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InternalAssessmentTest1-December2022

Sub:	ApplicationDe	velopmentusir	ngPython			SubCode:	18CS55	Branc	h: CSE	E	
Date:	3/12/2022	Duration:	90 mins	MaxMarks:	50	Sem/Sec:	5 A	A,B,C		OE	BE
		<u>A</u>	nsweranyFIV	EFULLQuestion	<u>IS</u>				MARKS	CO	RBT
1 (a)	Explain the sh	nallow copy ar	nd deep copy	with suitable exa	mples				[6]	CO2	1.2
(b)	Design a suitable data structure using python to display a tic-tac-toe board. Define a function printBoard() to play the game with two players, one player given the option 'O' and the other 'X', the function also accepts the input and displays the status of board for all nine slots [4]						CO2	L3			
2 (a)	Write python a. b. c.	The frequence The number	cy of the diffe of words pres	togram of a sente erent characters p sent in the senten ed in the sentence	resent ce	in a sentence			[6]	CO2	L3
(b)	List the isX()	string method	s in python a	nd explain any fo	ur me	thods with su	itable examples.		[4]	CO2	L2
3(a)	birth_day={'V	Virat': '21 Fe	eb', 'Rahul':	is it different '12 Jan', 'Dho he syntax to disp	ni':	'13 April'. I	Discuss the var	ious	[5]	CO2	L2
(b)	used to get to 'python']. Exp	the following plain.	output=['A	nent programmir pplication', ' D' a given string. In	evelo	pment', 'prog	gramming', 'usi		[5]	CO2	L3

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Date:	3/12/2022	Duration:	90 mins	MaxMarks:	50	Sem/Sec:	5 A	A,B,C			OE	BE
		<u>A</u>	nsweranyFIV	EFULLQuestion	ı <u>s</u>				MA	RKS	CO	RBT
1 (a)	Explain the sh	allow copy ar	nd deep copy	with suitable exa	mples				[6]		CO2	L2
(b)	printBoard() t	o play the ga	me with two	ython to display players, one play nd displays the st	yer gi	ven the optio	n 'O' and the o		[[4]	CO2	L3
2 (a)	Write python a. b. c.	The frequence The number	cy of the diffe of words pres	togram of a sente erent characters p sent in the senten d in the sentence	resent ce	in a sentence			[[6]	CO2	L3
(b)	List the isX()	string method	s in python ar	nd explain any fo	ur me	thods with su	itable examples.		[[4]	CO2	L2
3(a)	birth_day={'\	/irat': '21 Fe	eb', 'Rahul':	is it different '12 Jan', 'Dhonne syntax to disp	ni':	'13 April'. I	Discuss the var	ious	[[5]	CO2	L2

(b)	Given the input= 'Application Development programming using python' which method can be used to get the following output=['Application', ' Development', 'programming', 'using', 'python']. Explain. Write a python program to swap cases of a given string. Input: JaVa Output: jAvA	[5]	CO2	L3
4(a)	Write a Python program to search for all words using regular expression: A. starting with 'a' followed by one or more 'b B. start with a and ends with b C. string that starts with 'X' followed by nonwhite space characters and ends with numbers. D. String with lower case joined with an underscore E. Words beginning and ending with a numeric number	[5]	CO3	L3
(b)	With code snippet, explain saving variables using the shelve module and PPrint() &Pformat() functions.	[5]	СОЗ	L2
5(a)	What are regular expressions? Describe question mark, star, plus-and dot Regex symbols with suitable python code snippet.	[6]	СОЗ	L2
(b)	Write a python program to extract phone numbers and Email address Using Regular Expressions and the necessary second parameter in the compile() functions	[4]	CO3	L3
6(a)	List the functions available under the os.path module and explain with suitable example.	[6]	CO3	L2
(b)	Write a python program to create a folder PYTHON and create 3 files file1, file2 and file3. Write the contents in file1 as 'VTU' and in file 2 as 'UNIVERSITY' and file 3 content should be opening and merging of file1 and file2. Check out the necessary conditions before writing file3.	[4]	CO3	L3

