CS 3210 - Principles of Programming Languages (Spring 2020)

Homework 06

Deadline: April 7th (2pm)

Build a knowledge base (KB) using Prolog to encode the following facts about the highest peaks of each continent and climbers rules preferences:

- Mt. Everest is located in Asia and it has 29,029 feet;
- The Aconcagua is located in South America and it has 22,841 feet;
- Mt. McKinley is located in North America and it has 20,312 feet;
- The Kilimanjaro is located in Africa and it has 19,340 feet;
- Mt. Elbrus is located in Europe and it has 18,510 feet;
- Mt. Vinson is located in Antarctica and it has 16,050 feet;
- The Puncak Jaya is located in the Australia (continent) and it has 16,023 feet;
- John, Kelly, Maria, and Derek are certified climbers;
- Thyago is NOT a certified climber;
- John would climb a mountain if he is currently certified and the mountain is located in North America;
- Kelly would climb a mountain if she is currently certified and the mountain has at least 20K feet;
- Maria would climb any mountain, as long as she is currently certified;
- Derek would climb a mountain if he is currently certified and the mountain is located in Europe OR Africa OR Australia, and the mountain has no more than 19K feet;
- Thyago would never climb any of the mountains, not even if he is certified to do it.

To help test you KB, have Prolog answer the following queries (expected answers are shown):

- Is Mt. Everest one of the highest peaks in the world? **true**
- Is the Kilimanjaro located in Africa? **true**
- Is Mt. Elbrus more than 18K feet? **true**
- Is Thyago a certified climber? **false**

- Is John a certified climber? **true**
- All certified climbers? **John, Kelly, Maria, and Derek**
- All peaks that John would climb? **Mt. McKinley**
- All peaks that Kelly would climb? **Mt. Everest, the Aconcagua, and Mt. McKinley**
- All peaks that Maria would climb? **all of the 7 peaks!**
- All peaks that Derek would climb? **Mt. Elbrus and the Puncak Jaya**
- All peaks that Thyago would climb? **none (or false)**

Submit a Prolog source file named `hwk06.pl` (with the KB) using Blackboard.