1. Print Hello, World!

Question: Write a program to print `Hello, World!`.

```python
Copy code
# Output:
Hello, World!
```

---

2. Add Two Numbers

Question: Write a program to add two numbers given by the user.

```python
Copy code
# Input:
# Enter first number: 5
# Enter second number: 10
# Output:
# Sum: 15
```

---

3. Check Even or Odd

Question: Write a program to check if a number is even or odd.

```python
Copy code
# Input:
# Enter a number: 7
# Output:
# 7 is Odd
```

---

4. Find the Largest of Three Numbers

Question: Write a program to find the largest of three numbers.

```python
Copy code
# Input:
# Enter three numbers: 12 4 15
# Output:
# Largest: 15
```

---

5. Check Leap Year

Question: Write a program to check if a year is a leap year.

```python
Copy code
# Input:
# Enter a year: 2020
# Output:
# 2020 is a Leap Year
```

6. Reverse a String

Question: Write a program to reverse a string.

```python
Copy code
# Input:
# Enter a string: Python
# Output:
# Reversed string: nohtyP
```

7. Calculate Factorial

Question: Write a program to calculate the factorial of a number.

```python
Copy code
# Input:
# Enter a number: 5
# Output:
# Factorial of 5 is 120
```

8. Generate Multiplication Table

Question: Write a program to generate the multiplication table of a number.

```python
Copy code
# Input:
# Enter a number: 3
# Output:
# 3 x 1 = 3
# 3 x 2 = 6
# ...
# 3 x 10 = 30
```

9. Find Prime Numbers in a Range

Question: Write a program to print all prime numbers between two given numbers.

```python
Copy code
# Input:
# Enter the range (e.g., 10 20): 10 20
# Output:
# Prime numbers: 11, 13, 17, 19
```

10. Check Palindrome

Question: Write a program to check if a string is a palindrome.

```python
Copy code
# Input:
# Enter a string: radar
# Output:
# radar is a Palindrome
```

11. Calculate the Sum of Digits

Question: Write a program to calculate the sum of digits of a number.

```python
Copy code
# Input:
# Enter a number: 123
# Output:
# Sum of digits: 6
```

12. Count Vowels in a String

Question: Write a program to count vowels in a given string.

```python
Copy code
# Input:
# Enter a string: hello
# Output:
# Number of vowels: 2
```

13. Fibonacci Sequence

Question: Write a program to generate the Fibonacci sequence up to n terms.

```python
Copy code
# Input:
```

```
# Enter the number of terms: 5
# Output:
# Fibonacci sequence: 0, 1, 1, 2, 3
```

14. Find the Length of a List

Question: Write a program to find the length of a list.

```python
Copy code
# Input:
# Enter a list: [1, 2, 3, 4]
# Output:
# Length of the list: 4
```

15. Find the Second Largest Number in a List

Question: Write a program to find the second largest number in a list.

```python
Copy code
# Input:
# Enter a list: [5, 10, 2, 8]
# Output:
# Second largest: 8
```

16. Count Words in a String

Question: Write a program to count the number of words in a string.

```python
Copy code
# Input:
# Enter a string: Hello World Python
# Output:
# Number of words: 3
```

17. Check Armstrong Number

Question: Write a program to check if a number is an Armstrong number.

```python
Copy code
# Input:
# Enter a number: 153
# Output:
# 153 is an Armstrong number
```

18. Remove Duplicates from a List

Question: Write a program to remove duplicate elements from a list.

```python
Copy code
# Input:
# Enter a list: [1, 2, 2, 3, 4, 4]
# Output:
# List without duplicates: [1, 2, 3, 4]
```

19. Find the GCD of Two Numbers

Question: Write a program to find the GCD of two numbers.

```python
Copy code
# Input:
# Enter two numbers: 8 12
# Output:
# GCD: 4
```

20. Sort a List

Question: Write a program to sort a list in ascending order.

```python
Copy code
# Input:
# Enter a list: [4, 2, 8, 1]
# Output:
# Sorted list: [1, 2, 4, 8]
```

21. Create a List

Question: Write a program to create a list with elements entered by the user.

```python
Copy code
# Input:
# Enter elements separated by space: 1 2 3 4
# Output:
# List: [1, 2, 3, 4]
```

22. Access Elements of a List

Question: Write a program to access the first and last elements of a list.

```python
Copy code
# Input:
# Enter a list: [10, 20, 30, 40]
# Output:
# First element: 10
# Last element: 40
```

---

23. Update a List Element

Question: Write a program to update the second element of a list.

```python
Copy code
# Input:
# Enter a list: [5, 10, 15]
# Enter new value for second element: 20
# Output:
# Updated list: [5, 20, 15]
```

---

24. Append an Element to a List

Question: Write a program to append an element to a list.

```python
Copy code
# Input:
# Enter a list: [1, 2, 3]
# Enter an element to append: 4
# Output:
# List after appending: [1, 2, 3, 4]
```

