Create a knowledge base using propositional logic and show that the given query entails the knowledge base or not

i)((not q) or (not p) or r) and ((not q) and p)and q

def evaluate\_expression(q, p, r):

expression\_result = ((not q) or (not p) or r) and ((not q) and p)and q

return expression\_result

def generate\_truth\_table():

print("\tExpression (KB)")

print("---|---|---|-----------------|------------")

for q in [True, False]:

for p in [True, False]:

for r in [True, False]:

expression\_result = evaluate\_expression(q, p, r)

query\_result = r

print(f"{expression\_result}| {query\_result}")

def query\_entails\_knowledge():

for q in [True, False]:

for p in [True, False]:

for r in [True, False]:

expression\_result = evaluate\_expression(q, p, r)

query\_result =r

if expression\_result and not query\_result:

return False

return True

def main():

generate\_truth\_table()

if query\_entails\_knowledge():

print("\nQuery entails the knowledge.")

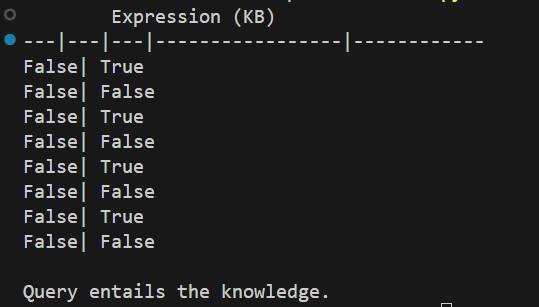
else:

print("\nQuery does not entail the knowledge.")

if \_\_name\_\_ == "\_\_main\_\_":

main()

OUTPUT:



ii)(p or q) and (not r or p)

def evaluate\_expression(q, p, r):

expression\_result = (p or q) and (not r or p)

return expression\_result

def generate\_truth\_table():

print("\tExpression (KB)")

print("---|---|---|-----------------|------------")

for q in [True, False]:

for p in [True, False]:

for r in [True, False]:

expression\_result = evaluate\_expression(q, p, r)

query\_result = p and r

print(f"{expression\_result}| {query\_result}")

def query\_entails\_knowledge():

for q in [True, False]:

for p in [True, False]:

for r in [True, False]:

expression\_result = evaluate\_expression(q, p, r)

query\_result = p and r

if expression\_result and not query\_result:

return False

return True

def main():

generate\_truth\_table()

if query\_entails\_knowledge():

print("\nQuery entails the knowledge.")

else:

print("\nQuery does not entail the knowledge.")

if \_\_name\_\_ == "\_\_main\_\_":

main()

OUTPUT:

