Day 4

Date : 08/07/24

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Subject Python

Python Operators :-

→ Operators are used to perform operations on variables and values.

→ Python divides the operators in the following group:

- Arithmetic operators
- Assignment operators
- Comparision operators
- Logical operators
- Identity operators
- Membership operators
- Bitwise operators

Python Arithmetic Operators : Arithmetic operators are used with numeric values to perform common mathematical operations:

Operator	Name	Example
+	Addition	x + y
-	Subtraction	x - y
*	Multiplication	x * y
/	Division	x / y
%	Modulus	x % y
**	Exponentiation	x ** y
//	Floar Division	x // y

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Python Assignment operators: Assignment Operators are used to assign values to variables. This operator is used to assign the value of the right side of the expression to the left side operand.

Operator	Example	Same As
=	x = 5	x = 5
+=	x += 3	x = x + 3
-=	x -= 3	x = x - 3
*=	x *= 3	x = x * 3
/=	x /= 3	x = x / 3
%=	x %= 3	x = x % 3
//=	x //= 3	x = x // 3
**=	x **= 3	x = x ** 3
&=	x &= 3	x = x & 3
|=	x |= 3	x = x | 3
^=	x ^= 3	x = x ^ 3
>>=	x >>= 3	x = x >> 3
<<=	x <<= 3	x = x << 3
:x	print(x := 3)	x = 3 print(x)

Comparision Operators:

Comparision Operators are used to compare two values:

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Operator	Name	Example
==	Equal	x == y
!=	Not Equal	x != y
>	Greater than	x > y
<	Less than	x < y
>=	Greater than or equal	x >= y
<=	Less than or equal	x <= y

CONDITIONAL STATEMENTS :- Conditional statements are statements in Python that provide a choice for the control flow based on a condition. It means that the control flow of the Python program will be decided based on the outcome of the condition.

⇒ Types of Conditional Statements in Python :-

① If conditional statement in Python : If the simple code of block is to be perform if the cond^{n} holds then the if statement is used. Here the condition mentioned holds then the code of the block runs otherwise not.

```
if condition :
    # statement to execute if
    # condition is true
```

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② If Else Conditional Statements in Python: In a cond'al if statement the additional block of code is merged as an else statement which is performed when if condⁿ is false.

```
if (condition):
    # Executes this block if
    # condⁿ is true
else:
    # Executes this block if
    # condⁿ is false
```

③ Nested if... else conditional statements in Python:

Nested if... else means an if.. else statement inside another if statement. for ex:

```
letter = "A"
if letter == "B":
    print ("letter is B")
else:
    if letter == "C":
        print ("letter is C")
    else:
        if letter == "A":
            print ("letter is A")
        else:
            print ("letter isn't A, B and C")
```

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① If - elif - else Conditional Statements in Python:

The if statements are executed from the top down. As soon as one of the conditions controlling the if is true, the statement associated with that if is executed, and the rest of the ladder is bypassed. If none of the conditions is true, then the final "else" statement will be executed.

```
if condition:
    # execute if condn is true
elif condition:
    # execute if condn is true
elif condition:
    # execute if condn is true
else:
    # execute if above all condn are false.
```

Ternary Expression Conditional Statements in Python:

The Ternary Expression is useful in cases where we need to assign a value to a variable based on a simple cond.n, we want to keep our code more concise - all in just one line of code.

```
[on_true] if [expression] else [on_false]
```

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Python Logical Operators: Logical operators are used to combine conditional statements:

Operator	Description	Example
and	Returns True if both statements are True	x<5 and x<10
or	Returns True if one of the statements is True	x<5 or x<10
not	Reverse the result, returns false if the result is True	not(x<5 and x<10)

Python Membership Operators: Membership operators are used to test if a sequence is present in an object:

Operator	Description	Example
in	Returns True if a sequence with the specified value is present in the object	x in y
not in	Returns True if a sequence with the specified value is not present in the object	x not in y