Name of the Discipline :
Semester :
Subject :
Lesson Plan

Week	Lecture day
1st	1
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2nd	4
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4th	10
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6th	16
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LESSON PL

Ms Shweta
Computer Science
5th
Python
12 Weeks(Aug 2024 To Jan 2024)

Work load (Lecture) per wee

Theory
Topic
The way of the program: The Python programming language, What is a program? What is debugging?
Syntax errors, Runtime errors, Semantic errors, Experimental debugging.
Variables, Expressions and Statements: Values and data types, Variables, Variable names and keywords, Statements
Evaluating expressions, Operators and operands
Evaluating expressions, Operators and operands, Type converter functions, Order of operations
Operations on strings, Input, Composition, The modulus operator.
Conditionals: Boolean values and expressions, Logical operators, Simplifying Boolean Expressions, Conditional execution, Chained conditionals, Nested conditionals
The return statement, Logical opposites.Iteration: Assignment, Updating variables, The for loop, The while statement
The Collatz 3n + 1 ,Tables, Two-dimensional tables, Paired Data, Nested Loops for Nested Data.
Strings: Working with strings as single things, Working with the parts of a string, Length, Traversal and the for loopThe built-in find method
The split method, Cleaning up your strings, The string format method.
Slices, String comparison, Strings are immutable, The in and not in operators, A find function, Looping and counting, Optional parameters
Tuples: Tuples are used for grouping data, Tuple assignment, Tuples as return values,
Composability of Data Structures.
Objects and references, Aliasing, Cloning lists, Lists and for loops, List parameters, List methods
Lists: List values, Accessing elements, List length, List membership
Strings and lists, list and range, Nested lists, Matrices.
Modules: Random numbers, The time module, The math module
Modules:, Creating your own modules
Namespaces, Scope and lookup rules, Attributes and the dot operator.

Files: About files, Writing our first file, Reading a file line-at-a-time
Turning a file into a list of linesReading the whole file at once, Working with binary files, Directories
Fetching something from the web.List Algorithms: Linear search, Binary search
List Algorithms:Merging two sorted lists.
Object oriented programming: Classes and Objects- The Basics
Attributes, Adding methods to our classInstances as arguments and parameters
Converting an instance to a string, Instances as return valuesObjects are mutable, Sameness, Copying.
Exceptions: Catching exceptions, raising our own exceptions, the finally clause of the try statement
GUI: Creating Graphical User Interfaces, Using Module Tkinter
Building a Basic GUI, Models, Views, and Controllers
Customizing the Visual Style, Few More Widgets.
Databases: Overview, Creating and Populating, Retrieving Data, Updating and Deleting
Using NULL for Missing Data, Using Joins to Combine Tables
Keys and Constraints, Advanced Features.

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Week
1st
2nd
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7th

8th
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11th

tures-03 Hrs

Practical
Topic
1.   Let list1 and list2 be two lists of integers. Implement function sublist() that takes as input lists list
>>> sublist([15, 1, 100], [20, 15, 30, 50, 1, 100])TRUE   >>> sublist([15, 50, 20], [20, 15, 30, 50, 1, 100])FALSE
2.   Write function vowelCount() that takes a string as input and counts and prints the numberof occur
3.   The cryptography function crypto() takes as input a string (i.e., the name of a file in the current dir
>>> crypto('crypto.txt') I will tell you my xxxxxx. But first, I have to explainwhy it is a xxxxxx.And that is
4.   Write a function stats() that takes one input argument: the name of a text file. The function should
5.   Implement function distribution () that takes as input the name of a file (as a string). This one- line
>>> distribution('grades.txt')6 students got A   2 students got A-3 students got B+2 students got B 2 stu
6.   The function censor () takes the name of a file (a string) as input. The function should open the fil
7.   Create a dictionary for phones and their prices. Write functions to add a new entry (phone:price) ,s
8.   Write a Python program that prompts the user to enter a list of first names and stores them in a list
9.   Write a Python program that prompts the user to enter integer values for each of two lists.It then s
10.   Implement and test a Python program that determines if all parentheses in an entered line of code f
11.   Suppose variable s has been assigned in this way: s = '''It was the best of times, it was the worst of
was the age of wisdom, it was the age of foolishness; it was the epoch of belief, it was the epoch of incredulity; it
12.   The function avgavg() takes as input a list whose items are lists of three numbers. Each three-num
[[95,92,86], [66,75,54],[89, 72,100],[34,0,0]]
13.   Implement function names () that takes no input and repeatedly asks the user to enter the first nam
14. Implement six classes to model this taxonomy with Python inheritance. In class Animal, implement method sp

