Practice Project 1

Learning Objectives:

Part 1
- Variables, Operators
- Common Packages
- Data structures

Part 2
- Functions, Lambda Function
- Loops, Conditional Statements

Part 1

1. Answer the following questions:

a. Write a code to find the reminder of the input given by the user. Store the input and output in variables named “number” and “reminder” respectively. (Hint : data type of the user input needs to be converted. str - int)

b. Write a program to swap two strings without using a third string.

c. Find a simple code snippet to generate a random number between the range of 0 to 9. (Hint : Use “random” package)

d. Convert a floating-point kilometer value into miles for a conversion factor of 0.621371. Print both the values up to only two decimal points. (Say kilometers = 24.56, then miles = 15.26)

e. For the given variable x = 10, y = 12, perform the following bitwise operations:

(i) x>>2
(ii) y<<1
(iii) x and y

2. For a below given list, perform the following:
input_list = ["USA", "India", "Sweden", "Germany", "Canada"]

- Print the list and find the length of the list
- Delete the last element from the list
- Replace "Germany" with "Russia"
- Add "Argentina" and "Portugal" countries simultaneously using a proper list method

3. For the below given dictionary:
football_team = {
"players": ["Lionel Messi", "Cristiano Ronaldo", "Sergio Aguero"],
"club": ["Barcelona", "Real Madrid", "Manchester City"],
"nationality": ["Argentina", "Portugal", "Spain"],
"age": [34, 36, 33]
}

- How to get the value of Portugal?
- Print all the keys of dictionary
- Print all the values together
- Replace Lionel Messi with Neymar

4. Write a program which will take two lists list1 & list2 as input and it will return a list having all the numbers divisible by 4 which are present in the given two lists.
For example, list1 = [2,4,16,23] & list2 = [5,6,8,12] Expected Output: [4,16,8,12]

5. For the below given tuple:
new_tuple = (3, 3, 'x', [1,2])

- What is the first occurrence of 3?
- Count total number of 3 present in the given tuple
- Convert given tuple into list and add 20, "y" and 44 simultaneously using proper list method

Part 2

1. Find the largest number from given 3 numbers using the if, elif, else conditional statements. Take the inputs from the user and store the result in the “largest" variable.

2. Write a function to calculate the sum of all-natural numbers up to 50(take input from the user). If the number is less than zero, print "enter a positive number", else print the sum. Use the 'while' loop to iterate until the number is zero.

3. Write a function to find the largest number from a given input list. Pass list of numbers as parameters to the function. Use python in-built function ONLY. list1 = [200, 186, 1, 760]

4. Find the factorial of a number given by the user. For the entered negative number, the program should print "factorial does not exist for negative numbers". For zero, it should print "factorial of zero is 1". (Hint: use 'for' loop as well as proper 'if elif' conditional statements)

5. Generate a new list from the below given list which has elements divisible by 12 only using a single line code. (Hint: Use ONLY "lambda" function)

new_list = [12, 65, 48, 108, 112, 120, 85]