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4(a)	Write a Python program to search for all words using regular expression: A. starting with 'a' followed by one or more 'b B. start with a and ends with b C. string that starts with 'X' followed by nonwhite space characters and ends with numbers. D. String with lower case joined with an underscore E. Words beginning and ending with a numeric number	[5]	CO3	L3
(b)	With code snippet, explain saving variables using the shelve module and PPrint() &Pformat() functions.	[5]	СОЗ	L2
5(a)	What are regular expressions? Describe question mark, star, plus-and dot Regex symbols with suitable python code snippet.	[6]	СОЗ	L2
(b)	Write a python program to extract phone numbers and Email address Using Regular Expressions and the necessary second parameter in the compile() functions	[4]	CO3	L3
6(a)	List the functions available under the os.path module and explain with suitable example.	[6]	СОЗ	L2

(b)	Write a python program to create a folder PYTHON and create 3 files file1, file2 and file3. Write the contents in file1 as 'VTU' and in file 2 as 'UNIVERSITY' and file 3 content should be opening and merging of file1 and file2. Check out the necessary conditions before writing file3.	[4]	CO3	L3	=
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Internal Assessment Test 2–December 2022(Scheme)

AnsweranyFIVEFULLQuestions		
AnsweranyFIVEFULIQuestions		
1 (a) Explain the shallow copy and deep copy with suitable examples. Shallow Copy - 3M DepeCopy - 3M DepCopy - 3M DepCop	OBE	Ε
Shallow Copy – 3M Deep Copy – 3M Deep Copy – 3M Design a suitable data structure using python to display a tic-tac-toe board. Define a function printBoard() to play the game with two players, one player given the option 'O' and the other 'X', the function also accepts the input and displays the status of board for all nine slots Tic- Tac – Toe Board – 2M Function for Updating the board – 2M [4] CC [4] Write python program to generate the histogram of a sentence using Dictionary a. The frequency of the different characters present in a sentence b. The number of words present in the sentence c. The longest and short word in the sentence with the length. Program 1 – 2M Program 3 – 2M List the isX() string methods in python and explain any four methods with suitable examples. Listing the Methods – 1M Explain with Example – 3M [4] CC [5] CC Define dictionary in python. How is it different from a list. Given a dictionary birth_day=('Virat' · 21 Feb', 'Rabul': '12 Jan', 'Dhoni': '13 April'. Discuss the various methods to traverse the dictionary with the syntax to display the player's name and birthday as a list. Definition for Dictionary – 2M 3 methods of Traversing the Dictionary – 1M X 3 – 3M (b) Given the input- 'Application Development programming using python' which method can be used to get the following output=['Application', 'Development', 'programming', 'using', 'python') Explain. Write a python program to swap cases of a given string. Input: JaVa Output: JAVA [5] CC Split and explanation – 2M Program – 3 M 4(a) Write a Python program to search for all words using regular expression: A starting with 'a' followed by one or more 'b B. start with a and ends with b C. string that starts with Y' followed by nonwhite space characters and ends with numbers. D. String with lower case joined with an underscore E. Words beginning and ending with a numeric number Each program contains 1 M (b) With code snippet, explain saving variables using the shelve module and PPrint() &Pformat() functions. Split) F	RBT
Shallow Copy – 3M Deep Copy – 3M Deep Copy – 3M Design a suitable data structure using python to display a tic-tac-toe board. Define a function printBoard() to play the game with two players, one player given the option 'O' and the other 'X', the function also accepts the input and displays the status of board for all nine slots Tic- Tac – Toe Board – 2M Function for Updating the board – 2M [4] CC [4] Write python program to generate the histogram of a sentence using Dictionary a. The frequency of the different characters present in a sentence b. The number of words present in the sentence c. The longest and short word in the sentence with the length. Program 1 – 2M Program 3 – 2M List the isX() string methods in python and explain any four methods with suitable examples. Listing the Methods – 1M Explain with Example – 3M [4] CC [5] CC Define dictionary in python. How is it different from a list. Given a dictionary birth_day=('Virat' · 21 Feb', 'Rabul': '12 Jan', 'Dhoni': '13 April'. Discuss the various methods to traverse the dictionary with the syntax to display the player's name and birthday as a list. Definition for Dictionary – 2M 3 methods of Traversing the Dictionary – 1M X 3 – 3M (b) Given the input- 'Application Development programming using python' which method can be used to get the following output=['Application', 'Development', 'programming', 'using', 'python') Explain. Write a python program to swap cases of a given string. Input: JaVa Output: JAVA [5] CC Split and explanation – 2M Program – 3 M 4(a) Write a Python program to search for all words using regular expression: A starting with 'a' followed by one or more 'b B. start with a and ends with b C. string that starts with Y' followed by nonwhite space characters and ends with numbers. D. String with lower case joined with an underscore E. Words beginning and ending with a numeric number Each program contains 1 M (b) With code snippet, explain saving variables using the shelve module and PPrint() &Pformat() functions. Split		
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Program 3 – 2M		
List the isX() string methods in python and explain any four methods with suitable examples. Listing the Methods – 1M Explain with Example – 3M 3(a)		
Listing the Methods – 1M Explain with Example – 3M Define dictionary in python. How is it different from a list. Given a dictionary birth_day={'Virat': '21 Feb', 'Rahul': '12 Jan', 'Dhoni': '13 April'. Discuss the various methods to traverse the dictionary with the syntax to display the player's name and birthday as a list. Definition for Dictionary – 2M 3 methods of Traversing the Dictionary – 1M X 3 = 3M	\bot	
Section with Example – 3M Define dictionary in python. How is it different from a list. Given a dictionary birth_day={\cdotVirat': '21 Feb', 'Rahul': '12 Jan', 'Dhoni': '13 April'. Discuss the various methods to traverse the dictionary with the syntax to display the player's name and birthday as a list. Definition for Dictionary – 2M 3 methods of Traversing the Dictionary – 1M X 3 = 3M Given the input= 'Application Development programming using python' which method can be used to get the following output=['Application', 'Development', 'programming', 'using', 'python']. Explain. Write a python program to swap cases of a given string. Input: JaVa Output: jAvA Split and explanation – 2M Program – 3 M 4(a) Write a Python program to search for all words using regular expression: A. starting with 'a' followed by one or more 'b B. start with and ends with b C. string that starts with 'X' followed by nonwhite space characters and ends with numbers. D. String with lower case joined with an underscore E. Words beginning and ending with a numeric number Each program contains 1 M (b) With code snippet, explain saving variables using the shelve module and PPrint() &Pformat() functions. PPrint() – 2.5.M Pformat() – 2.5.M Pformat() – 2.5.M Pformat() – 2.5.M What are regular expressions? Describe question mark, star, plus-and dot Regex symbols with suitable python code snippet. Regular Expression – 2M		
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Regular Expression – 2M		
Regular Expression – 2M)3	L2
Other Explanation - $1M \times 4 = 4M$		
Other Explanation - Tivi A + – Hivi		

