**INPUT CODE:**

cricket = []

badminton = []

football = []

a = int(input("Enter number of students who play cricket: "))

for i in range(0, a):

A = input("Enter names of students who play cricket: ")

cricket.append(A)

print(cricket)

b = int(input("Enter number of students who play badminton: "))

for i in range(0, b):

B = input("Enter names of students who play badminton: ")

badminton.append(B)

print(badminton)

c = int(input("Enter number of students who play football: "))

for i in range(0, c):

C = input("Enter names of students who play football: ")

football.append(C)

print(football)

def newlist11(cricket, badminton):

newlist = []

n = len(cricket)

m = len(badminton)

for i in range(n):

if cricket[i] in badminton:

newlist.append(cricket[i])

print("List of students who play cricket and badminton:", newlist)

newlist11(cricket, badminton)

def newlist12(cricket, badminton):

newlist = []

e = len(cricket)

f = len(badminton)

for i in range(e):

if cricket[i] not in badminton:

newlist.append(cricket[i])

for i in range(f):

if badminton[i] not in cricket:

newlist.append(badminton[i])

print("List of students who play either cricket or badminton:", newlist)

newlist12(cricket, badminton)

def newlist13(cricket, badminton, football):

newlist = []

for player in football:

if player not in cricket and player not in badminton:

newlist.append(player)

print("List of students who play neither cricket nor badminton:", newlist)

newlist13(cricket, badminton, football)

def newlist14(cricket, badminton, football):

newlist = []

for player in cricket:

if player in football and player not in badminton:

newlist.append(player)

print("List of students who play cricket and football but not badminton:", newlist)

newlist14(cricket, badminton, football)

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OUTPUT:

Enter number of students who play cricket: 3

Enter names of students who play cricket: Alice

Enter names of students who play cricket: Bob

Enter names of students who play cricket: Charlie

['Alice', 'Bob', 'Charlie']

Enter number of students who play badminton: 2

Enter names of students who play badminton: Bob

Enter names of students who play badminton: David

['Bob', 'David']

Enter number of students who play football: 3

Enter names of students who play football: Charlie

Enter names of students who play football: Eve

Enter names of students who play football: Frank

['Charlie', 'Eve', 'Frank']

List of students who play cricket and badminton: ['Bob']

List of students who play either cricket or badminton: ['Alice', 'Charlie', 'David']

List of students who play neither cricket nor badminton: ['Eve', 'Frank']

List of students who play cricket and football but not badminton: ['Charlie']