Python and SQL Questions

# Python Questions

1. Write a Python program that asks the user to enter a list of integers separated by commas. Then, the program should print the sum and average of these integers. Assume all inputs are valid integers.

def sum\_and\_average(numbers):

total = sum(numbers)

average = total / len(numbers)

return total, average

input\_str = input("Enter a list of integers separated by commas: ")

numbers = [int(x) for x in input\_str.split(',')]

total, average = sum\_and\_average(numbers)

print("Sum:", total)

print("Average:", average)

Enter a list of integers separated by commas: 1,3,23,4,2

Sum: 33

Average: 6.6

2. Write a Python function called `divide\_numbers` that accepts two parameters and returns their division. The function should handle the case where the second parameter is zero by printing an error message and returning `None`. Demonstrate its usage in your code.

# Function to divide two numbers

def divide\_numbers(x, y):

if y == 0:

print("Error: Cannot divide by zero!")

return None

else:

return x / y

# Demonstration

num1 = 10

num2 = 5

result = divide\_numbers(num1, num2)

if result is not None:

print(f"{num1} divided by {num2} is {result}")

10 divided by 5 is 2.0

3. Write a Python program that uses regular expressions to check if a given string contains at least one digit. Your program should print `True` if a digit is found and `False` otherwise.

import re

# Function to check if a string contains a digit

def contains\_digit(s):

return bool(re.search(r'\d', s))

# Main program

input\_str = input("Enter a string: ")

print(contains\_digit(input\_str))

Enter a string: hiuoi2

True

4. Write a Python program that generates and prints all the prime numbers between 2 and a given number `n` included. Use loops and conditional statements to achieve this. Also, ensure that `n` is an integer greater than 2.

def is\_prime(num):

for i in range(2, int(num\*\*0.5) + 1):

if num % i == 0:

return False

return True

n = int(input("Enter a number greater than 2: "))

if n <= 2:

print("Please enter a number greater than 2.")

else:

print("Prime numbers up to", n, "are:")

for i in range(2, n+1):

if is\_prime(i):

print(i)

Enter a number greater than 2: 5

Prime numbers up to 5 are:

2

3

5

# SQL Questions

1. Write an SQL query that selects all orders with their corresponding customer name. Assume you have two tables: `Orders` (with columns `OrderID`, `OrderDate`, and `CustomerID`) and `Customers` (with columns `CustomerID`, `CustomerName`). Use an appropriate join to combine these tables in your query.

SELECT Orders.OrderID, Orders.OrderDate, Customers.CustomerName

FROM Orders

INNER JOIN Customers ON Orders.CustomerID = Customers.CustomerID;

2. Write an SQL query that finds the names of customers who have placed orders worth more than $100. Assume there are two tables: `Orders` (with columns `OrderID`, `CustomerID`, and `TotalAmount`) and `Customers` (with columns `CustomerID`, `CustomerName`). Use a subquery to achieve this.

SELECT CustomerName

FROM Customers

WHERE CustomerID IN (

SELECT CustomerID

FROM Orders

WHERE TotalAmount > 100

);

3. Write an SQL query to retrieve the top 5 highest scoring students from the `Students` table, which includes columns `StudentID`, `StudentName`, and `Score`. Order the result in descending order by score.

SELECT StudentID, StudentName, Score

FROM Students

ORDER BY Score DESC

LIMIT 5;