

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.					

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	(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) <table><tr><th>Function</th><th>Remarks</th></tr><tr><td>add(name, phone, github)</td><td>Add a new friend</td></tr><tr><td>remove(name, phone, github)</td><td>Remove a friend</td></tr><tr><td>updatePhone(name, phone)</td><td>Update phone number of a friend</td></tr><tr><td>updateGithub(name, github)</td><td>Update github handle of a friend</td></tr><tr><td>printByName(name)</td><td>Print information of a friend</td></tr><tr><td>printAll()</td><td>Print information of all the friends</td></tr><tr><td>readAll()</td><td>Read information of friends from a datafile</td></tr></table>	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					
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13.	Process conference registration data. <u>Challenges</u> 1. Comma is present in the data.																					

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	<p>2. Some fields may contain a newline.</p> <p>3. Header can be mistakenly recognized as a record.</p> <p><u>Functionality</u></p> <p>1. Find the number of non-students registered.</p> <p>2. Find all the people registered from IITs.</p> <p>3. Find all the duplicate records.</p> <p>4.Display a list of participants grouped by their affiliations</p>					
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