



Python Basics – Complete Notes

1. What is Python?

- Python is a **high-level, interpreted programming language**
 - Created by **Guido van Rossum**
 - Easy to learn due to **simple syntax (like English)**
 - Used in:
 - Web development
 - Data science
 - AI / Machine Learning
 - Automation
 - Desktop applications
-

2. Running Python

You can run Python in:

- Terminal / Command Prompt → `python`
 - File → `python filename.py`
 - IDEs like:
 - IDLE
 - VS Code
 - PyCharm
 - Jupyter Notebook
-

3. First Python Program

```
print("Hello, World!")
```

👉 Output:

```
Hello, World!
```

4. Variables

Variables store data.

```
x = 10  
name = "Siva"  
price = 99.5
```

Rules:

- No need to declare type
 - No spaces in variable name
 - Cannot start with number
-

5. Data Types

Type Example

```
int 10
float 3.14
str "Hello"
bool True / False
```

```
a = 10
b = 3.5
c = "Python"
d = True
```

6. Type Checking & Conversion

```
x = 10
print(type(x)) # <class 'int'>

# Conversion
a = "5"
b = int(a)
```

7. Input from User

```
name = input("Enter your name: ")
print("Hello", name)
```

 Input is always **string by default**

```
age = int(input("Enter age: "))
```

8. Operators

Arithmetic Operators

```
a = 10
b = 3

print(a + b) # 13
print(a - b) # 7
print(a * b) # 30
print(a / b) # 3.33
print(a % b) # 1 (remainder)
```

9. Conditional Statements (if)

```
age = 18

if age >= 18:
    print("Eligible to vote")
else:
    print("Not eligible")
```

Multiple Conditions

```
marks = 75

if marks >= 90:
    print("A Grade")
elif marks >= 60:
    print("B Grade")
else:
    print("C Grade")
```

10. Loops

For Loop

```
for i in range(1, 6):  
    print(i)
```

👉 Output:

```
1 2 3 4 5
```

While Loop

```
i = 1  
while i <= 5:  
    print(i)  
    i += 1
```

11. Functions

Reusable blocks of code.

```
def greet():  
    print("Hello!")
```

```
greet()
```

With Parameters

```
def add(a, b):  
    return a + b
```

```
print(add(2, 3))
```

12. Lists (Important)

List = collection of items

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

```
print(numbers[0])    # 1  
numbers.append(5)
```

13. Tuples

```
t = (1, 2, 3)
```

- Cannot be changed (immutable)
-

14. Dictionaries

Key-value pairs

```
student = {  
    "name": "Siva",  
    "marks": 90  
}
```

```
print(student["name"])
```

15. Strings

```
text = "Python"    print(text[0])    # P    print(len(text)) # 6
```

16. Basic Programs

1. Print Numbers 1 to 10

```
for i in range(1, 11):  
    print(i)
```

2. Even or Odd

```
num = int(input("Enter  
number: "))  
  
if num % 2 == 0:  
    print("Even")  
else:  
  
    print("Odd")
```

3. Sum of Numbers

```
total = 0  
  
for i in range(1, 6):  
    total += i  
  
print(total)
```

17. Indentation (VERY IMPORTANT)

Python uses indentation instead of braces {}

```
if True:  
    print("Correct")
```

✗ Wrong:

```
if True:  
print("Error")
```

18. Comments

```
# This is a comment. (single line)
```

```
Multiline comment
```

Triple Quotes (''' or ''')

```
'''  
This looks like a multiline comment  
But actually it is NOT a real comment  
'''
```

or

```
''''  
This is also used  
for multiple lines  
''''
```
