

프로그래밍 실습 1

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from __future__ import print_function
from sys import stdin

def printf(str, *args):
    print(str % args, end='')

def copy(r, c, be_data, data):
    be_data = [[be_data[i][k] for k in range(0, len(be_data[0]))] for i in range(0, len(be_data))]
    for i in range(0, r):
        for j in range(0, c):
            be_data[i][j] = data[i][j]
    return be_data

def output(r, c, data):
    for i in range(0, r):
        printf("{")
        for j in range(0, c-1):
            printf("%d," % data[i][j])
        printf("%d}," % data[i][c-1])

def fact(n):
    if n==0:
        return 1
    else:
        return (fact(n-1)*n)

def combi(n, r):
    return fact(n)/(fact(r)*fact(n-r))

printf("\n### How many elements? ")
element = int(stdin.readline())
printf("\n### Set = {")
for i in range(1, element):
    printf("%d," % i)
printf("%d}\n\n" % element)
printf("### ? 는 공집합 표시입니다.\n\n")
printf("### 멍집합 = {")
printf("?,") # output

# allocate element
i=element/2
j=combi(element,i)
data = [[0 for k in range(0, element)] for i in range(0, j)]
be_data = [[0 for k in range(0, element)] for i in range(0, j)]

# element : 1
c=1
r=combi(element,c)
for i in range(0, r):
    for j in range(0, c):
        be_data[i][j] = i+1
output(r,c,be_data)

# element : 2..n-1
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for col in range(2,element):
    be_row=combi(element,col-1)
    r=0
    for i in range(0,be_row):
        if i<be_data[i][col-2] and be_data[i][col-2]<element:
            for j in range(be_data[i][col-2]+1, element+1):
                for k in range(0, col-1):
                    data[r][k]=be_data[i][k]
                data[r][col-1]=j
                r += 1

    output(r,col,data)

# copy data to be_data and Initialize data
k=combi(element,element/2)
for i in range(0,k):
    for j in range(0, element):
        be_data[i][j] = 0
be_data = copy(r,col,be_data,data)
for i in range(0,k):
    for j in range(0,element):
        data[i][j]=0

# element : n
printf("{")
for i in range(1,element):
    printf("%d,"%i)
printf("%d"%element)
printf("} }\\n")
stdin.readline()

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프로그래밍 실습 2

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from __future__ import print_function
from sys import stdin

def printf(str, *args):
    print(str % args, end='')

MAX = 100

def setout(A):
    count = 0
    printf("{")
    for i in range(1,MAX+1):
        if A[i] == 1:
            if count != 0:
                printf(",")
            printf("%4d"%i)
            count = 1
    printf("}\n\n")

def Union(A, B):
    temp = [0 for _ in range(0,MAX+1)]
    for i in range(1, MAX+1):
        if A[i] == 1 or B[i] == 1:
            temp[i] = 1
        else:
            temp[i] = 0
    setout(temp)

def Inter(A, B):
    temp = [0 for _ in range(0,MAX+1)]
    for i in range(1, MAX+1):
        if A[i] == 1 and B[i] == 1:
            temp[i] = 1
        else:
            temp[i] = 0
    setout(temp)

def Minus(A, B):
    temp = [0 for _ in range(0,MAX+1)]
    for i in range(1, MAX+1):
        if A[i] == 1 and B[i] == 0:
            temp[i] = 1
        else:
            temp[i] = 0
    setout(temp)

seta = [0 for _ in range(0,MAX+1)]
setb = [0 for _ in range(0,MAX+1)]

printf("\n*****\n")
printf("***** This is set operation program *****\n")
printf("*****\n\n")

printf(" How many elements do you want to input in Set A? : ")
a_element = int(stdin.readline())
printf(" Please input element of set A (원소의 최대값은 100이하이다.) ");
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list = []
while len(list) < a_element:
    temp = stdin.readline().strip('\n').split()
    for i in temp:
        if seta[int(i)] == 1:
            printf("중복된 원소입니다.\n")
        else:
            seta[int(i)] = 1
            list += str(i)

printf(" How many elements do you want to input in Set B ? : ")
b_element = int(stdin.readline())
printf(" Please input element of set B (원소의 최대값은 100이하이다.) ");
list = []
while len(list) < b_element:
    temp = stdin.readline().strip('\n').split()
    for i in temp:
        if setb[int(i)] == 1:
            printf("중복된 원소입니다.\n")
        else:
            setb[int(i)] = 1
            list += str(i)

printf(" element of set A = \n")
setout(seta)

printf(" element of set B = \n")
setout(setb)

printf("\n")

printf(" set A union set B = \n")
Union(seta,setb)

printf(" set A intersection set B = \n")
Inter(seta,setb)

printf(" set A minus set B = \n")
Minus(seta,setb)

stdin.readline()

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