ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

DAY – 8

Date: Jul 02, 2025

PYTHON PROGRAMMING

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

Output: Hello, World!

Python is a popular programming language. It was created by Guido van Rossum, and released in 1991.

It is used for:

- web development (server-side),
- software development,
- mathematics,
- system scripting.

Python Indentation

Indentation refers to the spaces at the beginning of a code line.Where in other programming languages the indentation in code is for readability only, the indentation in Python is very important.

Python Comments

Comments starts with a #, and Python will ignore them:

```
#This is a comment
print("Hello, World!")
```

Since Python will ignore string literals that are not assigned to a variable, you can add a multiline string (triple quotes) in your code, and place your comment inside it.

```
"""
This is a comment
written in
more than just one line
"""
print("Hello, World!")
```

Variables : Variables are containers for storing data values.

```
x = 5
y = "John"
print(x)
print(y)
```

Python Operators

Operators are used to perform operations on variables and values.

Python divides the operators in the following groups:

- Arithmetic operators
- Assignment operators
- Comparison operators
- Logical operators
- Identity operators
- Membership operators
- Bitwise operators

User Input

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

Conditional Statements

```
age = int(input("Enter your age: "))
if age >= 18:
   print("You're an adult.")
else:
   print("You're a minor.")
```

Loops

for loop:

```
for i in range(5):
   print(i)
```

while loop:

```
count = 0
while count < 5:
```

```
    print(count)
    count += 1
```

Functions: A function is a block of code which only runs when it is called. You can pass data, known as parameters, into a function. A function can return data as a result.

```
def greet(name):
    print("Hello, " + name)

greet("Alice")
```

Lists: Lists are used to store multiple items in a single variable. Lists are created using square brackets:

```
fruits = ["apple", "banana", "cherry"]
print(fruits[0])         # apple
fruits.append("orange")  # add to list
```

Tuple: Tuples are used to store multiple items in a single variable. A tuple is a collection which is ordered and unchangeable. Tuples are written with round brackets.

```
thistuple = ("apple", "banana", "cherry")
print(thistuple)
```

Set: Sets are used to store multiple items in a single variable. A set is a collection which is unordered, unchangeable, and unindexed.

```
thisset = {"apple", "banana", "cherry"}
print(thisset)
```

Dictionaries: Dictionaries are used to store data values in key:value pairs. A dictionary is a collection which is ordered*, changeable and do not allow duplicates.

```
person = { "name": "Bob", "age": 30 }
print(person["name"])    # Bob
```

CALCULATOR

```
print("ASHMEEN KAUR\n")

a = int(input("Enter first number: "))
b = int(input("Enter second number: "))

print("OPERATIONS: ")
print("1. Addition")
print("2. Subtraction")
print("3. Multiplication")
print("4. Division")
print("5. Modulus")
print("6. Exit\n")

while True:
    op = int(input("Enter operation you want to perform (1/2/3/4/5/6): "))

    if op == 6:
        print("Exiting the program.")
        break
    elif op == 1:
        print(f"Addition of {a} and {b} is: {a + b}")
    elif op == 2:
        print(f"Subtraction of {a} and {b} is: {a - b}")
    elif op == 3:
        print(f"Multiplication of {a} and {b} is: {a * b}")
    elif op == 4:
        if b == 0:
            print("Error! Division by zero.")
        else:
            print(f"Division of {a} by {b} is: {a / b}")
    elif op == 5:
        print(f"Modulus of {a} and {b} is: {a % b}")
    else:
        print("Invalid option. Please choose a valid operation.")

~
~
"Calculator.py" 35L, 943C
```

OUTPUT:

```
step@step-HP-ProDesk-400-G5-SFF:~$ python3 Calculator.py
ASHMEEN KAUR

Enter first number: 7
Enter second number: 4
OPERATIONS:
1. Addition
2. Subtraction
3. Multiplication
4. Division
5. Modulus
6. Exit

Enter operation you want to perform (1/2/3/4/5/6): 1
Addition of 7 and 4 is: 11
Enter operation you want to perform (1/2/3/4/5/6): 2
Subtraction of 7 and 4 is: 3
Enter operation you want to perform (1/2/3/4/5/6): 3
Multiplication of 7 and 4 is: 28
Enter operation you want to perform (1/2/3/4/5/6): 4
Division of 7 by 4 is: 1.75
Enter operation you want to perform (1/2/3/4/5/6): 5
Modulus of 7 and 4 is: 3
Enter operation you want to perform (1/2/3/4/5/6): 6
Exiting the program.
step@step-HP-ProDesk-400-G5-SFF:~$
```