Beginner-Level Questions

Lists

1. Create a list of 5 numbers and print the list.
2. Add a new number to an existing list using the append() method.
3. Remove the second element from a list using the del statement.
4. Sort a list of numbers in ascending order using the sort() method.
5. Write a program to find the length of a list using the len() function.

Tuples

1. Create a tuple with 5 different fruits and print it.
2. Access the third element of a tuple using indexing.
3. Write a progrm to check if an element exists in a tuple using the in keyword.
4. Convert a tuple into a list and add a new element to the list.
5. Find the index of a specific value in a tuple.

Sets

1. Create a set of 5 unique colors and print it.
2. Add a new color to an existing set using the add() method.
3. Write a program to find the union of two sets.
4. Remove an element from a set using the remove() method.
5. Check if one set is a subset of another using the issubset() method.

Dictionaries

1. Create a dictionary with 3 key-value pairs represnting a person's name, age, and city.
2. Access the value of a key in the dictionary using the key name.
3. Add a new key-value pair to an existing dictionary.
4. Remove a key-value pair from a dictionary using the pop() method.
5. Write a program to print all the keys in a dictionary using the keys() method.

Intermediate-Level Questions

Lists

1. Write a program to find the maximum and minimum values in a list.
2. Merge two lists into one and remove duplicates.
3. Write a program to count the occurrences of each element in a list.
4. Slice a list to extract the first 3 and the last 3 elements.
5. Create a list of numbers from 1 to 10 and calculate the square of each number.

Tuples

1. Write a program to unpack a tuple into individual variables.
2. Merge two tuples and sort the resulting tuple.
3. Write a program to count the occurrences of a specific value in a tuple.
4. Find the maximum and minimum values in a tuple of numbers.
5. Convert a tuple into a string by joining all its elements.

Sets

1. Write a program to find the intersection of two sets.
2. Remove duplicates from a list by converting it into a set.
3. Create two sets and find their difference.
4. Write a program to find all unique characters in a string using a set.
5. Check if two sets are disjoint using the isdisjoint() method.

Dictionaries

1. Write a program to update the value of an existing key in a dictionary.
2. Merge two dictionaries into one.
3. Write a program to count the occurrences of each character in a string using a dictionary.
4. Create a dictionary where keys are numbers from 1 to 5 and values are their squares.
5. Write a program to iterate through a dictionary and print all keys and values.

Bonus Questions

1. Use a list to store students' names, a tuple for fixed course subjects, a set for unique skills, and a dictionary to store each student’s marks in 3 subjects.
2. Create a dictionary where the keys are words and the values are their lengths (e.g., {'apple': 5, 'banana': 6}).

3. Write a program to convert a list of tuples into a dictionary.
   Example Input: [(1, 'a'), (2, 'b'), (3, 'c')]
   Output: {1: 'a', 2: 'b', 3: 'c'}

4. Create a list of 10 random numbers, find unique values using a set, and store the result in a tuple.