

## WORKSHOP 9

Solving Logic Problems in Prolog

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# ACTIVITY: SOLVING LOGIC PROBLEMS IN PROLOG

Time Limit: 90 minutes

Individual work

# TASK 1: RIVER CROSSING

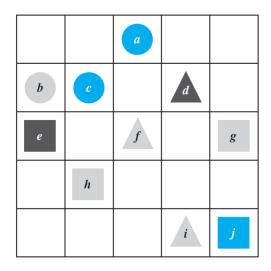
A farmer is travelling with a fox, a goose, and a bag of beans. During his journey, he comes across a river with a boat to cross it. The farmer can only fit only one thing in the boat with him at a time. If left alone together, the fox will eat the goose or the goose will eat the beans.

Write a prolog program to determine how the farmer can get everything across the river safely.

Hint: Refer to the classic riddle mentioned in Chapter 19.

Submit task1.pl

#### TASK 2: TARSKI WORLD



Submit task2.pl

Define facts (and rules) to represent the given board using the following predicates.

- color(x, c) means x is of color c
- shape(x, s) means x is of shape s
- rightOf(x, y) means x is to the right of y (they could be on different rows)

Write queries to answer the following questions.

- Are all circles black?
- What are the colors of circle?
- Which shapes are to the right of the shape **a**?
- Are there any grey squares on the board?

# TASK 3: ENHANCE THE ADVENTURE GAME

Refer to the adventure game discussed in Chapter 20.

- 1. Design an extended map.
- 2. Draw your map on paper.
- 3. Represent your map in Prolog.
- 4. Add more obstacles to the game.
- 5. Test your game.

Challenge: Randomize the character and obstacle locations before each game start.

Submit task3.pl

### TASK 4: PUZZLE

Three instructors (Chayapol, Paitoon and Thanachai) are teaching courses in different classroom (VMES1002, VMES1003, VMES1004).

Each of them specializes in different areas (Network, UI/UX, Web Development)

#### Clues:

- A. Chayapol is not teaching in VMES1002.
- The instructor in VMES1004 is teaching Web Development.
- A. Paitoon teaches Network.

Question: Who is teaching UI/UX and in which room?

Model this problem and solve it with Prolog.

Submit task4.pl