*Syllabus:*

*Lists: Create, Access, Slicing, Negative indices, List methods, List comprehensions – Tuples: Create, Indexing and slicing, Operations on tuples – Dictionary: Create, add, and replace values, Operations on dictionaries – Sets: Creation and operations*

**Questions:**

**LISTS**

1. Write a program to print the elements of a list [‘V’, ‘I’,’T’,’C’,’H’,’E’,’N’,’N’,’A’,’I’] in separate lines along with elements positive and negative indexes.

Example: At indexes 0 and -10 element : ‘V’

List L is [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20]

Elements in List1 is [1, 3, 5, 7, 9, 11, 13, 15, 17, 19]

Average of elements in List1 is 10.0

Elements in List2 is [1, 4, 7, 10, 13, 16, 19]

Average of elements in List2 is 10.0

1. Write a program to create the following list manipulation menu.

“List Manipulation menu”

1. Add Element(s)
2. Modify Element
3. Delete Element
4. Sort List’
5. Display List
6. Exit

Get the user input using “Enter your choice (1…. 6)”.

If the user enters the **choice as 1,** display the following

1. Add one element
2. Add a list

If the user entered “1. Add one element”, get the value of the element and the position to add. Then using proper command, insert the element in that position.

If the user entered “2. Add multiple elements”, get the list and add to the existing list.

If the user enters the **choice as 2**, get the position where to modify and get the new value for element. Use proper command, modify with the new value.

If the user enters the **choice as 3**, display the following.

1. Delete element by position
2. Delete element by value

If the user entered “1. Delete element by position”, get the position where to delete and delete the element.

If the user entered “2. Delete element by value”, get the element to be deleted and delete the element accordingly.

If the user enters the **choice as 4**, display the following.

1. Ascending
2. Descending

Based on user choice, sort the elements in the list.

If the user enters the choice as 5, display the list.

If the user enters the choice as 6, exit from the program.

1. A city CAB provider assigns one of its drivers a maximum of 5 duties in a day. For each duty, the pick-up point, drop point, approximate kilometers, cost involved are to be stored in their data base. The customers are advised to board a CAB in a maximum of 5 numbers. The provider charges Rs.10/km for servicing 2 passengers while Rs.15/km for more than 2 passengers, if the travel is within 55 km. The charge is 60% more, if the travel distance exceeds 55 km. Write a program to store the above data in a list and get the money earned in each trip. Also calculate the total money earned and the total distance served by the driver on the day.
2. Write a program to get the list of integer elements from the user as a input and print the list, total elements in the list, () and odd elements in the list. The example is given here for your reference.

[1, 3, 2, 4, 5]

Total elements in the list : 5

Total number of even elements in the list: 2

Total number of odd elements in the list : 3

1. Write a program to get the list of names starting with any one of the vowels and print the lists for each vowel separately.

Example: l=

Output:

['Arun', 'antony']

['elango']

['Iris', 'inian']

['Om']

['Umasankar']

1. Write a program to get the list of integers and slice the list for the given index. Print list before and after slicing.

Example:

**Input:**

Enter number of elements : 5

Enter the element12

Enter the element3

Enter the element44

Enter the element29

Enter the element37

Enter the index value for slicing: 3

**Output:**

Before slicing: [12, 3, 44, 29, 37]

After slicing: [12, 3, 44]

1. Write a program to get the names list and surnames list separately and combine them as a new list.

**Input:**

Enter the names with space between them : Sivakumar. Sreekant. h

Enter the surnames with space between them : Ramasami Dondapati

**Output:**

Names list: ['Sivakumar.', 'Sreekanth.']

Surnames list: ['Ramasami', 'Dondapati']

Fullname list: ['Sivakumar.Ramasami', 'Sreekanth.Dondapati']

* 1. Write a program to get the input as ““the quick brown fox jumps over the lazy dog” . Convert this input as a list. Create a two new list. One contains the list of words without “the” and the other list contains the length of each word.

**Input:**

Enter the sentence: the quick brown fox jumps over the lazy dog

**Output:**

The input list is

['the', 'quick', 'brown', 'fox', 'jumps', 'over', 'the', 'lazy', 'dog']

The new list without "the" is :

['quick', 'brown', 'fox', 'jumps', 'over', 'lazy', 'dog']

The new list containing the length of word is :

[5, 5, 3, 5, 4, 4, 3]

* Write a program to get a list of integers and swap two numbers based on position.

**Input:**

Enter the total number of elements in the list 5

Enter the number: 1

Enter the number: 2

Enter the number: 3

Enter the number: 4

Enter the number: 5

Enter the position of first element to swap: 2

Enter the position of second element to swap: 4

**Output:**

List before swapping

List after swapping [1, 2, 5, 4, 3]

1. Write a program to search a number in the given list using linear search.

**Input:**

Enter the total number of elements in the list 5

Enter the number: 24

Enter the number: 32

Enter the number: 24

Enter the number: 45

Enter the number: 67

Enter the number to search: 24

**Output:**

Found at 1

Found at 3

1. Write a program to search a number in the given list using binary search.

**Input:**

Enter the total number of elements in the list: 5

Enter the number: 32

Enter the number: 45

Enter the number: 23

Enter the number: 52

Enter the number: 75

Enter to be number to be searched: 23

**Output:**

Found at 3

1. Write a program to sort numbers in the given list using bubble sort.

**Input:**

Enter the total number of elements in the list: 5

Enter the number: 33

Enter the number: 12

Enter the number: 15

Enter the number: 72

Enter the number: 55

**Output:**

List before sorting :

