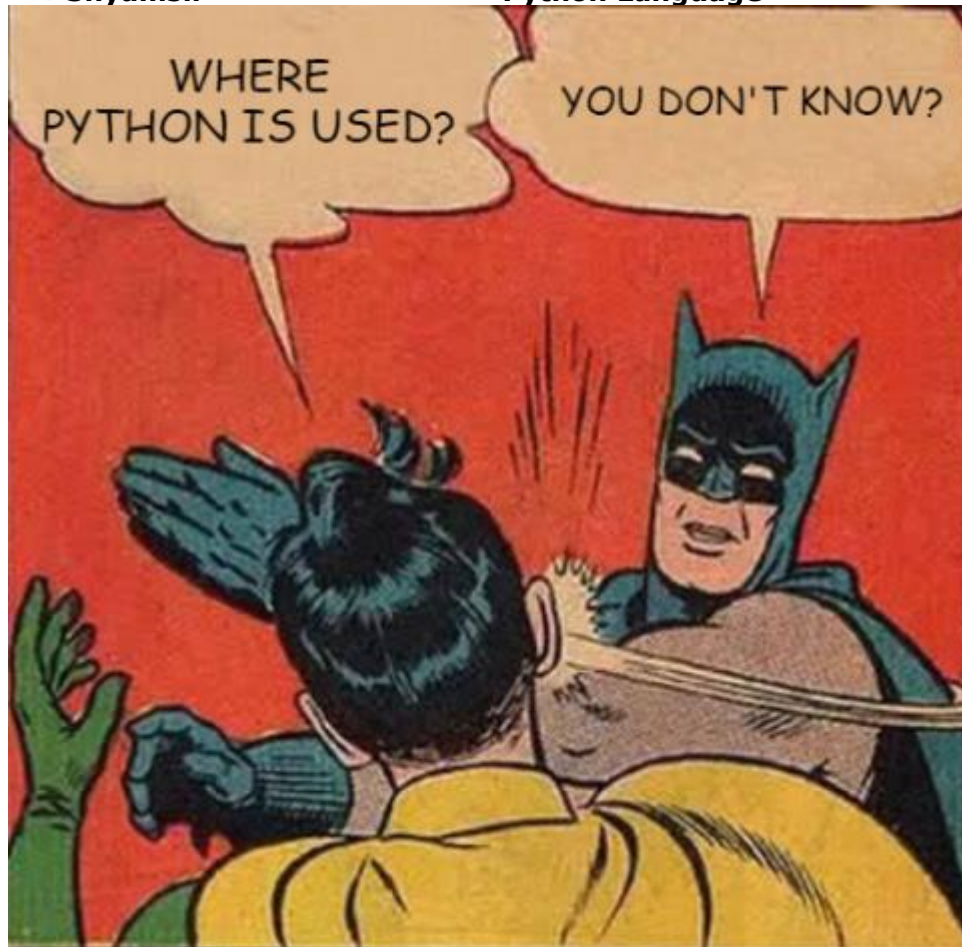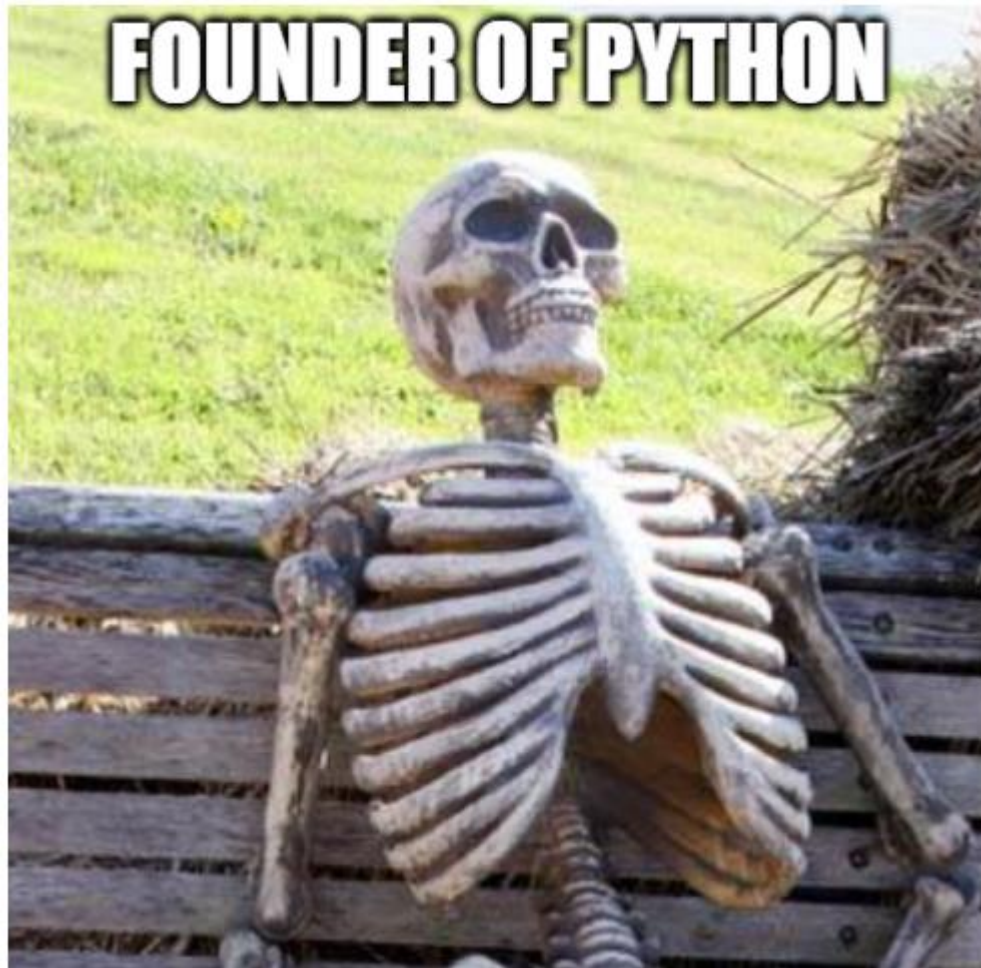Python is a coding language

