DES PUNE UNIVERSITY	Name of the School	DI No.: SOSM/ACAD//DI/12
Academic Year: 2025-26	**Name of the Department – Computer Science**	**Revision: 00**
Term – II	**Name of the Program – B.Sc (CS)**	**Dated: 05/12/2025**
	List of Lab Assignments	

Course Code & Name: SMCS255/ Introduction to Python **Class:** S.Y B.Sc(CS)

Course Coordinator (If Applicable):

Sr. No.	Assignment Title	CO Covered
1.	**Basic Syntax & Variables** 1. Write a program to perform basic arithmetic operations on two numbers. 2. Write a program to calculate the simple interest. 3. Write a program to convert temperature from Celsius to Fahrenheit. 4. Write a program to find the area and perimeter of basic shapes (circle, rectangle, triangle).	CO1
2.	**Conditional Statements** 1. Write a program to check whether a number is positive, negative, or zero. 2. Write a program to determine whether a year is a leap year. 3. Write a program to calculate grade based on marks using if–elif–else. 4. Write a program to create a simple menu-driven calculator.	CO1
3.	**Loops** 1. Write a program to print the Fibonacci series up to n terms. 2. Write a program to find the factorial of a number. 3. Write a program to check whether a number is prime. 4. Write a program to print Floyd's Triangle and given number pattern using loops. 1 12 123 1234 12345	CO1
4.	**Operators** 1. Write a program to demonstrate arithmetic, relational, and logical operators. 2. Write a program to swap two numbers using different operator methods. 3. Write a program to compare two numbers and display which one is greater, smaller, or equal using appropriate operators. 4. Write a program to compare identity and membership operators.	CO1
5.	**Lists** 1. Write a program to create a list and perform indexing, slicing, and updating. 2. Write a program to find the largest and smallest element in a list. 3. Write a program to remove duplicates from a list. 4. Write a program to sort a list without using the built-in sort method.	CO2
6.	**Tuples** 1. Write a program to create a tuple and demonstrate packing and unpacking. 2. Write a program to convert a list to a tuple and vice versa. 3. Write a program to find the frequency of elements in a tuple. 4. Write a program to compare the performance of list vs tuple for iteration.	CO2
7.	**Dictionaries** 1. Write a program to create a dictionary of student records. 2. Write a program to merge two dictionaries.	CO2

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	3. Write a program to count the frequency of words in a sentence using a dictionary. 4. Write a program to demonstrate nested dictionaries.	
8.	**Sets** 1. Write a program to create a set and perform add/remove operations. 2. Write a program to find union, intersection, and difference of two sets. 3. Write a program to find unique elements from a list using sets. 4. Write a program to find common elements between two lists using sets.	CO2
9.	**String Operations** 1. Write a program to reverse a string without using slicing. 2. Write a program to check whether a string is a palindrome. 3. Write a program to count vowels, consonants, digits, and spaces in a string. 4. Write a program to remove punctuation from a string.	CO3
10.	**String Functions & Formatting** 1. Write a program to demonstrate string functions (upper, lower, replace, split, join). 2. Write a program to format a student grade card using f-strings. 3. Write a program to find the longest word in a sentence. 4. Write a program to count the occurrence of each word in a paragraph.	CO3
11.	**Regular Expressions** 1. Write a program to validate an email address using regex. 2. Write a program to validate a mobile number using regex. 3. Write a program to extract all numbers from a given text. 4. Write a program to split a string based on multiple delimiters.	CO3
12.	**User-Defined Functions** 1. Write a program to create a calculator using functions. 2. Write a program to demonstrate default, keyword, and positional arguments. 3. Write a program to find factorial, prime, and Armstrong numbers using functions. 4. Write a program to demonstrate variable scope (local vs global).	CO4
13.	**Modules & Packages** 1. Write a program to create your own module containing mathematical functions. 2. Write a program to import and use built-in modules such as math, statistics, datetime. 3. Write a program to create a package with two modules and use them. 4. Write a program to generate random numbers using the random module.	CO4
14.	**Functions + Strings Integration** 1. Write a program to… • Write a function to count the number of vowels, consonants, digits, and special characters in a string. • Write a function to reverse a string and check if it is a palindrome. • Write a function to find the frequency of each word in a sentence. 2. Write a program to accept multiple strings from the user and store them in a list; then sort the list alphabetically using a function.	CO5
15.	Develop a mini-project, such as a Student Information Manager or Library Inventory Manager, based on a problem statement of student's choice.	CO5

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Prepared By	Reviewed By	Approved By
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