PYTHON PROGRAMMING

UNIT -1 :Introduction to Python

Lec-4

Today's Target

- Global and local variable
- Operator Precedence and Associativity
- Single line block and multi line block
- AKTU PYQs

Gateway classes

Difference between-

	GLOBAL VARAIBLE	LOCAL VARAIBLE
Definition	Declared outside the functions.	Declared within the functions.
Data Sharing	It Offers Data Sharing.	It doesn't offers Data Sharing.
Scope	It can be access throughout the code.	It can access only inside the function.
Lifetime	They are created when the execution of the program begins and are lost when the program is ended.	They are created when the function starts its execution and are lost when the function ends.
Value	Once the value changes it is reflected throughout the code.	once changed the variable don't affect other functions of the program.

GATEWAY CLASSES
Gateway classes

Local variable

```
1  def a():
2      y = 5
3      print(y)
4
5  a()
6  print(y)
```

input

```
5
Traceback (most recent call last):
  File "/home/main.py", line 6, in <module>
    print(y)
NameError: name 'y' is not defined
```

Global Variable

```
1  x = 10
2  def a():
3      print(x)
4
5  a()
```

```
10
```

GATEWAY CLASSES
Gateway classes

Operator precedence and associativity

- In Python, operators have different levels of precedence, which determine the order in which they are evaluated.
- When multiple operators are present in an expression, the ones with higher precedence are evaluated first.
- In the case of operators with the same precedence, their associativity comes into play, determining the order of evaluation

Precedence	Operator Sign	Operator Name
Highest	**	Exponentiation
	+x, -x, ~x	Unary positive, unary negative, bitwise negation
	*, /, //, %	Multiplication, division, floor, division, modulus
	+, -	Addition, subtraction
	<<, >>	Left-shift, right-shift
	&	Bitwise AND
	^	Bitwise XOR
	|	Bitwise OR
	==, !=, <, <=, >, >=, is, is not	Comparison, identity
	not	Boolean NOT
	and	Boolean AND
Lowest	or	Boolean OR

Gateway Classes

Precedence	Operators	Description	Associativity
1	( )	Parentheses	Left to right
2	x[index], x[index:index]	Subscription, slicing	Left to right
3	await	Await expression	N/A
4	**	Exponentiation	Right to left
5	+x, -x, ~x	Positive, negative, bitwise NOT	Right to left
6	*, @, /, //, %	Multiplication, matrix, division, floor division, remainder	Left to right

GATEWAY CLASSES
Gateway classes

Precedence	Operators	Description	Associativity
7	+, –	Addition and subtraction	Left to right
8	<<, >>	Shifts	Left to right
9	&	Bitwise AND	Left to right
10	^	Bitwise XOR	Left to right
11	|	Bitwise OR	Left to right
12	in, not in, is, is not, <, <=, >, >=, !=, ==	Comparisons, membership tests, identity tests	Left to Right

GATEWAY CLASSES
Gateway classes

Precedence	Operators	Description	Associativity
13	not x	Logical/Boolean NOT	Right to left
14	and	Logical/Boolean AND	Left to right
15	or	Logical/Boolean OR	Left to right
16	if-else	Conditional expression	Right to left
17	lambda	Lambda expression	N/A
18	:=	Assignment expression (walrus operator)	Right to left

GATEWAY CLASSES
Gateway classes

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GATEWAY CLASSES

```
print(2**3**2)# right to left associativity
print(2<<3<<2)#left to right associativity
print(2<3<3>7)#left to right
print(3==3==2)#left to right associative
print(2 or 3)
print(2 or 3 or 5)#left to right
print(2 and 5 and 6)#left to right
print(2 and 5 and 2)
print(2 and 0 and 5)
print(not(not(2)))
```

```
512
64
False
False
2
2
6
2
0
True
```

Gateway classes

Solve the following question

a & b << 2 // 5 ** 2 + c ^ b

a=3,b=5,c=10

3&5<<2//5**2+10^5

((1) ** (2) // (3) + (4) << (5) & (6)^ precedence)

3& 5<<2//25+10^5

3&5<<0+10^5

3&5<<10^5

3&5120^5

0^5=5

(Note a ^0=a and a^1=a')

Solve the following question

a**2<<2>>b**2^c**3

a=3, b=5,c=10

Precedence 1)**(right to left)

2)<<,>>(left to right)

3)^(left to right)

3**2<<2>>5**2^10**3

3**2<<2>>5**2^1000

3**2<<2>>25^1000

9<<2>>25^1000

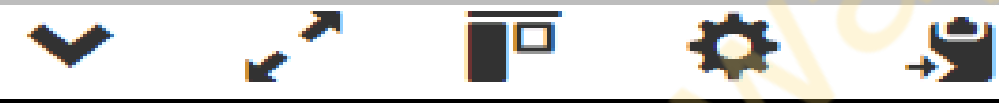
36>>25^1000

0^1000=1000

Gateway classes

What will the output of the program (AKTU2020-21)

```
1  a=0
2  b=2
3  c=3
4  x=c or a
5  print(x)
```



```
3
```

