VIDEO 3 : CONDITIONAL OPERATORS

Every programming language has the ability to Conditionally Do One Thing or Another. We execute different code depending on different conditions using the keywords if, else and elif. Elif is a shortened way of saying else if.

It is easy to understand why conditional operators. Consider if you went to a restaurant and you were asked whether you want a Coke or a Pepsi. Based on your decision you would then be provided with your choice.

We will use conditional and logical operators in our conditions. Here are the conditional operators :

> : Greater than
< : Less than
>= : Greater than or equal to
<= : Less than or equal to
== : Equal to
!= : Not equal to

We write code that handles are drink question. Note that if, elif, and else are followed by a condition and then a colon. The code that follows is indented to show what code should be executed depending on the condition. It is important that the lines be indented exactly the same amount on each line.

I added a default condition with else, so that if the user wanted neither they would get water.

CODE

```
Drink = input("Pick One (Coke, or Pepsi) :")
If drink == "Coke":
        print("Here is your Coke")
Elif drink == "Pepsi":
        print("Here is your Pepsi")
else:
        print("Here is your water")
```

Python Problem for you to Solve

Taking what you have learned about conditional operators and previous videos, I want you to make a calculator. You'll accept 2 numbers separated by an operator. You'll then use conditional operators to determine what calculation to make. Here is sample output to model :

Enter Calculation : 5 * 6
5 * 6 = 30

Give it a go and see if you can solve the problem. Feel free to use the previous code covered in past videos if you need help. If you don't solve it, don't worry. The goal is only to get you to think in new ways and to understand the final solution.

CODE

Here is the solution :

CODE

```
# Store the user input of 2 numbers and an operator
num1, operator, num2 = input('Enter Calculation: ').split()

# Convert strings into integers
num1 = int(num1)
num2 = int(num2)

# If, else if (elif) and else execute different code depending on a condition
if operator == "+":
    print("{} + {} = {}".format(num1, num2, num1+num2))

# If the 1st condition wasn't true check if this one is
elif operator == "-":
    print("{} - {} = {}".format(num1, num2, num1 - num2))
elif operator == "*":
    print("{} * {} = {}".format(num1, num2, num1 * num2))
elif operator == "/":
    print("{} / {} = {}".format(num1, num2, num1 / num2))

# If none of the above conditions were true then execute this by default
else:
    print("Use either + - * or / next time")
```

Logical Operators

Logical operators can be used to combine conditions. The logical operators are :

and : If both are true it returns true
or : If either are true it returns true
not : Converts true into false and vice versa

I'll now write a program that will determine whether a birthday is important or not. I'll use the following criteria to determine that.

1 - 18 -> Important
21, 50, > 65 -> Important
All others -> Not Important

Solution

```
# Ask for the users age and cast to an integer
Age = int(input("Enter Age :")

# If age is both greater than or equal to 1 and less than or equal to 18 it is true
if (age >= 1) and (age <= 18):
    print("Important Birthday")

# If age is either 21 or 50 then it is true
elif (age == 21) or (age == 50):
    print("Important Birthday")
```

```
# We check if age is less than 65 and then convert true to false or vice versa
# This is the same as if we put age > 65
elif not(age < 65):
    print("Important Birthday")
else:
    print("Sorry Not Important")
```

2nd Python Problem for you to Solve

It's time for you to solve yet another problem. This time we'll determine what grade someone should go to depending on their age. Here is my criteria for determining grade :

1. If age 5 "Go to Kindergarten"
2. Ages 6 through 17 goes to grades 1 through 12 "Go to Grade 6"
3. If age is greater then 17 then say "Go to College"

Here is sample output :

```
Enter age : 6
Go to Grade 6
```

Try to complete this with 10 or less lines of code. Feel free to use previous code covered.

Solution

```
# Ask for the age
age = int(input("Enter age: "))

# Handle if age < 5
if age < 5:
    print("Too Young for School")

# Special output just for age 5
elif age == 5:
    print("Go to Kindergarten")

# Since a number is the result for ages 6 - 17 we can check them all
# with 1 condition
# Use calculation to limit the conditions checked
elif (age > 5) and (age <= 17):
    grade = age - 5
    print("Go to Grade {}".format(grade))

# Handle everyone else
else:
    print("Go to College")
```

Ternary Operator

The ternary operator is used to assign one value or another based on a condition. It follows this format condition_true if condition else condition_false

Here is sample code that determines if someone can vote based on their age.

CODE

```
Age = int(input(“What is your age?”)
can_vote = True if age >= 18 else False
print(“You can vote :”, can_vote)
```

That’s it for this video. Good job! In the next video we’ll cover the for loop, range, order of operations and more problems for you to solve.