---

25. Insert an Element at a Specific Position

Question: Write a program to insert an element at the second position in a list.

```python
Copy code
# Input:
# Enter a list: [10, 30, 40]
# Enter an element to insert: 20
# Output:
# List after insertion: [10, 20, 30, 40]
```

---

26. Remove an Element

Question: Write a program to remove a specified element from a list.

```python
Copy code
# Input:
# Enter a list: [1, 2, 3, 4]
# Enter element to remove: 3
# Output:
# List after removal: [1, 2, 4]
```

---

27. Count Occurrences of an Element

Question: Write a program to count how many times a given element appears in a list.

```python
Copy code
# Input:
# Enter a list: [1, 2, 2, 3, 4]
# Enter the element to count: 2
# Output:
# Count: 2
```

---

28. Find Index of an Element

Question: Write a program to find the index of a specified element in a list.

```python
Copy code
# Input:
# Enter a list: [10, 20, 30]
# Enter element to find: 20
# Output:
# Index: 1
```

---

29. Reverse a List

Question: Write a program to reverse a list.

```python
Copy code
# Input:
# Enter a list: [1, 2, 3, 4]
# Output:
# Reversed list: [4, 3, 2, 1]
```

---

30. Sort a List

Question: Write a program to sort a list in ascending and descending order.

```python
Copy code
# Input:
# Enter a list: [4, 2, 8, 1]
# Output:
# Sorted list (ascending): [1, 2, 4, 8]
# Sorted list (descending): [8, 4, 2, 1]
```

31. Find the Maximum and Minimum Elements

Question: Write a program to find the maximum and minimum elements in a list.

```python
Copy code
# Input:
# Enter a list: [10, 20, 30, 40]
# Output:
# Maximum: 40
# Minimum: 10
```

32. Check if an Element Exists in a List

Question: Write a program to check if a given element exists in a list.

```python
Copy code
# Input:
# Enter a list: [1, 2, 3, 4]
# Enter an element to check: 3
# Output:
# 3 exists in the list
```

33. Find the Sum of All Elements

Question: Write a program to find the sum of all elements in a list.

```python
Copy code
# Input:
# Enter a list: [10, 20, 30]
# Output:
# Sum: 60
```

34. Multiply All Elements

Question: Write a program to find the product of all elements in a list.

```python
Copy code
# Input:
# Enter a list: [2, 3, 4]
# Output:
# Product: 24
```

---

35. Remove Duplicates from a List

Question: Write a program to remove duplicate elements from a list.

```python
Copy code
# Input:
# Enter a list: [1, 2, 2, 3, 4, 4]
# Output:
# List without duplicates: [1, 2, 3, 4]
```

---

36. Find the Largest and Smallest Numbers Without Built-in Functions

Question: Write a program to find the largest and smallest elements in a list without using built-in functions.

```python
Copy code
# Input:
# Enter a list: [5, 2, 8, 1]
# Output:
# Largest: 8
# Smallest: 1
```

---

37. Slice a List

Question: Write a program to extract a sublist from a list.

```python
Copy code
# Input:
# Enter a list: [1, 2, 3, 4, 5]
# Enter the start and end indices: 1 4
# Output:
# Sublist: [2, 3, 4]
```

---

38. Find Common Elements Between Two Lists

Question: Write a program to find the common elements between two lists.

```python
Copy code
# Input:
# Enter the first list: [1, 2, 3]
# Enter the second list: [2, 3, 4]
# Output:
# Common elements: [2, 3]
```

39. Flatten a Nested List

Question: Write a program to flatten a nested list.

```python
Copy code
# Input:
# Enter a nested list: [[1, 2], [3, 4], [5]]
# Output:
# Flattened list: [1, 2, 3, 4, 5]
```

40. Generate a List of Squares

Question: Write a program to generate a list of squares of numbers from 1 to `n`.

```python
Copy code
# Input:
# Enter a number: 5
# Output:
# List of squares: [1, 4, 9, 16, 25]
```

41. Create a Tuple

Question: Write a program to create a tuple with elements entered by the user.

```python
Copy code
# Input:
# Enter elements separated by space: 1 2 3 4
# Output:
# Tuple: (1, 2, 3, 4)
```

42. Access Tuple Elements

Question: Write a program to access the first and last elements of a tuple.

```python
Copy code
# Input:
# Enter a tuple: (10, 20, 30, 40)
# Output:
# First element: 10
# Last element: 40
```

---

43. Update a Tuple

Question: Write a program to update an element in a tuple by converting it to a list first.

```python
Copy code
# Input:
# Enter a tuple: (5, 10, 15)
# Enter new value for second element: 20
# Output:
# Updated tuple: (5, 20, 15)
```

