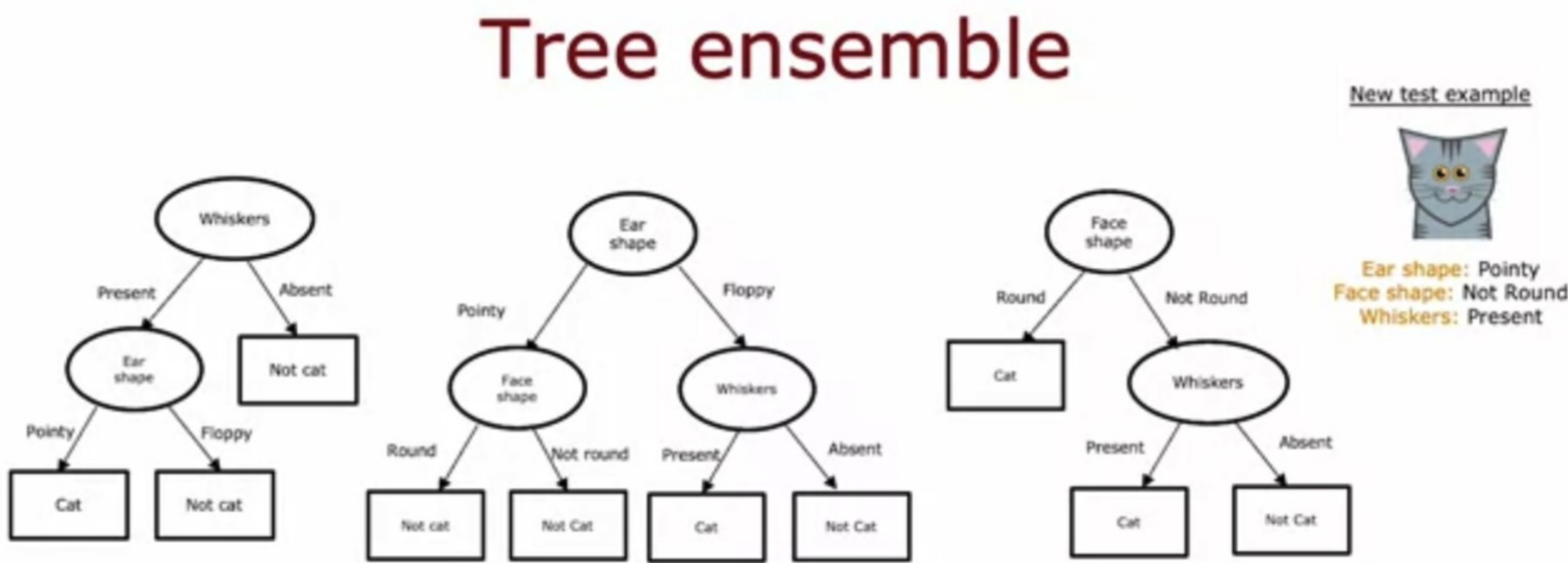1.   **1 / 1 point**

For the random forest, how do you build each individual tree so that they are not all identical to each other?

○ Sample the training data without replacement

◉ Sample the training data with replacement and select a random subset of features to build each tree

○ Train the algorithm multiple times on the same training set. This will naturally result in different trees.

○ If you are training B trees, train each one on 1/B of the training set, so each tree is trained on a distinct set of examples.

✓ **Correct**
Correct. You can generate a training set that is unique for each individual tree by sampling the training data with replacement. The random forest algorithm further avoids identical trees by randomly selecting a subset of features when building the tree ensemble.

2.   **1 / 1 point**

You are choosing between a decision tree and a neural network for a classification task where the input x is a 100x100 resolution image. Which would you choose?

○ A neural network, because the input is structured data and neural networks typically work better with structured data.

○ A decision tree, because the input is unstructured and decision trees typically work better with unstructured data.

○ A decision tree, because the input is structured data and decision trees typically work better with structured data.

◉ A neural network, because the input is unstructured data and neural networks typically work better with unstructured data.

✓ **Correct**
Yes!

3.   **1 / 1 point**

What does sampling with replacement refer to?

○ It refers to a process of making an identical copy of the training set.

○ It refers to using a new sample of data that we use to permanently overwrite (that is, to replace) the original data.

○ Drawing a sequence of examples where, when picking the next example, first remove all previously drawn examples from the set we are picking from.

◉ Drawing a sequence of examples where, when picking the next example, first replacing all previously drawn examples into the set we are picking from.

✓ **Correct**
Yes!