**DEEP DIVE OOP CASE STUDY 1**

**Q 1 .**

import math

x = 0

y =0

for i in range(0,4):

n = input('ENTER UP/DOWN/LEFT/RIGHT:')

a = input('enter number of steps:')

if n == 'UP':

y = y+int(a)

elif n == 'DOWN':

y = y-int(a)

elif n == 'LEFT':

x=x-int(a)

elif n == 'RIGHT' :

x= x+int(a)

else :

print('please enter input as suggested')

dist = math.sqrt(x\*\*2+y\*\*2)

print('THE FINAL DISTANCE IS ',dist)

**Q 2.**

input\_string = input("Enter list of items by commas.")

element = input("Enter the elements need to be searched.")

list\_spilt = str(input\_string).split(",")

if element in list\_spilt:

print(f"{element} is present in given list at position {list\_spilt.index(element)+1}")

else:

print(f"{element} is not present in given list")

**Q 3.**

import time

mytim = time.localtime()

myhr = mytim.tm\_hour

mymin = mytim.tm\_min

if myhr == 0 and mymin == 0:

print('It is midnight')

elif myhr < 12:

print ('It is AM')

elif myhr == 12 and mymin == 0:

print('It is noon')

else:

print ('It is PM')

**Q 4.**

from math import sin,cos,sqrt,atan2,radians

R = 6373.0

lat1 = float(input('Enter location one latitude:'))

lon1 =float (input('Enter location one longitude:'))

lat2 = float(input('Enter location second latitude:'))

lon2 = float(input('Enter location second longitude:'))

de\_lon = lon2 - lon1

de\_lat = lat2 -lat1

a = sin(de\_lat / 2)\*\*2 + cos(lat1) \* cos(lat2) \* sin(de\_lon / 2)\*\*2

c = 2 \* atan2(sqrt(a), sqrt(1 - a))

distance = R \* c

print("Result:", distance)

**Q 5.**

def cashwithdrawl():

pin=int(input('please input valid pin to proceed:'))

if pin ==100:#its taken as no pin is mentioned

a=float(input('enter amount you like to credit:'))

print(a,'amount has been drawn from your account.\n Thank you .')

else:

print('inavlid pin please check your pin.')

def cashcredit():

pin=int(input('please input valid pin to proceed:'))

if pin ==100:

a=float(input('enter amount you like to credit:'))

print(a,'amount is credited to your account.\n Thank you.')

else:

print('inavlid pin please check your pin.')

def passwordchange():

pin=int(input('please input valid pin to proceed:'))

if pin ==100:

a=(input('Please enter new password:'))

print(a,'your password has benn changed succesfully.\n thank you.')

else:

print('inavlid pin please check your pin.')

print('Welcome to Abhi Bank Private Limited')

print('Please choose from below options.\n')

print('1.press 1 for cash withdrawl.\n2.press 2 for cash credit\n3.press 3 for password change')

n = int(input("\nenter option here:"))

if n ==1:

cashwithdrawl()

elif n==2:

cashcredit()

elif n==3:

passwordchange()

else:

print('Please enter from above options only.')

**Q 6.**

numbers = []

for i in range(2000,3201):

if i%7 == 0 and i%5 != 0:

numbers.append(i)

else :

pass

print(numbers)

**Q 7.**

n = int(input('Enter the number:'))

fac = 1

if n == 0:

print('Factorial of zero is 1.')

elif n<0:

print('factorial does not exist for negative numbers.')

else:

for i in range(1,n+1):

fac = fac\*i

print('Factorial of number is ',fac)

**Q 8 .**

import math

C = 50

H =30

n = input("The numbers designated to D:")

num = n.split(',')

number = []

for D in num:

Q = math.sqrt((2\*C\*int(D))/H)

number.append(int(Q))

print(number)

**Q 9.**

row = int(input("Input number of rows: "))

col = int(input("Input number of columns: "))

r\_list = [[0 for i in range(col)] for j in range(row)]

for j in range(row):

for i in range(col):

r\_list[j][i]= j\*i

print(r\_list)

**Q 10.**

n = input("Enter words seperated with commas:")

new = n.split(',')

new.sort()

print((',').join(new))

**Q.11.**

f=int(input('Enter how many lines u want to enter:'))

w\_list=[]

for i in range(0,f):

line=input('Enter line:')

w\_list.append(line.upper())

for j in w\_list:

print(j)

**Q 12.**

words=input('Enter words with space between them:')

s=words.split(' ')

s.sort()

v\_list=[i for i in s]

print(' '.join(set(v\_list)))

**Q 13.**

num= input('Enter four digit binary codes seperated with commas:')

w\_list=[i for i in num.split(',')]

for j in w\_list:

if int(j,2)%5 == 0:

print(j)

**Q 14.**

n= input('Enter input:')

a = list(n)

b=0

c=0

for i in a:

if i.isupper():

b+=1

elif i.islower():

c+=1

else:

pass

print('UPPER CASE:',b,'\nLOWER CASE:',c)

**Q 15.**

import math

# for list

print(sum([1,2,3]))

# for tuple

print(sum((1,2,3)))

# for set

print(sum({1,2,3}))

# for range

print(sum(range(1,4)))

# for list

print(math.fsum([1,2,3]))

# for tuple

print(math.fsum((1,2,3)))

# for set

print(math.fsum({1,2,3}))

# for range

print(math.fsum(range(1,4)))