GATEWAY CLASSES
Gateway classes

Questions

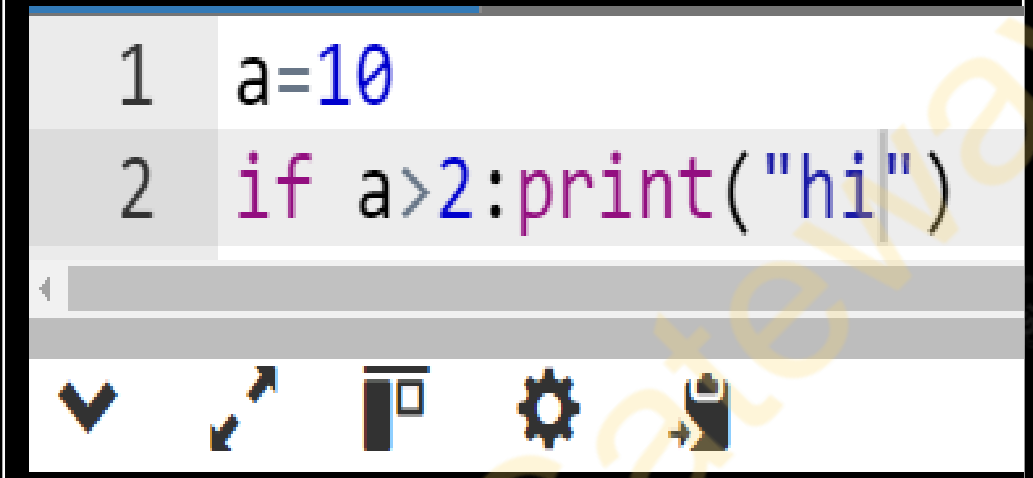
```
l1=[1,2,3,4,5]
print(l1[0:3])
print(l1[3:0])
print(l1[2:-1])
print(l1[-1:-2])
print(l1[0:4:2])
print(l1[1:4:-1])
print(l1[-4:-1:2])
print(l1[-4])
```

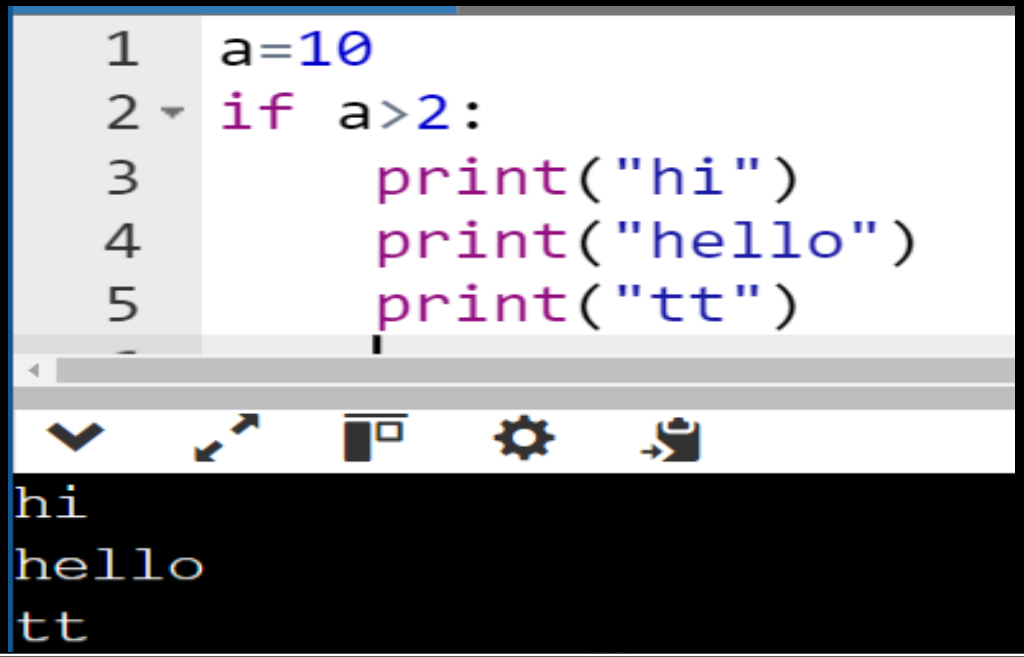
```
[1, 2, 3]
[]
[3, 4]
[]
[1, 3]
[]
[2, 4]
```

GATEWAY CLASSES
Gateway Classes

Difference between-

Single-line block	Multi-line block
Code is written in a single line.	Code spans multiple lines with proper indentation.
Might be more challenging to identifying and fix error within a single line	Easier to identify and correct error due to the structured layout





GATEWAY CLASSES
Gateway classes



Gateway Classes