

3.c

In [138]:

```
def splitinf(D):  
    inf = 0  
    for i in D:  
        inf += float(i)/sum(D)*math.log(float(i)/sum(D),2)  
    return abs(inf)
```

In [139]:

```
gainratio_weather = float(Gain_weather)/splitinf([sum(sunny),sum(overcast),sum(rain)])  
gainratio_temp = float(Gain_temp)/splitinf([sum(hot),sum(mild),sum(cool)])  
gainratio_hum = float(Gain_hum)/splitinf([sum(high),sum(normal)])  
gainratio_wind = float(Gain_wind)/splitinf([sum(weak),sum(strong)])
```

In [140]:

```
print gainratio_weather,gainratio_temp, gainratio_hum,gainratio_wind
```

0.156427562421 0.0187726462224 0.151835501362 0.0488486155115

we can find the weather (Outlook) is still the first split when using gain ratio