**- Python Excersice -**

1. Write a program to reverse a number without using any inbuit function.

2. Given a list of first 10 natural numbers, write a program to find the square of all even numbers

and cube of all odd numbers and store them in another list

3. Given a tuple (“Msys”, “Technologies”, “2007”), add “Python” at the end of this tuple and the

output should also be in the form of tuple. Make a note that tuples are immutable in nature so you

need to find some idea to make modification and print the updated tuple.

4. In the dictionary {‘India’:’New Delhi’, ‘USA’:’Washington D.C.’, ‘Nepal’:’Kathmandu’} list out

all the keys in a list named as ‘list\_keys’ and list out all the values in a list named as ‘list\_values’.

Also find out the value of key ‘Australia’ in the list and as it is not existing in the list print ‘NA’ as

its value.

5. Given a dictionary {‘Msys Technologies’:’Sanjay Sehgal’, ‘Infosys’:’Salil Parekh’,

‘TCS’:’Rajesh Gopinathan’, ‘Wipro’:’Thierry Delaporte’} make a list of all the values associated

with keys in alphabetically sorted order.

6. Write a program to extract the words starting with lowercase letter present in the list. [‘Nissan’,

‘maruti’, ‘hyundai’, ‘Volkswagen’, ‘audi’]

7. Write a program using dictionary comprehension which will contain the key value pair of i:i\*\*2.

Value of ‘i’ will start from 1 and will go upto 10.

8. Take the input marks from user using input() function and find out the grade of the students. Note

the grading will be in this manner – (100 – 91) – A1, (90-81) – A2, (80-71) – B1, (70-61) – B2, (60-

51) – C1 (50-40) – C2 and less than 40 students will ‘Fail’. Also make sure user should input the

marks in the range 0<=marks<=100, if user will input some other marks in should print invalid

marks.

9. Given a list [1,2,1,5,9,10,2,2,7,5,3,10,8,9,15,17,21,16,17,90] find the difference between the

length of the list and the count of unique elements in the list.

10. In the given String -- ‘MsYs TecHNOlogiEs iS a gREat place To woRk’ find the count of

lowercase and uppercase letters.

11. Write a python function with name **reverse\_vowel** that takes one string as an argument and

reverse the order of vowels present in the string. The function should return the string having

reversed order of vowels. For example – If the input string which is given as argument is ‘Hello’

then the output string should be ‘Holle’. You need to reverse the vowel irrespective of lowercase or

uppercase.

12. Write a method **number\_of\_prime\_numbers()** which takes two input arguments **num1** and

**num2** and should return the total number of prime numbers in the range. The numbers **num1** and

**num2** are inclusive of the range. Also add all the numbers in an empty list and return the sum of the

list. So finally your function will return two things, first will be the count of prime numbers and the

other will be the sum of all the prime numbers in the given range.

13. Write a lambda function which takes two input arguments **x** and **y**. If x is greater than y then it

should return square of y and if y is greater than x, then it should return square of x.

14. Given two lists --

list\_1 = [‘Msys’, ‘Tata’, ‘Wells’, ‘Mobinius’]

list\_2 = [‘Technologies’, ‘Power’, ‘Fargo’, ‘Technologies’]

Write a python code using **map** and **lambda** function which will create the list named as **my\_list**

consisting of the combination of first name and second name from list\_1 and list\_2 respectively.

15. Given a list --

list\_1 = [10, 12, 15, 67, 95, 45, 43, 89, 91, 80, 75, 78, 94, 100]

use the **filter()** function to find the list of numbers that are multiple of either 2 or 5.

16. Write a function which will take a string argument and reverse the words in the string. For

example – Input string -- “Hello World”. Output should be “olleH dlroW”.

