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6.PROPOSITIONAL ENTAILMENT BY IMPLEMENTING TRUTH TABLE ENUMERATION
def PL TRUE (model, sentence):
    Evaluates the sentence in the context of the given model (truth
assignment).
    The sentence is a logical expression involving variables A, B, C.
    # Replace variables with their truth values in the model
    sentence = sentence.replace("A", str(model["A"])).replace("B",
str(model["B"])).replace("C", str(model["C"]))
    # Replace logical operations with Python's logical operations
    sentence = sentence.replace("and", "and").replace("or",
"or").replace("not", "not")
    # Evaluate the sentence in Python's eval function
    return eval(sentence)
def truth table entailment (KB, query, variables):
    This function checks if the KB entails the query using truth table
enumeration.
    It evaluates all possible truth assignments for the given variables.
   all assignments = []
    # Generate all possible truth assignments for the variables
    for i in range(2 ** len(variables)):
        assignment = {}
        for j, var in enumerate (variables):
            assignment[var] = (i >> j) & 1 # 0 or 1 assignment for each
variable
        all assignments.append(assignment)
    # Check for each truth assignment
    for assignment in all assignments:
        # Check if the KB is true for this assignment
        kb true = PL TRUE(assignment, KB)
        query true = PL TRUE(assignment, query)
```

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# If KB is true and Query is false in any row, return False
    if kb_true and not query_true:
        return False

return True

# Example usage

# Define KB and Query in propositional logic
KB = "(A or C) and (B or not C)" # Knowledge Base
query = "A or B" # Query

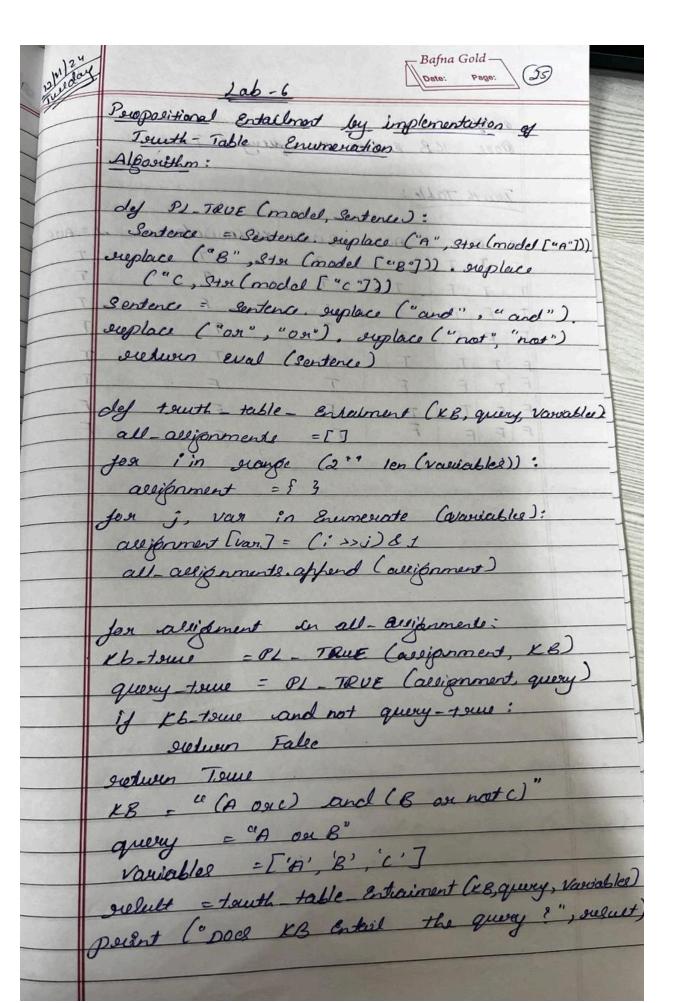
# Variables involved in the KB and Query
variables = ['A', 'B', 'C']

# Call the function to check if KB entails the Query
result = truth_table_entailment(KB, query, variables)

# Output the result
print("Does KB entail the query?", result)
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## **OUTPUT**:

Does KB entail the query? True



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