**Assignment on Lists and Functions**

Q1. Request a number from the user. It should then print a multiplication table of the size entered by the user; for example, if the users enters 15, a 15 × 15 table should be printed. Print nothing if the user enters a value lager than 18. Be sure everything lines up correctly, and the table looks attractive. Write a function for the same.

Q2. Define a function called cube that takes an argument called number.

Make that function return the cube of that number (i.e. that number multiplied by itself and multiplied by itself once again).

Define a second function called by\_three that takes an argument called number. if that number is divisible by 3, by\_three should call cube(number) and return its result. Otherwise, by\_three should return False.

Q3. Write a function that determines if the number of even and odd values in an integer list is the same. The function would return true if the list contains 5,1,0,2 (two evens and two odds), but it would return false for the list containing 5, 1, 0, 2, 11 (too many odds).

The function should return true if the list is empty, since an empty list contains the same number of evens and odds (0 for both). The function does not affect the contents of the list.

Q4. Complete the following function that ﬁlters negative elements out of a list. The function returns the ﬁltered list and the original list is unchanged. For example, if a list containing the elements 2,−16, 2,−5, 0, 1,−2,−3 is passed to the function, the function would return the list containing 2, 2, 0, 1. Note the original ordering of the non-negative values is unchanged in the result.

Q5. Given

["www.zframez.com", "www.wikipedia.org", "www.asp.net", "www.abcd.in"]

Write a python program to print website suffixes (com , org , net ,in)from this list.

Q6 Take two lists, say for example these two:

a **=** [1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89]

b **=** [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13]

and write a program that returns a list that contains only the elements that are common between the lists (without duplicates). Make sure your program works on two lists of different sizes.

Q7 Write a program (function!) that takes a list and returns a new list that contains all the elements of the first list minus all the duplicates.

Q8 You are analyzing sports teams. Members of each team are stored in a list. The Coach is the first name in the list, the captain is the second name in the list, and other players are listed after that. These lists are stored in another list, which starts with the best team and proceeds through the list to the worst team last. Complete the function below to select the **captain** of the worst team.

Write two different functions to do this - one using a loop and constructing a list, and another using sets.

Q9 What are the lengths of the following lists? Fill in the variable lengths with your answer.

a = [1, 2, 3]

b = [1, [2, 3]]

c = []

d = [1, 2, 3][1:]

Q10 nums=[ ('one', 1, 'I'),

('two', 2, 'II'),

('three', 3, 'III'),

('four', 4, 'IV'),

]

Dsplay like :

1 = one = I; 2 = two = II; 3 = three = III; 4 = four = IV

Q11 Take the following Python code that stores a string:`

  str = 'X-DSPAM-Confidence: 0.8475'

Use find and string slicing to extract the portion of the string after the colon character and then use the float function to convert the extracted string into a floating point number.

Q12 If we were presented a series of lines formatted as follows

From stephen.marquard@uct.ac.za Sat Jan 5 09:14:16 2008

And we wanted to pull out only the second half of the address (i.e. uct.ac.za) from each line. We can do this by using the find method and string slicing.

Q13. Given the following lists

players = [ "Sachin", "Sehwag", "Gambhir", "Dravid", "Raina" ]

scores = [100, 15, 17, 28, 43 ]

Zip and show the result in a list and a set. Write a function.

Q14. Let's use functions to calculate your trip's costs:

Define a function called hotel\_cost with one argument nights as input. The hotel costs $140 per night. So, the function hotel\_cost should return 140 \* nights.

Define a function called plane\_ride\_cost that takes a string, city, as input. The function should return a different price depending on the location, similar to the code example above. Below are the valid destinations and their corresponding round-trip prices.

"Charlotte": 183

"Tampa": 220

* "Pittsburgh": 222
* "Los Angeles": 475

Define a function called rental\_car\_cost with an argument called days. Calculate the cost of renting the car: Every day you rent the car costs $40.(cost=40\*days) if you rent the car for 7 or more days, you get $50 off your total(cost-=50). Alternatively (elif), if you rent the car for 3 or more days, you get $20 off your total.

You cannot get both of the above discounts. Return that cost. -Then, define a function called  trip\_cost  that takes two arguments, city and days. Like the example above, have your function return the sum of calling the rental\_car\_cost(days), hotel\_cost(days), and plane\_ride\_cost (city) functions.

Modify your trip\_cost function definion. Add a third argument, spending\_money. Modify what the trip\_cost function does. Add the variable `spending\_money to the sum that it returns.

Q15 Take two lists. Populate the lists with numbers. Join the two lists and find the length of the new list.