---

44. Find the Length of a Tuple

Question: Write a program to find the length of a tuple.

```python
Copy code
# Input:
# Enter a tuple: (10, 20, 30, 40)
# Output:
# Length of the tuple: 4
```

---

45. Concatenate Two Tuples

Question: Write a program to concatenate two tuples.

```python
Copy code
# Input:
# Enter first tuple: (1, 2)
# Enter second tuple: (3, 4)
# Output:
# Concatenated tuple: (1, 2, 3, 4)
```

---

46. Repeat a Tuple

Question: Write a program to repeat a tuple multiple times.

```python
Copy code
# Input:
# Enter a tuple: (1, 2)
# Enter number of repetitions: 3
# Output:
# Repeated tuple: (1, 2, 1, 2, 1, 2)
```

47. Check if an Element Exists in a Tuple

Question: Write a program to check if an element exists in a tuple.

```python
Copy code
# Input:
# Enter a tuple: (10, 20, 30)
# Enter element to check: 20
# Output:
# 20 exists in the tuple
```

48. Find the Index of an Element

Question: Write a program to find the index of a specified element in a tuple.

```python
Copy code
# Input:
# Enter a tuple: (5, 10, 15)
# Enter element to find: 10
# Output:
# Index of 10: 1
```

49. Count Occurrences of an Element

Question: Write a program to count how many times a given element appears in a tuple.

```python
Copy code
# Input:
# Enter a tuple: (1, 2, 2, 3, 4)
# Enter element to count: 2
# Output:
# Count of 2: 2
```

50. Slice a Tuple

Question: Write a program to slice a tuple.

```python
Copy code
# Input:
# Enter a tuple: (1, 2, 3, 4, 5)
# Enter start and end indices: 1 4
# Output:
# Sliced tuple: (2, 3, 4)
```

51. Create a Dictionary

Question: Write a program to create a dictionary with keys and values entered by the user.

```python
Copy code
# Input:
# Enter key: name
# Enter value: John
# Enter key: age
# Enter value: 25
# Output:
# Dictionary: {'name': 'John', 'age': 25}
```

52. Access Dictionary Elements

Question: Write a program to access the value associated with a specific key in a dictionary.

```python
Copy code
# Input:
# Enter a dictionary: {'name': 'Alice', 'age': 30}
# Enter key to access: name
# Output:
# Value: Alice
```

53. Update a Dictionary

Question: Write a program to update the value of an existing key in a dictionary.

```python
Copy code
# Input:
# Enter a dictionary: {'name': 'Bob', 'age': 20}
# Enter key to update: age
# Enter new value: 25
# Output:
# Updated dictionary: {'name': 'Bob', 'age': 25}
```

54. Add Key-Value Pair

Question: Write a program to add a new key-value pair to a dictionary.

```python
Copy code
# Input:
# Enter a dictionary: {'name': 'Charlie', 'age': 35}
# Enter new key: city
# Enter new value: New York
# Output:
# Updated dictionary: {'name': 'Charlie', 'age': 35, 'city': 'New York'}
```

55. Remove Key-Value Pair

Question: Write a program to remove a key-value pair from a dictionary.

```python
Copy code
# Input:
# Enter a dictionary: {'name': 'Eve', 'age': 28, 'city': 'London'}
# Enter key to remove: city
# Output:
# Updated dictionary: {'name': 'Eve', 'age': 28}
```

56. Check if Key Exists in Dictionary

Question: Write a program to check if a specific key exists in a dictionary.

```python
Copy code
# Input:
# Enter a dictionary: {'name': 'David', 'age': 22}
# Enter key to check: age
# Output:
# 'age' exists in the dictionary
```

57. Get Dictionary Keys and Values

Question: Write a program to get all keys and values from a dictionary.

```python
Copy code
# Input:
# Enter a dictionary: {'name': 'Grace', 'age': 40}
# Output:
```

```
# Keys: ['name', 'age']
# Values: ['Grace', 40]
```

58. Merge Two Dictionaries

Question: Write a program to merge two dictionaries.

```python
Copy code
# Input:
# Enter first dictionary: {'a': 1, 'b': 2}
# Enter second dictionary: {'c': 3, 'd': 4}
# Output:
# Merged dictionary: {'a': 1, 'b': 2, 'c': 3, 'd': 4}
```

59. Iterate Over Dictionary

Question: Write a program to iterate over a dictionary and print each key and its corresponding value.

```python
Copy code
# Input:
# Enter a dictionary: {'name': 'Alice', 'age': 30}
# Output:
# Key: name, Value: Alice
# Key: age, Value: 30
```

60. Copy a Dictionary

Question: Write a program to copy a dictionary into another dictionary.

```python
Copy code
# Input:
# Enter a dictionary: {'name': 'Hannah', 'age': 22}
# Output:
# Original dictionary: {'name': 'Hannah', 'age': 22}
# Copied dictionary: {'name': 'Hannah', 'age': 22}
```