Python is an interpreted, object-oriented, high-level programming language.

1. Web development
2. Desktop app and software development
3. Processing big data and performing mathematical computations
4. System scripting.
5. Machine Learning and AI

In 1980s, by **Guido van Rossum** at Centrum Wiskunde & Informatica (CWI) in the Netherlands as a successor to the ABC programming language.

Examples#

```
1    print("Hello")
2    print("Hello\nhi")
3    print("hello\thow are u?")
4    a=5
     print(a)
     print("a")
     print("No = ",a)
5    a=50
     b=10
     print("Add = ",a+b,"Sub=",a-b)
```

What is Variable?

Variable

Storage Area,
Place holder

rollno=5
name="ram"
englishmarks=23

You can store
numbers, text , etc

Rules of Variable

A VARIABLE NAME MUST START WITH A LETTER OR THE UNDERSCORE CHARACTER.

THE RESERVED WORDS(KEYWORDS) CANNOT BE USED NAMING THE VARIABLE.

A VARIABLE NAME CAN ONLY CONTAIN ALPHA-NUMERIC CHARACTERS AND UNDERSCORES A-Z, 0-9, AND _

VARIABLE NAMES ARE CASE-SENSITIVE (NAME, NAME AND NAME ARE THREE DIFFERENT VARIABLES).

