

PYTHON

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HISTORY

- Guido Van Rossum
- Amoeba distributed operating system group
- Rossum was fan of a comedy series from late seventies.



| Version | Release Data |
|--|--|
| Python 1.0 (first standard release) Python 1.6 (Last minor version) | January 1994 September 5, 2000 |
| Python 2.0 (Introduced list comprehensions) Python 2.7 (Last minor version) | October 16, 2000 July 3, 2010 |
| Python 3.0 (Emphasis on removing duplicative constructs and module) Python 3.5 (Last updated version) | December 3, 2008 September 13, 2015 |

WHO USE PYTHON?

- **Google** - Python is one of the key language used in google.
- **Philips** - Philips uses Python for the sequencing language
- **Quora** - Quora also chose Python for its development
- **NASA** - Johnson Space center uses Python in its Integrated Planning System as the standard scripting language
- **Walt Disney Feature Animation** - Walt Disney Feature Animation is also using Python to make their animation production system more efficient in scripting.
- **Instagram** - Instagram also uses Python for its backend
- **YouTUBE , DropBox, Pinterest**

APPLICATION OF PYTHON

Web Applications

- You can create scalable Web Apps using frameworks and CMS (Content Management System) that are built on Python.
- Some of the popular platforms for creating Web Apps are:
- Django, Flask, Pyramid, Plone, Django CMS.

APPLICATION OF PYTHON

- **Scientific and Numeric Computing**
- There are numerous libraries available in Python for scientific and numeric computing.
- There are libraries like: SciPy and NumPy that are used in general purpose computing. And, there are specific libraries like: EarthPy for earth science, AstroPy for Astronomy and so on.

APPLICATION OF PYTHON

- **Scientific and Numeric Computing**
- machine learning, data mining and deep learning.

APPLICATION OF PYTHON

- **Image Processing and Graphic Design Applications:**
- Python has been used to make 2D imaging software such as Inkscape, GIMP, Paint Shop Pro and Scribus.

APPLICATION OF PYTHON

- **Games**
- Python has various modules, libraries and platforms that support development of games.
- PySoy is a 3D game engine supporting Python 3, and PyGame provides functionality and a library for game development.

2 REASONS TO CHOOSE PYTHON AS FIRST LANGUAGE

- Easy to write
- It's easier to understand and write Python code.
- `print("Hi")`
- `A=5`

2 REASONS TO CHOOSE PYTHON AS FIRST LANGUAGE

- **Not overly strict**
- There is not need to define the type of a variable in Python.
- No semicolon at the end of the statement.
- Python enforces us to proper indentation.

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ADVANTAGES

Interpreted

Object-Oriented

Portable

Extendable

print

```
print ("Hello World!")  
print ("I am Shyam Sir")  
print ("Hum hai rahi pyar ke!!!!")  
print "Hi!!!!"
```

print

```
x=5
```

```
y=20
```

```
print("X = ",x,"Y = ",y)
```

```
print("Add = ",(x+y))
```

```
print("Sub = ",(x-y))
```

```
print("Multi = ",(x*y))
```

```
print("Div = ",(x/y))
```

print

```
x,y,z=10,"ram",20  
x=y=z=200
```


print

```
a = "Hey All of you"
```

```
b = 100
```

```
pi = 3.14
```

```
print("Type of A = ",type(a))
```

```
print("Type of B = ",type(b))
```

```
print("Type of PI = ",type(pi))
```

Identifiers rules

Identifiers can be a combination of letters in lowercase (a to z) or uppercase (A to Z) or digits (0 to 9) or an underscore (_).

myClass, a_l ,firstName_last_name

Keyword should not be used as an identifier name

Identifiers are unlimited in length.

Case is significant.



**KEEP
CALM
AND
FOLLOW
RULES**

Keywords

| | | | | |
|--------|----------|---------|----------|--------|
| False | class | finally | is | return |
| None | continue | for | lambda | try |
| True | def | from | nonlocal | while |
| and | del | global | not | with |
| as | elif | if | or | yield |
| assert | else | import | pass | |
| break | except | in | raise | |

Variable

x=y=z=50

del x,y,z

a,b,c=5,10,"ram"

name='ram'

a='Raj'

Pi=3.14

Standard Data Types

Numbers - int ,long , float , complex

String

List

Tuple

Dictionary

Some

$$\text{total} = a + \backslash$$
$$b + \backslash$$
$$c$$

$$\text{total} = (1 + 2 + 3 +$$
$$4 + 5 + 6 +$$
$$7 + 8 + 9)$$

Some

word = 'word'

sentence = "This is a sentence."

**paragraph = """Multiline
statements you can write here"""**

Comments

Single Line Comment

**print "Hello, Python!" # Single Line
Comment**

#Multiline Comment

#Multiline Comment

#Multiline Comment

Operators

Arithmetic Operators

Comparison (Relational) Operators

Assignment Operators

Logical Operators

Bitwise Operators

Membership Operators

Identity Operators

Arithmetic Operators

$a+b, a-b, a*b, a/b, a\%b$

ab exponential**

$9//2 = 4$ and $9.0//2.0 = 4.0$ Floor

Division

Arithmetic Operators

$a+b, a-b, a*b, a/b, a\%b$

ab exponential**

$9//2 = 4$ and $9.0//2.0 = 4.0$ Floor

Division

Comparison Operators

<

>

==

!=

>=

<=

Logical Operators

and or not

Identity Operators

```
x = 'Hello world'
```

```
print('H' in x)
```

```
print('hello' not in x)
```

String

```
X="Ram"
```

```
Y="Laxman"
```

```
Z=x+" " + y
```

```
X="Khadak sing ke khdak ne se"
```

```
print(X[2]) //slice function
```

```
print(X[0:2])
```

```
print(X[0:5])
```

```
print(X[2:])
```

```
print(X[-2])
```

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```

```
print(X[-2])
```


String

X="Ram"

Y='Ram'

X="Ram\'s"

Y='Ram\'s'

Place Holders

```
sen="Hello %s,Good Morning"  
print(sen%('Ram')) //placeholder
```

```
arr=['Ram','Laxman','Jack']  
for i in arr:  
    print(sen%(i))
```

```
sen="Hello %s %s,Good Morning"  
print(sen%("Narendra","Modi"))  
sen="I am %s and my age is %d"  
sen%("Ram",21)
```

If ...elif...else

If ...elif...else

```
a=int(input("enter the value"));
b=int(input("enter the value"));
c=int(input("enter the value"));
if(a>b and a>c):
    print("a is max",a)
elif (b>a and b>c):
    print("b is max",b)
else:
    print("c is max",c)
```

For...loop

```
a=int(input("enter the value"));  
for b in range(1,11):  
    print(b);
```

```
for val in "string":  
    if val == "i":  
        break  
    print(val)
```

```
print("The end")
```

While

```
sum = 0
```

```
i = 1
```

```
while i <= n:
```

```
    sum = sum + i
```

```
    i = i+1
```

```
print the sumprint("The sum is", sum)
```

Bool() and Abs()

```
bool(5)
```

```
abs(-5)
```

```
eval("5+2-3")
```

```
program = 'a = 5\nb=10\nprint("Sum =", a+b)'
```

```
exec(program)
```

ANY QUERY?

