KB - resolution

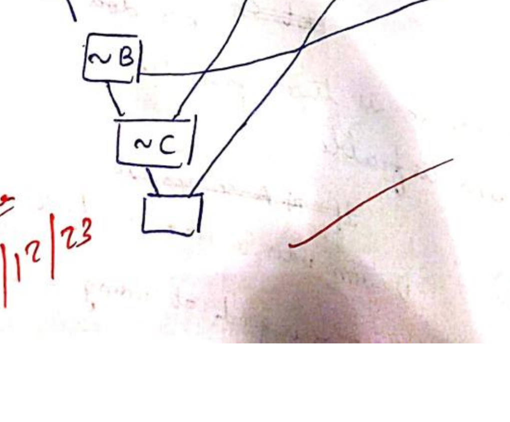
```
def negate_literal (literal):
    if literal [0] == '~'
        return literal [1:]
    else
        return '~' + literal

def resolve (c1, c2):
    resolved clause = set(c1) | set(c2)
    for literal in c1:
        if negate_literal (literal) in c2:
            resolved_clause. remove (literal)
            -"------------ (negate_literal (literal))
    return tuple (resolved_clause)

def resolution (KB)
    new_clauses = set()
    for i, c1 in enumerate (KB)
        for j 9 c2 -"------ (KB)
            if i! = j:
                new_clause = resolve (c1, c2)
                if len(new_clause) >0 & new_clause not in
                    new_clauses. add (new_clause)
```

Output:

KB: $(A \vee \sim B) \wedge (B \vee \sim C) \wedge C \wedge \sim A$



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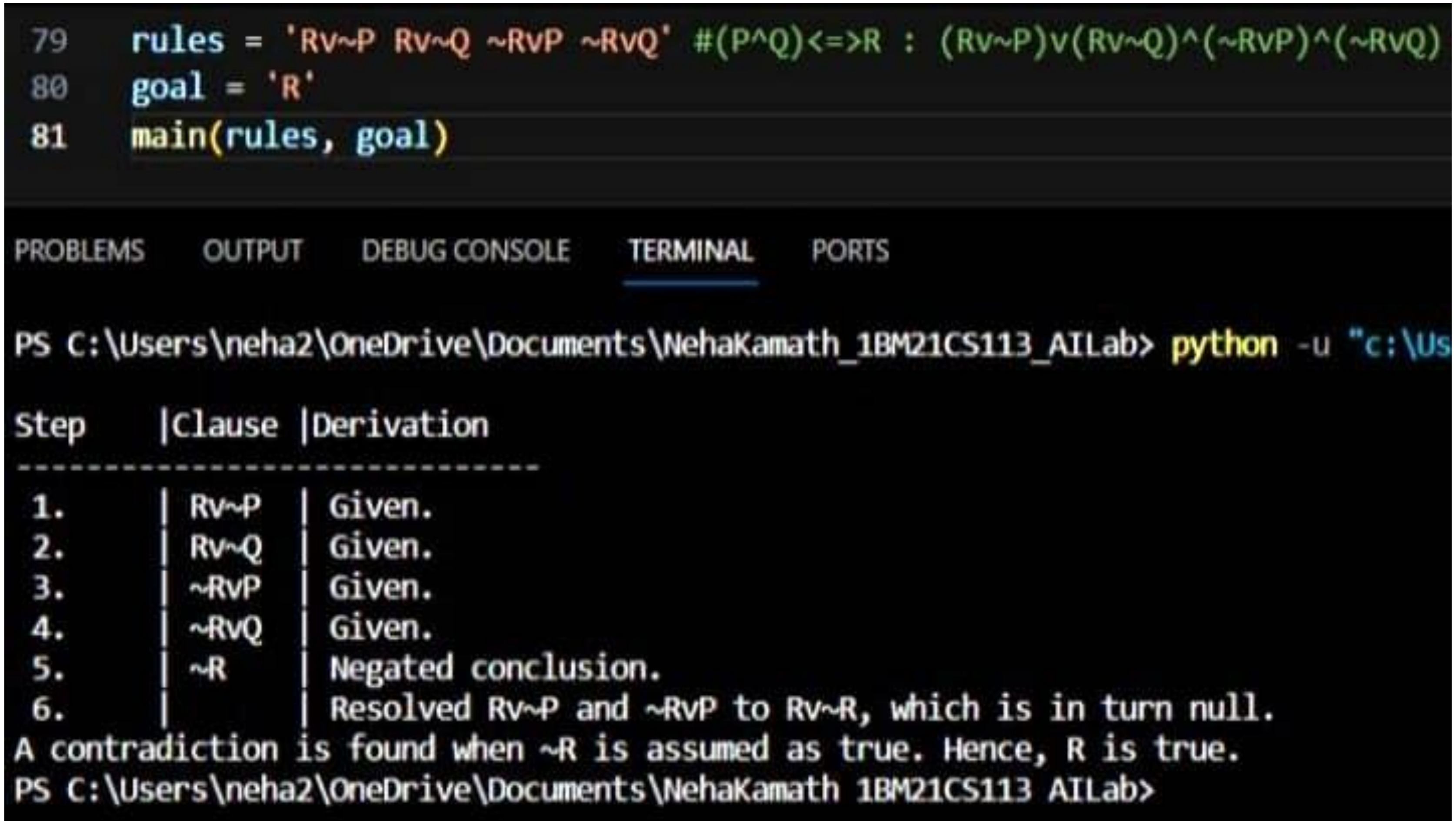

```
rules = 'Rv~P Rv~Q ~RvP ~RvQ' #(P^Q)<=>R : (Rv~P)v(Rv~Q)^(~RvP)^(~RvQ)
goal = 'R'
main(rules, goal)
```

```
PS C:\Users\neha2\OneDrive\Documents\NehaKamath_1BM21CS113_AILab> python -u "c:\Us

Step    |Clause |Derivation
------------------------------
 1.     | Rv~P  | Given.
 2.     | Rv~Q  | Given.
 3.     | ~RvP  | Given.
 4.     | ~RvQ  | Given.
 5.     | ~R    | Negated conclusion.
 6.     |       | Resolved Rv~P and ~RvP to Rv~R, which is in turn null.
A contradiction is found when ~R is assumed as true. Hence, R is true.
PS C:\Users\neha2\OneDrive\Documents\NehaKamath 1BM21CS113 AILab>
```

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