Basic expression programs:

1. Write a program to print "HELLO WORLD"

    Hint print("…

2. Write a program to print "Name and Address"

    Hint print("…

3. Write a program to print no and its square.

    Hint a=5
    print("

4. Write a program to take two numbers and print Addition, Multiplication, Subtraction, Division.

    Hint a=20 , b=2
    print
    print
    print
    print

5. Write a program to find the area of a circle (3.14*r*r)

    Hint r=10
    print(

6. Write a program to calculate simple interest using I = PRN/100 (P= Principle amount, R = Rate of Interest, N = Number of Years)

    Hint p=10000,r=2,n=2
    print(

7. Write a program to find the area of a Triangle (0.5*H*B)

    Hint H=100,B=200
    print(

Take value from the user

a=5
name="rahul"

a=int(input("Enter
no =>"))
name=input("Enter
name =>"))

Input/Output programs:

1. Write a program to print no and its square.

    Hint a=int(input(…..
    print(…

2. Write a program to take two numbers and print Addition, Multiplication, Subtraction, Division.

    Hint a=int(input(…. , b=int(input(….
    print(

3. Write a program to find the average temperature of five sunny days.

    Hint day1=int(input(… , day2,day3,day4,day5
    print

4. Write a program to find the area of a circle (3.14*r*r)

    Hint r=float(input(…

5. Write a program to calculate simple interest using I = (P*R*N)/100 (P= Principle amount, R = Rate of Interest, N = Number of Years)

    Hint p=float(input(, r= float(input(, n = float(input(
    print("Interest =

6. Write a program to find the area of a Triangle (0.5*H*W)

    Hint h=float(input(, w= float(input(
    print("Area of Triangle =

7. Convert meter to centimetre

    Hint meter=float(input(
    print("Centimetre =

8. Write a program to enter the temperature in feranhit and convert it to Celsius.[C=(f-32)*5/9]

    Hint f=float(input(
    print("Celsius =

9. Write a program to calculate Gross Salary and Net Salary print Grade of employee

Gross Salary = basic + da + hra + ma + ltc + va

BASIC = 8000	ma= 10% of basic
da = 52% of basic	ltc= 5% of basic
hra= 10% of basic	va= 10% of basic

Net **Salary = Gross Saiary** - PF

```
Hint
salary=int(input("Enter Salary
Da=salary*
Ma=
Hra=
Va=
Netsalary=
print("Final Salary =>
```

10. Write a program to swap contents of the two variables

```
Hint a=int(input( , b=int(input
print("Before swap a = ",a ," b = ",b)
logic..
print("After swap a = ",a ," b = ",b)
```

11. Write a program to swap contents of the two variables without use of third variable

```
Hint a=int(input( , b=int(input
print("Before swap a = ",a ," b = ",b)
logic..
print("After swap a = ",a ," b = ",b)
```

Operators

Arithmetic Operators

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

Logical Operators

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 < 4
Not	Reverse the result, returns False if the result is true	not(x < 5 and x < 10)

Comparison Operators

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

Assignment Operators

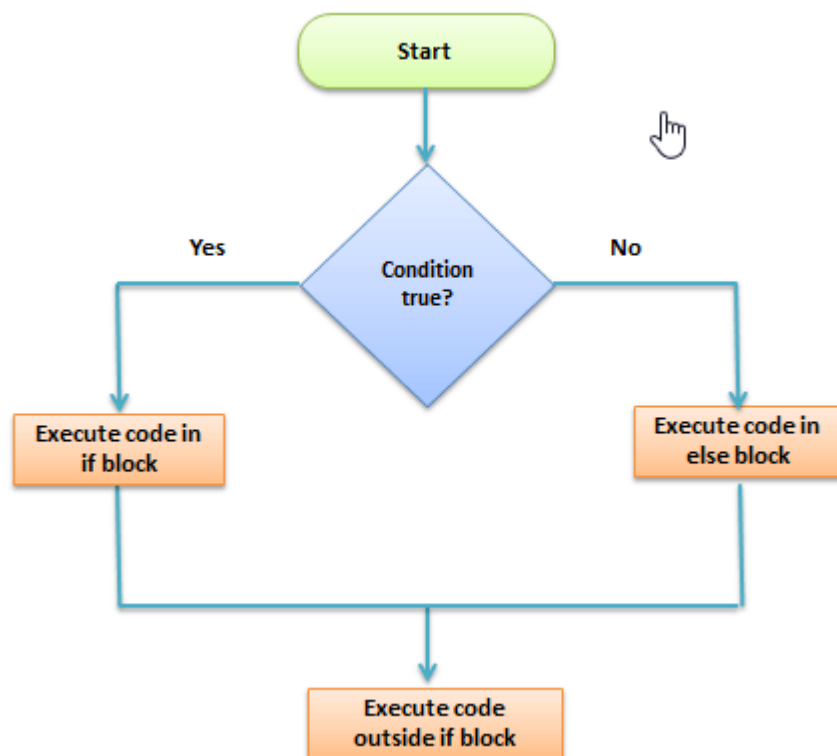| Operator	Example	Same As
=	x = 5	x = 5
+=	x += 3	x = x + 3
-=	x -= 3	x = x - 3
*=	x *= 3	x = x * 3
/=	x /= 3	x = x / 3
%=	x %= 3	x = x % 3
//=	x //= 3	x = x // 3
**=	x **= 3	x = x ** 3
&=	x &= 3	x = x & 3
|=	x |= 3	x = x	3
^=	x ^= 3	x = x ^ 3

