Keller Sedillo

Q1.)

**a.) +: 4, -:5**

**-4/9log(4/9)-5/9log(5/9)=0.99**

**b.)T:4 F:5**

**Avg Entropy = 0.99**

**0.99 - 0.99 = 0**

**c.)**

A1 Split Info: 0.99

Information Gain: 0

Gain Ratio: 0

A3 Split Info: -5/9 log(5/9)-4/9log(4/9)= 0.991

NOTE: split between 1-5 and 6-10

Information Gain: 0

Gain Ratio: 0

d.)

Gini(D) = 1 - (4/9)^2 - (5/9)^2 = 0.494

A1: T: 4, F:5

Gini(D1) = 1 - (4/9)^2 = 0.802

Gini(D2) = 1 - (5/9)^2 = 0.691

Gini(Child) = 4/9*0.802 + 5/9*0.691 = 0.74

Gain = Gini(D) - Gini(Child) = -0.246

A2: T:5, F:4

Gini(D1) = 1 - (5/9)^2 = 0.691

Gini(D2) = 1 - (4/9)^2 = 0.802

Gini(Child) = 5/9*0.691 + 4/9*0.802 = 0.74

Gain = Gini(D) - Gini(Child) = -0.246