Table

Description automatically generated

Based on Entropy

log2

Writable = 3/6\*(-2/3\*log2(2/3)-1/3\* log2(1/3)) + 3/6\*(-2/3\*log2(2/3)-1/3\* log2(1/3)) = 0.918

Updated = 2/6\*(-2/2\* log2(2/2)) + 4/6\*(-1/4\* log2(1/4)-3/4\* log2(3/4)) = 0.5409

Size = 1/6\*(-1/1\* log2(1/1)) + 2/6\*(-1/2\* log2(1/2) -1/2\* log2(1/2))

+ 3/6\*(-2/3\*log2(2/3)-1/3\* log2(1/3)) = 0.7925

⇨ Updated

Updated, Yes ⇨ Infected

Updated, No

Writable = 2/4\*(-1/2\* log2(1/2) -1/2\* log2(1/2)) + 2/4\*(-2/2\* log2(2/2)) = 0.5

Size = 1/4\*(-1/1\* log2(1/1)) + 1/4\*(-1/1\* log2(1/1)) + 2/4\*(-2/2\* log2(2/2)) = 0

⇨ Size

Size, Small ⇨ Infected

Size, Med ⇨ Clean

Size, Large ⇨ Clean

Diagram

Description automatically generated

Table

Description automatically generated

Continue to build ID3 tree, after choosing root = Court Surface (based on Entropy)

Court Surface = Grass ⇨ Win

Court Surface = Hard ⇨ Win

Court Surface = Mixed ⇨ Lost

Court Surface = Clay

Time = 5/5\*(-2/5\* log2(2/5) – 3/5\* log2(3/5)) = 0.971

Match Type = 3/5\*(-2/3\* log2(2/3) – 1/3\* log2(1/3)) + 2/5\*0 = 0.55

Best Effort = 5/5\*\*(-2/5\* log2(2/5) – 3/5\* log2(3/5)) = 0.971

Match Type = Master ⇨ Lost

Match Type = Grand slam

Time = 3/3\*(-2/3\* log2(2/3) – 1/3\* log2(1/3))

Best Effort = 3/3\*(-2/3\* log2(2/3) – 1/3\* log2(1/3))

Same result ⇨ Use Majority Voting

Match Type = Grand slam⇨ Win

Diagram

Description automatically generated

Table

Description automatically generated

The first Outcome should be Win

The second Outcome cant be decided for lacking traning data, if based on majority voting, it should be Win