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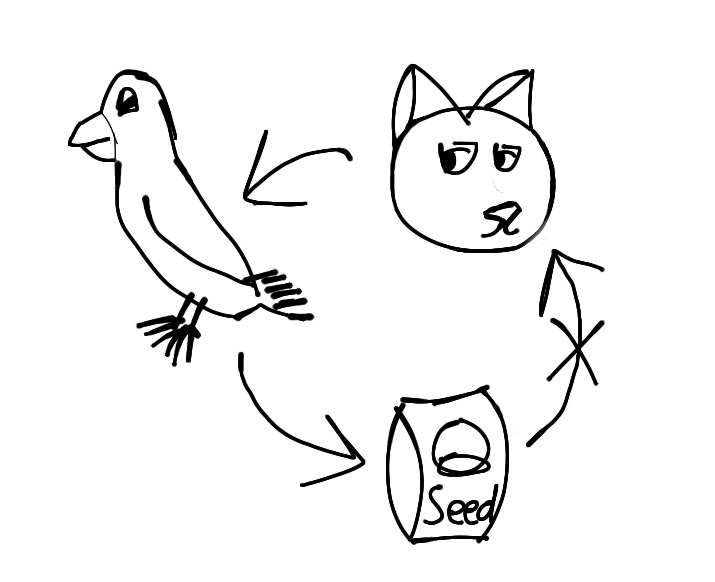
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Scalable Data Infrastructures WPF-O

Problem Solving

**A Cat, a Parrot, and a Bag of Seed**

The man needs to transport each of these items – a cat, a parrot, and a bag of seed from one river bank to the other in a boat that can only hold him and one of these things at a time.



**The Problem:**

If they are left on their own, the cat will eat the parrot, and the parrot will eat the seed. So even if the man took the parrot with him first, and came back for the cat or the seed, he would seemingly need to leave either the seed or the cat with the parrot in order to have room for the last item. Or would he?

**Constraints:**

1. The cat wants to eat the parrot.
2. The parrot wants to eat the seed.
3. The Boat can only hold the man and one other item.

**Sub-Goals:**

1. Deliver each item to the other side of the river safely, and with each intact.
2. Do not over-fill the boat, causing it capsize or sink.
3. Complete the task as efficiently as possible.

**Potential Solutions:**

1. Take each item to a separate location along the opposite bank. This solution may keep each item safe and intact, however with a long distance between the items it will be harder to keep good track of them. It is also not the most efficient as it requires longer travel along either the opposite bank or in the boat on the river to ensure the safety of the items. Therefore it may not fulfill all of the sub-goals.
2. Take each item on the boat at once. This solution might work to improve efficiency, but it is more likely that the boat could capsize, thus putting the man and items in danger.
3. Take the parrot across first and drop of the parrot. Come back for the cat and deliver the cat to the other side. Pick up the parrot and take the parrot back to the first side. Drop off the parrot, pick up the seed, and deliver it to the other side with the cat. Come back for the parrot, and deliver it to the other side with the cat and the seed. This solution does have one more trip than the first solution, but it allows for better tracking of the items, and less over-all travel as the trip is straight across instead of up and downstream.

**Chosen Solution:**

I decided to go with solution #2, as it solves the problem while also fulfilling each of the sub-goals. This solution keeps the items in more manageable locations and distances for the man, and the path to travel is shorter, so although there is one more trip than the first solution, the trips are shorter, so all three sub-goals are met, in the animals and seed are kept safe, the boat does not become over loaded, and the task is performed in an efficient manner.