

## MODULE 2

2.1 Data Types in Python, Whitespace, Code Block Indentation, Comments, Variables, reserved keywords, Naming conventions, Python's built-in type

2.2 Operators in Python, Basic built-in Math functions

2.3 Strings , format(), print(), type casting in python

2.4 Data Structures: Tuples, List, Dictionaries, Set, Arrays, Conversion of data structures methods

Q No	Question
1	Write a Python program that takes a string from the user, removes all vowels from the string, extracts the remaining letters, and sorts them in alphabetical order. The program should then print the sorted letters as a list.
2	<p>Write a Python program that takes a list of words from the user, identifies and removes any words that are palindromes (words that read the same backward as forward), and then sorts the remaining words in reverse alphabetical order. The program should finally print the updated list as a tuple.</p> <p><b>Sample Input:</b>  <b>words = ['level', 'world', 'civic', 'python', 'madam', 'programming']</b>  <b>Expected Output:</b>  <b>('world', 'python', 'programming')</b></p>
3	<p>Write a Python program that takes two strings as input from the user. The program should perform the following operations:</p> <ul style="list-style-type: none"> <li>• Concatenate the two strings.</li> <li>• Remove all digits from the concatenated string.</li> <li>• Convert the string to uppercase.</li> <li>• Print the final result.</li> </ul> <p>Sample Input:  String 1: "Hello123"  String 2: "World456"  Expected Output: "HELLOWORLD"</p>
4	<p>Write a Python program that takes a sentence from the user and prints the sentence in reverse order. For example, "Hello World" should be printed as "World Hello"</p> <p>Write a program that extracts a substring from a given text, starting from the <b>start</b> index and ending at the <b>end</b> index. Print the extracted substring.</p>
5	<p>Write a Python program that takes a dictionary where the keys are strings and the values are integers. Your program should return a new dictionary containing only the key-value pairs where the value is an even number.</p> <p>Sample Dictionary: {'a': 3, 'b': 4, 'c': 10, 'd': 5, 'e': 12}  Expected Result: {'b': 4, 'c': 10, 'e': 12}</p>

6	Write a Python program to count the number of strings where the string length is 2 or more and the first and last character are the same from a given list of strings. Sample List : ['abc', 'xyz', 'aba', '1221'] Expected Result : 2
7	Write a Python program that filters a list of integers and counts how many numbers are greater than 10 and even.  Sample List: [12, 7, 15, 22, 10, 6] Expected Result: 2
8	Write a program to prepare a grocery bill . For that enter the name of items purchased, quantity in which it is purchased, and its price per unit. Then display the bill in the following format. *****BILL***** Item Name            Item Quantity            Item Price  ***** Total Amount to be paid *****
9	Write a Python program that takes a list of integers from the user, removes any duplicate elements, and then sorts the list in ascending order. The program should finally convert the list into a tuple and print it.
10	Write a Python program to manage student grades. The program should: <ul style="list-style-type: none"> <li>● Prompt the user to enter student names (as strings) and their corresponding grades (as integers) for 5 students.</li> <li>● Store the student names as keys and grades as values in a dictionary.</li> <li>● Calculate and print the average grade of the class.</li> <li>● Identify and print the name of the student with the highest grade.</li> <li>● Convert all student names to uppercase before storing them in the dictionary.</li> </ul>
11	Write a program which accepts a sequence of comma separated 4 digit binary numbers as its input and then check whether they are divisible by 5 or not. The numbers that are divisible by 5 are to be printed in a comma separated sequence.
12	Write a program to calculate the final price of a product after applying a discount and adding tax. Use arithmetic and assignment operators, and round the final result to two decimal places.
13	Write a python to find out letter 'A' is available or not in given string and count how many times that letter is present Ex. str1='KJSCE' ans-False count-0

