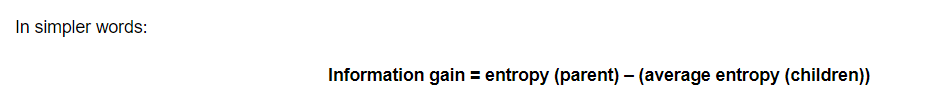
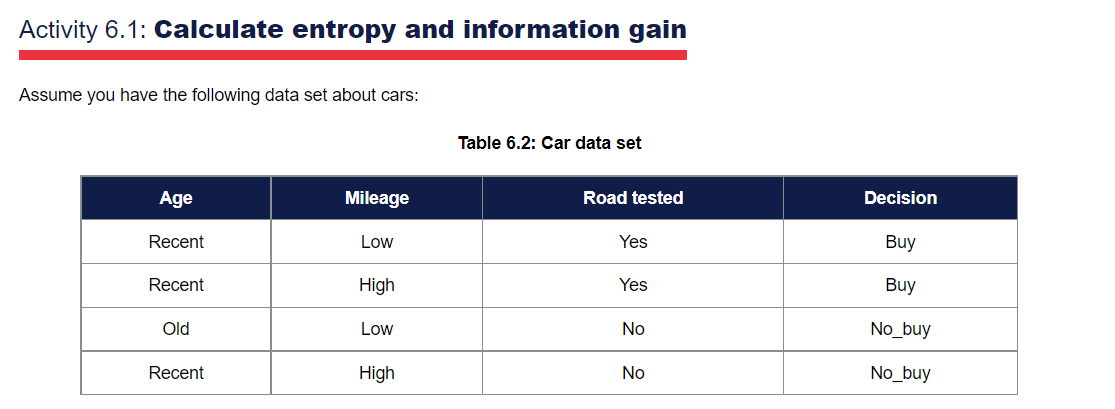
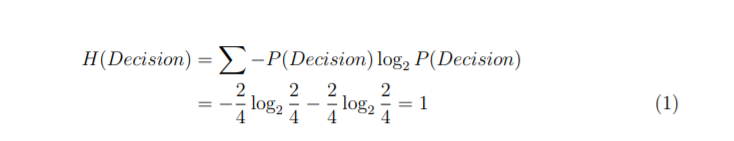


0.9544340029249649 (entropy <=1)



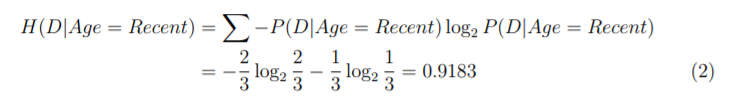


1. **Parent Entropy**:

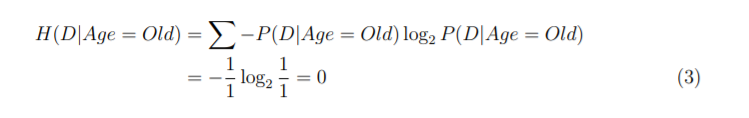


1. **Children entropy with Age**:

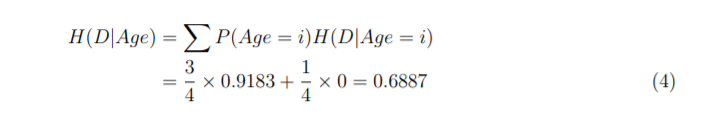
Entropy (Age = Recent):



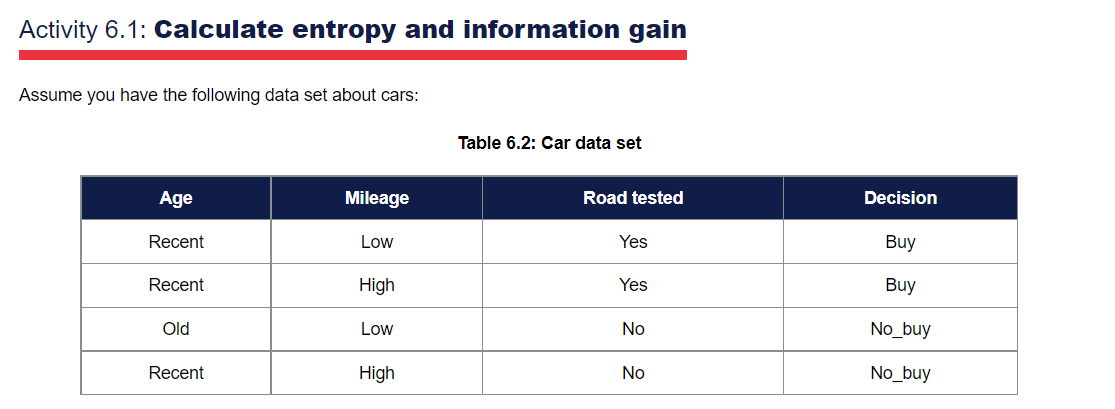
Entropy (Age = Old):



Average Entropy Age:

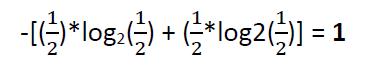


**Information gain : IG(Age) = 1 – 0.6887 = 0.3113**

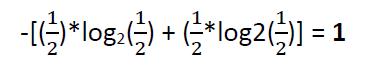


1. **Children entropy with Mileage**

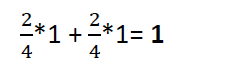
Entropy(Mileage=low):