[33, 12, 15, 72, 55]

List after sorting :

[12, 15, 33, 55, 72]

1. Write a program to sort numbers in the given list using selection sort.

**Input:**

Enter the total number of elements in the list: 5

Enter the number: 33

Enter the number: 12

Enter the number: 15

Enter the number: 72

Enter the number: 55

**Output:**

List before sorting :

[33, 12, 15, 72, 55]

List after sorting :

[12, 15, 33, 55, 72]

**TUPLES**

1. Write a program to print the elements of a tuple (“VIT”, “Chennai”, “SMEC”, “PYTHON”, “PROGRAMMING”, “BCSE101E”) in separate lines along with elements positive and negative indexes.

Output:

At indexes 0 and -6 element : VIT

At indexes 1 and -5 element : Chennai

At indexes 2 and -4 element : SMEC

At indexes 3 and -3 element : PYTHON

At indexes 4 and -2 element : PROGRAMMING

At indexes 5 and -1 element : BCSE101E

1. Write a program to input a tuple which contains at least 7 integer numbers and find the second largest element in that tuple.

**Input:**

(23, 32, 45, 54, 65, 75, 1)

**Output:**

Maximum value = 75

Second Maximum value = 65

1. Write a program to create a tuple storing the number of terms (user has to give the input) of Fibonacci series.

**Input:**

Enter the number: 10

**Output:**

(0, 1, 1, 2, 3, 5, 8, 13, 21, 34)

1. Write a program to create a tuple containing 5 integers and change the index 2 value to new value provided by the user.

**Input:**

Enter 5 integer elements : (1,33,44,55,22)

Enter the new value for index 2: 11

**Output:**

Tuple before changing the value:

(1, 33, 44, 55, 22)

Tuple after changing the value:

(1, 33, 11, 55, 22)

**DICTIONARY**

1. Write a program to create a phone dictionary for10 of your friends and then print it.

Input:

Enter the no. of dictionary entries: 2

Enter the key name: SIVA

Enter the phone no.: 9487833044

Enter the key name: KUMAR

Enter the phone no.: 9487833044

Output:

{'SIVA': 9487833044, 'KUMAR': 9487833044}

SIVA : 9487833044

KUMAR : 9487833044

1. Create the dictionary for the following entries.

|  |  |  |  |
| --- | --- | --- | --- |
| City | Country | Population | Wonder |
| Newyork | USA | 700k | Statue of Liberty |
| Agra | India | 300k | Taj Mahal |
| Paris | France | 500k | Eiffel Tower |

With the above data, print the details of each city.

1. Write a program to create two lists taking inputs from user. One list containing keys (take months as keys) and other list containing values (take no. of days as values). Convert these two lists into dictionary (key: value)

**Input:**

Enter the month: jan

Enter the no. of days: 31

Enter the month: feb

Enter the no. of days: 28

Enter the month: mar

Enter the no. of days: 31

Enter the month: apr

Enter the no. of days: 30

Enter the month: may

Enter the no. of days: 31

Enter the month: june

Enter the no. of days: 30

Enter the month: july

Enter the no. of days: 31

Enter the month: aug

Enter the no. of days: 31

Enter the month: sept

Enter the no. of days: 30

Enter the month: oct

Enter the no. of days: 31

Enter the month: nov

Enter the no. of days: 30

Enter the month: dec

Enter the no. of days: 31

**Output:**

['jan', 'feb', 'mar', 'apr', 'may', 'june', 'july', 'aug', 'sept', 'oct', 'nov', 'dec']

[31, 28, 31, 30, 31, 30, 31, 31, 30, 31, 30, 31]

{'jan': 31, 'feb': 28, 'mar': 31, 'apr': 30, 'may': 31, 'jun': 30, 'july': 31, 'aug': 31, 'sept': 30, 'oct': 31, 'nov': 30, 'dec': 31}

1. Write a program to create dictionary containing the details of employee with the help of user input. From this dictionary, extract a new dictionary containing the values for two keys alone. Print both dictionaries. The details can be found in the below example.

**Input:**

Enter the no. of employees : 1

Enter the employee name: siva

Enter the age: 25

Enter the salary: 50000

Enter the designation: lead

**Output:**

{'name': 'siva', 'age': 25, 'salary': 50000, 'designation': 'lead'

New dictionary

{'name': 'siva', 'salary': 50000}

1. In a class, register numbers are assigned to students from 1 to 25. Students with even register numbers are selected for football, all those whose register numbers are divisible by 3 and 5 are opted for basketball and cricket respectively. Assign the students with their register numbers and their sports in a dictionary and find out number of students who did not opted for any sports.

**Output:**

{1: 'none', 2: 'football', 3: 'basketball', 4: football', 5: 'cricket', 6: 'football', 7: 'none', 8: 'football', 9: 'basketball', 10: 'football', 11: 'none', 12: 'football', 13: 'none', 14: 'football', 15: 'basketball', 16: 'football', 17: 'none', 18: 'football', 19: 'none', 20: 'football', 21: 'basketball', 22: 'football', 23: 'none', 24: 'football', 25: 'cricket'}

not opted = : 7