**Variables**

CHAPT-1

**WHAT IS PROGRAMMING?**

Just like we use Hindi or English to communicate with each other, we use a programming language like Python to communicate with the computer. Programming is a way to instruct the computer to perform various tasks.

**WHAT IS PYTHON?**

Python is a simple and easy to understand language which feels like reading simple English. This Pseudo code nature is easy to learn and understandable by beginners.

**FEATURES OF PYTHON :-**

• Easy to understand = Less development time

• Free and open source

• High level language

• Portable: Works on Linux / Windows / Mac.

• Fun to work with!

**What is variable?**

A variable in Python is a symbolic name that refers to a value. It's a way to store data that can be used and manipulated throughout a program. Here's an overview of how variables work in Python:

**What are Datatypes:-**

**Primarily these are the following data types in Python:-**

1. Integers

2. Floating point numbers

3. Strings

4. Booleans

**Python is a fantastic language that automatically identifies the type of data for us.**

**OPERATORS IN PYTHON :-**

**Following are some common operators in python:-**

1. Arithmetic operators: +, -, \*, / etc.

2. Assignment operators: =, +=, -= etc.

3. Comparison operators: ==, >, >=, <, != etc.

4. Logical operators: and, or, not.

**Creating Variables:-**

**In Python, you create a variable by assigning a value to it using the assignment operator `=`.**

**x = 5**

**name = "Alice"**

**is\_student = True**

**Variable Naming Rules:-**

- Variable names must start with a letter (a-z, A-Z) or an underscore (\_).

- The rest of the name can include letters, digits (0-9), and underscores.

- Variable names are case-sensitive (`age` and `Age` are different variables).

- Variable names should not be Python reserved keywords like `if`, `for`, `while`,

etc.

**Examples :-**

# **Valid variable names**

**age = 25**

**first\_name = "John"**

**total\_price = 100.50**

**\_is\_valid = False**

# **Invalid variable names**

**2nd\_place = "Runner Up" # Cannot start with a digit**

**first-name = "John" # Cannot contain hyphens**

**class = "Physics" # 'class' is a reserved keyword**

**Types of Variables:-**

Python is dynamically typed, meaning you don't need to declare the type of the variable explicitly. The type is inferred from the value assigned.

x = 10 # Integer

y = 10.5 # Float

name = "Alice" # String

is\_valid = True # Boolean

**Changing Variable Values:-**

**You can change the value of a variable simply by assigning a new value to it.**

**x = 10**

**print(x) # Output: 10**

**x = 20**

**print(x) # Output: 20**

**Multiple Assignment:-**

**You can assign values to multiple variables in one line.**

**a, b, c = 1, 2, 3**

**print(a, b, c) # Output: 1 2 3**

**Using Variables:-**

**Variables can be used in expressions and passed to functions.**

**x = 10**

**y = 5**

**z = x + y**

**print(z) # Output: 15**

**#########################**

**def greet(name):**

**print("Hello, " + name)**

**greet("Alice") # Output: Hello, Alice**

**Variable Scope:-**

Variables can have different scopes, such as local, global, and nonlocal.

- Local : Variables declared inside a function.

- Global : Variables declared outside any function.

- Nonlocal: Variables used in nested functions.

**global\_var = "I'm global"**

**def my\_function():**

**local\_var = "I'm local"**

**print(global\_var) # Can access global variable**

**print(local\_var)**

**my\_function()**

**print(global\_var) # Output: I'm global**

**# print(local\_var) # This will cause an error because local\_var is not accessible outside the function**

**Comments concept:-**

**Comments in Python** are used to explain or annotate code, making it more readable and understandable for both the writer and others who might work on the code later. They don't affect the execution of the code itself.

**Types of Comments:-**

1. **Single-line comments:-**
   * Start with a hash symbol (#).
   * Everything after the # on the same line is considered a comment.

Example:-

**# This is a single-line comment**

**x = 5**

1. **Multi-line comments:-**

* Enclose the comment between triple quotes (""" or ''').
* Can span multiple lines.

**Example:-**

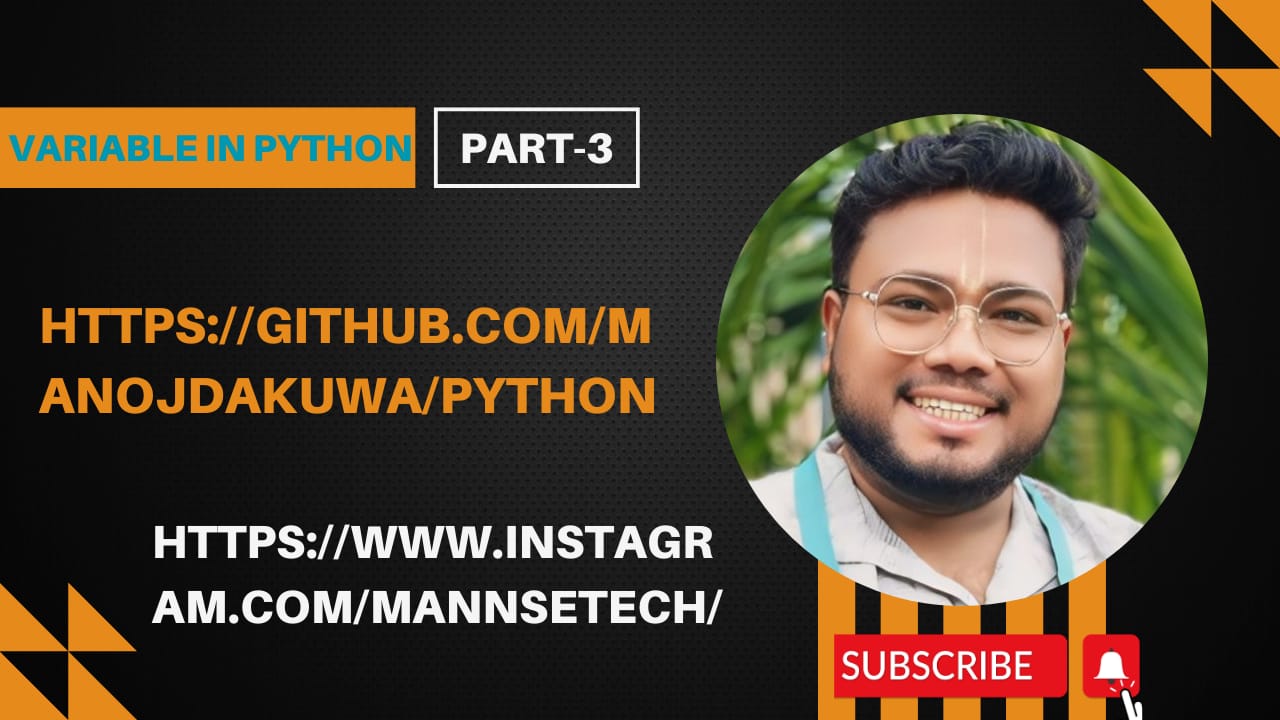
**"""**

**This is a multi-line comment.**

**It can span multiple lines.**

**"""**

**y = 10**



GitHub : <https://github.com/manojdakuwa/Python>

Instagram: <https://www.instagram.com/mannsetech/>

**Variable in python full video YouTube link:-**

[www.youtube.com/@xxtinct\_seldom\_species](http://www.youtube.com/@xxtinct_seldom_species)