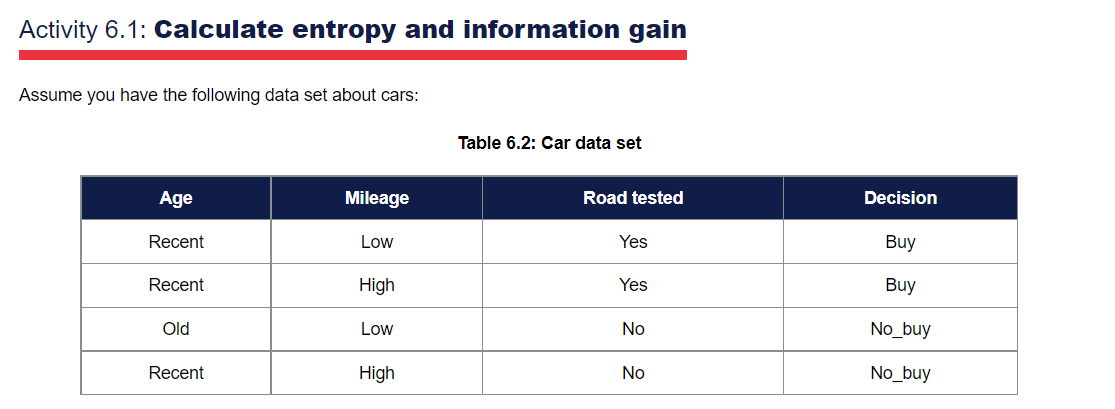
Entropy(Mileage=high):



Avg entropy Mileage:

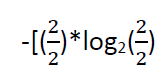


**IG(Mileage) = 1-1 = 0**

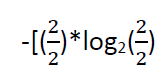


1. **Children entropy with Road test:**

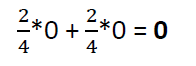
Entropy(Roadtest=yes) = 0



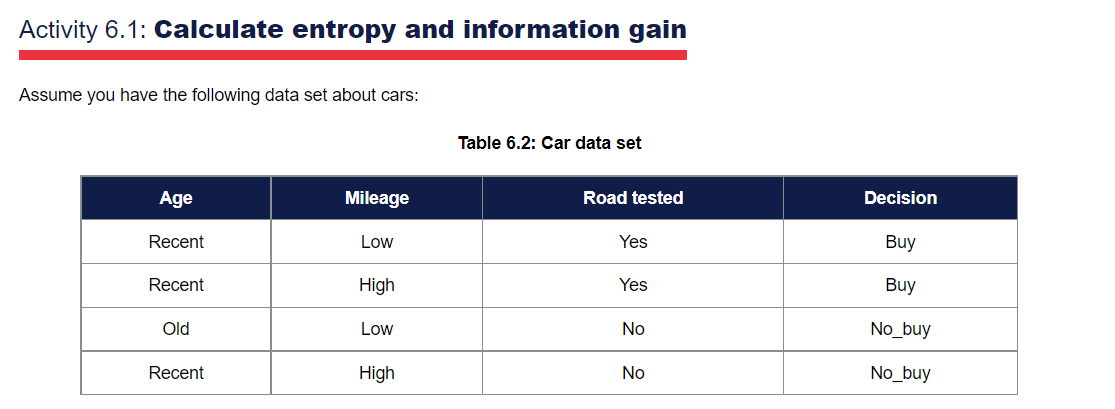
Entropy(Roadtest=no) = 0



Avg entropy Roadtest: = 0



**IG(Roadtest) = 1 – 0 = 1**



**IG(Roadtest) = 1 – 0 = 1 -> root node**

**IG(Age) = 1 – 0.6887 = 0.3113 ->internal node**

**IG(Mileage) = 1-1 = 0 -->internal node**

Recent

Buy

Yes

Age

Road test

Recent

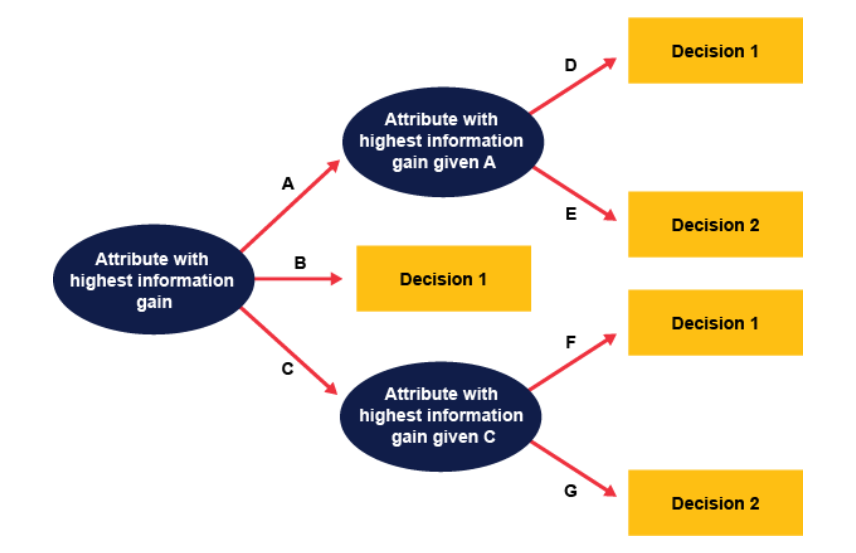
No\_buy

Age

Old

No

No\_buy



**Reference: University of Derby**