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49733

BSCS-06

LAB: 02

PRACTICE TASKS

Practice Task 1:

```
In [2]: name = 'ali'

        if name == 'ali':
            print('Welcome Ali')
        else:
            print('Invalid user')
            print('All set !')

        Welcome Ali
```

Practice Task 2:

```
In [3]: # An integer assignment
        age = 45

        # A floating point
        salary = 1456.8

        # A string
        name = "John"

        print(age)
        print(salary)
        print(name)

        45
        1456.8
        John
```

Practice Task 3:

In [4]:
```
# Examples of Arithmetic Operator
a = 9
b = 4

# Addition of numbers
add = a + b
# Subtraction of numbers
sub = a - b
# Multiplication of number
mul = a * b
# Division(float) of number
div1 = a / b
# Division(floor) of number
div2 = a // b
# Modulo of both number
mod = a % b

# print results
print(add)
print(sub)
print(mul)
print(div1)
print(div2)
print(mod)
```

```
13
5
36
2.25
2
1
```

Practice Task 4:

```
In [6]: # One object is passed
        print("Hey class ")

        X = 5
        # Two objects are passed
        print("x =", X)

        #another method
        a= 'ali'
        print('hey :' + a)

        Hey class
        x = 5
        hey :ali
```

Practice Task 5:

```
sap= input('please enter your sap ID: ')
name = input('please enter your name:')

print('Hey ' + name + ': your sap is :' + sap)

please enter your sap ID: 49733
please enter your name:Ayesha Zamurd
Hey Ayesha Zamurd: your sap is :49733
```

LAB TASKS

Lab Task 1:

Write a function is_prime(n) that returns True if a number is prime, otherwise False.

```
In [22]: def is_prime():
             num=int(input("Enter a number : "))
             for i in range(2, int(num**0.5) + 1):
                 if(num%i==0):
                     return False
             return True

         print(is_prime())
         print(is_prime())
```

```
Enter a number : 8
False
Enter a number : 7
True
```

Lab Task 2:

Create a string and use **string methods** (upper(), lower(), replace(), count()) to manipulate and analyze it.

```
In [25]: text = "My name is Ayesha Zamurd"
         print("Uppercase:", text.upper())
         print("Lowercase:", text.lower())
         new_text = text.replace("Zamurd", "Khan")
         print("After Replace:", new_text)
         count = text.count("a")
         print("Count of 'a':", count)
```

```
Uppercase: MY NAME IS AYESHA ZAMURD
Lowercase: my name is ayesha zamurd
After Replace: My name is Ayesha Khan
Count of 'a': 3
```

Lab Task 3:

Create a class Car with attributes (brand, model, year) and a method display_info() that prints car details. Create 2 objects of the class and call the method.

```
In [28]: class Car:
             def __init__(self, brand, model, year):
                 self.brand = brand
                 self.model = model
                 self.year = year

             def display_info(self):
                 print(f"Car Details: {self.year} {self.brand} {self.model}")

         obj1 = Car("Mercedez", "Benz", 2020)
         obj2 = Car("Vigo", "abc", 2022)
         car1.display_info()
         car2.display_info()

         Car Details: 2020 Toyota Camry
         Car Details: 2022 Ford Mustang
```

Lab Task 4:

Create a class Bank Account with methods deposit(amount), withdraw(amount),

and get_balance().

· Deposit 1000

· Withdraw 300

· Print final balance

```
In [29]: class BankAccount:
             def __init__(self):
                 self.balance = 0

             def deposit(self, amount):
                 if amount > 0:
                     self.balance += amount
                 else:
                     print("Deposit amount must be positive.")

             def withdraw(self, amount):
                 if amount <= self.balance:
                     self.balance -= amount
                 else:
                     print("Insufficient balance.")

             def get_balance(self):
                 return self.balance

         account = BankAccount()
         account.deposit(1000)
         account.withdraw(300)
         print("Final Balance:", account.get_balance())

         Final Balance: 700
```

Lab Task 5:

Write a program with a class Student having:

- attributes: name, marks (list)
- method: average() → calculates average marks
- method: grade() → returns "Pass" if average ≥ 50 else "Fail"

Create 2 student objects, call the methods, and print results.

In [31]:
```python
class Student:
    def __init__(self, name, marks):
        self.name = name
        self.marks = marks

    def average(self):
        return sum(self.marks) / len(self.marks)

    def grade(self):
        avg = self.average()
        if avg >= 50:
            return "Pass"
        else:
            return "Fail"

student1 = Student("Uswa", [70, 65, 80])
student2 = Student("Laiba", [45, 50, 40])

print("Student 1:")
print("Name:", student1.name)
print("Average Marks:", student1.average())
print("Grade:", student1.grade())

print("\nStudent 2:")
print("Name:", student2.name)
print("Average Marks:", student2.average())
print("Grade:", student2.grade())
```

```
Student 1:
Name: Uswa
Average Marks: 71.66666666666667
Grade: Pass

Student 2:
Name: Laiba
Average Marks: 45.0
Grade: Fail
```

Lab Task 6:

Check whether a given year is leap year or not.

```
In [34]: def IsLeapYear(year):
             if (year % 4 == 0 and year % 100 != 0) or (year % 400 == 0):
                 print(f"{year} is a leap year.")
             else:
                 print(f"{year} is not a leap year.")

         year = int(input("Enter any year: "))
         IsLeapYear(year)

         Enter any year: 2004
         2004 is a leap year.
```

Lab Task 7:

Check a dictionary to store student name, their marks, then print the student with highest marks.

```
In [36]: student = {
             "Zuhaib": 85,
             "Nusrat": 97,
             "Sara": 78,
             "Marium": 90,
             "Suga": 91
         }

         highest_std = max(student, key=student.get)
         highest_number = student[highest_std]
         print("Student with highest marks is:")
         print(f"{highest_std} → {highest_number}")

         Student with highest marks is:
         Nusrat → 97
```