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→ Operaters :-

operaters are the special Symbols which performs certain operations between two operands

Ex = S = 5 + 6 — S, 5, 6 = operands.

S1 = 11 — =, + = operaters.

*) Different types of operaters :-

1) Arathmic operaters :-

+ = for adding
- = for Substrating.
* = for Multipication.
/ = for division
// = for division but without desimal number only whole.
** = for power.
% = for percentage.

2) Assignment operaters :-

= :- for declering the value
+= = for adding and declearing value at Sametime
-= = for Substracting " " " " "
/= = for dividing " " " " "
//= = for for output in whole Number " " " " "
**= = for power and declearing " " " " "
%= = for percentage " " " " " "

3) Logical operaters :-

and, or, not

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a	b	and	or
false	false	false	false
false	True	false	True
True	false	false	True.
True	True	True	True.

⇒ a = 34
b = 23

a == b and a != b. (and)
o/p = false.

a == b ~~and~~ or a != b. (or)
o/p = True.

4) Relational / Comparision operaters :-

==, !=, <, >, <=, >=

this is mainly used for Making the output in true or false.

5) Bitwise operaters :-

2^n - - -	2^5	2^4	2^3	2^2	2^1	2^0		
	32	16	8	4	2	1		0bit = 1
	0	0	0	0	0	0	= 0	1bit = 2.
	0	0	0	0	0	1	= 1	2bit = 4
	0	0	0	0	1	0	= 2	3bit = 8.
	0	0	0	0	1	1	= 3	4bit = 16
	0	0	0	1	0	0	= 4	5bit = 32
	0	0	0	1	0	1	= 5	"
	0	0	0	1	1	0	= 6	"

etc

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Eg = 13 = 1 1 0 1

9 = 1 0 0 1

36 = 1 0 0 1 0 0

2 = 1 0

4 = 1 0 0

50 = 1 1 0 0 1 0

=> 9 >> 2 = 2 :- $2^3\ 2^2\ 2^1\ 2^0$

9 = 1 0 0 1 = 9

0 1 0 0 1 = 4

0 0 1 0 0 1 = 2. The Arrow is two Shift to Right.

=> 9 << 2 = 36 :- $2^5\ 2^4\ 2^3\ 2^2\ 2^1\ 2^0$

9 = 1 0 0 1 = 9

1 0 0 1 0 = 18

1 0 0 1 0 0 = 36.

the arrow is two shift to left

6) Membership operaters :-

in , not in

Ex = l1 = [3, 6, 9, 12, 15, 18, 46, 57].

452 not in l1 = o/p = True.

452 in l1 = o/p = false.

7) Identity operaters :-

is , is not

a = 5 a is b = o/p = false

b = 8 a is not b = o/p = True

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→ Conditional Statements :-

for Conditional based results we will use this

there are different types of Condition Statement

if Statement :-

```
if (Condition):
    Statement
```

if else Statement :-

```
if (condition):
    if Statement
else:
    else Statement
```

Eg:- Take input of age from user & if the Age is greater than 21 they give the output as eligible or then not eligible.

```
age = int (input ("enter your age"))
if (age > 21):
    print ("you are eligible")
else:
    print ("you are not eligible")
```

In = 29

o/p = your are eligible.

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% = this is modulies.

even number = num %==0
odd number = num %!=0

Ex: Take the input of a number & check weather the given number is even or odd number.

```
num = int(input("enter a number"))      In = 52.
if(num %==0):
    print("this is a even number")
else:
    print("this is a odd number")       o/p = even number
```

Note =
+ or - number that is even or odd number.

ex = write a programm to check that given number is dividible by 5 or not

```
num = int(input("enter a number"))      In = 45
if(num %5==0):
    print("its dividible by5")
else:
    print("its not dividesble by 5")    o/p = its dividble by5
```

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⇒ if else Ladder / Countines if else.

```
if (condition):
    if statement of Cond 1
else :
    if (condition2):
        if Statement of Cond 2.
    else:
        if (Condition 3):
            if statement of Cond 3
```

⇒ if elif

```
if (condition 1):
    Statement of Cond1
elif (Condition 2):
    Statement of Cond 2.
elif (Condition 3):
    Statement of Cond 3.
        -
        -
        -
        -
else.:
    default Statement.
```

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ex = take a input of percentage and by that give the output like.

