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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.

n = int(input())

divBy7 = [i for i in range(0, n) if (i % 7 == 0)]

print(divBy7)

def divChecker(n):

for i in range(n):

if i % 7 == 0:

value = True

else:

value = False

print(i, value)

divChecker(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 |
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to:1

import operator

text\_line = input("Type in: ")

freq\_dict = {}

for i in text\_line.split(' '):

if i.isalpha():

if i not in freq\_dict:

freq\_dict[i] = 1

elif i in freq\_dict:

freq\_dict[i] = freq\_dict[i] + 1

else:

pass

sorted\_freq\_dict = sorted(freq\_dict.items(), key = operator.itemgetter(0))

print(sorted\_freq\_dict)

for i in sorted\_freq\_dict:

print(i[0], i[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.

class Person(object):

def getGender( self ):

return "Unknown"

class Male( Person ):

def getGender( self ):

return "Male"

class Female( Person ):

def getGender( self ):

return "Female"

aMale = Male()

aFemale= Female()

print aMale.getGender()

print aFemale.getGender()

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"].

subjects=["I", "You"]

verbs=["Play", "Love"]

objects=["Hockey","Football"]

for i in range(len(subjects)):

for j in range(len(verbs)):

for k in range(len(objects)):

sentence = "%s %s %s." % (subjects[i], verbs[j], objects[k])

print sentence

Question 5:

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

import zlib

s = 'hello world!hello world!hello world!hello world!'

t = zlib.compress(s)

print t

print zlib.decompress(t)

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.

import math

def bin\_search(li, element):

bottom = 0

top = len(li)-1

index = -1

while top>=bottom and index==-1:

mid = int(math.floor((top+bottom)/2.0))

if li[mid]==element:

index = mid

elif li[mid]>element:

top = mid-1

else:

bottom = mid+1

return index

li=[2,5,7,9,11,17,222]

print bin\_search(li,11)

print bin\_search(li,12)