(b)	Write a python program to extract phone numbers and Email address Using Regular Expressions and the necessary second parameter in the compile() functions • Program – 3M • Explanation – 2M	[4]	CO3	L3
6(a)	List the functions available under the os.path module and explain with suitable example.	5.63	~~~	~ .
	• Six Methods 1M X 6 = 6M	[6]	CO3	L2
(b)	Write a python program to create a folder PYTHON and create 3 files file1, file2 and file3. Write the contents in file1 as 'VTU' and in file 2 as 'UNIVERSITY' and file 3 content should be opening and merging of file1 and file2. Check out the necessary conditions before writing file3. • Program – 4M	[4]	CO3	L3

CI CCI HOD/CSE



Internal Assessment Test 2 – December 2022 (Solution)

Sub:	Application Development using Python	nent Test 2 – Dec	SubCode:	18CS55	Branc	h: CSE		
Date:	3/12/2022 Duration: 90 mins	MaxMarks: 50	Sem/Sec:	5 /	A,B,C		OE	BE
	AnsweranyFIVE	FULLQuestions			I	MARKS	CO	RBT
1 (a)	Explain the shallow copy and deep copy w The copy Module's copy() and If the function modifies the list or of changes in the original list or dictionary For this, Python provides a module deepcopy() functions. copy(), can be used to make a dupl dictionary, not just a copy of a reference. Now the spam and cheese variables list in cheese is modified when you assi The reference ID numbers are no levariables refer to independent lists. 1 import copy 2 m1=[1,2,3,4] 3 m2=copy.copy(m1) 4 print("ID - 11:",id(m1) 5 print("ID - 12:",id(m2) 6 m1.append("hello") 7 print("M1:",m1) 8 print("M2:",m2) 9	deepcopy() Fullictionary that is porvalue. In named copy that it is a more than the copy of a more th	anctions assed, we m provides bot atable value	th the copy() a like a list or is why only th	and ne	[6]	CO2	L2
	ID - 11: 139760062099360 ID - 12: 139760276665360 M1: [1, 2, 3, 4, 'hello'] M2: [1, 2, 3, 4] Deep Copy Example:							
	<pre>1 import copy 2 dem1=[[1,2,3],[4,5,6]] 3 dem2=copy.deepcopy(dem1) 4 dem1[0][1]='Added' 5 dem1.append([21,22,23]) 6 print("DM1:",dem1) 7 print("DM2:",dem2)</pre>)						
	DM1: [[1, 'Added', 3], [4, DM2: [[1, 2, 3], [4, 5, 6]]		22, 23]]					
	1 a1=[1,2,3] 2 a2=a1.copy() 3 a2[1]='a'							

```
(b)
         Design a suitable data structure using python to display a tic-tac-toe board. Define a function
         printBoard() to play the game with two players, one player given the option 'O' and the other
         'X', the function also accepts the input and displays the status of board for all nine slots
               theBoard = {'top-L': '', 'top-M': '', 'top-R': '', 'mid-L': '', 'mid-M': '
', 'mid-R': '', 'low-L': '', 'low-M': '', 'low-R': ''}
               def printBoard(board):
                   print(board['top-L'] + '|' + board['top-M'] + '|' + board['top-R'])
                   print('-+-+-
                   print(board['mid-L'] + '|' + board['mid-M'] + '|' + board['mid-R'])
                   print('-+-+-')
                   print(board['low-L'] + '|' + board['low-M'] + '|' + board['low-R'])
                                                                                                            [4]
                                                                                                                     CO2
                                                                                                                           L3
               for i in range(9):
                   printBoard(theBoard)
                   print('Turn for ' + turn + '. Move on which space?')
                          input()
                   theBoard[move] = turn
                   if turn == 'X':
                       turn = '0'
                   else:
                       turn = 'X'
               printBoard(theBoard)
2 (a)
         Write python program to generate the histogram of a sentence using Dictionary
                       The frequency of the different characters present in a sentence
              a.
              b.
                       The number of words present in the sentence
                       The longest and short word in the sentence with the length.
              c.
      s="My name is Rahul and I am 21"
       d={'word':1,'digit':0,'upper':0,'lower':0}
       for i in s:
         if(i.isspace()):
