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In [280]: `import numpy as np`

In [281]: `out=np.array([0,0,1,0,1,1,0]) #sunny=0, cloudy=1
temp=np.array([0,1,1,1,0,0,0]) #cold=0, warm=1
rtn=np.array([0,1,0,0,0,1,1]) #indoor=0, outdoor= 1
cot=np.array([0,0,0,0,1,1,1]) #no=0, yes=1`

In [282]: `print('Outlook:',out.size,'| Temp:',temp.size ,'| Routine:',rtn.size,'| Coat:',co
#arr.size = len`

Outlook: 7 | Temp: 7 | Routine: 7 | Coat: 7

P(C =yes | x)

In [283]: `c11 = np.transpose(np.nonzero(cot))
print(c11)`

```
[[4]
 [5]
 [6]]
```

In [284]: `o1=out[4:]
t1=temp[4:]
r1=rtn[4:]`

In [285]: `o11 =np.argwhere(o1==1) #print(o11)
#len(o11)

t11 =np.argwhere(t1==1)
#print(t11)
#len(t11)

r11 =np.argwhere(r1==1)
#print(r11)
o111 = np.argwhere(out==1)
t111 = np.argwhere(temp==1)
r111 = np.argwhere(rtn==1)
len(r111)`

Out[285]: 3

```
In [286]: C_yes = ((o11.size/o1.size)*(t11.size/t1.size)*(r11.size/r1.size)*(c11.size/cot.size))
print("P( C =yes | x ) = ",C_yes)
```

P(C =yes | x) = 0.0

P(C =no | x)

```
In [287]: c22 = np.argwhere(cot == 0)
print(c22)
```

```
[[0]
 [1]
 [2]
 [3]]
```

```
In [288]: o2=out[:4]
print(o2)
```

```
[0 0 1 0]
```

```
In [289]: t2=temp[:4]
print(t2)
```

```
[0 1 1 1]
```

```
In [290]: r2=rtn[:4]
print(r2)
```

```
[0 1 0 0]
```

```
In [291]: o22 =np.argwhere(o2==1)
#Len(o11)

t22 =np.argwhere(t2==1)
#print(t11)
#Len(t11)

r22 =np.argwhere(r2==1)
#print(r11)
o222 = np.argwhere(out==1)
t222 = np.argwhere(temp==1)
r222 = np.argwhere(rtn==1)
#Len(r222)
```

```
In [292]: t22.size
```

```
Out[292]: 3
```

```
In [293]: C_no = ((o22.size/o2.size)*(t22.size/t2.size)*(r22.size/r2.size)*(c22.size/cot.size))
print("P( C = no | x ) = ",C_no)
```

P(C = no | x) = 0.3402777777777778

```
In [294]: if(C_no>C_yes):
           print ("Wear coat = no")
        else:
           print("Wear coat = yes")
```

Wear coat = no

In []:

problem: <https://classroom.google.com/u/1/c/MTEyMzc3MzE1MTda>
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