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CMPT 317
ONO206

ASSIGNMENT 10

(1) Build the decision tree using arbitrary feature ordering (i.e no calculation of information gain for each feature). What is the total size of the resulting decision tree?

⇒ ANS:-
Here, the size of the decision tree with arbitrary feature ordering is 89.

(2) Build the decision tree using information feature ordering. What is the total size of the resulting tree now? If the size is different, what is responsible for the change?

⇒ ANS:- The size of the decision tree with information feature ordering is 101. It has a different number of nodes because they have different features selected in each node.

(3) Construct the features for two NEW games that are NOT in the existing data set for which you think the decision tree will answer "yes". Verify that it does so by calling the classify() method of the decision tree?

⇒ ANS:- the features are:-

{"theme": "superhero", "genre": "platformer", "gameplay": "realtime", "perspective": "topdown", "graphics": "3d"}

④ Construct the features for two NEW games that are NOT in the existing data set for which you think the decision tree will "no". Again verify it.

↳ ANS:- the features for the two New games not in the data set are:-

{"theme": "historical", "genre": "platformer", "gameplay": "realtime", "perspective": "side", "graphics": "3d"}

⑤ Did printing out and looking at the decision tree help you construct the examples above? If so how? Briefly explain any reasoning you used.

↳ ANS:
Yes, printing out the decision tree allows me to trace the features to get the desired outcome. and looking at the decision tree helped a lot to getting the outcome.
I started by the root feature and then checked first the label node to see whether that is the desired outcome or, if it was not. Then, I performed a BFS - breadth-first search to find the set of features that would satisfy the desired outcome.