**Pentafox**  test on logic ability

#1

A bicyclist cycles around a circular park with a pathway connecting two opposite end points of the path of length 7kms.

Develop a logic that computes the total distance covered by the cyclist for a given set of rounds cycled.

Input : Enter No. of Rounds : 10 Output : ‘x’ Kms travelled.

r= float(input("length: "))

n = int(input("number of rounds: "))

radius=r\*n

perimeter=2\*3.14\*radius

print(perimeter,"Kms travelled")

#2

A fixed set of positive integers is dictated by the mathematics professor during a puzzle contest.

The professor asks the students to find a pair of numbers that result in a given sum.

Code a logic that can automate this puzzle. Use the below input for your exercise.

Case – 1 Input : arr = [1, 2, 3, 4, 6] & Sum = 8 Output : 2,6

Case – 2 Input : arr = [1, 2, 3, 4, 9] & Sum = 8 Ouput : No Pairs found

def findPair(A, sum):

A.sort()

(i, j) = (0, len(A) - 1)

while i < j:

if A[i] + A[j] == sum:

print("Pair found", (A[i], A[j]))

return

if A[j] + A[j] < sum:

i= i + 1

else:

j = j - 1

print("Pair not found")

if \_\_name\_\_ == '\_\_main\_\_':

A = list(map(int,input().split(",")))

sum = int(input())

findPair(A, sum)

#3 Alice is a cryptanalyst who is in charge of transmitting messages to bob without any intruder getting hands on it.

Alice thinks of transmitting the message by reversing it with a random character appended as prefix to the encoded message.

Input : Pentafox Ouput : Oxofatnep

import string

import random

def reverse(rev):

rev = rev[::-1]

var = random.choice(string.ascii\_letters)

rev= var + rev

return rev

s = input()

print (reverse(s))

#4

As a computer engineer, you are requested to reduce the storage space needed to store the textual content in the computer.

Write a logic that can compress the content as given in the below example. Input : All is well.

Output : Al2 is wel2 (Character followed by its number of occurrence)

s=input()

i = 0

while( i < len(s) - 1) :

count = 1

while s[i] == s[i + 1] :

i += 1

count += 1

if i + 1 == len(s):

break

if count==1:

print(str(s[i]),end="")

else:

print(str(s[i]) + str(count),end = "")

i += 1

#5

In a puzzle contest, the chairman of your English club posts a problem to compare a given pair of words and eliminate all common characters in them.

To speed up the process of judging, the computer club head was requested to prepare computer logic.

Please code a solution to the above problem applying your own skillset.

Input : Word-1: Rajesh Word-2: Ganesh Output : RjGn

str1 = input()

str2 = input()

set1 = set(str1)

set2 = set(str2)

common = list(set1 & set2)

uncommon = [ch for ch in str1 if ch not in common] + [ch for ch in str2 if ch not in common]

print( ''.join(uncommon) )

#6

A school camp is organized by a school to support the process of preparing their students for an examination.

They are in need of a study timetable that has following assumptions:

Assumptions: 1. Total Days of Camp – 5 Days 2. Total Hours a day – 5 Days 3. Total Subjects – 5 Subjects

Note:

The timetable should not follow the same order and should be in random everyday. Prepare code logic to help the School.

import random

n=int(input("number of days:"))

h=int(input("number of hours:"))

sub= list(map(str,input().split(",")))

x=random.choice(sub)

print(x)

#7

The alphabetical value is represented from 1-26 for characters A-Z respectively.

Using this principle generate a crypto decoder that can generate the message for transmitted sequence of alphabetical values.

Input : 1,2,3,4,26 Output : ABCDZ

l = list(map(int,input().split(",")))

for i in l:

print(chr(64+i),end="")

#8

Implement CRUD operations as an API using Python Flask and a DB in backend (prefer MySQL or MariaDB).