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AUTUMN BREAK HOMEWORK 2023-24
XII-Comp Sc

FUNCTION:

1. Write a function **LShift(Arr,n)** in Python, which accepts a list **Arr** of numbers and **n** is a numeric value by which all elements of the list are shifted to left.

Sample Input Data of the list

Arr= [10,20,30,40,12,11], n=2

Output

Arr = [30,40,12,11,10,20]

2. Write a function **INDEX_LIST(L)**, where **L** is the list of elements passed as argument to the function. The function returns another list named 'indexList' that stores the indices of all Non-Zero Elements of **L**.

For example:

If **L** contains [12,4,0,11,0,56]

The indexList will return - [0,1,3,5]

3. Write the definition of a function **Sum3(L)** in Python, which accepts a list **L** of integers and displays the sum of all such integers from the list **L** which end with the digit **3**.

For example, if the list **L** is passed

[123, 10, 13, 15, 23]

then the function should display the sum of **123, 13, 23**, i.e. **159** as follows :

Sum of integers ending with digit 3 = 159

TEXT FILE

4. Write a function **Show_words()** in Python to read the content of a text file '**NOTES.TXT**' and display only such lines of the file which have exactly 5 words in them.

5. Write a method/function **DISPLAYWORDS()** in python to read lines from a text file **STORY.TXT**, and display those words, which are less than 4 characters.

6. Write a function **AMCount()** in Python, which should read each character of a text file **STORY.TXT**, should count and display the occurrence of alphabets **A** and **M** (including small cases **a** and **m** too).

BINARY FILE

7. A binary file "**PATIENTS.dat**" has structure (**PID, NAME, DISEASE**). Write the definition of a function **countrec()** in Python that would read contents of the file "**PATIENTS.dat**" and display the details of those patients who have the **DISEASE** as '**COVID-19**'. The function should also display the total number of such patients whose **DISEASE** is '**COVID-19**'.

8. A binary file "Book.dat" has structure [BookNo, Book_Name, Author, Price].

- i. Write a user defined function *CreateFile()* to input data for a record and add to Book.dat .
- ii. Write a function *CountRec(Author)* in Python which accepts the Author name as parameter and count and return number of books by the given Author are stored in the binary file "Book.dat".

9. A binary file "STUDENT.DAT" has structure (admission_number, Name, Percentage). Write a function *countrec()* in Python that would read contents of the file "STUDENT.DAT" and display the details of those students whose percentage is above 75. Also display number of students scoring above 75%.

STACK:

10. Write a menu-based program to implement stack to show PUSH, POP and TRAVERSE operation, where each node of stack will contain, Roll of student and name of student, as information.

11. Consider the following dictionary containing names and marks as key value pairs of 6 students.

{"OM":76, "JAI":45, "BABITA":89, "ARUN":65, "ANUJ":90, "TARUN":82}

Write a program, with separate user defined functions to perform the following operations:

- Push the keys (name of the student) of the dictionary into a stack, where the corresponding value (marks) is greater than 75. Function will receive key as argument.
- Pop the content of the stack and return it.

Write the main program to integrate created functions to display the content of stack.

12. Write a program to create a list containing 10 integers with separate user defined functions to perform the following operations based on this list.

- Push odd numbers of list into a stack, which will receive as argument.
- Pop the content of the stack.

Write the main program to create and traverse the list to integrate created functions, and to display the content of stack by using second function.

For Example:

If the Content of the list is as follows:

[12, 13, 34, 56, 21, 79, 98, 22, 35, 38]

Then Output of the code should be: **13,21,79,35**

SQL:

SQL Query Based on Group By and Having Clause

- 1.** Display the department number and number of employees for each department.
- 2.** Display total salary paid to each department.
- 3.** Display total number of employees for each department where more than two employees are working in the same department.
- 4.** Display total salary paid to each job where numbers of employees are more than two for each job.
- 5.** Display minimum and maximum salary paid for each job.
- 6.** Display the number of employees for the city Kolkata, Delhi and Mumbai.
- 7.** Display average salary paid to each department where numbers of employees are less than 5.
- 8.** Display the number of employees for each city who is working in department number '30'.
- 9.** Display average salary and number of employees for each city where more than two employees are belonging to same city.
- 10.** List the number of employees and their average salary for each department where two employees are working