

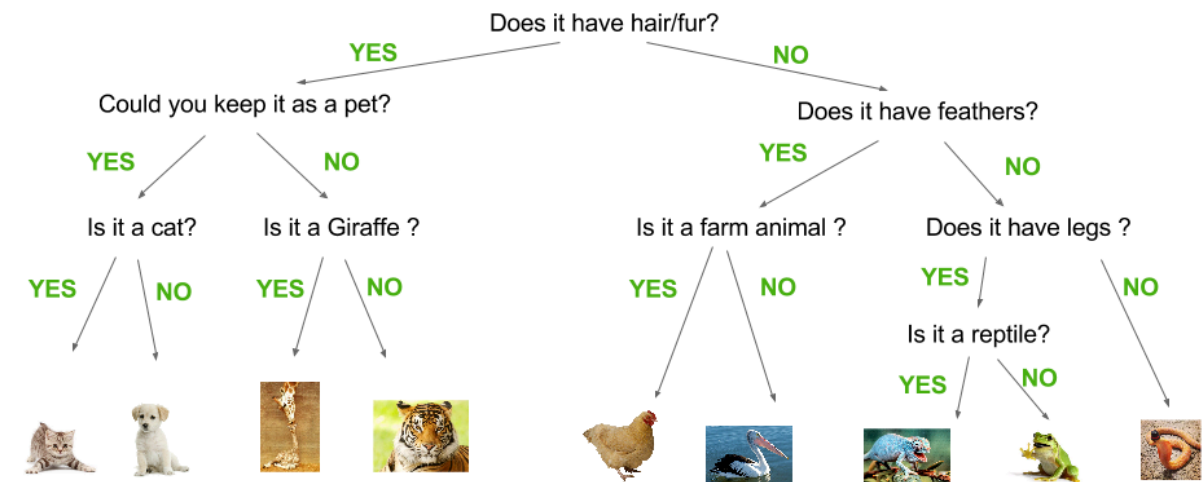
# Celebrity Heads Decision Tree

Celebrity Heads is a really fun game! Especially when you win!

What if we could make an algorithm that meant we knew the best questions to ask so that we can win faster!

If we make a **decision tree** we'll know the questions to ask so that we know we will rule out half of the celebrities each question.

This is a decision tree that helps us guess an animal



If you ask the question “does it have fur?” and get the answer “YES”  
You will rule out all animals that don't have fur.  
Every question allows us to rule out half of the remaining animals.

## Let's make a tree and play celebrity heads!

### 1. Make your tree

Grab your pack of celebrity cards, some butchers paper and some markers. Start drawing your tree!

- Draw out a tree with all your questions on it on the butchers paper!
- Blue tack the celebrities the question leads to at the bottom.
- Check out the Tips on the next page for the best and fastest way to do it!

### 2. Play Celebrity Heads

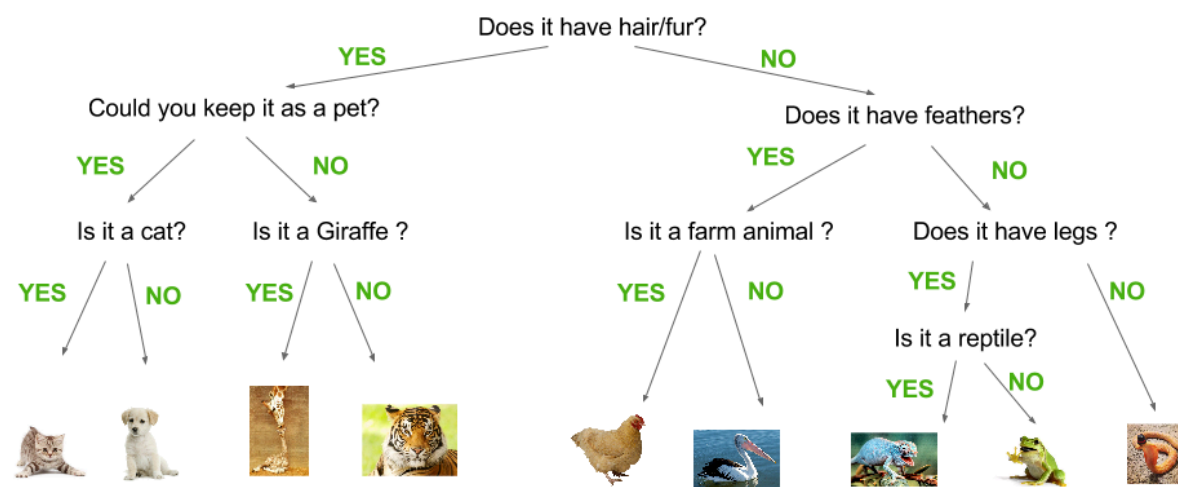
When your tree is finished, get a tutor to play Celebrity Heads with you.

- You will all get assigned a celebrity
- Use your decision tree to figure out who you are.
- The less questions it takes you the more points your team gets!

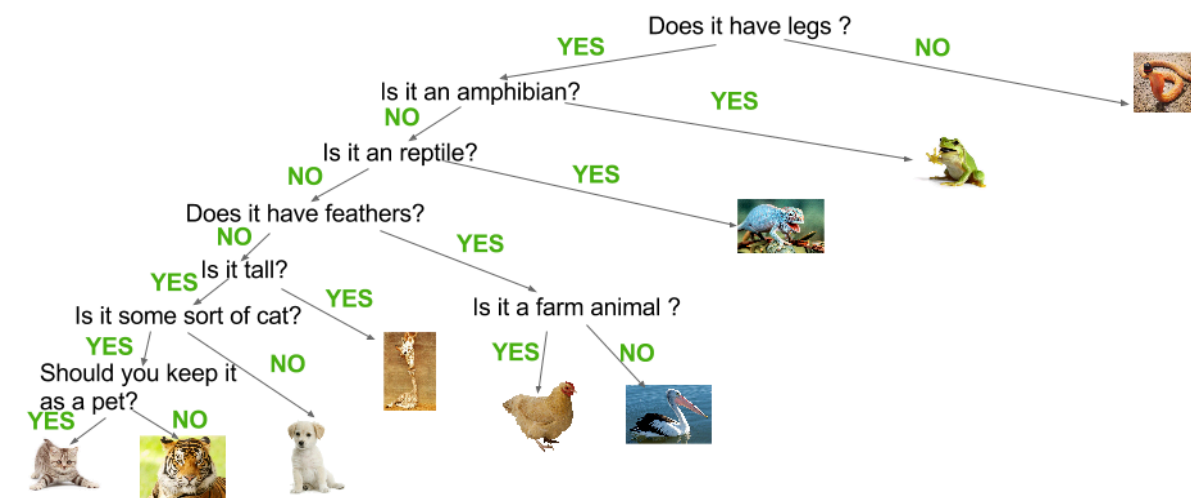
# Tips

- **Start at the top** and decide a question that will split the group of celebrities in half. Then do the same for each of the halves you just made. You will gradually split it down until each group has only one celebrity left
- You can **save time** by splitting your team up to look at different halves of the tree.
- Try and **pick good questions** that will split the group you are looking at in half or as close as possible.
- Make your tree as **flat and even** as possible, it means you have to ask less questions on average!

**Good Tree - nice and even**



**Not so good tree - too tall on one side, lop sided**



Every question splits the animals in half. This means each question rules out half the animals, getting you to the final animal faster.

If you ask “does it have legs?” and you are not a snake then you didn’t rule out many animals at all! This tree is only good for guessing if you are a snake or an animal near the top of the tree.