**CS 404 – Artificial Intelligence**

**HW5b-Programming**

150pt

**Objective:** Learning about logic programming and Prolog in particularç

You need a Prolog interpreter. You can use SWI or Amzi Prolog which you need to download, or to use SWI-SH which does not require any download but is less powerful in general .

**Problem statement:** There was a safety box which stores top secret files. One day, it was found to be broken and files were all stolen. **Your goal is to find out who did it.** For that, you have to learn the location of each person during the event, as well as what instrument was in that place.

* You need to know the suspects to begin: three men (Ali, Mehmet, Yunus) and three women (Elif, Nelin, Zeynep). Each of them was in a different room during the event (Kitchen, Dining Room, Study, Bathroom, Pantry, Living Room). A suspected instrument was found in each room (hammer, knife, handsaw, chemical, gun, welding machine). Who was found in the kitchen?
* Clue 1: In the kitchen, the man was not found with the knife, hammer, or welding machine. Which instrument, other than gun, was found in the kitchen?
* Clue 2: Elif was either in the study or the bathroom; Zeynep was in the other. Which room was Elif found in?
* Clue 3: The person with the hammer was not in the bathroom nor the dining room; also, this person was not Elif nor Ali. Then, who had the hammer in that room?
* Clue 4: The welding machine was found in the study with a woman. Who was it?
* Clue 5: The instrument found in the living room was with either Mehmet or Ali. What instrument was that?
* Clue 6: The knife was not in the dining room. Where was it?
* Clue 7: Zeynep was not with the instrument found in the study nor the pantry. What instrument was found with Zeynep?
* Clue 8: Ali was found with the gun. In which room was the gun found?
* According to the investigation, the safety box was broken by a handsaw in the pantry. The suspect found in that room was the robber. Who, then, do you suspect?

Use the predicates: man, woman, person (or suspect), location and instruments…

Hint: Please keep in mind that, to get your final result, you have to go through each clue.

For questions regarding this homework, contact our TA Ekbercan Derman: derman@sabanciuniv.edu