**EX.NO: 4 DATE:**

**Create user-defined functions with different types of function arguments**

**AIM:**

To create and demonstrate user-defined functions using different types of function arguments in Python.

**PROCEDURE:**

**Types of Function Arguments:**

* **Positional Arguments:** Arguments passed to the function in a specific order.
* **Default Arguments:** Arguments that assume a default value if no value is provided during the function call.
* **Keyword Arguments:** Arguments passed using the name of the parameter.
* **Arbitrary Positional Arguments (\*args):** Allows passing a variable number of positional arguments.
* **Arbitrary Keyword Arguments (\*\*kwargs):** Allows passing a variable number of keyword arguments.

**Define functions demonstrating each type of argument.**

**PROGRAM:**

**# 1. Positional Arguments**

def add\_numbers(a, b): return a + b

**# 2. Default Arguments**

def greet(name="User"): return f"Hello, {name}!"

**# 3. Keyword Arguments**

def student\_info(name, age, grade):

return f"Student: {name}, Age: {age}, Grade: {grade}"

**# 4. Arbitrary Positional Arguments (\*args)**

def sum\_all(\*args):

return sum(args)

**# 5. Arbitrary Keyword Arguments (\*\*kwargs)**

def display\_info(\*\*kwargs):

for key, value in kwargs.items(): print(f"{key}: {value}")

**# Function calls**

**# Positional Arguments**

result1 = add\_numbers(5, 10)

print(f"Sum using positional arguments: {result1}")

**# Default Arguments**

greeting = greet() custom\_greeting = greet("Alice")

print(f"Greeting with default argument: {greeting}") print(f"Greeting with custom argument: {custom\_greeting}") **# Keyword Arguments**

info = student\_info(name="John", age=16, grade="10th") print(f"Student Info using keyword arguments: {info}")

**# Arbitrary Positional Arguments (\*args)**

result2 = sum\_all(1, 2, 3, 4, 5)

print(f"Sum of arbitrary positional arguments: {result2}") **# Arbitrary Keyword Arguments (\*\*kwargs)** print("Display info using arbitrary keyword arguments:")

display\_info(name="Charlie", age=21, occupation="Engineer")

**OUTPUT:**

**Sum using positional arguments:** 15

**Greeting with default argument:** Hello, User!

**Greeting with custom argument:** Hello, Alice!

**Student Info using keyword arguments:** Student: John, Age: 16, Grade: 10th

**Sum of arbitrary positional arguments:** 15

**Display info using arbitrary keyword arguments:**

**name:** Charlie

**age:** 21

**occupation:** Engineer

**RESULT:**

User-defined functions with different types of arguments, such as positional, default, keyword, arbitrary positional (\*args), and arbitrary keyword (\*\*kwargs), were successfully demonstrated.