Lesson: What is Python & Variables in Python

Introduction

Hello everyone.
Welcome to Kairos AI Learning.

Today we are going to start our Python journey.

In this session, we will understand:
- What is Python?
- Why is Python important?
- What are variables in Python?

Let's begin.

What is Programming?

Before learning Python, we must understand something important.

What is programming?

Programming means giving instructions to a computer so it can perform tasks.

For example:
- Display a message
- Calculate total marks
- Store student details
- Build a website
- Create a chatbot

A computer does not understand human language.
It understands instructions written in a programming language.

That language acts as a bridge between humans and computers.

Python is one such language.

What is Python?

Python is a high-level programming language.

High-level means it is easy for humans to read and understand.

Python was created in 1991 by Guido van Rossum.

Why is Python popular?

- Simple and readable syntax
- Requires fewer lines of code
- Huge global community
- Used in modern technologies

Python is used in:
- Web development
- Artificial Intelligence
- Machine Learning
- Data Science
- Automation
- Game development

When you learn Python, you are learning a powerful industry-level skill.

Your First Python Program

Let us write our first Python program:

```
print("Hello World")
```

Explanation:
- print() is a built-in function.
- "Hello World" is a string.
- Quotes are used to represent text.

Output:
Hello World

If we write:

```
print(10)
```

It prints the number 10.

Important:
Text requires quotes.
Numbers do not require quotes.

What is a Variable?

A variable is a container used to store data.

Think of it like a labeled box.

Example:
```
age = 20
```

Here:
- age is the variable name.
- = is the assignment operator.
- 20 is the value stored.

Now we can use it:

```
print(age)
```

Output:
20

Variable Naming Rules

Important rules:

1. Must start with a letter or underscore.
   ✓ name
   ✓ _score
   ✗ 1age

2. Cannot contain spaces.

✓ student_name

✗ student name

3. Cannot use reserved keywords.

  ✗ if

  ✗ while

4. Variable names are case-sensitive.

  age and Age are different variables.

Multiple Variables Example

Example:

```
name = "Arun"
age = 18
city = "Coimbatore"

print("My name is", name)
print("I am", age, "years old")
print("I live in", city)
```

Using formatted string:

```
print(f"My name is {name} and I am {age} years old.")
```

This is called an f-string.

Dynamic Typing in Python

Python is dynamically typed.

Example:

```
x = 10
x = "Hello"
```

Python allows changing the data type of a variable.

You do not need to declare data types like in some other languages.

Mini Practice Activity

Try this small activity:

Create three variables:
- student_name
- student_age
- is_present

Then print them in one sentence.

Example:

```
student_name = "Ravi"
student_age = 15
is_present = True

print(f"{student_name} is {student_age} years old. Present status: {is_present}")
```

Summary

Today we learned:

- What programming is
- What Python is
- Why Python is popular
- How to write your first Python program
- What variables are
- Variable naming rules
- Dynamic typing in Python
- Using formatted strings

In the next lesson, we will explore data types in detail.