100 - 85 % = distinction
84 - 60 % = first class
59 - 50 % = Second class
49 - 35 % = Third class
35 > = fail

```
percentage = float(input("enter your percentage"))
if (percentage >85 and percentage <=100):
    print("distinction")
elif (percentage <84 and percentage >60):
    print("first class")
elif (percentage <59 and percentage >50):
    print("Second class")
elif (percentage <49 and percentage >35):
    print("third class")
else:
    print("fail")
```

In = 32.

o/p = fail

ex = write a program to check the given number is. a +ve, -ve, zero.

```
num = int(input("enter a number"))
if (num >0):
    print("its as postive number")
elif (num <0):
    print("its a negative number")
else:
    print its a number.
```

In = -4856

o/p = its a negative number.

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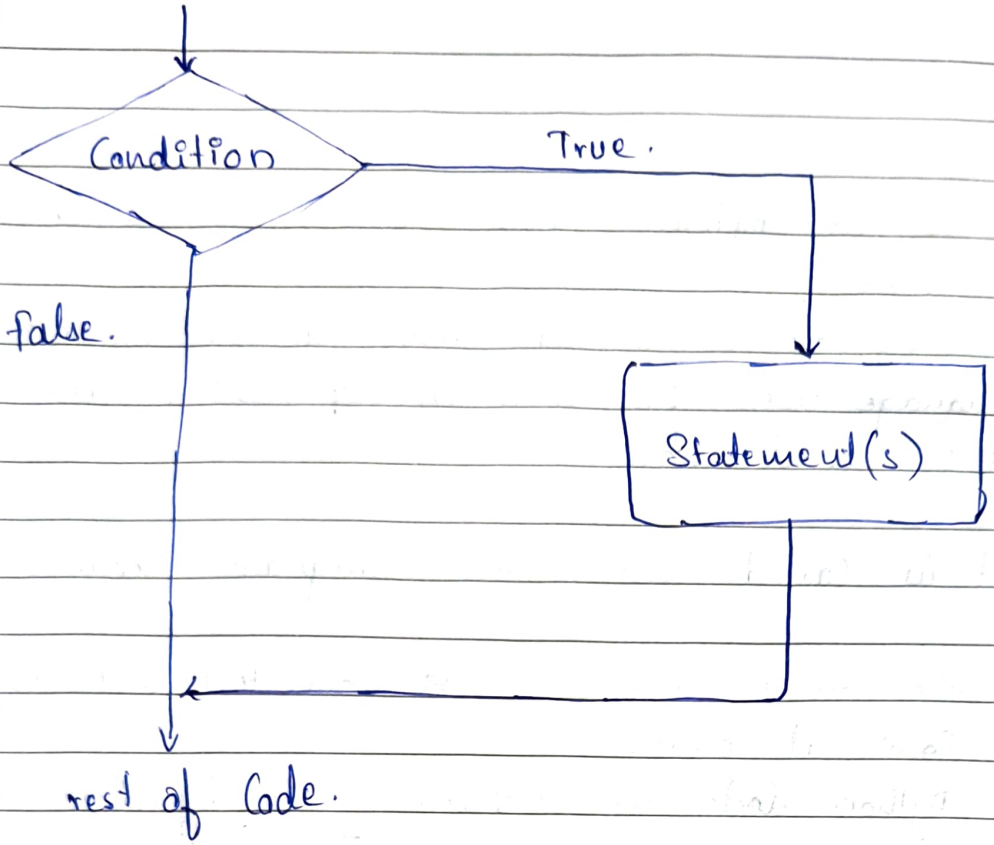
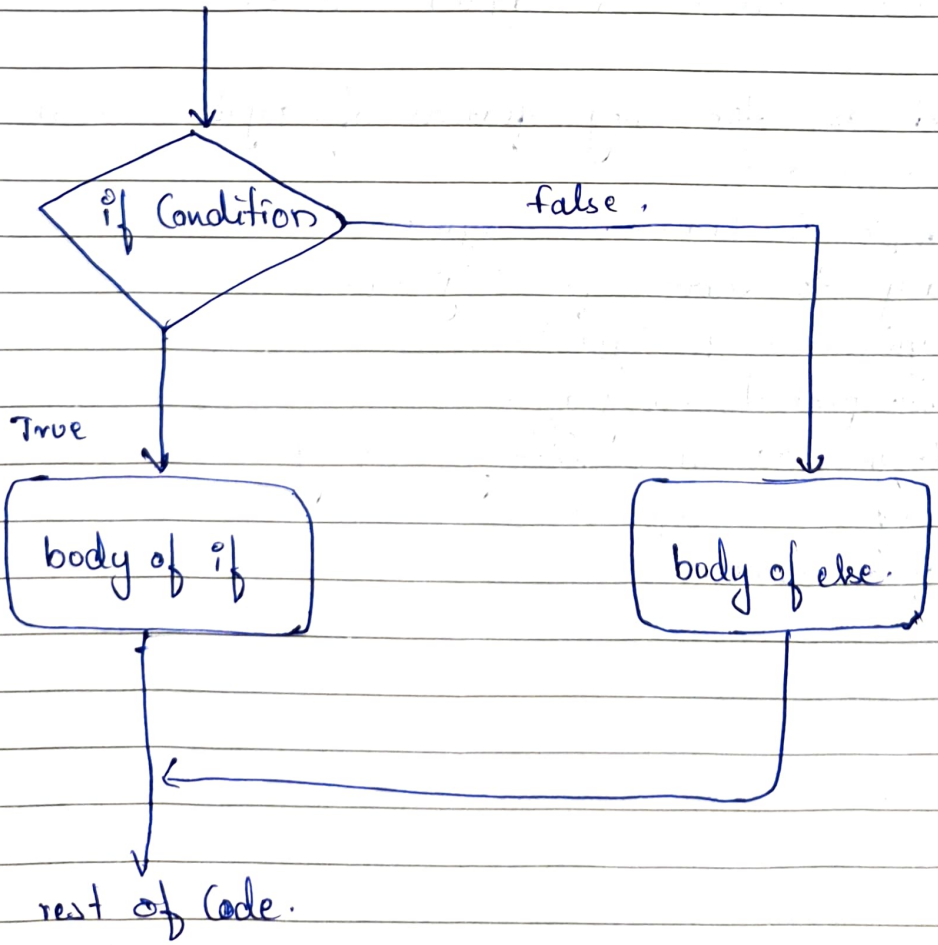

