Jesse Mayhew October 2, 2013 Web Programming Fundamentals Problem Solving

The man and the cat and the parrot and the seeds

1)

a. The problem is the man does not want the items he carries to be destroyed or eaten while he is away.

b.

c. The overall goal is to keep the cat from eating the parrot and the parrot from eating the seed but also get them all across to the other side.

2)

a. The constraints are that the boat can only fit two items including the man. And, on the other side there will be the wrong order.

b. The sub goals are to get the boat across with two items each trip and the parrot not to eat the seed and the cat not eat the parrot.

3)

a. The sub goals solution is to carry the parrot first. This way the cat does not eat the seed. But on the other side the cat or the seed will cause problems.

4)

a. The solution meets the goals until the other side they get put back together.

b. The solution works for all cases.

5)

a. The solution is to take the parrot first. Then take the seed or the cat.

b. The tests were all done through brainstorming.

The socks

1)

a. The problem is finding a matching pair of socks in the dark and finding at least one matching pair of socks of each color in the dark. The odds are slim and it must be done with the least amount of socks possible.

b. The odds are slim.

c. The overall goal is to find the smallest number of socks to select guaranteed to find a matching pair. And then, find the smallest number of socks to select guaranteed to find a matching pair all three colors (white, brown, and black).

2)

a. The constraints are that it has to be done in the dark.

b. The sub goals are to find a the smallest number of socks to get a matching pair and find the smallest number of socks to get a matching pair of all three colors.

3)

a. Possible solutions for the sub goals are 4 socks to find a matching pair and 18 socks to get a pair of each color matching.

4)

a. The solutions will work for all cases.

5)

a. Pick up 4 socks and there will be at least one matching pair. By picking up 18 there will be at least one pair of brown, one pair of white, and one pair of black.

b. By pulling the socks in the drawer on paper the tests were done. Then worst possible scenarios were thought of first. One can only pick four before finding a matching pair in the dark. Then, to find a pair of each; one could pick all the blacks, then all the browns; which are 16 socks before finding any white socks. The owner would have to pick two more to guarantee a pair of whites.

Predicting Fingers

1)

a. The problem is finding the end number of a little girl’s made up algorithm.

b.

c. The overall goal is to get the finger she is on at ten, one hundred, and one thousand.

2)

a. The constraints are that we have to use her algorithm.

b. The sub goals are to find the finger she lands on at ten, one hundred, and one thousand.

3)

a. Possible solutions to the sub goals are to count to 10,100, and 1000 the way she moved from finger to finger. The first one is answered for us when she lands on ten she also lands on her first finger. When she counts to 100 she lands on the ring finger. When she counts to one thousand she lands on middle finger.

4)

a. The solution meets each of our sub goals.

b. The solution works in all cases.

5)

a. I simply counted the way she did until I reached each number- ten, one hundred, one thousand.

b. Counting was done in my head.