

## Chapter 1 - Practice Set

- = 1 Write a program to print Twinkle twinkle little star poem in python.
- = 2 Use REPL and print the table of 5 using it.
- = 3 Install an external module and use it to perform an operation of your interest.
- = 4 Write a python program to print the contents of a directory using os module. Search online for the function which does that.
- = 5 Label the program written in Problem 4 with comments.

## Chapter 2 - Practice Set

- 1 Write a Python program to add two numbers
- 2 Write a Python program to find remainder when a number is divided by 2.
- 3 Check the type of the variable assigned using `input()` function.
- 4 Use comparison operators to find out whether a given variable `a` is greater than '`b`' or not.  
Take `a = 34` and `b = 80`
- 5 Write a python program to find average of two numbers entered by the user.
- 6 Write a python program to calculate square of a number entered by the user.

## Chapter 3 - Practice Set

1 Write a Python program to display a user entered name followed by Good Afternoon using input() function

2 Write a program to fill in a letter template given below with name and date.

```
letter = "Dear <1 NAME1>,  
         you are selected !  
<1 DATE1>""
```

3 Write a program to detect double spaces in a string

4 Replace the double spaces from Problem 3 with single spaces.

5 Write a program to format the following letter using escape sequence characters .

```
letter = "Dear Harry, This Python course is nice. Thanks!"
```

## Chapter 4 - Practice Set

- 1 Write a program to store seven fruits in a list entered by the user.
- 2 Write a program to accept marks of 6 students and display them in a sorted manner.
- 3 Check that a tuple cannot be changed in python.
- 4 Write a program to sum a list with 4 numbers.
- 5 Write a program to count the number of zeros in the following tuple:

$$a = (7, 0, 8, 0, 0, 9)$$

1.

## Chapter 5: Practice Set

1.

Write a program to create a dictionary of Hindi words with values as their English translation. Provide user with an option to look it up!

2.

Write a program to input eight numbers from the user and display all the unique numbers (once).

3.

Can we have a set with 18(int) and "18(str)" as values in it?

What will be the length of following set S:

~~RUNA~~ S = Set( )

~~EKA~~ S.add(20)

~~A~~ S.add(20.0)

~~A~~ S.add("20")  $\Rightarrow$  length of S after these operations?

4.

S = { }

what is the type of S?

5.

Create an empty dictionary. Allow 4 friends to enter their favourite language as values and use keys as their names. Assume that the names are unique

6.

If names of 2 friends are same; what will happen to the program in Problem 6?

7.

If languages of two friends are same; what will happen to the program in Problem 6?

9 Can you change the values inside a list which is contained in Set S

S = { 8, 7, 12, "Harry", [1, 2] }

## Chapter 6 - Practice Set

1 Write a program to find greatest of four numbers entered by the user.

2 Write a program to find out whether a student is pass or fail, if it requires total 40% and at least 33% in each subject to pass. Assume 3 subjects and take marks as an input from the user.

3 A spam comment is defined as a text containing following keywords : "make a lot of money", "buy now", "subscribe this", "click this". Write a program to detect these spams.

4 Write a program to find whether a given username contains less than 10 characters or not.

5 Write a program which finds out whether a given name is present in a list or not.

6 Write a program to calculate the grade of a student from his marks from the following scheme :

90 - 100 → Ex

80 - 90 → A

70 - 80 → B

60 - 70 → C

50 - 60 → D

<50 → F

7 Write a program to find out whether a given post is talking about "Harry" or not.

## Chapter 7 - Practice Set

- 1 Write a program to print multiplication table of a given number using for loop.
  - 2 Write a program to greet all the person names stored in a list l1 and which starts with S
- $l_1 = ["Harry", "Soham", "Sachin", "Rahul"]$
- 3 Attempt problem 1 using while loop.
  - 4 Write a program to find whether a given number is prime or not
  - 5 Write a program to find the sum of first n natural numbers using while loop.
  - 6 Write a program to calculate the factorial of a given number using for loop.
  - 7 Write a program to print the following star pattern

\*  
\* \* \*  
\* \* \* \* \*

for  $n=3$

- 8 Write a program to print the following star pattern:

\*  
\* \*  
\* \* \* \*

for  $n=3$

9 Write a program to print the following star pattern

\* \* \*  
\* \* \*  
\* \* \*

for  $n = 3$

10 Write a program to print multiplication table of  $n$  using for loop in reversed order.

## Chapter 8 - Practice Set

- 1 Write a program using function to find greatest of three numbers
- 2 Write a python program using function to convert Celsius to fahrenheit
- 3 How do you prevent a python print() function to print a new line at the end.
- 4 Write a recursive function to calculate the sum of first n natural numbers.
- 5 Write a python function to print first n lines of the following pattern:  

```
* * *
* *           → for n=3
*
```
- 6 Write a python function which converts inches to cms
- 7 Write a python function to remove a given word from a list and strip it at the same time.
- 8 Write a python function to print multiplication table of a given number.