            d['word']+=1
                                                                                                            [6]
                                                                                                                     CO2
                                                                                                                           L3
         if(i.isdigit()):
            d['digit']+=1
         if(i.isupper()):
            d['upper']+=1
         if(i.islower()):
            d['lower']+=1
       for i, j in d.items():
         print(i,":",j)
 (b)
         List the isX() string methods in python and explain any four methods with suitable examples.
         There are several string methods that have names beginning with the word is. These methods
         return a Boolean value that describes the nature of the string.
         ☐ Here are some common isX string methods:☐
         o isalpha() returns True if the string consists only of letters and is not blank.
                                                                                                            [4]
         o isalnum() returns True if the string consists only of letters and numbers and is not blank.
                                                                                                                     CO2
                                                                                                                           L2
         o isdecimal() returns True if the string consists only of numeric characters and is not blank.
         o isspace() returns True if the string consists only of spaces, tabs, and newlines and is not blank.
         o istitle() returns True if the string consists only of words that begin with an uppercase letter
         followed by only lowercase letters.
```

```
'hello'.isalpha()
          >>>
          True
>>> 'hello123'.isalpha()
          False
                'hello123'.isalnum()
          True
>>> 'hello'.isalnum()
          True
>>> '123'.isdecimal()
          True
                        '.isspace()
          222
          True
>>> 'This Is Title Case'.istitle()
                'This Is Title Case 123'.istitle()
          True
>>> 'This Is not Title Case'.istitle()
          False
                'This Is NOT Title Case Either'.istitle()
          >>>
          False
3(a)
       Define dictionary in python. How is it different from a list. Given a dictionary
       birth day={'Virat': '21 Feb', 'Rahul': '12 Jan', 'Dhoni': '13 April'. Discuss the various
       methods to traverse the dictionary with the syntax to display the player's name and birthday as a
       keys(),items(),values() - Traverse the dictionary
                                                                 ~ ~ ~ & =
       1 d={'Virat':'12 Feb','Rahul':'25 Dec','Sachin':'24 April'}
       2 print(list(d.keys()))
       3 for i in d.keys():
       4 print(i)
       ['Virat', 'Rahul', 'Sachin']
      Virat
      Rahul
      Sachin
       1 d={'Virat':'12 Feb','Rahul':'25 Dec','Sachin':'24 April'}
       2 d['Dhoni']='21 Jan'
       3 for i,j in d.items():
       4 print("key:",i,"Value:",j)
      key: Virat Value: 12 Feb
      key: Rahul Value: 25 Dec
      key: Sachin Value: 24 April
      key: Dhoni Value: 21 Jan
(b)
       Given the input= 'Application Development programming using python' which method can be
       used to get the following output=[ 'Application', 'Development', 'programming', 'using',
       'python']. Explain.
     Split()
        The split() method is called on a string value and returns a list of strings.
        We can pass a delimiter string to the split() method to specify a different string to
     split upon.
                                                                                                 CO2 L3
                                                                                          [5]
          A common use of split() is to split a multiline string along the newline
     characters.
       Write a python program to swap cases of a given string. Input: JaVa Output: jAvA
     s="JaVa"
     swap=""
     for i in s:
```

```
if i.isupper():
    swap=swap+i.lower()
    else:
    swap=swap+i.upper()
print(swap)
```