61. Find the Length of a List

Question: Write a program to find the length of a list using a `for` loop.

```python
Copy code
# Input:
# List: [10, 20, 30, 40]
```

```
# Output:
# Length of the list: 4
```

62. Print Odd Numbers from 1 to 20

Question: Write a program to print all odd numbers from 1 to 20 using a `for` loop.

```python
Copy code
# Output:
# 1
# 3
# 5
# 7
# 9
# 11
# 13
# 15
# 17
# 19
```

63. Create a List of Squares

Question: Write a program to create a list containing the squares of numbers from 1 to 10 using a `for` loop.

```python
Copy code
# Output:
# [1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

64. Remove All Negative Numbers

Question: Write a program to remove all negative numbers from a list using a `for` loop.

```python
Copy code
# Input:
# List: [1, -2, 3, -4, 5]
# Output:
# Modified list: [1, 3, 5]
```

65. Check Prime Numbers in a Range

Question: Write a program to check all prime numbers between 1 and 50 using a `for` loop.

```python
Copy code
# Output:
# Prime numbers between 1 and 50: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37,
41, 43, 47
```

66. Sum of Squares of Even Numbers

Question: Write a program to calculate the sum of the squares of even numbers from 1 to 10 using a `for` loop.

```python
Copy code
# Output:
# Sum of squares of even numbers: 220
```

67. Create a Dictionary from Two Lists

Question: Write a program to create a dictionary from two lists using a `for` loop, where one list contains keys and the other contains values.

```python
Copy code
# Input:
# Keys: ['name', 'age', 'city']
# Values: ['John', 25, 'New York']
# Output:
# Dictionary: {'name': 'John', 'age': 25, 'city': 'New York'}
```

68. Print Fibonacci Sequence

Question: Write a program to print the Fibonacci sequence up to the 10th term using a `for` loop.

```python
Copy code
# Output:
# 0, 1, 1, 2, 3, 5, 8, 13, 21, 34
```

69. Sum of All Elements in a Nested List

Question: Write a program to calculate the sum of all elements in a nested list using a `for` loop.

```python
Copy code
# Input:
# Nested List: [[1, 2], [3, 4], [5, 6]]
```

```
# Output:
# Sum: 21
```

70. Print a Right-Angle Triangle Pattern

Question: Write a program to print a right-angle triangle pattern using a `for` loop.

```python
Copy code
# Output:
# *
# **
# ***
# ****
# *****
```

Here are 10 Python questions focused on **list comprehension**, ranging from basic to mid-level:

71. Create a List of Squares

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

```python
Copy code
# Output:
# [1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

72. Filter Even Numbers from a List

Question: Write a list comprehension to filter all even numbers from a given list.

```python
Copy code
# Input:
# List: [1, 2, 3, 4, 5, 6, 7, 8]
# Output:
# [2, 4, 6, 8]
```

73. Convert All Strings to Uppercase

Question: Write a list comprehension to convert all strings in a list to uppercase.

```python
Copy code
# Input:
# List: ['apple', 'banana', 'cherry']
# Output:
# ['APPLE', 'BANANA', 'CHERRY']
```

74. Create a List of Lengths of Strings

Question: Write a list comprehension to create a list of lengths of all strings in a given list.

```python
Copy code
# Input:
# List: ['cat', 'dog', 'elephant']
# Output:
# [3, 3, 8]
```

75. Square Only Odd Numbers

Question: Write a list comprehension to square only the odd numbers from a given list.

```python
Copy code
# Input:
# List: [1, 2, 3, 4, 5, 6]
# Output:
# [1, 9, 25]
```

76. Create a List of First Letters

Question: Write a list comprehension to extract the first letter of each word in a list of strings.

```python
Copy code
# Input:
# List: ['apple', 'banana', 'cherry']
# Output:
# ['a', 'b', 'c']
```

77. Create a List of Numbers Divisible by 3

Question: Write a list comprehension to generate a list of numbers divisible by 3 from 1 to 20.

```python
Copy code
# Output:
```

```
# [3, 6, 9, 12, 15, 18]
```

78. Flatten a Nested List

Question: Write a list comprehension to flatten a nested list.

```python
Copy code
# Input:
# Nested List: [[1, 2], [3, 4], [5, 6]]
# Output:
# [1, 2, 3, 4, 5, 6]
```

79. Remove Vowels from a String

Question: Write a list comprehension to remove vowels from a string.

```python
Copy code
# Input:
# String: "hello"
# Output:
# ['h', 'l', 'l']
```

80. Create a List of Cubes

Question: Write a list comprehension to create a list of cubes of numbers from 1 to 5.

```python
Copy code
# Output:
# [1, 8, 27, 64, 125]
```