AI - LAB - TEST-2

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Program 2:

consider S and T as variables

i) a: ¬(SvT)
ii) c: T v ¬T

Design the code for PL - TT entailment and show whether 'a' entails 'c')

```
def ProcessRule(rule):
    rule = rule.replace('~', not)
    rule = rule.replace('^', 'and')
    rule = rule.replace('v', 'or')
    return rule

def formatRule(rule, S, T):
    S, T = str(S), str(T)
    rule = rule.replace('S', S)
    rule = rule.replace('T', T)
    return rule

def checkEntailment(rule, query):
    model = [(False, False), (True, True),
             (False, True), (True, False)]

    rule = processRule(rule)
    entails = True

    for S, T in models:
        formattedRule = formatRule(rule, 'S', T)
        print(f'Evaluating: {formattedRule}')
```

```
KB = eval(formattedRule)
-query = S if query == 'S' else T
print(f'Knowledge Base: {KB}
      Query: {-query}')
if KB:
    entails = entails and KB and -query
```

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```
if entails:
    print('Knowledge Base entails the
           query')
else:
    print('Knowledge Base doesnt entail
           the query')
```

```
rule, query = '~(S v T)', '~T v ~T'
checkEntailment(rule, query)
```