

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

**Department of Computer Science & Engineering**

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

**USN:**

**Week #: 05**

**Semester:**

**Section:**

**Date:**

**Instructions:**

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

**Topic:** Python Modules &amp; Packages, Working with Files

**Programs:**

1. a.**Using Built-in Modules:**  
   Write a Python program that uses the math module to compute the square root, factorial, and

greatest common divisor (GCD) of given numbers.

**b. Exploring the random Module:**

Write a Python program using the random module to generate a list of 5 random integers between 1 and 100.

1. **a. Using os and sys Modules:**  
   Write a Python program that prints the current working directory, lists files in a directory, and prints the Python version using the os and sys modules.

**b.** **Using time Module:**  
Write a Python program that prints the current time, pauses execution for 5 seconds using sleep(), and then prints a message.

**3.** a **Copy File Contents:**  
 Write a Python program that reads a file and writes its contents to another file.

b. **Count Words in a File:**  
 Write a Python program that reads a file and counts the number of words in it.

4.a **Reading a File in Binary Mode:**  
 Write a Python program that reads an image or binary file in binary mode and prints its first

100 bytes.

b.**Writing a File in Binary Mode:**  
 Write a Python program that opens an image file in binary mode and writes it to a new file.

5.a.**Reading a CSV File:**  
 Write a Python program that reads a CSV file named data.csv and prints its content row by

Row.

b.**Writing to a CSV File:**  
 Write a Python program that writes a list of dictionaries to a CSV file with headers

6.a. **Reading a JSON File:**  
 Write a Python program that reads a JSON file and prints the content in a structured format

b.**Writing to a JSON File:**  
 Write a Python program that takes user input and writes it to a JSON file.

7. Write a Python program that tries to open a non-existent file and gracefully handles the

FileNotFoundError.