"""

Group A - Assignment 1

In second year computer engineering class, group A students play cricket,

group B students play badminton and group C students play football.

Write a python program using functions to compute following: -

a) List of students who play both cricket and badminton

b) List of students who play either cricket or badminton but not both

c) Number of students who play neither cricket nor badminton

d) Number of students who play cricket and football but not badminton.

(Note- While realizing the group, duplicate entries should be avoided, Do not use SET built-in functions)

"""

def accept\_set(A,Str):

n = int(input("Enter the total no. of student who play %s : "%Str))

for i in range(n) :

x = input("Enter the name of student %d who play %s : "%((i+1),Str))

A.append(x)

print("Set accepted successfully");

def display\_set(A,Str):

n = len(A)

if(n == 0) :

print("\nGroup of Students who play %s = { }"%Str)

else :

print("\nGroup of Students who play %s = {"%Str,end=' ')

for i in range(n-1) :

print("%s,"%A[i],end=' ')

print("%s }"%A[n-1]);

def search\_set(A,X) :

n = len(A)

for i in range(n):

if(A[i] == X) :

return (1)

return (0)

def find\_intersection\_set(A,B,C):

for i in range(len(A)):

flag = search\_set(B,A[i]);

if(flag == 1) :

C.append(A[i])

def find\_difference\_set(A,B,C):

for i in range(len(A)):

flag = search\_set(B,A[i]);

if(flag == 0) :

C.append(A[i])

def find\_union\_set(A,B,C):

for i in range(len(A)):

C.append(A[i])

for i in range(len(B)):

flag = search\_set(A,B[i]);

if(flag == 0) :

C.append(B[i])

def Main() :

Group\_A = []

Group\_B = []

Group\_C = []

while True :

print ("\t1 : Accept the Information")

print ("\t2 : List of students who play both cricket and badminton")

print ("\t3 : List of students who play either cricket or badminton but not both")

print ("\t4 : Number of students who play neither cricket nor badminton")

print ("\t5 : Number of students who play cricket and football but not badminton")

print ("\t6 : Exit")

ch = int(input("Enter your choice : "))

Group\_R = []

if (ch == 6):

print ("End of Program")

break

elif (ch==1):

accept\_set(Group\_A,"Cricket")

accept\_set(Group\_B,"Badminton")

accept\_set(Group\_C,"Football")

display\_set(Group\_A,"Cricket")

display\_set(Group\_B,"Badminton")

display\_set(Group\_C,"Football")

elif (ch==2):

display\_set(Group\_A,"Cricket")

display\_set(Group\_B,"Badminton")

find\_intersection\_set(Group\_A,Group\_B,Group\_R)

display\_set(Group\_R," both Cricket and Badminton")

elif (ch==3):

display\_set(Group\_A,"Cricket")

display\_set(Group\_B,"Badminton")

R1 = []

find\_union\_set(Group\_A,Group\_B,R1)

R2 = []

find\_intersection\_set(Group\_A,Group\_B,R2)

find\_difference\_set(R1,R2,Group\_R)

display\_set(Group\_R," either cricket or badminton but not both")

elif (ch==4):

display\_set(Group\_A,"Cricket")

display\_set(Group\_B,"Badminton")

display\_set(Group\_C,"Football")

R1 = []

find\_union\_set(Group\_A,Group\_B,R1)

find\_difference\_set(Group\_C,R1,Group\_R)

display\_set(Group\_R," neither cricket nor badminton")

print("Number of students who play neither cricket nor badminton = %s"%len(Group\_R))

elif (ch==5):

display\_set(Group\_A,"Cricket")

display\_set(Group\_C,"Football")

display\_set(Group\_B,"Badminton")

R1 = []

find\_intersection\_set(Group\_A,Group\_C,R1)

find\_difference\_set(R1,Group\_B,Group\_R)

display\_set(Group\_R,"cricket and football but not badminton")

print("Number of students who play cricket and football but not badminton = %s"%len(Group\_R))

else :

print ("Wrong choice entered !! Try again")

Main()

quit()

Python 3.8.4 (tags/v3.8.4:dfa645a, Jul 13 2020, 16:30:28) [MSC v.1926 32 bit (Intel)] on win32

Type "help", "copyright", "credits" or "license()" for more information.

