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**LAB 4:** Convert given first order logic statement into Conjunctive Normal Form (CNF).

**Explanation:**

* **First order logic:** First-order logic is another way of knowledge representation; it is an extension to propositional logic.
* First-order logic is also known as Predicate logic or First-orderpredicate logic.
* First-order logic is a powerful language that develops information about the objects in an easier way and can also express the relationship between those objects.
* First-order logic (like natural language) does not only assume that the world contains facts like propositional logic but also assumes the following things in the world:
  + Objects: A, B, people, numbers, colors, wars, theories, squares, pits, wumpus, ......
  + Relations: It can be unary relation such as: red, round, is adjacent, or n-any relation such as: the sister of, brother of, has color, comes between
  + Function: Father of, best friend, third inning of, end of, ......

For example:   **¬∀ (x) [ student(x) → like (x, Mathematics) ∧ like (x, Science)] which is an fol for the sentence Not all students like both Mathematics and Science.**

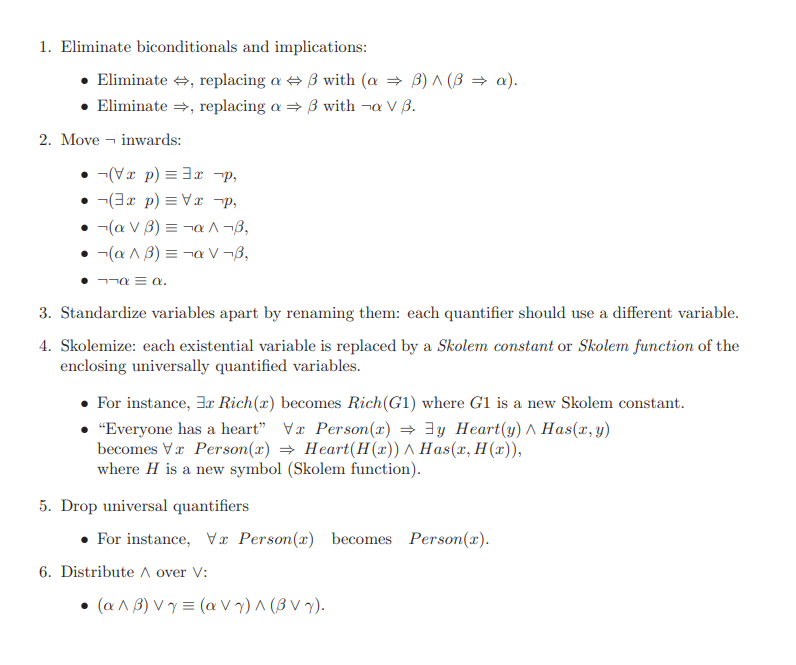
* **Conjunctive Normal Form:** Conjunctive normal form (CNF) is an approach to Boolean logic that expresses formulas as conjunctions of clauses with an AND or OR. Each clause connected by a conjunction, or AND, must be either a literal or contain a disjunction, or OR operator.
* In conjunctive normal form, statements in Boolean logic are conjunctions of clauses with clauses of disjunctions. In other words, a statement is a series of ORs connected by ANDs.

For example:

(A OR B) AND (C OR D)

(A OR B) AND (NOT C OR B)

**Steps for conversion of first order logic into conjunctive normal form:**

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