<b>14</b>	<p>Create a dictionary of products purchased and their MRPs. Calculate the bill and display it to the customer based on the number of products purchased.</p> <p>Eg. products = { "Apple": 150, "Banana": 40, "Cherry": 200, "Date": 250 }</p> <p>If the customer buys 2 dozen Apple and 1 dozen banana, He should get 340 as the calculated bill.</p>
<b>15</b>	<p>(a) Write a program to input a decimal number and convert it to binary using successive division.</p> <p>(b) Extend the above program to convert the binary number back to decimal.</p>
<b>16</b>	<p>Write a program to calculate the sum of the marks and display average marks obtained by the student for the 5 subjects. The maximum marks of each subject is 100. Read the subject name and its associated marks. Follows with computation of sum of marks. Finally display the name of the student with all subject marks and average marks obtained in the given exam.</p> <p>Expected Output: Student Name: John Doe Subject-wise Marks: Math: 85.0 English: 90.0 Science: 88.0 History: 92.0 Geography: 86.0 Total Marks: 441.0 Average Marks: 88.20</p>
<b>17</b>	<p>Write a program to calculate a student's result based on two examinations, 1 sports event, and 3 activities conducted. The weightage of activities =30 percent, sports= 20 percent, and examination= 50 percent.</p>
<b>18</b>	
<b>19</b>	<p>Write a Python program that takes a list of student names and their corresponding grades, stores this information in a dictionary, and then prints out the names of students who have grades above a specified threshold.</p>
<b>20</b>	<p>Write a python program to perform the following operation on a list of numbers,</p> <ul style="list-style-type: none"> <li>- Create a list of 3 odd numbers</li> <li>- Create a list of 3 even numbers</li> <li>- combine the two lists</li> <li>- Add prime numbers 11,17,29 at the beginning of the combined list</li> <li>- Report how much elements are present in the list</li> <li>- Delete the list</li> </ul>
<b>21</b>	<p>Write a Python program that:</p> <ul style="list-style-type: none"> <li>• Get the current date and time.</li> <li>• Formats it into a human-readable string (e.g., "YYYY-MM-DD HH:MM").</li> <li>• Calculates the number of days between today and a user-provided date.</li> </ul>

22	Write a python to find out if vowels in given string is present or not and count how many times that vowel is present Ex. str1='ABCDE' ans-True count-2
23	Write a program to display the digit at the one's place of a number.
24	Write a Python program that takes two tuples test_tuple1 and test_tuple2 and returns a list of all pair combinations of the two tuples. <b>Input:</b> test_tuple1(7,2), test_tuple2(7,8) <b>Output :</b> [(7,7),(7,8),(2,7),(2,8),(7, 7),(7,2),(8,2)]
25	Write a Python program to reverse the order of the items in the array. Input: array('i', [1, 3, 5, 3, 7, 1, 9, 3]) Output: array('i', [3, 9, 1, 7, 3, 5, 3, 1])
26	Write a Python program to count the number of characters in a string. Sample String : 'google.com' Expected Result : {'o': 3, 'g': 2, '!': 1, 'e': 1, 'l': 1, 'm': 1, 'c': 1}  Question String: 'Somaiya University'
27	Write a python program to remove characters from a string starting from zero up to n and return a new string.
28	Write a program to remove tuples from list of tuples if greater than n in Python
29	The following code is intended to read a string from the user, split it into words, convert each word to uppercase, and store the results in a list. It should then print the original and the uppercase lists. Identify the errors and provide the corrections.  <pre> 1 # Reading a string from the user 2 user_input = input("Enter a string: ") 3 4 # Splitting the string into words 5 words = user_input.split 6 7 # Converting each word to uppercase 8 uppercase_words = map(str.upper, words) 9 10 # Printing the original and uppercase lists 11 print "Original words:", words 12 print "Uppercase words:", uppercase_words </pre>

30	<p>Write a Python program to count the number of strings in a given list where the string length is 3 or more and the string contains the same character at least twice.</p> <p>Sample List: ['hello', 'world', 'noon', 'abcd', 'aabbcc']</p> <p>Expected Result: 3</p> <p>Explanation: The strings "hello" (contains 'l' twice), "noon" (contains 'o' twice), and "aabbcc" (contains 'a', 'b', and 'c' twice each) meet the criteria.</p>
31	<p>Write a Python program that takes a list of dictionaries, where each dictionary represents a student with their name and scores in various subjects. The program should return a new dictionary where each key is a student's name, and the value is their average score across all subjects.</p> <p><b>Sample List:</b> students = [ {'name': 'Arjun', 'math': 85, 'science': 90, 'english': 78}, {'name': 'Balram', 'math': 92, 'science': 88, 'english': 84}, {'name': 'Damodar', 'math': 72, 'science': 75, 'english': 80} ]</p> <p><b>Expected Result:</b> {'Alice': 84.33, 'Bob': 88.0, 'Charlie': 75.67}</p>
32	<p>Perform Slice operation on the given string to get the following output.</p> <p>Input String: "Python is Easy!"</p> <p>Output: Python is Easy!</p> <p>    P</p> <p>    on is Easy</p> <p>    !</p> <p>Python is Easy!Python is Easy!</p> <p>Python is Easy!Isn't it?</p>
33	<p>Create an empty dictionary. Then add the {digit:ASCII value} pairs for all digits and their ASCII values, i.e. {0, 47}, {1,48} etc. to this dictionary and print the dictionary. To find the ASCII value of any digit use the 'ord' function i.e. ord('0') = 48.</p>