Week 1 Assignment - Python Basics

Day 1

1. We are having 3 list like this

```
    Colors = [“Yellow”,”Green”,”White”,”Black”]
    Fruits=[“Apple”,”Papaya”,”Mango”,”Orange”]
    Animals=[“Tiger”,”Lion”,”Deer”,”Zebra”]
```

   i. Write a program that asks user to enter a Color/Fruit/Animal name and it should tell which category belongs to , like its is a fruit or color or Animal

   ii. Write a program that asks user to enter two cities and it tells you if they both are in same country or not. For example if I enter yellow and Black, it will print “Both are colors” but if I enter yellow and Tiger it should print “They don’t belong to same category”

5. Write a python program that can tell you if your grade score good or not . Good Score range is 40 to 60.
   i. Ask user to enter his score.
   ii. If it is below 40 to 60 range then print that score is low
   iii. If it is above 60 then print that it is good otherwise print that it is normal
6. After appearing in exam 10 times you got this result,

```
    result = ["Pass","Fail","Fail","Pass","Fail","Pass","Pass","Fail"
,"Fail","Fail"]
```

   Using for loop figure out how many times you got Pass

8. Write a program that prints following shape

```
    *
     * *
     * * *
     * * * *
     * * * * *
     * * * *
     * * *
     * *
     *
```

18. Lets say you are running a 50 km race. Write a program that,

- Upon completing each 10 km asks you “are you tired?”
- If you reply “yes” then it should break and print “you didn’t finish the race”
- If you reply “no” then it should continue and ask “are you tired” on every km
- If you finish all 50 km then it should print congratulations message

Day 02

1. Write a Python program to find those numbers which are divisible by 7 and multiple of 5, between 1500 and 2700 (both included).
2. Print square of all numbers between 10 to 20 except even numbers
3. Your Marks for five Test(test1 to test5) looks like this,

```
marks_list = [65, 75, 2100, 95, 83]
```

   Write a program that asks you to enter marks and program should tell you in which test that expense occurred. If expense is not found then it should print that as well.

5. Is a list mutable? With Example
6. Does a list need to be homogeneous? With Example
7. How to find the number of elements in the list?

Day 03 (All with Examples)

1. How to check whether the list is empty or not?
2. How to find the first and last element of the list?
3. How to find the largest and lowest value in the list?
4. How to access elements of the list?
5. Remove elements in a list before a specific index
6. Remove elements in a list between 2 indices
7. Return every 2nd element in a list between 2 indices
8. Get the first element from each nested list in a list
9. How to modify elements of the list?
10. How to concatenate two lists?
11. How to add two lists element-wise in python?
12. Difference between del and clear?

Day 04

1. Difference between remove and pop?
2. Difference between append and extend?
3. Difference between indexing and Slicing?
4. Difference between sort and sorted?
5. Difference between reverse and reversed?
6. Difference between copy and deepcopy?
7. How to remove duplicate elements in the list?
8. How to find an index of an element in the python list?
9. How to find the occurrences of an element in the python list?
10. How to insert an item at a given position?
11. How to check if an item is in the list?
12. How to flatten a list in python?
13. How to convert python list to other data structures like set, tuple, dictionary?
14. How to apply a function to all items in the list?
15. How to filter the elements based on a function in a python list?

Day 05

1. Write a Python Program to sort (ascending and descending) a dictionary by value.
2. Write a Python Program to add a key to a dictionary.

```
3. Sample Dictionary : `{0: 10, 1: 20}`
4. Expected Result : `{0: 10, 1: 20, 2: 30}`
```

5. Write a program asks for City name and Temperature and builds a dictionary using that later on you can input city name and it will tell you the Temperature of that City.
6. Write a Python program to convert list to list of dictionaries.

```
7. Sample lists: ["Black", "Red", "Maroon", "Yellow"],
8.                ["#000000", "#FF0000", "#800000", "#FFFF00"]
```

Expected Output:

```
[{'color_name': 'Black', 'color_code': '#000000'},
 {'color_name': 'Red', 'color_code': '#FF0000'},
 {'color_name': 'Maroon', 'color_code': '#800000'},
 {'color_name': 'Yellow', 'color_code': '#FFFF00'}]
```

Day 06

1. We have following information on Employees and their Salary (Salary is in lakhs),

Employee	Salary
John	14
Smith	13
Alice	32
Daneil	21

2. 1.Using above create a dictionary of Employees and their Salary
   2.Write a program that asks user for three type of inputs,print:
   a) print: if user enter print then it should print all Employees with their Salary in this format
   - John ==>14
   - Smith ==>13
   - Alice ==>32
   - Daneil ==>21

   b) if user input adds then it should further ask for an Employee name to add. If Employee already exists in our dataset, then it should print that it exists and do nothing. If it doesn't then it asks for Salary and add that new Employee/Salary in our dictionary and print it

   c) remove: when user inputs remove it should ask for an Employee to remove. If an Employee exists in our dictionary, then remove it and print a new dictionary using format shown above in (a). Else print that Employee doesn't exist!

   d) query: on this again ask the user for which Employee he or she wants to query. When a user inputs that Employee it will print the Salary of that Employee.

3. What is the difference between a set and a frozenset? Create any set and try to use frozenset(setname).
4. Find the elements in a given set that are not in another set

```
5.      set1 = {10,20,30,40,50}
6.      set2 = {40,50,60,70,80}
```

   Difference between set1 and set2 is `{10,20,30}`

Resources

1. https://docs.python.org/3/tutorial/
2. https://www.geeksforgeeks.org/python-programming-language/learn-python-tutorial/
3. https://www.pythontutorial.net/
4. https://www.w3schools.com/python/default.asp
5. https://youtu.be/rfscVS0vtbw

Tamil Channels

1. https://www.youtube.com/watch?v=FC9kKGKhsHs&list=PLA2UBjeRwle3OLO3qmXTbmCvuTlqhHRVb&index=3

2. https://www.youtube.com/watch?v=sCa2zHHASeg&list=PLWbtDrDnmTHBdEnUKuLNdH2-zKSDD8OA4