**A screenshot of a cell phone

Description automatically generatedPYTHON CLASS LAB QUESTIONS**

**Python Introduction**

1. Program to print the following:
   1. “Better luck!”
   2. Copy a paragraph about python and print
2. Print a two-digit number and find its memory location.

**Python Datatypes**

1. Print the following and find its datatypes:
   1. 9
   2. 56
   3. 32527
   4. 989.1232
   5. 762.000
   6. 2+3j
   7. -4-8j
   8. 1j
   9. H
   10. h
   11. livewire
   12. welcome to livewire
   13. True
   14. False
   15. TRUE
   16. false
   17. (1,” name”, 56, 3+5j)
   18. [1,”name”,56, 3+5j]
2. Write a program to convert the following datatypes
   1. 9 to string
   2. 3 + 8j to string
   3. True to integer
   4. 0 to False
   5. 133.67 to integer
   6. 198 to float

Show the datatype before and after.

**Input – Output Concepts**

1. Write a program to display ID card information of a person regarding his name, job, date of birth, phone number and email id.
2. Ask and input “what is your name?” and “what is your favourite colour?”

and print “name likes *colour*”

1. Write a program to input an integer and check it’s datatype.

**Operators**

1. Program to add two numbers.
2. Program to find the square root of a number.
3. Program to design a simple calculator for two numbers
4. Program to calculate area of a triangle
5. Program to swap two variables
6. Check whether the letter ‘h’ is in the string “welcome to livewire ayapppankavu”, also check if the word “live” is there in it.
7. Program to solve quadratic equation.
8. Program to swap two variables with a third variable and without a third variable.

**Control flow**

1. Program to Convert Kilometres to Miles
2. Write a program to print “login successful” when password and username matches. And “invalid credentials” if not.
3. Program to Convert Celsius To Fahrenheit
4. Program to Check if a Number is Positive, Negative or 0
5. Program to Check if a Number is Odd or Even
6. Program to Check Leap Year
7. Program to Find the Largest Among Three Numbers
8. Program to Check Prime Number
9. Program to Print all Prime Numbers in an Interval
10. Program to Find the Factorial of a Number
11. Program to Display the multiplication Table
12. Program to Print the Fibonacci sequence
13. Program to Check Armstrong Number
14. Program to Find Armstrong Number in an Interval
15. Program to Find the Sum of Natural Numbers in a range.
16. Program to design a guessing game of words
17. Program to print average values of n numbers
18. Calculate the sum of digits of a number input
19. Write a program to display reverse of a string
20. Take integer inputs from user until he/she presses q (Ask to press q to quit after every integer input). Print average and product of all numbers.
21. Solve quadratic equations.
22. Program to find simple interest and compound interest

**String Operation**

1. Write a program to print every character of a string entered by user in a new line using loop.
2. Write a program to check if the word 'orange' is present in the "This is orange juice".
3. Write a program to find the first and the last occurrence of the letter 'o' and character ',' in "Hello, World".
4. Write a program that takes your full name as input and displays the abbreviations of the first and middle names except the last name which is displayed as it is. For example, if your name is Robert Brett Roser, then the output should be R.B.Roser.
5. Write a program to check if a given string is a Palindrome.  
   A palindrome reads same from front and back e.g.- aba, ccaacc, mom, etc.
6. Write a program to check if the two strings entered by user are anagrams or not. Two words are said to be anagrams if the letters of one word can be rearranged to form the other word. For example, jaxa and ajax are anagrams of each other.

**List operation**

1. Take 10 integer inputs from user and store them in a list and print them on screen.
2. Take 10 integer inputs from user and store them in a list. Again, ask user to give a number. Now, tell user whether that number is present in list or not.  
   ( Iterate over list using while loop).
3. You are given with a list of integer elements. Make a new list which will store square of elements of previous list.
4. Using range (1,51), make two list, one containing all even numbers and other containing all odd numbers.
5. From a list containing ints, strings and floats, make three lists to store them separately.
6. Write a program to shift every element of a list to circularly right. E.g.-  
   INPUT : 1 2 3 4 5  
   OUTPUT : 5 1 2 3 4

**Tuples**

1. Write a Python program to get the 4th element and 4th element from last of a tuple.
2. Write a Python program to get the 4th element and 4th element from last of a tuple
3. Write a Python program to replace last value of tuples in a list.

Sample list: [(10, 20, 40), (40, 50, 60), (70, 80, 90)]  
 Expected Output: [(10, 20, 100), (40, 50, 100), (70, 80, 100)]

1. Write a Python program to count the elements in a list until an element is a tuple.

**Functions**

1. Program to Find Numbers Divisible by Another Number.
2. Program to Convert Decimal to Binary, Octal and Hexadecimal
3. Program to Find ASCII Value of Character
4. program to Find HCF or GCD
5. Program to Find LCM
6. Program to Find Factors of Number
7. Program to Make a Simple Calculator.
8. Program to Display Powers of 2 Using Anonymous Function
9. Program to Display Fibonacci Sequence Using Recursion
10. Program to Find Sum of Natural Numbers Using Recursion
11. Program to Find Factorial of Number Using Recursion
12. Program to Convert Decimal to Binary Using Recursion
13. Write a function to calculate area and circumference of a circle.
14. Write a function to tell user if he/she is able to vote or not.  
    ( Consider minimum age of voting to be 18.)
15. Print multiplication table of 12 using recursion.
16. Write a function to calculate power of a number raised to other ( ab ) using recursion.
17. Write a Python program to make a chain of function decorators (bold, italic, underline etc.) in Python.

