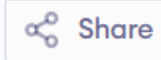


main.py



Share

Run

```
1 def unify(x, y, theta={}):
2     if theta is None:
3         return None
4     elif x == y:
5         return theta
6     elif isinstance(x, str) and x.islower():
7         return unify_var(x, y, theta)
8     elif isinstance(y, str) and y.islower():
9         return unify_var(y, x, theta)
10    elif isinstance(x, list) and isinstance(y, list) and len(x) ==
        len(y):
11        return unify(x[1:], y[1:], unify(x[0], y[0], theta))
12    else:
13        return None
14
15 def unify_var(var, x, theta):
16     if var in theta:
17         return unify(theta[var], x, theta)
18     elif x in theta:
19         return unify(var, theta[x], theta)
20     else:
21         theta[var] = x
22     return theta
23
```

```

24 def resolution(facts, kb, query):
25     for rule in kb:
26         premise, conclusion = rule
27         theta = unify(conclusion, query, {})
28         if theta is not None:
29             grounded_premise = substitute(premise, theta)
30             if grounded_premise in facts:
31                 return True
32     return query in facts
33
34 def substitute(expr, theta):
35     return [theta.get(e, e) for e in expr]
36
37 facts = [["Human", "John"]]
38 knowledge_base = [
39     [["Human", "x"], ["Mortal", "x"]]
40 ]
41 query = ["Mortal", "John"]
42
43 if resolution(facts, knowledge_base, query):
44     print("Query is resolved: John is Mortal")
45 else:
46     print("Query could not be resolved")

```

Output

Clear

Query is resolved: John is Mortal

=== Code Execution Successful ===