URBAN EDGE

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.

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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.

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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 <|NAME|>,
                You are selected!
<|DATE|> '''
```

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!"

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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:

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

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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 a values in it?

4. What will be the length of following set S:
```
S = Set()
S.add(20)
S.add(20.0)
S.add("20")
```
=> Length of S after these operations?

5. S = {}
what is the type of S?

6. 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

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

8. 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

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

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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

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

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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.

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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.

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Chapter 9 - Practice Set

1. Write a program to read the text from a given file 'poems.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

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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"

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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.

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Chapter 11 - Practice Set

1. Create a class C2dVector 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.

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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.

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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 (7 / 14 / ⋮)

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 interpretor. Take the contents and create a similar virtualenv.

7. Explore the Flask module and create a web server using Flask & Python.