4(-)	White a Druban much to seemb for all and a seemb for all and a seemble of the see			
4(a)	Write a Python program to search for all words using regular expression: A. starting with 'a' followed by one or more 'b			
	B. start with a and ends with b			
	C. string that starts with 'X' followed by nonwhite space characters and ends with numbers.			
	D. String with lower case joined with an underscore			
	E. Words beginning and ending with a numeric number			
	1. starting with 'a' followed by one or more 'b			
	import re			
	s='dsds abbb abnh ahju abbj'			
	mo=re.search(r'ab+\w*',s)			
	print(mo.group())			
	2. start with a and ends with b:			
	import re			
	s='dsds aghb ahn'			
	regx=re.compile(r'a\w*b')			
	print(regx.findall(s))			
		[5]	CO3	L3
	3. string that starts with X followed by nonwhite space charcters and ends with numbers:			
	import re			
	s='Xfdg:23 hsj Xgsv:45 Xjhg:y'			
	$regx=re.compile(r'X\backslash w+:\backslash d+')$			
	print(regx.findall(s))			
	4. String with lower case joined with an underscore:			
	import re			
	s='TYUJ_TJH Tfdd_Thgsh asaad_hgsf adghga hgdfg_fdjh'			
	regx=re.compile(r'[a-z]+_[a-z]+')			
	print(regx.findall(s))			
	5. Words Begining and Ending with a numeric number:			
	import re			
	s='2agsfz4 zxcd 4dfg6 adbcz'			
	regx=re.compile(r'\d\w*\d')			
	print(regx.findall(s))			
(b)	With code snippet, explain saving variables using the shelve module and PPrint() &Pformat()			
	functions.			
	import the pprint module into your programs			
	 pprint() and pformat() are the functions that will "pretty print" a dictionary's 			
	values.			
	Provides a cleaner display of the items in a dictionary than what print()			
	provides.			
		[5]	CO3	L2
	import pprint			
	message="I am an Indian"			
	ct ={}			
	for c in message:			
	ct[c]=ct.setdefault(c,0)+1			
	print("Without Pretty Print:",ct)			
	print("Using Pretty Print:")			
	pprint.pprint(ct)			

