

CS2104 Programming Language Concepts

Tutorial 8 : Constraint Programming

(week of 19th October 2020)

We will just solve two puzzles in this tutorial using CLP!

Q1 This puzzle is taken from <http://www.logic-puzzles.org>. Solve it in Prolog with constraint-solving.

Figure out the hospital bill, first name, appetizer and astrological sign for each person using the clues given. Below are all categories and options used in this problem.

<u>Hospital Bills</u>	<u>First Names</u>	<u>Appetizers</u>	<u>Astrological Signs</u>
\$550	Jorge	buffalo wings	Aries
\$760	Kayla	fried mozzarella	Leo
\$960	Landyn	fried pickles	Pisces
\$1610	Perla	potato skins	Sagittarius
\$2500	Skylar	soup of the day	Virgo

1. The Sagittarius owes more money than Landyn.✍
2. The person who ordered soup of the day as an appetizer owes less money than the Aries.✍
3. The patient with the \$550 hospital bill didn't order soup of the day.✍
4. The 5 people were the patient with the \$760 hospital bill, the person who ordered soup of the day as an appetizer, Skylar, the Pisces, and the patient with the \$960 hospital bill.✍
5. Either the Sagittarius or the Virgo ordered fried pickles.✍
6. The Pisces didn't order buffalo wings.✍
7. The person who ordered fried pickles as an appetizer is Kayla.✍
8. The patient with the \$960 hospital bill is the Virgo.✍
9. Kayla owes less money than Skylar.✍
10. Of Perla and the person who ordered potato skins as an appetizer, one has the \$1610 hospital bill and the other has the \$960 hospital bill.✍

Complete tut8.pl; then consult(tut7), run with main(Answer).

Q2. This puzzle is taken from <https://www.newscientist.com/article/mg22029470-600-enigma-number-1779/>

I drew four right-angled triangles. The hypotenuse of my first triangle was also the shortest side of my second triangle; the hypotenuse of my second triangle was also the shortest side of my third triangle; the hypotenuse of my third triangle was also the shortest side of my fourth triangle. The length in millimetres of each side of each triangle was an integer less than 100.

What were the lengths of the shortest and the longest sides that I drew?