1.

lessons = [['物理', 11, 13],

['英文', 9, 11],

['數學', 8, 10],

['計概', 10, 12],

['化學', 12, 13],

['會計', 8, 9],

['統計', 13, 14],

['音樂', 14, 15],

['美術', 12, 13]]

lessons\_sort = sorted(lessons, key=lambda lessons:lessons[2])

def lesson\_selection(a):

res = [a[0]]

for i in range(1, len(a)):

if a[i][1] >= res[-1][2]:

res.append(a[i])

return res

res = lesson\_selection(lessons\_sort)

print(res)

2.

def knapSack(W, wt, val, n):

K = [[0 for x in range(W + 1)] for x in range(n + 1)]

for i in range(n + 1):

for w in range(W + 1):

if i == 0 or w == 0:

K[i][w] = 0

elif wt[i-1] <= w:

K[i][w] = max(val[i-1] + K[i-1][w-wt[i-1]], K[i-1][w])

else:

K[i][w] = K[i-1][w]

return K[n][W]

val = [40000, 35000, 38000, 15000, 12000, 20000, 10000]

wt = [80, 70, 30, 10, 10, 12, 10]

W = 100

n = len(val)

print(knapSack(W, wt, val, n))

3.

def greedy(radios, cities):

greedy\_radios = set()

while cities:

greedy\_choose = None

city\_cover = set()

for radio, area in radios.items():

cover = cities & area

if len(cover) > len(city\_cover):

greedy\_choose = radio

city\_cover = cover

cities -= city\_cover

greedy\_radios.add(greedy\_choose)

return greedy\_radios

cities = set(['台北', '基隆', '桃園', '新竹', '苗栗',

'雲林', '台中', '南投', '嘉義', '台南',

'高雄', '屏東', '宜蘭', '花蓮', '台東']

)

radios = {}

radios['電台1'] = set(['新竹', '台中', '嘉義'])

radios['電台2'] = set(['基隆', '新竹', '台北'])

radios['電台3'] = set(['桃園', '台中', '台南'])

radios['電台4'] = set(['台中', '南投', '嘉義'])

radios['電台5'] = set(['台南', '高雄', '屏東'])

radios['電台6'] = set(['宜蘭', '花蓮', '台東'])

radios['電台7'] = set(['苗栗', '雲林', '嘉義', '南投'])

print(greedy(radios, cities))