## 

**DEPARTMENT OF COMPUTER SCIENCE & TECHNOLOGY**

**Course: B.Tech CSE/AIML/CSTI/FSD  Subject: Python Programming (CSH108B-T) & (CSH108B-P)**

***Lab -2:*** *Programming constructs in python -hands-on practice*

***Learning Outcomes*:**

* To **impart** understanding of basic programming concepts in python language.
* To enable the student to articulate given program scenario and **apply** different programming constructs.

***Blooms Taxonomy Level****: BT1, BT2*, *BT3*

1. Write a program to demonstrate basic data type in python.

A:-

num\_int = 10

print("Integer:", num\_int, "Type:", type(num\_int))

num\_float = 10.5

print("Float:", num\_float, "Type:", type(num\_float))

text = "Hello, Python!"

print("String:", text, "Type:", type(text))

is\_python\_fun = True

print("Boolean:", is\_python\_fun, "Type:", type(is\_python\_fun))

num\_list = [1, 2, 3, 4, 5]

print("List:", num\_list, "Type:", type(num\_list))

num\_tuple = (10, 20, 30)

print("Tuple:", num\_tuple, "Type:", type(num\_tuple))

num\_set = {10, 20, 30}

print("Set:", num\_set, "Type:", type(num\_set))

num\_dict = {"one": 1, "two": 2, "three": 3}

print("Dictionary:", num\_dict, "Type:", type(num\_dict))

num\_complex = 2 + 3j

print("Complex Number:", num\_complex, "Type:", type(num\_complex))

1. [Check whether a number is even or odd](https://www.programiz.com/python-programming/examples/prime-number)

A:-

num = int(input("Enter a number: "))

if num % 2 == 0:

print(num, "is an Even number")

else:

print(num, "is an Odd number")

1. [Check whether an entered year is leap year or not.](https://www.programiz.com/python-programming/examples/prime-number)

A:-

year = int(input("Enter a year: "))

if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):

print(year, "is a Leap Year")

else:

print(year, "is NOT a Leap Year")

1. Write a program to check whether a character is vowel or consonants.

A:-

char = input("Enter a character: ").lower()

vowels = 'aeiou'

if char.isalpha():

if char in vowels:

print(char, "is a Vowel")

else:

print(char, "is a Consonant")

else:

print("Invalid input! Please enter a single alphabet character.")

1. Write a program to find the smallest of two numbers.

A:-

num1 = float(input("Enter first number: "))

num2 = float(input("Enter second number: "))

if num1 < num2:

print("The smallest number is:", num1)

elif num2 < num1:

print("The smallest number is:", num2)

else:

print("Both numbers are equal.")

1. [Find the Factorial of a Number](https://www.programiz.com/python-programming/examples/factorial)

A:-

num = int(input("Enter a number: "))

if num < 0:

print("Factorial does not exist for negative numbers.")

elif num == 0 or num == 1:

print("The factorial of", num, "is 1")

else:

factorial = 1

for i in range(1, num + 1):

factorial \*= i

print("The factorial of", num, "is", factorial)

1. Write a program to print this patterns

\*

\* \*

\* \* \*

\* \* \* \*

A:-

# Program to print the given pattern

rows = 4 # Number of rows

for i in range(rows):

# Printing spaces for alignment

for j in range(rows - i - 1):

print(" ", end=" ")

# Printing the stars with spaces in between

for k in range(i + 1):

print("\*", end=" ")

print() # Move to the next line

1. Write a program to print this series
2. 1 2 3 5 8 13

A:-

n = 7

a, b = 1, 1

print(a, b, end=" ")

for \_ in range(n - 2):

c = a + b

print(c, end=" ")

a, b = b, c

1. [Check whether a number is prime or not](https://www.programiz.com/python-programming/examples/prime-number).

A:-

num = int(input("Enter a number: "))

if num <= 1:

print(num, "is NOT a prime number.")

else:

is\_prime = True

for i in range(2, num-1):

if num % i == 0:

is\_prime = False

break

if is\_prime:

print(num, "is a Prime number.")

else:

print(num, "is NOT a Prime number.")

1. Create a simple calculator

A:-

def add(x, y):

return x + y

def subtract(x, y):

return x - y

def multiply(x, y):

return x \* y

def divide(x, y):

return x / y

print("Select operation:")

print("1. Add")

print("2. Subtract")

print("3. Multiply")

print("4. Divide")

choice = input("Enter choice (1/2/3/4): ")

num1 = float(input("Enter first number: "))

num2 = float(input("Enter second number: "))

if choice == '1':

print(num1, "+", num2, "=", add(num1, num2))

elif choice == '2':

print(num1, "-", num2, "=", subtract(num1, num2))

elif choice == '3':

print(num1, "\*", num2, "=", multiply(num1, num2))

elif choice == '4':

print(num1, "/", num2, "=", divide(num1, num2))

else:

print("Invalid input! Please select a valid operation.")