Condition
True.
false.
Statement(s)
rest of Code.


if Condition
false.
True
body of if
body of else.
rest of Code.

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Work :-

1) what is python and why is it called interpreted Language ?

→ python is a high level, general-purpose programming Language used for web development, data analysis, AI and more.

It is called interpreted Language because.

* the Source Code is not Converted into machine Code at once.
* Python Code is executed line by line.
* Error are shown ~~immediatly~~ immediddly during execution.
* this makes debugging easier.

2) what are the key features of python that makes it popular ?

→ *) Symple & Readable Synten.
*) easy to learn for beginners.
*) Dynamically typed.
*) Interpreted Language.
*) Large standard ~~litery~~ libery.
*) platform independent
*) open Source.

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3) what is different between python 2 & python 3.

	Python 2	Python 3.
feature	it is Released in the year. 2000	it is Released in year. 2008
unicode. Support	the code is limited	full unicode.
Libraries	Most libraries no large. Support	fully Supported and. updated libraries
Exception handling	Except, Exception	Except Exception ase.
Range function	Range() return a list	range() return an iterator (memory efficient)
print Statement	print "Hello"	print ("Hello")

4) what are python's application in real world project

→ *) web development.
*) data Analysis
*) AI
*) Cyber Security
*) Game development
*) desktop Application
*) Automation & Scripted.

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5) what is PEP 8 & why is it important

→ PEP 8 = Stands python Enhancement proposal 8

it is a style guide that defines code formating variable naming, indentation, line length.

Importance :- *) it makes code readable.
*) Helps teams follow Consisted Coding Standards.
*) Improves maintainability.

6) who developed python & when was it relased ?

→ Developed by "Guido van Rassum" and first relased in 1991

7) what does 'dynamically typed' means in python

→ it means you do not need to declare variable data type.
the type is decleared at runtime.

ex = x = 10 → Intiger.
y = "Hi" → String

8) Difference b/w Compiler & Interpreter (which python use)

→

Compiler	Interpreter
• Translate whole program at once.	• Execute code line by line
• Error shown after Complidon	• Error shown immediatly.
• faster exeecution	• Slower excecution

*) python uses an Interpreter.