PYTHON PRACTICE QUESTIONS FOR BATCH 37

Operators

1. Arithmetic Operators

   - Write a Python program to calculate the sum, difference, product, and quotient of two numbers.

   - Write a Python program to calculate the remainder and power of two numbers.

2. Comparison Operators

   - Given two variables, `a` and `b`, write a program to check if `a` is greater than, less than, equal to, or not equal to `b`.

   - Write a program to compare two strings and print whether they are the same or different.

   - Write a Python program to check if a number is between 10 and 20 using logical operators.

4. Bitwise Operators

   - Perform bitwise AND, OR, XOR, and NOT operations on two integers.

Conditions

1. If-Else

   - Write a program that checks if a number is positive, negative, or zero.

   - Write a program to check if a year is a leap year.

2. Nested If

   - Write a program to find the largest among three numbers using nested if statements.

   - Write a program to determine the grade of a student based on their score using nested if statements.

Lists

1. Basic Operations

   - Create a list with 5 elements and demonstrate adding, removing, and accessing elements.

   - Write a program to reverse a list and print the reversed list.

2. Slicing

   - Given a list, write a program to print the first three elements, the last three elements, and elements from index 2 to 4.

   - Write a program to create a sublist from a list using slicing.

3. List Methods

   - Write a program to sort a list of integers in ascending order and find the index of a specific value.

   - Write a program to append elements to a list and then remove an element from the list.

Tuples

1. Creating Tuples

   - Create a tuple with 5 elements and demonstrate accessing elements.

   - Write a program to create a tuple of tuples and access individual elements.

2. Tuple Operations

   - Write a program to concatenate two tuples and find the length of the resulting tuple.

   - Write a program to find the maximum and minimum values in a tuple.

   Dictionaries

1. Basic Operations

   - Create a dictionary with 3 key-value pairs and demonstrate adding, removing, and accessing elements.

   - Write a program to check if a key exists in a dictionary and print the corresponding value.

2. Dictionary Methods

   - Write a program to update the value of an existing key and print all keys and values.

   - Write a program to iterate through a dictionary and print all keys and values.

Sets

1. Basic Operations

   - Create a set with 5 elements and demonstrate adding and removing elements.

   - Write a program to check if an element exists in a set.

2. Set Operations

   - Write a program to find the union, intersection, and difference between two sets.

   - Write a program to find the symmetric difference between two sets.

List Comprehension

1. Basic List Comprehension

   - Write a list comprehension to create a list of squares of numbers from 1 to 10.

   - Write a list comprehension to create a list of the first letters of each word in a given list of words.

2. Conditional List Comprehension

   - Write a list comprehension to create a list of even numbers from 1 to 20.

   - Write a list comprehension to create a list of numbers from 1 to 20 that are divisible by 3.

Dictionary Comprehension

1. Basic Dictionary Comprehension

   - Write a dictionary comprehension to create a dictionary where the keys are numbers from 1 to 5 and the values are their squares.

   - Write a dictionary comprehension to create a dictionary from two lists, one of keys and one of values.

2. Conditional Dictionary Comprehension

   - Write a dictionary comprehension to create a dictionary of numbers from 1 to 10 with values being 'even' or 'odd' based on the number's parity.

   - Write a dictionary comprehension to filter out items from a dictionary where the value is less than 5.