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Web Programming Fundamentals, Section 01

Problem Solving

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

1. **Define the problem**
   1. A man must transport a cat, a bird, and a bag of seed to the opposite shore of a river in his boat. He can only transport one item at a time, and must decide in what order to transport them. The cat cannot be left alone with the bird and the bird cannot be left alone with the seed.
   2. One may not notice at first glance that this word problem states the cat *could* eat the parrot and that the parrot *would* eat the bag of seed. One is a possibility, and the other an absolute. The man could decide to leave the two animals together and hope for the best. One must also take into consideration that if he leaves the bag of seed out of his sight, there is nothing to stop any wild birds from feeding on it.
   3. The overall goal of this scenario is to transport all three items to the other side of the river, one at a time, and to choose the correct item to transport for each trip.
2. **Break the problem apart**
   1. The constraints the man faces are the inability to leave the parrot with the bag of seed, the likelihood of the cat eating the parrot, and the ability to only transport one item per trip.
   2. The sub-goals in this scenario are to safely transport each item to the opposite riverbank, and to not leave the wrong items together while transporting the third in his boat.
3. **Identify potential solutions**
4. **Evaluate each potential solution**
5. **Choose a solution and develop a plan to implement it**