**Dictionary**

1. Ask user to give name and marks of 5 different students. Store them in dictionary.
2. Sort the dictionary created in previous example according to marks.
3. Count the number of occurrences of each letter in word "MISSISSIPPI". Store count of every letter with the letter in a dictionary.
4. From the previous question, sort according to the number of letters.

**Sets**

1. Write a Python program to create a set.
2. Write a Python program to iteration over sets
3. Write a Python program to add member(s) in a set.
4. Write a Python program to remove an item from a set if it is present in the set.
5. Write a Python program to create union, intersection, difference, symmetric difference of sets
6. Write a Python program to check if two sets are is subset and is superset.

**Arrays and Matrixes**

1. Program to Add Two Matrices
2. Write a Python program to create an array of 5 integers and display the array items. Access individual element through indexes.
3. Write a Python program to convert an array to an ordinary list with the same items.
4. Write a Python program to get the length in bytes of one array item in the internal representation
5. Program to Transpose a Matrix
6. Program to Multiply Two Matrices
7. Program to Check Whether a String is Palindrome or Not
8. Program to Remove Punctuations from a String
9. Program to Sort Words in Alphabetic Order
10. Program to Illustrate Different Set Operations
11. Program to Count the Number of Each Vowel
12. Do the following using functions:
    1. Program to Add Two Matrices
    2. Program to Transpose a Matrix
    3. Program to Multiply Two Matrices
    4. Program to Check Whether a String is Palindrome or Not\
    5. Program to Remove Punctuations From a String
    6. Program to Sort Words in Alphabetic Order
    7. Program to Illustrate Different Set Operations
    8. Program to Count the Number of Each Vowel

**Modules and Packages**

1. Program to create modules for LCM, GCD and HCF for n numbers
2. Using modules print if a number is prime or not, and then find the factors of the same.
3. Program to generate random numbers within ‘n’ range
4. Python program to shuffle deck of cards.
5. Python program to display Calendar and today’s time and date
6. Do an example for package

**Files and File Operation**

1. Write a Python program to read an entire text file.
2. Write a Python program to read first n lines of a file.
3. Write a Python program to append text to a file and display it
4. Write a python program to find the longest words in a text file
5. Write a Python program to count the number of lines in a text file.
6. Write a Python program to count the frequency of words in a file.
7. Write a Python program to read a random line from a file.
8. Program to merge mail
9. Program to find resolution of an image
10. Program to find hash of file

**Errors And Exception**

1. Add a *try-except* statement to the body of this function which handles a possible Index Error, which could occur if the index provided exceeds the length of the list. Print an error message if this happens:

*def print\_list\_element(thelist, index):*

*print(thelist[index])*

1. Do program using try-except, try-except-else, try-except-finally, raise and assert and a user defined exception.

**Object Oriented Programming** *(do these questions using class, object, inheritance and polymorphism concepts)* (explanation will be given for all if needed)

1. Program to do a simple calculator using class concept
2. Program to find area of a rectangle using class concept
3. Program to check prime number using oop approach
4. Program to check Armstrong and palindrome number using oop.
5. Python Program to Create a Class in which One Method Accepts a String from the User and Another Prints it.
6. Program creates a linked list using data items input from the user and displays it in reverse.
7. Write a Python class named Circle constructed by a radius and two methods which will compute the area and the perimeter of a circle.
8. Write a python program where, you input name, student roll number and marks of 5 subject and you will get the output list of the total mark percentage and the grade of student with comment for each grade.
9. Program to do single inheritance, multiple inheritance and multilevel inheritance (by inputting employee name, id, gender, stream, year, address, contact number etc)
10. Program to do polymorphism concept in class

**Reference Types**

1. Write an iterator class reversed iter that takes a list and iterates it from the reverse direction.
2. Write a program that takes one or more filenames as arguments and prints all the lines which are longer than 40 characters.
3. Write a function to compute the total number of lines of code in all python files in the specified directory recursively.
4. Make a function peep (), that takes an iterator as argument and returns the first element and an equivalent iterator.

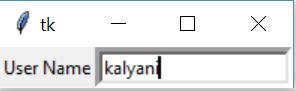
127.The built-in function enumerate takes an iteratable and returns an iterator over pairs (index, value) for each value in the source.

**Thread Multithread**

128. Do a simple threading problem where you are given a list and the output should contain the elements occurring twice

129. Do multithreading of two function one to find the cubes of a list of number and other to show the squares of them

**Graphical User Interface**

130. Make a box like this****

131. Create a label “livewire ayyappankavu” in calibri font at 20 font size in blue colour.

132. Create a check box to select male and female

**Database Connectivity**

133. Write a program to create a table named customer with customer name, address

134. Do all the database operations on the table created.

**Networking – Client and Server program**

137. Do a program to establish a connection from a new server to a client:

a. With same ip address

b. With different ip address

**Standard Library**

Do program to study the application of the following concepts:

* os module
* shutile module
* sys module
* re module
* time module
* math, random and statistics module
* command line arguments

**MISCELLANEOUS**

* [Capitalize first and last letter of each word in a line](https://www.includehelp.com/icp/capitalize-first-and-last-letter-of-each-word-in-a-line.aspx)
* Display the rank list of n students when their name and respective 5 subject marks are given.
* Do a simple calculator using GUI tools.
* Design Bounce Ball Game
* Create a Python project to get the value of Pi to n number of decimal places.
* Create a random quote machine where when a quote is asked you will get random quotes.

**PROJECTS (ANY ONE)**

1. Design an ATM using python with graphical user interface
2. Design a proper hotel management database
3. Design the game Ludo
4. Design a shopping website
5. Design the game of a car racing