>>>

==== RESTART: C:\Users\dell\AppData\Local\Programs\Python\Python38-32\A1.py ====

1 : Accept the Information

2 : List of students who play both cricket and badminton

3 : List of students who play either cricket or badminton but not both

4 : Number of students who play neither cricket nor badminton

5 : Number of students who play cricket and football but not badminton

6 : Exit

Enter your choice : 1

Enter the total no. of student who play Cricket : 4

Enter the name of student 1 who play Cricket : aa

Enter the name of student 2 who play Cricket : bb

Enter the name of student 3 who play Cricket : cc

Enter the name of student 4 who play Cricket : dd

Set accepted successfully

Enter the total no. of student who play Badminton : 5

Enter the name of student 1 who play Badminton : bb

Enter the name of student 2 who play Badminton : ee

Enter the name of student 3 who play Badminton : dd

Enter the name of student 4 who play Badminton : ff

Enter the name of student 5 who play Badminton : gg

Set accepted successfully

Enter the total no. of student who play Football : 4

Enter the name of student 1 who play Football : aa

Enter the name of student 2 who play Football : bb

Enter the name of student 3 who play Football : hh

Enter the name of student 4 who play Football : jj

Set accepted successfully

Group of Students who play Cricket = { aa, bb, cc, dd }

Group of Students who play Badminton = { bb, ee, dd, ff, gg }

Group of Students who play Football = { aa, bb, hh, jj }

1 : Accept the Information

2 : List of students who play both cricket and badminton

3 : List of students who play either cricket or badminton but not both

4 : Number of students who play neither cricket nor badminton

5 : Number of students who play cricket and football but not badminton

6 : Exit

Enter your choice : 2

Group of Students who play Cricket = { aa, bb, cc, dd }

Group of Students who play Badminton = { bb, ee, dd, ff, gg }

Group of Students who play both Cricket and Badminton = { bb, dd }

1 : Accept the Information

2 : List of students who play both cricket and badminton

3 : List of students who play either cricket or badminton but not both

4 : Number of students who play neither cricket nor badminton

5 : Number of students who play cricket and football but not badminton

6 : Exit

Enter your choice : 3

Group of Students who play Cricket = { aa, bb, cc, dd }

Group of Students who play Badminton = { bb, ee, dd, ff, gg }

Group of Students who play either cricket or badminton but not both = { aa, cc, ee, ff, gg }

1 : Accept the Information

2 : List of students who play both cricket and badminton

3 : List of students who play either cricket or badminton but not both

4 : Number of students who play neither cricket nor badminton

5 : Number of students who play cricket and football but not badminton

6 : Exit

Enter your choice : 4

Group of Students who play Cricket = { aa, bb, cc, dd }

Group of Students who play Badminton = { bb, ee, dd, ff, gg }

Group of Students who play Football = { aa, bb, hh, jj }

Group of Students who play neither cricket nor badminton = { hh, jj }

Number of students who play neither cricket nor badminton = 2

1 : Accept the Information

2 : List of students who play both cricket and badminton

3 : List of students who play either cricket or badminton but not both

4 : Number of students who play neither cricket nor badminton

5 : Number of students who play cricket and football but not badminton

6 : Exit

Enter your choice : 5

Group of Students who play Cricket = { aa, bb, cc, dd }

Group of Students who play Football = { aa, bb, hh, jj }

Group of Students who play Badminton = { bb, ee, dd, ff, gg }

Group of Students who play cricket and football but not badminton = { aa }

Number of students who play cricket and football but not badminton = 1

1 : Accept the Information

2 : List of students who play both cricket and badminton

3 : List of students who play either cricket or badminton but not both

4 : Number of students who play neither cricket nor badminton

5 : Number of students who play cricket and football but not badminton

6 : Exit

Enter your choice : 6

End of Program