Day-03 · 24/11/2025

01) What is variable?
=> A variable is used to "store a data" in a program. It acts like a container that holds a value.

Ex:- x = 10
name = "Chandru"
Pi = 3.14

02) What is valid variables? Give examples.
=> A variable name is valid when it follow python rules:-

* Must start with a letter (a-z or A-Z) or underscore(_)
* Cannot start with numbers (1name = invalid).
* Cannot contain spaces (student name).
* Cannot use special characters (@, #, $, %, etc...)
* Cannot be python keyword (if, else, while etc...)

Ex: student_name = "Keerthi"
student_ID = RL104
age = 23
height_in_cm = 160
Rollno_5 = 123

03) What is invalid variables? Give example?
=> A variable is invalid if it breaks any naming rule.

* Contain space
* Start with a number
* Use special characters

* Use python key words

Ex:- student name = "Sonu"
1name = "Ravi"
name @ 123 = "Ajay"
cash $ = 100
class = "BCA" => Python key word.

04) Example problem 1.

Calculate the Body mass index (BMI) value by reading height and weight by user.
(BMI = weight / height²)

=> height = float (input ("enter the value of height:"))
weight = float (input ("enter the value of weight:"))

BMI = weight / (height * height)

Print ("The BMI value is:")

Output : enter the value of height : 60
enter the value of weight : 45.5
The BMI value is : 0.0126388

Data types

01) What is data types?
=> A data type tells what kind of data a variable holds whether it is int, float, String etc.
Ex: A number = 10
text = "Hello"
True / False = true.

a) Single (Primitive) data type in Python
It's a basic data types hold a single value

1. int (integer) age = 20
2. float (Decimal) Pi = 3.14
3. Str (String) name = "Chandana"
4. Bool (Boolean) is_student = true
5. None type x = None

b) Multiple (Collection) data types in python
It stores a multiple values together

1. list (ordered, unordered) marks = [85, 90, 100]
2. tuple (ordered, not chage) colors = ("Red", "blue")
3. set (unordered, unique) unique_no = {1, 2, 3, 3, 4}
4. dict (dictionary) student = {
"name": "Ajay",
"age": "22",
}

Operators

01) What is operators? Give example?
=> Operators is a symbol that performs an operation on values & variables
Ex: 4 + 5 → operands
↓
operator

Types of operators:

1) Arithmetic operator
2) Assignment operator

03) Comparison operator
04) Logical operator
05) Bitwise operator
06) Membership operator
07) Identity operator

01) Arithmetic operators
↓
It is used to perform a mathematic calculations
+, −, *, %, /, //, **

Example problem 02
Write a program to perform basic calculator operation using 2 values, take input from user

=> a = float (input ("enter the value of a:"))
b = float (input ("enter the value of b:"))

print ("Addition:", a+b)
Print ("Sub:", a-b)
Print ("Division:", a/b)
Print ("Multiplication:", a*b)
Print ("Moduls:", a%b)

Output:

enter the value of a: 100
enter the value of b: 90
Addition = 190.0
Sub = 10.0
Division = 1.1111
Multiplication = 9000.0
Moduls = 10.0