	 Without Pretty Print: {'I': 2, ' ': 3, 'a': 3, 'm': 1, 'n': 3, 'd': 1,			
	'i': 1}			
	Using Pretty Print:			
F(z)	{' ': 3, 'I': 2, 'a': 3, 'd': 1, 'i': 1, 'm': 1, 'n': 3}			
5(a)	What are regular expressions? Describe question mark, star, plus-and dot Regex symbols with suitable python code snippet.			
	Steps for using regular expressions in Python			
	1. Import the regex module with import re.			
	2. Create a Regex object with the re.compile() function. (Remember to use a raw string.) –			
	Pattern			
	3. Pass the string you want to search into the Regex object's search() method. This returns a			
	Match object Text			
	4. Call the Match object's group() method to return a string of the actual matched text.			
	$\frac{1}{2}$			
	>>> batRegex = re.compile(r'Bat(wo)?man')			
	>>> mo1 = batRegex.search('The Adventures of Batman')			
	>>> mo1.group()			
	'Batman'	[6]	CO3	L2
	>>> mo2 = batRegex.search('The Adventures of Batwoman') >>> mo2.group()			
	'Batwoman'			
	• * (or asterisks) means "match one or more."			
	The . (or dot) character in a regular expression is called a wildcard and will			
	match any character except for a newline. dot character will match just one			
	character			
	import re			
	regex=re.compile(r'.at')			
	print(regex.findall('cat sat on the mat'))			
	output:			
	['cat', 'sat', 'mat'] Write a python program to extract phone numbers and Email address Using Regular Expressions			
(b)	and the necessary second parameter in the compile() functions			
	import re			
	regx=re.compile(r"'			
	[a-z0-9_]+ #userid			
	@ # @ of Symbol			
	\. # dot that comes before domian	[4]	CO3	L3
	\w{3} # Top level domain .com	r.,1		
	"',re.VERBOSE re.IGNORECASE)			
	$regx1=re.compile(r'\d\{10\}')$			
	s='My mail id is rahul20@cmrit.com my phone number is 9876655454' print(regx.findall(s))			
	print(regx.findall(s)) print(regx1.findall(s))			
6(a)	List the functions available under the os.path module and explain with suitable example.			
	• os.path.abspath(path) - will return a string of the absolute path of the argument. This is			
	an easy way to convert a relative path into an absolute one.			
	• os.path.isabs(path) will return True if the argument is an absolute path and False if it is			
	 a relative path. os.path.relpath(path, start) will return a string of a relative path from the start path to 			
	path			
	• os.path.dirname(path) will return a string of everything that comes before the last slash in the path argument.	[6]	CO3	L2
	 os.path.basename(path) will return a string of everything that comes after the last slash 			
	in the path argument.			
	os.path.split() to get a tuple value of a path's dir name and base name			
	• os.path.getsize(path) will return the size in bytes of the file in the path argument.			
	• os.listdir(path) will return a list of filename strings for each file in the path argument.			
1	• os.path.exists(path) will return True if the file or folder referred to in the argument exists			

Write the contents in file1 as 'VTU' and in file 2 as 'UNIVERSITY' and file 3 content should be opening and merging of file1 and file2. Check out the necessary conditions before writing file3. import os try: os.makedirs('Python') except: print("Folder already exist") try: f1 = open('Python\\file1.txt', 'w+') f1.write("VTU") f2=open('Python\\file2.txt', 'w+') f2.write("University") f1.close() f2.close() except: print("File not found") # Concatenating try: f1 = open('Python\\file1.txt', 'r+') f3=open('Python\\file3.txt', 'w+') f3.write(f1.read()+f2.read()) f1.close() f2.close() f2.close() f3.close() except:		 else False os.path.isfile(path) will return True if the path argument exists and is a file and will return False otherwise. os.path.isdir(path) will return True if the path argument exists and is a folder and will return False otherwise. 			
try: os.makedirs('Python') except: print("Folder already exist") try: fl = open('Python\\file1.txt', 'w+') fl.write("VTU") f2=open('Python\\file2.txt', 'w+') f1.close() f2.close() except: print("File not found") # Concatenating try: fl = open('Python\\file1.txt', 'r+') f2 = open('Python\\file2.txt', 'r+') f3=open('Python\\file3.txt', 'w+') f3.write(f1.read()+f2.read()) f1.close() f2.close() f2.close() except:	(b)				
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f1.close() f2.close() f3.close() except:					
f2.close() f3.close() except:					
f3.close() except:		v ·			
except:		v ·			
		v ·			
print("File not found")		print("File not found")			

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