

Ramaiah Institute of Technology (Autonomous Institute, Affiliated to VTU)

**Department of Computer Science & Engineering**

**Data Visualization with Python Lab(CSL48)**

**USN:**

**Week #: 04**

**Semester:**

**Section:**

**Date:**

**Instructions:**

iiiiiiiiiiiiiii

* **Implement the following programs using python language.**

**Topic:** Regular Expressions: Introduction to regex, pattern matching and practical applications.

Error Handling &amp; Exceptions, Iterators &amp; Generators

**Programs:**

1. a. Write a Python program to check if a given string contains only letters (a-z, A-Z) using regex.

b. Write a Python program to validate a strong password (at least 8 characters, including uppercase, lowercase, numbers, and special characters) using regex.

1. a. Write a Python program to handle multiple exceptions (e.g., ZeroDivisionError, ValueError, and TypeError).

b. Write a Python program that prompts the user for an integer input and handles the case where the input is not an integer.

1. a. Write a Python program to validate a strong password (at least 8 characters, including

uppercase, lowercase, numbers, and special characters) using regex.

b. Write a Python program to find all words in a given string that start with a vowel using regex.

1. a Write a Python program that manually iterates over a list using an iterator object.

b. Write a Python class that implements an iterator to return even numbers up to a given limit.

1. a. Write a Python generator function that yields even numbers up to a given limit.

b. Write a Python generator that generates an infinite sequence of Fibonacci numbers.

1. Write a Python program to search for and extract all phone numbers from a given block of text. Assume phone numbers can be in formats like (123) 456-7890 or 123-456-7890.
2. Write a Python program that demonstrates the use of try-except-finally blocks. For example, attempt to open a file, process its content, and ensure that the file is closed regardless of whether an exception occurs.
3. Write a Python program that demonstrates the use of the iter() function on a list and manually retrieves elements using the next() function until a StopIteration exception is encountered.