## Chapter 9 - Practice Set

- 1 Write a program to read the text from a given file 'baoms.txt' and find out whether it contains the word 'twinkle'.
- 2 The game() function in a program lets a user play a game and returns the score as an integer. You need to read a file 'HiScore.txt' which is either blank or contains the previous Hi-score. You need to write a program to update the Hi-score whenever game() breaks the Hi-score.
- 3 Write a program to generate multiplication tables from 2 to 20 and write it to the different files. Place these files in a folder for a 13-year old.
- 4 A file contains a word "Donkey" multiple times. You need to write a program which replaces this word with ##### by updating the same file.
- 5 Repeat program 4 for a list of such words to be censored.
- 6 Write a program to mine a log file and find out whether it contains 'python'.
- 7 Write a program to find out the line number where python is present from Ques 6

- 8 Write a program to make a copy of a text file "this.txt"
- 9 Write a program to find out whether a file is identical & matches the content of another file.
- 10 Write a program to wipe out the contents of a file using python
- 11 Write a python program to rename a file to "renamed\_by\_python.txt"

## Chapter 10 - Practice Set

- 1 Create a class programmer for storing information of few programmers working at microsoft.
- 2 Write a class calculator capable of finding square, cube and squareroot of a number.
- 3 Create a class with a class attribute a ; create an object from it and set a directly using object.a = 0. Does this change the class attribute?
- 4 Add a static method in problem 2 to greet the user with hello.
- 5 Write a class Train which has methods to book a ticket, get status (no of seats) and get fare information of trains running under Indian Railways.
- 6 Can you change the self parameter inside a class to something else (say 'harry'). Try changing self to 'slf' or 'harry' and see the effects.

## Chapter 11 - Practice Set

- 1 Create a class `2dVector` and use it to create another class representing a 3-d vector.
- 2 Create a class `Pets` from a class `Animals` and further create class `Dog` from `Pets`. Add a method `bark` to class `Dog`.
- 3 Create a class `Employee` and add `salary` and `increment` properties to it.  
Write a method `SalaryAfterIncrement` method with a `@property` decorator with a `setter` which changes the value of `increment` based on the `salary`.
- 4 Write a class `Complex` to represent complex numbers, along with overloaded operators `+` and `*` which adds and multiplies them.
- 5 Write a class `vector` representing a vector of `n` dimension. Overload the `+` and `*` operator which calculates the sum and the dot product of them.
- 6 Write `__str__()` method to print the vector as follows:

$$7\hat{i} + 8\hat{j} + 10\hat{k}$$

Assume vector of dimension 3 for this problem.

= 7

Override the `__len__()` method on Vector of problem 5 to display the dimension of the vector.

## Chapter 12 - Practice Set

- 1 Write a program to open three files 1.txt, 2.txt and 3.txt. If any of these files are not present, a message without exiting the program must be printed prompting the same.
- 2 Write a program to print third, fifth and seventh element from a list using enumerate function
- 3 Write a list comprehension to print a list which contains the multiplication table of a user entered number.
- 4 Write a program to display  $a/b$  where a and b are integers. If  $b=0$ , display Infinite by handling the ZeroDivisionError.
- 5 Store the multiplication tables generated in Problem 3 in a file named Tables.txt.

## Chapter 13 - Practice Set

- 1 Create two virtual environments, install few packages in the first one. How do you create a similar environment in the second one?
- 2 Write a program to input name, marks and phone number of a student and format it using the format function like below:

"The name of the student is Harry, his marks are 72 and phone number is 99999888"
- 3 A list contains the multiplication table of 7. Write a program to convert it to a vertical string of same numbers ( $\begin{smallmatrix} 7 \\ \vdots \end{smallmatrix}$ )
- 4 Write a program to filter a list of numbers which are divisible by 5
- 5 Write a program to find the maximum of the numbers in a list using the reduce function.
- 6 Run pip freeze for the system interpreter. Take the contents and create a similar Virtualenv.
- 7 Explore the Flask module and create a web server using Flask & Python.