Department of Computer Science

Sub.:MCA103(Python)	Student Reg.No.:_____	Year : 2024-25	Subject Teacher : Dr. Ajay Parikh

	Unit 2: Functions, Modules, Packages, Files, and Regular Expressions					
No	**Problem Definition**	**Assignment Date**	**Submission Date**	**Sign of T.A. / Teacher**	**Grade**	**Remark**
1.	Find the Perfect numbers. (A number is perfect if the sum of its proper divisors equals itself. E.g: 28 = 1+2+4+7+14)					
2.	Print a Fibonacci strings. e.g:('A', 'B', 'BA', 'BAB', 'BABBA')					
3.	Print a list recursively.					
4.	Write a program for Binary search.					
5.	Create a module to track academic performance. **Steps** 1. Add a new course, along with its total credits and earned points. 2. Drop a course (some courses are heavy). 3. Print the whole academic record. 4. Know the current CGPA = sum of (credits * points) / sum of credits					
6.	Create a module for matrix operations. **Steps** 1. Initialize Matrix. 2. Print Matrix. 3. Addition of Matrix. 4. Multiplication of Matrix.					
7.	Write a program to implement a simple game –Tic-tac-toe using package.					

	(In a 3x3 grid, two players fill in two symbols (say, X and O)).						
8.	Write a programme to Print file contents, copy a file and read-write a file.						
9.	Write a programme to Split text into words and Join words to form sentences from one file to other file.						
10.	Write a programme to Find and Replace all the occurrences of a word 'gujarat' in a file with 'gujrat'.						
11.	Retrieve academic record from a file and compute CGPA. (As per the programme no 5 in which we kept academic record track of our courses, total points, and earned credits, CGPA)						
12.	Track friends' information using API. (Use files to keep track of friends)						
13.	Process conference registration data. **Challenges** 1. Comma is present in the data.						

Table within row 12:

Function	Remarks
add(name, phone, github)	Add a new friend
remove(name, phone, github)	Remove a friend
updatePhone(name, phone)	Update phone number of a friend
updateGithub(name, github)	Update github handle of a friend
printByName(name)	Print information of a friend
printAll()	Print information of all the friends
readAll()	Read information of friends from a datafile

	2. Some fields may contain a newline. 3. Header can be mistakenly recognized as a record. **Functionality** 1. Find the number of non-students registered. 2. Find all the people registered from IITs. 3. Find all the duplicate records. 4. Display a list of participants grouped by their affiliations						
14.	Find all the mobile numbers out of a long text.						
15.	Find all email addresses out of a long text.						

Book Reference: Python Programming, Author: by Rupesh Nasre, AICTE.

Grade	Marks
A	18 - 20
B	14-17
C	11-13
D	8-10
E	5-7
F	1-4
G	Absent