

Noida Institute of Engineering & Technology, Greater Noida

Problem Solving using Python Lab

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| **UNIT I** | |
| **1.** | Python Program to Print Hello world! |
| **2.** | Python Program to Add Two Numbers. |
| **3.** | Python Program to Find the Square Root. |
| **4.** | Python Program to Calculate the Area of a Triangle. |
| **5.** | Python Program to Solve Quadratic Equation using exponent operator. |
| **6.** | Python Program to Swap Two Variables |
| **7.** | Python Program to Convert Kilometres to Miles (1 mile = 1.67 km) |
| **8.** | Python Program to Convert Celsius To Fahrenheit F=9\*C/5+32 |
| **9.** | Python program to convert height (in feet and inches) to centimetres. (1 feet= 12 inches, 1 inch=2.54 cm)  (cms=feet\*12\*2.54+inches\*2.54) |
| **10.** | Python program to calculate the hypotenuse of a right-angled triangle. (h=(b\*b +h\*h)\*\*0.5) |
| **11.** | Python program to convert all units of time into seconds. |
| **12.** | Python program to calculate midpoints of a line-segment. |
| **13.** | Python program to display your details like name, age, address in three different lines. |
| **14.** | Python program to compute the distance between the points (x1, y1) and (x2, y2). |
| **UNIT II** | |
| **15.** | WAP to find the absolute value of the given number. |
| **16.** | WAP to Check if a Number is Odd or Even. |
| **17.** | WAP to find greater between two numbers. |
| **18.** | WAP to check whether a number is divisible by another number. |
| **19.** | WAP to find the largest among three numbers. |
| **20.** | WAP to find the smallest among three numbers. |
| **21.** | WAP to check whether a number is zero, negative or positive. |
| **22.** | WAP to check whether a given year is leap year or not. |
| **23.** | WAP to compute the roots of the quadratic equation. |
| **24.** | WAP to enter a character and then determine whether it is a vowel, consonants, or a digit. |
| **25.** | WAP that accepts the marks of 5 subjects and finds the percentage marks obtained by the student. It also prints grades according to the following criteria:  Between 90-100% Print 'A'  80-90% Print 'B'  60-80% Print 'C'  50-60% Print 'D'  40-50% Print 'E' |



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|  | Below 40% Print 'F’ | | | | | | | | | | | | | | |
| **26.** | WAP to simulate the calculator (Arithmetic operations: +, -, /, \*). | | | | | | | | | | | | | | |
| **27.** | WAP to display the first N natural numbers. | | | | | | | | | | | | | | |
| **28.** | WAP to compute the sum of first N natural numbers. | | | | | | | | | | | | | | |
| **29.** | WAP to compute the factorial of the given number. | | | | | | | | | | | | | | |
| **30.** | WAP to compute the sum of factorial of the first n natural number. | | | | | | | | | | | | | | |
| **31.** | WAP to display the table of the given number. | | | | | | | | | | | | | | |
| **32.** | WAP to compute the sum of the digits of the given number. | | | | | | | | | | | | | | |
| **33.** | WAP to reverse the given number. Also check whether the given number is in palindrome or not. | | | | | | | | | | | | | | |
| **34.** | WAP to count the number of digits of the given number. | | | | | | | | | | | | | | |
| **35.** | WAP to check whether the given number is an Armstrong number or not. | | | | | | | | | | | | | | |
| **36.** | WAP to display the following series. 13, -23, 33, - 43, ……., (-1)n+1 n3 | | | | | | | | | | | | | | |
| **37.** | WAP to compute the sum of following series up to the nth term.  1 + 𝑥1/1! + 𝑥2/2! +𝑥3/3! + ……. | | | | | | | | | | | | | | |
| **38.** | WAP to check whether the given number is prime number or not. | | | | | | | | | | | | | | |
| **39.** | WAP to find the sum of odd and even numbers separately within a given range. | | | | | | | | | | | | | | |
| **40.** | WAP to display all the prime numbers in given range. | | | | | | | | | | | | | | |
| **41.** | WAP to compute the sum of Fibonacci series up to nth term. | | | | | | | | | | | | | | |
| **42.** | WAP to display all the factors of a number. | | | | | | | | | | | | | | |
| **43.** | WAP to display all the Armstrong number from 1 to n. | | | | | | | | | | | | | | |
| **44.** | WAP to compute the HCF of two numbers. | | | | | | | | | | | | | | |
| **45.** | WAP to compute the LCM of two numbers. | | | | | | | | | | | | | | |
| **46.** | WAP to convert the decimal number to the binary number. | | | | | | | | | | | | | | |
| **47.** | WAP to convert the binary number to the decimal number. | | | | | | | | | | | | | | |
| **48.** | WAP to convert the decimal number to the octal number. | | | | | | | | | | | | | | |
| **49.** | WAP to convert the octal number to decimal number. | | | | | | | | | | | | | | |
| **50.** | WAP to display the Floyd’s triangle. | | | | | | | | | | | | | | |
|  | | 1 | |  | |  | | |  | |  | |  | |
| 2 | | 3 | |  | | |  | |  | |
| 4 | | 5 | | 6 | | |  | |  | |
| 7 | | 8 | | 9 | | | 10 | |  | |
| 11 | | 12 | | 13 | | | 14 | | 15 | |
| **51.** | WAP to display the following pattern. | | | | | | | | | | | | | | |
|  | | | | A |  | |  |  | |  |  | | | |
| A | B | |  |  | |  |
| A | B | | C |  | |  |
| A | B | | C | D | |  |
| A | B | | C | D | | E |
| **52.** | WAP to display the following pattern. | | | | | | | | | | | | | | |
|  |  | |  |  |  | | \* |  | |  |  |  | |  |
|  | |  |  | \* | | \* | \* | |  |  |  | |
|  | |  | \* | \* | | \* | \* | | \* |  |  | |
|  | | \* | \* | \* | | \* | \* | | \* | \* |  | |