17. Write a program to replace duplicate adjacent alphabets from given string with ‘\_’.

For Example -- input given string : **'abcdaa hssbbye'** and output : **‘abcda\_ hs\_b\_ye’**

18. Print the below rohmbus pattern according to the given number

for eg: given number is 4 then

o/p will be

1

212

32123

4321234

32123

212

1

19. Write a function which takes input string from the user as argument and the character also taken

by the user as the argument and remove all the occurences of that character from the string. Also if

the given character is not present in the string your function should raise the exception stating that

“Given character is not present in the string. Please try with a new one”.

20. You are given a string having alphabets,digits,special characters. Write three different functions

to extract the digits[should be in sorted order], special character & vowels[should be in reverse]

from the given string.

**i/p string : "abcd123bye09@8"**

**o/p: digits - 012389**

**special character - @**

**vowels - ea**

21. You are given a string and width. Your task is to wrap the string into paragraph of width in

reverse order. Blank spaces should be ignored.

**for eg: i/p - first line contains a string with blank spaces - Hello, welcome to this**

**organisation.**

**the second line conatins the width - 4**

**o/p**

**lleH**

**ew,o**

**mocl**

**tote**

**osih**

**nagr**

**tasi**

**.noi**

22. Find the **palindrome words** with the count value from the given string.Output should be in

form of dict. key will be palidrome word and value will be number of occurence.

**i/p given a string** - Nittin & his mom went to a park last friday. His Mom observed that the weather

was too cool. Nittin also met his sis. If we reverse the number 1331 then we also get 1331.

**o/p - {'nittin': 2, 'mom': 2, 'sis': 1, '1331': 2}**

23. create 2 dictionaries as follows:

**dict1 = {'name': 'Msys', 'Place': 'Pune'}**

**dict2 = {'EmpID': 0001, 'Salary': 50000}**

Perform following operations:

a. create single dictionary by merging dict1 & dict2

b. update the salary to 10%

c. update age to 35

d. extract & print all the values & keys separetly in tuple.

e. delete the element with key 'Age' & print the dictionary elements.

24. You have given a string str1 = "abcbaefabcabchijkl"

your task is to find the combination of given word without repetition, present in the string , given

word 'abc'

o/p = 7

explaination :

abc, cba,

cba,

bca, acb

cab, bac

25. Given an Integer n, count the total number of times 1 is appearing in all non-negative integers

less than or equal to n.

Ex – **n = 13, output should be 6**

method – 1 is coming 6 times starting from number 0 till 13 in ‘1’, ‘10’, ‘11’, ‘12’, ‘13’. Also note 1

is coming 2 times in 11. That is why 6 is the output

26. Design a binary tree structure in python/any preferred language in such a way that it is in the

form of a triangle and built on AND logic. Initially it looks like the below structure.

**L6 1**

**L5 1 1**

**L4 1 1 1**

**L3 1 1 1 1**

**L2 1 1 1 1 1**

**L1 1 1 1 1 1 1**

If any value at L1 level is updated then the whole tree should get updated accordingly. For example,

if third value at L1 level is updated to 0 then the tree should get updated as below.

**L6 0**

**L5 0 0**

**L4 0 0 0**

**L3 0 0 0 1**

**L2 1 0 0 1 1**

**L1 1 1 0 1 1 1**

27. Need to find minimum number of new chair purchase for work area with simulated set of array

values.

C - A new employee comes to work area and new chair need to purchase

R - Employee from work area goes to meeting room and free up the chair

U - Employee comes from meeting room and occupy the chair

L - Leaves the work area and free up the chair

**Input :**

n = 3

simulated value : ['CCRLU', 'CRLCUC', 'CCCC']

**Output:**

224

28. Given a string s and an integer k, reverse the first k characters for every 2k characters counting

from the start of the string.

If there are fewer than k characters left, reverse all of them. If there are less than 2k but greater

than or equal to k characters, then reverse the first k characters and leave the other as original.

**Input:** s = "abcdefg", k = 2

**Output:** "bacdfeg"

**Input:** s = "abcd", k = 2

**Output:** "bacd"