**PYTHON EXERCISE**

1. Write a program that checks if a number is odd or even.

2. Write a program that finds the largest among three numbers.

3. Write a program to check if a given year is a leap year.

4. Write a program that calculates the grade of a student based on their marks.

5. Write a program that checks if a character is a vowel or consonant.

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

7. Write a program that checks if a number is divisible by 5 and 11.

8. Write a program to check if three given lengths can form a triangle.

9. Write a program to check if a number is within a specific range.

10. Write a program that prints the number of days in a given month.

11. Write a program that prints numbers from 1 to 100 using a loop.

12. Write a program to find the sum of the first N natural numbers.

13. Write a program to calculate the factorial of a number.

14. Write a program to generate the Fibonacci sequence up to N terms.

15. Write a program that checks if a number is prime.

16. Write a program to print the multiplication table of a given number.

17. Write a program to reverse a given number.

18. Write a program to count the number of digits in a given number.

19. Write a program to find the sum of the digits of a number.

20. Write a program to check if a number is an Armstrong number.

21. Write a program to find the sum of elements in a list.

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

23. Write a program to find the average of elements in a list.

24. Write a program to reverse a given string.

25. Write a program to check if a string is a palindrome.

26. Write a program to count the number of vowels in a given string.

27. Write a program to swap keys and values in a dictionary.

28. Write a program to merge two dictionaries.

29. Write a program to perform union, intersection, and difference operations on sets.

30. Write a program to perform operations (like sum, min, max) on a tuple.

31. Write a program to simulate a basic login authentication system.

32. Write a program to find the roots of a quadratic equation.

33. Write a program to categorize grades into A, B, C, D, or F.

34. Write a program to simulate a simple calculator using if-elif-else.

35. Write a program to calculate the Body Mass Index (BMI) and categorize it.

36. Write a program to determine the day of the week given a date.

37. Write a program to check if a character is uppercase, lowercase, or a digit.

38. Write a program to simulate a traffic light using conditional statements.

39. Write a program to convert a month name to its corresponding number.

40. Write a program to check the strength of a password.

41. Write a program to print a right triangle pattern using loops.

42. Write a program to print an inverted triangle pattern using loops.

43. Write a program to print a diamond shape pattern using loops.

44. Write a program to find all prime numbers within a given range.

45. Write a program to find the sum of even and odd numbers separately in a range.

46. Write a program to find the greatest common divisor (GCD) of two numbers.

47. Write a program to find the least common multiple (LCM) of two numbers.

48. Write a program to print a hollow square pattern using loops.

49. Write a program to print Floyd’s triangle.

50. Write a program to count the number of prime numbers up to a given number N.

51. Write a program to remove duplicates from a list.

52. Write a program to find the intersection of two lists.

53. Write a program to create a list of squares of numbers using list comprehension.

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

55. Write a program to capitalize the first letter of each word in a string.

56. Write a program to sort a dictionary by its values.

57. Write a program to sort a list of tuples based on the second element.

58. Write a program to count the frequency of each character in a string.

59. Write a program to merge two lists and sort the result.

60. Write a program to merge two dictionaries and update values of common keys.

61. Write a program to convert temperature from Celsius to Fahrenheit and vice versa.

62. Write a program to calculate simple interest.

63. Write a program to calculate compound interest.

64. Write a program to calculate electricity bill based on usage.

65. Write a program to calculate the discount on a purchase based on amount.

66. Write a program to convert currency from one unit to another.

67. Write a program to calculate speeding fines based on speed limits.

68. Write a program to calculate body fat percentage based on input parameters.

69. Write a program to calculate the total cost of items in a shopping cart.

70. Write a program to calculate pay based on different work shifts.

71. Write a program to print Pascal’s triangle.

72. Write a program to find the sum of squares of the first N natural numbers.

73. Write a program to find the sum of cubes of the first N natural numbers.

74. Write a program to find all perfect numbers within a given range.

75. Write a program to count the frequency of each digit in a number.

76. Write a program to convert a binary number to a decimal number.

77. Write a program to convert a decimal number to a binary number.

78. Write a program to print a number pattern.

79. Write a program to print various star patterns.

80. Write a program to create simple ASCII art using loops.

81. Write a program to count the frequency of each element in a list.

82. Write a program to rotate elements of a list to the left or right.

83. Write a program to check if two strings are anagrams.

84. Write a program to check if a string is a substring of another string.

85. Write a program to invert keys and values in a dictionary.

86. Write a program to demonstrate packing and unpacking of tuples.

87. Write a program to generate a random number within a specified range.

88. Write a program to find the most frequent element in a list.

89. Write a program to find the least frequent element in a list.

90. Write a program to count the number of occurrences of each word in a string.

91. Write a program to remove punctuation from a string.

92. Write a program to find the common elements in three lists.

93. Write a program to find the uncommon elements in two lists.

94. Wrrite a program to remove all occurrences of a specified element from a list.

95. Write a program to find the sum of elements in a dictionary.

96. Write a program to find the maximum value in a dictionary.

97. Write a program to find the minimum value in a dictionary.

98. Write a program to flatten a list of lists.

99. Write a program to generate all permutations of a list.

100. Write a program to find the longest word in a string.