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Word Programming Fundamentals

Problem Solving Assignment

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

1. Define the problem

a. Problem is getting all items across the river without one of the animals eating another item.

b. one item can fit into the boat at ALL times

c. over all goal is to get everything across the river in the same state that it is in on the current side of the river.

2. Break the problem apart

a. Only being able to fit one item in the boat at a time with the man

b. - get cat across river

- get bird across river

- get seed across river

3. Identify potential solutions

a. bring one item back across the river after having taken another one

4. Evaluate each potential solution

a. yes

b. yes

5. Choose a solution and develop a plan to implement it.

a. Man takes bird across river, then goes back and gets the cat, he then picks bird back up and takes it back across river so that the cat doesn’t eat the bird, he drops the bird off and picks up the seed and takes it across the water. This leaves the bird on one side of the river and the cat and the seed on the other. The man makes one last trip to get the bird putting the man, parrot, cat, and seed all on one side of the river with no one or nothing eaten.

b. No test cases were needed as this was an easy to solve problem.

Socks in the Dark:

1. Define the problem

a. Matching socks in the dark while getting one pair that matches then one pair of each color that matches. black, brown and white.

b.unknown

c. overall goal is to match the socks while in the dark

2. Break the problem apart

a. Constraints are that you can’t see in the dark to match the socks

b. sub-goals would be figuring out how to match the socks in the dark ensuring that you get a match of each color

3. Identify potential solutions

a. I have concluded that this is an impossible question for me to answer. I believe I would have to collaborate with a team member.

4. Evaluate each potential solution

a. No I have only managed to take up much of my time with this particular question/problem.

b. No

5.

a. I have concluded that this is an impossible problem. I would have to collaborate with a team member. The only explanation that I can come up with on my is mismatched socks are an in style now days wear whatever color you end up with. Hopefully a team mate that I am working with would be able to help me o\_O.

b. I figured out that if you match 10 pairs of socks (20 socks) you will have used all of your white and brown socks. You would also have used all your black socks. I would have to say either hope you get lucky or hope that there is a different way to sort your socks such as length or texture.

Predicting fingers

1. Define the problem

a. Figuring out what finger a number will land on

b. this appears to be a math formula problem. I am and have always been a wonderful math student.

c. Over all goal is to find out what finger the numbers 10, 100, and 1000 will land on.

2. Break the problem apart

a. Constraints are figuring out what finger a number is going to land on without having a formula to calculate

b. sub goal would be to create a formula to calculate the outcome of the problem using small numbers so that checking the problem on a larger number isn’t so difficult

3. Identify Potential solutions

a. numbering the fingers, establishing pattern for which finger will be landed on, creating a way for the number to be found.

4.

a. yes

b. yes

5.

a. number divide by 5 which is going to give you a number. If the number is greater than eight then subtract 8 until you get a number equal to or less than 8. For numbers 1-8

1=5

2=2

3=3

4=4

5=1

6=4

7=3

8=2

For the numbers 1-5 that 1-8 equal, the numbers 1-5 are equal to fingers.

1=thumb

2=index finger

3=middle finger

4=ring finger

5=pinky finger

So the answers to the questions are as follows

a) 1-10 index finger

b) 1-100 ring finger

c) 1-1000 index finger