1.	Numerologists claim to be able to determine a person's character traits based on the numeric value
2.	Expand your solution to the previous problem to allow the **calculation of a complete name** such
3.	**Write a python program with function inner_product(x,y)** that computes the inner product of
4.	The **Sieve of Eratosthenes** is an elegant **algorithm** for finding all of the prime numbers up to son
5.	Write a function that returns the index of the smallest element in a list of integers. If the number o
6.	**(Count occurrences of numbers)** Write a program that reads an unspecified number of integers a
7.	**Morse Code Encryption/Decryption Program:** Develop and test a Python program that allows a
8.	Format the original message (containing English words) so that there is one sentence per line.
9.	Format the Morse code fi le (containing dots and dashes) so that there is one letter per line,
with a blank line following the last letter of each word, and two blank lines following the end of each sentence (ex	

A	· —	N	— ·
B	— · · ·	O	— —
C	— · — ·	P	· —
D	— · ·	Q	— —
E	·	R	· —
F	· · — ·	S	· ·
G	— — ·	T	—
H	· · · ·	U	· ·
I	· ·	V	· ·
J	· — — —	W	· —
K	— · —	X	— ·
L	· — · ·	Y	— ·
M	— —	Z	— —

1 and list2 and returns True if list1 is a sublist of list2, and False otherwise.

rences of vowels in the string. >>> vowelCount('Le Tour de France')a, e, i, o, and u appear, respe

ectory). The function should print the file on the screen with this modification: Every occurrence

all I will tell you about my xxxxxx.

print, on the screen, the number of lines, words, and characters in the file;your function should o

file will contain letter grades separated by blanks. Your function should print the distribution of

dents got B-4 students got C 1 student got C- 2 students got F

e, read it, and then write it into file censored.txt with this modification: Every occurrence of a fou

search for a particular phone and retrieve it's price, given price findphones with same price , remo

. The program should display how many times the letter 'a' appears within the list.

hould displays whether the lists are of the same length, whether the elements in each list sum to t

orm matching pairs. Note: Pairs of parentheses may be nested.

times; it

was ...''' Then do the following, in order, each time:

ber list represents the three grades a particular student received for a course. For example, here is

e of a student in a class. When the user enters the empty string, the function should print for ever

eak() that will be inherited by the descendant classes of Animal as is.

:” of a name. The value of a name is determined by summing up the values of the letters of the na

as “John Marvin Zelle”” or “”John Jacob Jingleheimer Smith”. The total value is just the sum of

two (same length) lists. For example: list1=[1,2,3,4,5] and list2=[1,2,3,4,5]. The inner product lis

ıe limit n. The basic idea is to first create a list of numbers from 2 to n. The first number is remov

f such elements is greater than 1, return the smallest index. Use the following header: def index C

ınd finds the ones that have the most occurrences. For example, if you enter 2 3 40 3 5 4 –3 3 3 2

ı user to type in a message and have it converted into Morse code, and also enter Morse code and

:cept the last).

ctively, 1, 3, 0, 1, 1 times.

of string 'secret' in the file should be replaced with string 'xxxxxx'.

pen the file only once. >>>stats('example.txt') line count: 3

grades, as shown.

ır-letter word in the file should be replaced with string 'xxxx'. >>> censor ('example.txt')

ɔve an entry, display all phones sorted according to price. [Program must be menu driven]

he same value, and whether there are any values that occur in both lists.

an input list for a class of four students:

y name the number of students with that name.

ıme where 'a' is 1, 'b' is 2, 'c' is 3 etc., up to 'z' being 26. For example,the name "“Zelle"”would ha

the numeric values of all the names.

ɜt is inner_product=[1,4,9,16,25].

ved from the list, and announced as a prime number, and all multiples of this number up to n are r

)f Smallest Element (lst): Write a program that prompts the user to enter a list of numbers, invok

0, the number 3 occurs most often. Enter all numbers in one line. If not one but several numbers

have it converted back to the original message. The encoding of Morse

ve the value 26+5+12+12+5=60 (which happens to be a very auspicious number, by the way). **W**

removed from the list. This process continues until the list is empty.

es this function to return the index of the smallest element, and displays the index.

have the most occurrences, all of them should be reported. For example, since 9 and 3 appear twi

rite a program that calculates the numeric value of a single name provided as input. (Hint: U

ce in the list 9 30 3 9 3 2 4, both occurrences should be reported.

Jse dictionary, strings and its methods)