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| Question 1: |
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Define a class with a generator which can iterate the numbers, which are divisible by 7, between a given range 0 and n.

Question 2:

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| Write a program to compute the frequency of the words from the input. The output should output after sorting the key alphanumerically. |
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| Suppose the following input is supplied to the program: |
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| New to Python or choosing between Python 2 and Python 3? Read Python 2 or Python 3. |
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| Then, the output should be: |
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| 2:2 |
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| 3.:1 |
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| 3?:1 |
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| --- |
| New:1 |
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| Python:5 |
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| --- |
| Read:1 |
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| --- |
| and:1 |
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| --- |
| between:1 |
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| --- |
| choosing:1 |
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| --- |
| or:2 |
|  |

to:1

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| Question 3: |
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Define a class Person and its two child classes: Male and Female. All classes have a method "getGender" which can print "Male" for Male class and "Female" for Female class.

Question 4:

Please write a program to generate all sentences where subject is in ["I", "You"] and verb is in ["Play", "Love"] and the object is in ["Hockey","Football"].

Question 5:

Please write a program to compress and decompress the string "hello world!hello world!hello world!hello world!".

Question 6:

Please write a binary search function which searches an item in a sorted list. The function should return the index of element to be searched in the list.

**Solution: 1**

class gen():

def generatoor(n):

for i in range(0,n):

if i%7==0:

yield i

else:

pass

g = gen.generatoor(100)

for val in g:

print(val)

**Solution: 2**

text = "New to Python or choosing between Python 2 and Python 3? Read Python 2 or Python 3.".split(" ")

text\_new = list(text) #put each space seperated words in a list

#text\_new

for i in range(0, len(text\_new)): # iterating till the length of the list

print(text\_new[i] , " :" , text.count(text\_new[i])) # from the text, count each words from the list one by one

**Solution: 3**

class Person:

def getGender(self):

print("Person Class")

class Male(Person):

def getGender(self):

print("Male Class")

class Female(Person):

def getGender(self):

print("Female Class")

obj\_Person = Person()

obj\_Male = Male()

obj\_Female = Female()

obj\_Male.getGender() # printing the male class

obj\_Female.getGender() # printing the female class

**Solution: 4**

from itertools import product

list\_1 = [["I", "You"], ["Play", "Love"], ["Hockey","Football"]]

list(itertools.product(\*list\_1))

**Solution: 5**

import zlib

text = b"aaabbbb"

a = zlib.compress(text)

print(a)

b = zlib.decompress(a)

print(b)

**Solution: 6**

import numpy as np

def binary\_search(arr, sv, i, j ):

if i==j: # if there is only one element in the array

if arr[i]==sv:

print("{0} found at index location ".format(sv), i)

else:

return(-1)

else:

mid = (i+(len(arr)-1))//2

if arr[mid] == sv:

return("{0} found at index location ".format(sv), mid)

elif sv<ar[mid]:

binary\_search(ar, sv, i, mid-1)

elif sv>ar[mid]:

binary\_search(ar, sv, mid-1, j)

if \_\_name\_\_=="\_\_main\_\_":

ar = sorted(np.array(list(map(int, input().split()))))

sv = int(input("enter a number to be searched "))

i=0 # starting index

j= len(ar)-1 # last index of the array

print("sorted array is ", ar)

binary\_search(ar, sv, i, j)