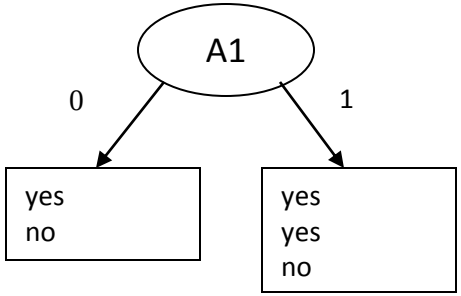
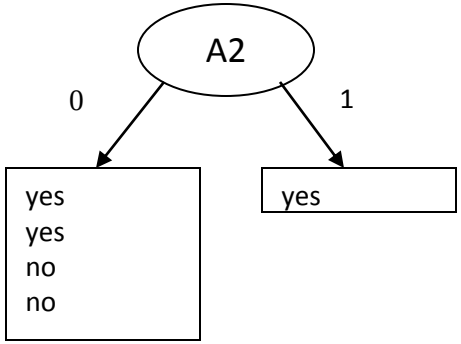
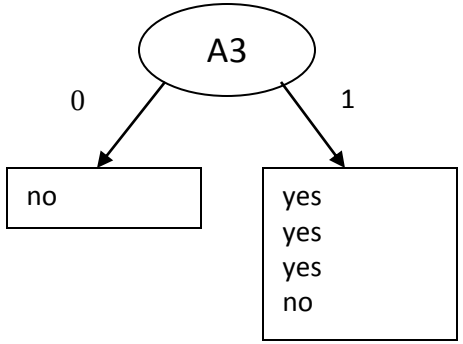
A1	A2	A3	Class
1	0	1	yes
1	0	1	yes
0	1	1	yes
0	0	1	no
1	0	0	no

Quiz 2A. Solution

Build two top levels of a decision tree. Use the weighted average of node entropy for the best split







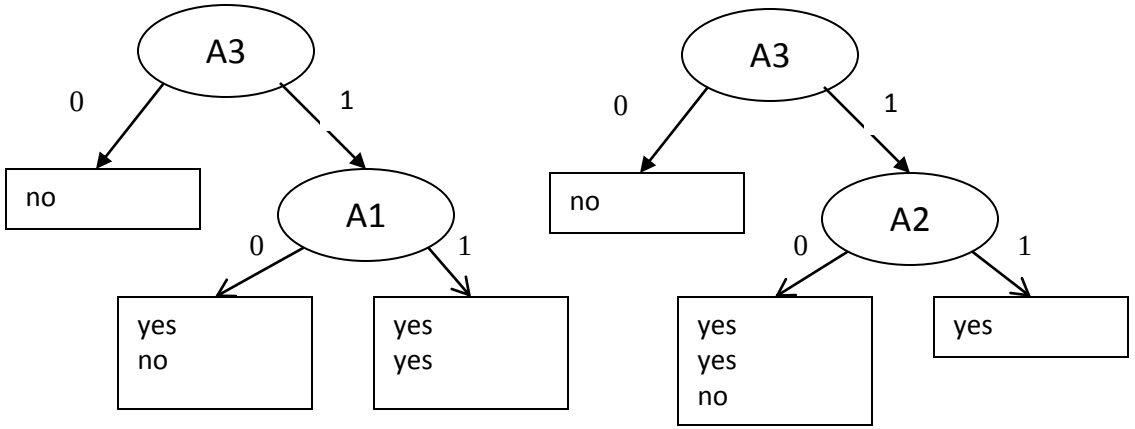
AE(A1)=2/5*(-1/2*log(1/2,2)-1/2*log(1/2,2))+3/5*(-2/3*log(2/3,2)-1/3*log(1/3,2))=0.95

AE(A2)=4/5*(-2/4*log(2/4,2)-2/4*log(2/4,2))+1/5*0=0.8

AE(A1)=1/5*0+4/5*(-3/4*log(3/4,2)-1/4*log(1/4,2))=0.65

Root node: A3

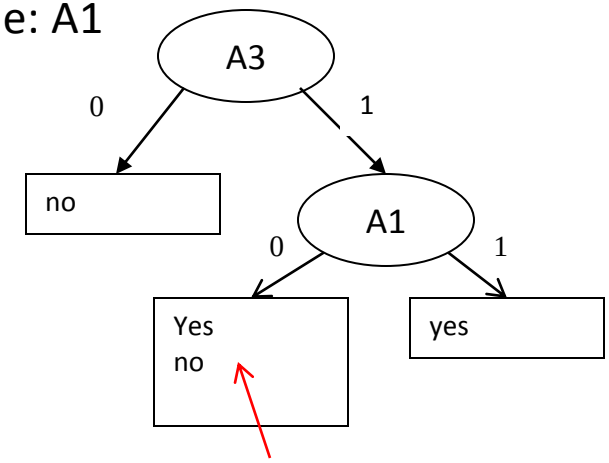
A1	A2	A3	Class
1	0	1	yes
1	0	1	yes
0	1	1	yes
0	0	1	no
1	0	0	no



AE(A1)=2/4*(-1/2*log(1/2,2)-1/2*log(1/2,2))+2/4*0=0.5

AE(A2)=3/4*(-2/3*log(2/3,2)-1/3*log(1/3,2))+1/4*0=0.67

Next node: A1



Continue with this subset…