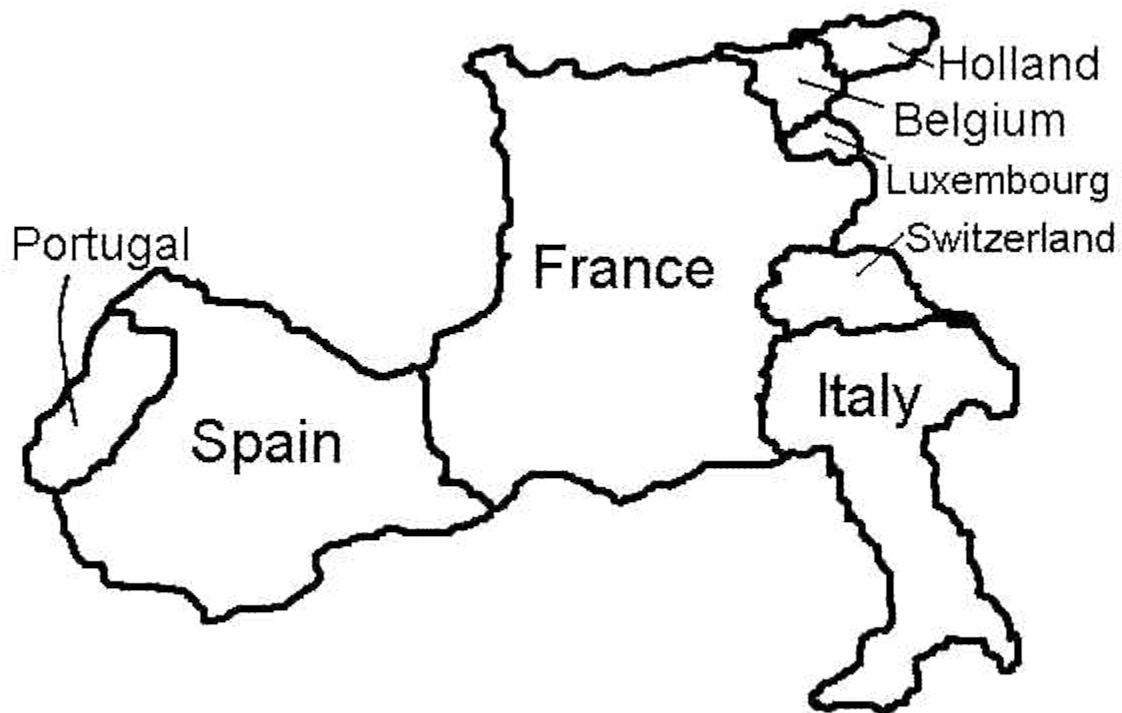


Generate and Test: Work with your partner(s) to understand and write Prolog relations which solve constraint satisfaction problems by generating possible answers and testing that the answers meet the constraints.

Follow the instructions:

1. Login to phoenix. Download the ch5_1.pl file from goucherLearn. This file contains the solution to the map coloring problem on p88 of your text. The relation *solution* generates possible color values for the variables A, B, C, D, and E which represent the colors of the five countries in the map. It then tests the constraint that no two countries that share a border have the same color. Try it out.

Now create a new Prolog solution relation for this map (You will find it helpful to give your variables meaningful names):



What colors were assigned?

2. Download the ch5_2.pl file from goucherLearn. This file contains the solution to the cryptarithmic problem on p96 of your text. As in the map coloring the solution generates the possible numeric values and then tests the constraints. Try this out but be forewarned that the solution may take a few minutes to compute.

Now download the ch5_3.ple from goucherLearn. This file contains another solution to the

same problem but this time interleaves value generation with testing. This allows a lot of generated possible solutions to be tossed out if the initial tests fail. Try it out.

Now create a solution to the cryptarithmic puzzle on p116, problem #3. You will need do some interleaving!

What digits were assigned to the letters?

3. Download the ch5_4.pl and ch5_5.pl files from goucherLearn. These files contain solutions to the logic puzzles and p107 and p108-109 respectively. Try them out.

Now create a solution to the logic problem on p116, problem #4. Who ordered the pizza?