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|  |  | \* | \* | \* | \* | \* | \* | \* | \* | \* |  |
| **UNIT III** | | | | | | | | | | | |
| **53.** | WAP to implement the user defined function to add two numbers. | | | | | | | | | | |
| **54.** | WAP to check whether the two numbers are equal or not. | | | | | | | | | | |
| **55.** | WAP to find the largest of three numbers using user defined function. | | | | | | | | | | |
| **56.** | WAP to check whether the given year is a leap year or not using user defined function. | | | | | | | | | | |
| **57.** | WAP to swap the values of two variable that are defined as global variables. | | | | | | | | | | |
| **58.** | WAP to compute the factorial of the given number using user defined function. | | | | | | | | | | |
| **59.** | WAP to compute the P (n, r) using user defined function. | | | | | | | | | | |
| **60.** | WAP to compute the C (n, r) using the user defined function. | | | | | | | | | | |
| **61.** | WAP to compute the HCF and LCM of two numbers using user defined function. | | | | | | | | | | |
| **62.** | WAP compute the sum of the series using user defined function. | | | | | | | | | | |
| **63.** | WAP to display the pattern using user defined function. | | | | | | | | | | |
| **64.** | WAP to display the Fibonacci series using user defined function. | | | | | | | | | | |
| **65.** | WAP to compute the sum of Fibonacci series up to nth term using user defined function. | | | | | | | | | | |
| **66.** | WAP to compute the sum of the digits using user defined function. | | | | | | | | | | |
| **67.** | WAP to check whether the given number is a prime number or not using user defined function. | | | | | | | | | | |
| **68.** | WAP to compute the exponential of number w.r.t. another number. | | | | | | | | | | |
| **69.** | WAP to compute the sum of the first n natural number using recursion. | | | | | | | | | | |
| **70.** | WAP to compute the factorial of the given number using recursion. | | | | | | | | | | |
| **71.** | WAP to compute the exponential of number w.r.t. another number using recursion. | | | | | | | | | | |
| **72.** | WAP to display the Fibonacci series using recursion. | | | | | | | | | | |
| **73.** | WAP to compute the sum of digits of the given number using recursion. | | | | | | | | | | |
| **74.** | WAP to compute the reverse of the given number using recursion. | | | | | | | | | | |
| **75.** | WAP to multiply two numbers using lambda function. | | | | | | | | | | |
| **76.** | WAP to compute the cube of all numbers in the given list using map() function. | | | | | | | | | | |
| **77.** | WAP to create a new list consisting of odd numbers from the given list of numbers using filter() function. | | | | | | | | | | |
| **78.** | WAP to compute the sum of all the elements of the list using reduce() function. | | | | | | | | | | |
| **79.** | WAP to find the largest element in the given list using reduce() function. | | | | | | | | | | |
| **UNIT IV** | | | | | | | | | | | |
| **80.** | WAP to find min, max and average of elements of a list having numeric data | | | | | | | | | | |
| **81.** | WAP to print all even numbers of a list using list comprehension | | | | | | | | | | |
| **82.** | WAP to find sum of all even numbers and odd numbers separately in a list | | | | | | | | | | |
| **83.** | WAP that reverses a list using loop. | | | | | | | | | | |
| **84.** | Python Program to Add Two Matrices | | | | | | | | | | |
| **85.** | Python Program to Multiply Two Matrices | | | | | | | | | | |
| **86.** | Python Program to Transpose a Matrix | | | | | | | | | | |
| **87.** | Python Program that validates given mobile number. Number should start with 7, 8 or 9 followed by 9 digits. | | | | | | | | | | |
| **88.** | WAP to find occurrence of each character in string. | | | | | | | | | | |
| **89.** | WAP that inverts a dictionary. That is, it makes key of one dictionary value of another and vice versa. | | | | | | | | | | |



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| **90.** | WAP that prompts user to enter an alphabet and then print all the words that starts with that alphabet from the list of words. |
| **UNIT V** | |
| **91.** | WAP to read the content of whole file using read() function. |
| **92.** | WAP to read the existing file line by line. |
| **93.** | WAP to copy the contents of one file into another file. |
| **94.** | WAP to count number of vowels and consonants in a text file. |
| **95.** | WAP to count number of words, lines, and characters in a text file. |
| **96.** | Python Program to handle divide by zero exception. |
| **97.** | WAP to handle multiple exception. |