What is Conditional/Decision making Statements in Python?

Operators or say conditions

- Equals: a == b
- Not Equals: a != b
- Less than: a < b
- Less than or equal to: a <= b
- Greater than: a > b
- Greater than or equal to: a >= b
- Divisible by: a%7==0

If else programs

1) Find out Maximum between 2 values
   (Example : Enter no1 => 22 , Enter no2 =>33 then output will be 33 is max)

2) Enter one value and check whether that no is 5 or not?
   (Example : Enter no => 5, Yes no is 5 , if 6 then Sorry no is not 5)

3) Enter one value and check whether that no is greater than 5 or not?
   (Example : Enter no => 57, Yes no is > 5 , if 3 then Sorry no is <5)

4) Write a C program to accept two integers and check whether they are equal or not.
   (Example : Enter no1 => 57, Enter no2 => 57
   Yes both are equal)

5) Write a C program to read the age of a candidate and determine whether it is eligible for casting his/her own vote.
   (Example : Enter your age => 16
   Sorry you are not eligible for vote)

6) Find out whether the given no is positive or negative
   (Example : Enter no => 22 then output will be 22 is positive , -3 is negative , no is 0)

7) Find out whether the give no is odd or even or 0.
   (Example : Enter no => 22 then output will be 22 is even , 23 is odd , no is 0)

8) Enter 3 subjects marks , print total , and if total>50 then display Pass else display Fail
   (Example : Enter marks of Hindi => 22 Enter marks of English =>30 Enter marks of SS => 35 then output will be Your total 117 , you are pass)

9) Enter 3 subjects marks , print total , and if total is between 0-50 then display C grade , 50-100 B grade and > 100 then A grade
   (Example : Enter marks of Hindi => 22 Enter marks of English =>30 Enter marks of SS => 35 then output will be Your total 117 ,you got A grade)

10) Write a C program to find the largest of three numbers.
    (Example: Enter no1 => 12 Enter no2 =>25 Enter no3 => 52
    Output will be
    The 3rd Number is the greatest among three

11) Write a C program to find whether a given year is a leap year or not.
    (Example: Enter year => 2020 , Output will be Year is leap year)

12) Write a Python program to input any alphabet and check whether it is vowel or consonant.
    (Example: Enter character => a
            It's a vowel)

13) Write a Python program to input week number and print week day.
    (Example: Enter week number => 2
            Tuesday)

14) Write a Python program which takes two values and choice 1 2 3 4 , if user press 1 then display addition , 2 for subtraction , 3 for multiplication , 4 for division.
    (Example: Enter no1 => 22

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Enter no2 => 2
Enter 1 for Add
Enter 2 for Sub
Enter 3 for Mul
Enter 4 for Div
Enter =>2
Output : 24)

15) Write a Python program which takes two values and choice + - * / , if user press
+ then display addition , - for subtraction , * for multiplication , / for division.
(Example: Enter no1 => 22
Enter no2 => 2
Enter + for Add
Enter - for Sub
Enter * for Mul
Enter / for Div
Enter =>-
Output : 24)