LISTS

10.1 A list is a sequence

Q1. Declare an empty list to store student names in future. Print the list.

Q2. Declare and initialize a strings list. Print the list.

Q3. Declare and initialize a numbers list. Print the list.

Q4. Declare and initialize a boolean list. Print the list.

Q5. Declare and initialize a nested list. Print the list.

Q6. Declare and initialize a mixed list (containing string, number, Boolean and a list). Print the list.

Q7. Declare and Initialize a list and store available mobile networks in Pakistan. Print the list.

10.2 Lists are mutable

Q1. Declare and initialize a list containing 5 strings.

a) Update the second list element to "Hello Lists".
b) Print the complete list
c) Print the second list element using positive index.
d) Access last element of the list using lists len method. Print the last element.
e) Access first element of the list using negative index. Print the first element.
f) Check whether "Hello Ghost" exists in your list (using in operator).

Q2. Declare and initialize a list containing 5 numbers.

a) Update the first list element to 5.
b) Print the complete list.
c) Access last element of the list using negative index. Print the last element.
d) Check whether [] exists in your list (using in operator).

Q3. Declare and initialize a list containing 5 nested lists.

a) Update the first list member to [“hello”, 1, 5].
b) Update the third list member to [6, “think”, True].
c) Print the list.
d) Print the last list member using positive index.
e) Now access the first list member (which is also a list) and print its second member using negative index.
f) Now access the third list member (which is also a list) and print its last member using lists len method.
g) Check whether your list’s first member (which is also a list) contains False.
h) Check whether your list’s third member (which is also a list) contains think.

Q4. Declare and Initialize a list with your favorite cars. Show

a) First index of the list
b) Car at first index of the list
c) Last index of the list
d) Car at last index of the list

Favorite Cars
Audi, Volvo, Ford, Lamborghini

First index of the list: 0
Car at first index of the list: Audi
Last index of the list: 3
Car at list index of the list: Lamborghini

10.3 Traversing a list

Q1. Declare and Initialize a list and store available education qualifications in Pakistan (e.g. SSC, HSC, BCS, BS, BCOM, MS, M. Phil., PhD). Print the listed qualifications like:

Qualifications:
SSC
HSC
BCS
BS
BCOM
MS
M.Phil
PhD

Q2. Write a program to store 3 student names in a list. Take another list to store score of these three students. Assume that total marks are 500 for each student, display the scores & percentages of students like:

Score of Michael is 320. Percentage: 64%
Score of John is 230. Percentage: 46%
Score of Tony is 480. Percentage: 96%

Q3. Declare and initialize a list with 10 numbers. Write a program to update all list members by adding 5 to their values.

Q4. Declare and initialize a list with 10 strings. Write a program to update all list members by concatenating "CONCATENATED" to their values.

10.3 Traversing a list
10.6 List methods [append]

Q1. Declare and initialize an empty list to store top movies of 2015. Add movies one by one in the list. Display the elements & length of list like this:

Top Movies of 2015:
Avengers: Age of Ultron
Spectre
Jurassic World
Inside Out

Length of the List: 4

Q2. Write a program that takes 10 numbers input from user and store it in the list (using for loop). Print the list.

10.3 Traversing a list
10.6 List methods [append]
10.7 Map, filter and reduce
10.12 List arguments

Q1.

a) Make a function that takes list as a parameter and return its sum.
b) Pass the list to the function and print the sum returned by the function.

Q2.

a) Make a function that takes list as a parameter and return its average.
b) Pass the list to the function and print the average returned by the function.

Q3.

a) Make a function that takes list as a parameter and return the maximum/largest number in the list.
b) Pass the list to the function and print the maximum returned by the function.

Q4.

a) Ten numbers are entered from the keyboard into the list.
b) The number to be searched is also taken as input.
c) Write a function that takes in the list and the number to be searched. The function should return 0 if the number is not found else it should return the number of times it appears in the list.

Q5. Write a function SelectEven that takes in a list as parameter and returns the even numbers list.

Q6. Write a program that takes 10 numbers as inputs and store it in the list. Then the program finds their:

a) Maximum
b) Minimum
c) Average
d) Index of the minimum value
e) Index of the maximum value

Q7. Write a function that takes a list of strings and returns a new list that contains capitalized strings.

Q8. Write a function that takes a list of strings and returns a list that contains only the uppercase strings:

10.4 List operations [+,*]
10.12 List arguments

Q1. Write a function that takes two lists as parameter and join/concatenate them as a new list.

Q2. Write a function that takes a list and a number, and repeats the list given number of times. Return the new list.

10.5 List slices

Q1. Write a program to initialize a list with city names.
Cities List:
Karachi, Lahore, Islamabad, Quetta, Peshawar

a) Slice and Copy 2nd and 3rd list elements from ***cities*** list to ***selectedCities*** list. Print the ***selectedCities*** list.
b) Slice and Copy first 4 list elements from ***cities*** list to ***selectedCities*** list. Print the ***selectedCities*** list.
c) Slice and Copy last 3 list elements from ***cities*** list to ***selectedCities*** list. Print the ***selectedCities*** list.
d) Slice and Copy all the list elements from ***cities*** list to ***selectedCities*** list. Print the ***selectedCities*** list.
e) Using slice operator, update 2nd and 3rd list element. Print the updated list.

10.6 List methods [Sort]

Q1. Write a program to store student scores in a list & sort the list in ascending order using List's sort method.

Scores of Students: 320, 230, 480, 120
Ordered Scores of Students: 120, 230, 320, 480

Q2. Write a program to sort the below mentioned list:
fruits = ["strawberry", "apple", "orange", "banana"]

Fruits List:
Strawberry, apple, orange, banana

Ordered Fruits List:
apple, banana, orange, strawberry

10.10 Objects and values
10.11 Aliasing

Q1. Create 2 lists:
List1 = [1,2,3]
List2 = [1,2,3]

a) Using is operator, check whether both the lists are equivalent.
b) Make changes to List1 and print both the lists to see whether both are equivalent or not.

Q2. Create a list (List1) and assign it to List2 using assignment operator. Using is operator, check whether both the lists are equivalent.

a) Using is operator, check whether both the lists are equivalent.
b) Make changes to List1 and print both the lists to see whether both are equivalent or not.

10.6 List methods [append, insert]
10.8 Deleting elements [remove]

Q1. Initialize a list with color names. Display the list elements.

a) Ask the user what color he/she wants to add to the beginning & add that color to the beginning of the list. Display the updated list.
b) Ask the user what color he/she wants to add to the end & add that color to the end of the list. Display the updated list.
c) Delete the 'red' color in the list. Display the updated list.
d) Ask the user at which index he/she wants to add a color & color name. Then add the color to desired position/index. Display the updated list.