At the bottom, there is a small footer containing the text 'Content Copyright Nanyang Technological University' and the number '4'.

After this lesson, you should be able to:



**LEARNING OBJECTIVES**

After this lesson, you should be able to:

- Execute a program using conditional operator

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Execute a program using conditional operator

**THE CONDITIONAL OPERATOR**

The conditional operator is used in the following way:

```
expression_1 ? expression_2 : expression_3
```

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### Conditional Operator

The conditional operator is a ternary operator, which takes three expressions

**THE CONDITIONAL OPERATOR**

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### Conditional Operator

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**THE CONDITIONAL OPERATOR**

The conditional operator is used in the following way:

```
expression_1 ? expression_2 : expression_3
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### Conditional Operator

The conditional operator is a ternary operator, which takes three expressions



## THE CONDITIONAL OPERATOR

The conditional operator is used in the following way:

```
expression_1 ? expression_2 : expression_3
```

The value of this expression depends on whether **expression\_1** is true or false.

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### Conditional Operator

The value of this expression depends on whether **expression 1** is true or false.

### THE CONDITIONAL OPERATOR

The conditional operator is used in the following way:

```
expression_1 ? expression_2 : expression_3
```

If **expression\_1** is true  
=> the value of the expression is that of **expression\_2**

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If **expression 1** is true, the value of the expression becomes the value of **expression 2**,

### THE CONDITIONAL OPERATOR

The conditional operator is used in the following way:

```
expression_1 ? expression_2 : expression_3
```

If **expression\_1** is true  
=> the value of the expression is that of **expression\_2**  
Else  
=> the value of the expression is that of **expression\_3**

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If **expression 1** is true, the value of the expression becomes the value of **expression 2**,

### THE CONDITIONAL OPERATOR

For example:

```
max = (x > y) ? x : y;
```

For example, the maximum value of the two values **x** and **y** can be obtained using the above statement.

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For example, the maximum value of the two values **x** and **y** can be obtained using the statement shown

### THE CONDITIONAL OPERATOR

For example:

`max = (x > y) ? x : y;`

```
if (x > y)
    max = x;
else
    max = y;
```

The assignment statement is equivalent to the **if-else** statement shown

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13

For example, the maximum value of the two values **x** and **y** can be obtained using the statement shown

### THE CONDITIONAL OPERATOR

For example:

```
max = (x > y) ? x : y; <==>
```

```
if (x > y)
    max = x;
else
    max = y;
```

If  $x > y$ , maximum value is assigned to x

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If x is greater than y, maximum value is assigned to x.

### THE CONDITIONAL OPERATOR

For example:

`max = (x > y) ? x : y; <==>`

`if (x > y)  
 max = x;  
else  
 max = y;`

Else, maximum value is assigned to y

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If x is greater than y, maximum value is assigned to x.

**CONDITIONAL OPERATOR: EXAMPLE**

```
/* Example to show a conditional expression */
#include <stdio.h>
int main()
{
    int selection; /* User input selection */
    printf("Enter a 1 or a 0 => ");
    scanf("%d", &selection);

    /* write conditional operator code here */

    return 0;
}
```

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### Conditional Operator: Example

The program gives an example on the use of the conditional operator.



**CONDITIONAL OPERATOR: EXAMPLE**

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    scanf("%d", &selection);

    /* write conditional operator code here */

    return 0;
}
```

**Output**  
Enter a 1 or a 0 => **1**  
A one.

If **choice** is 1, then the string "**A one.**" will be printed.

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If **choice** is 1, then the string "**A one.**" will be printed.

### CONDITIONAL OPERATOR: EXAMPLE

```
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#include <stdio.h>
int main()
{
    int selection; /* User input selection */
    printf("Enter a 1 or a 0 => ");
    scanf("%d", &selection);

    /* write conditional operator code here */

    return 0;
}
```

**Output**  
Enter a 1 or a 0 => 0  
A zero.

Otherwise, the string "A zero." will be printed.

Otherwise, the string "A Zero." will be printed.

**CONDITIONAL OPERATOR: EXAMPLE**

```
/* Example to show a conditional expression */
#include <stdio.h>
int main()
{
    int selection; /* User input selection */
    printf("Enter a 1 or a 0 => ");
    scanf("%d", &selection);

    /* write conditional operator code here */

    return 0;
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```

Question: How could this be implemented using conditional operator?

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### Conditional Operator: Example

How could this be implemented using conditional operator?

**CONDITIONAL OPERATOR: EXAMPLE**

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### Conditional Operator: Example

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**CONDITIONAL OPERATOR: EXAMPLE**

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int main()
{
    int selection; /* User input selection */
    printf("Enter a 1 or a 0 => ");
    scanf("%d", &selection);

    selection ? printf("A one.\n") : printf("A zero.\n");
    return 0;
}
```

**Output**  
Enter a 1 or a 0 => **1**  
A one.

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### Conditional Operator: Example

The program gives an example on the use of the conditional operator.

**CONDITIONAL OPERATOR: EXAMPLE**

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/* Example to show a conditional expression */
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int main()
{
    int selection; /* User input selection */
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    scanf("%d", &selection);

    selection ? printf("A one.\n") : printf("A zero.\n");
    return 0;
}
```

**Output**  
Enter a 1 or a 0 => 0  
A zero.

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### Conditional Operator: Example

The program gives an example on the use of the conditional operator.

**SUMMARY**

By the end of this lesson you should be able to:

- Execute a program using conditional operator

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By the end of the lesson, you should be able to do the listed.