Experiment no.8

```
from pgmpy.models import BayesianModel
from pgmpy.factors.discrete import TabularCPD
from pgmpy.inference import VariableElimination

# Define the structure of the Bayesian Network
model = BayesianModel([('A', 'C'), ('B', 'C')])

# Define the Conditional Probability Distributions (CPDs)
cpd_a = TabularCPD(variable='A', variable_card=2, values=[[0.6], [0.4]])
cpd_b = TabularCPD(variable='B', variable_card=2, values=[[0.7], [0.3]])
cpd_c = TabularCPD(variable='C', variable_card=2,
                   values=[[0.1, 0.2, 0.2, 0.3],
                           [0.9, 0.8, 0.8, 0.7]],
                   evidence=['A', 'B'],
                   evidence_card=[2, 2])

# Add CPDs to the model
model.add_cpds(cpd_a, cpd_b, cpd_c)

# Check if the model is correctly defined
assert model.check_model()

# Perform inference
inference = VariableElimination(model)

# Query the model
query = inference.query(variables=['C'], evidence={'A': 1, 'B': 0})
print(query)
```

Output:

```
Requirement already satisfied: six in /usr/local/lib/python3.10/dist-packages (from patsy>=0.5.4->statsmodels->pgmpy) (1.16.0)
Requirement already satisfied: MarkupSafe>=2.0 in /usr/local/lib/python3.10/dist-packages (from jinja2->torch->pgmpy) (2.1.5)
Requirement already satisfied: mpmath>=0.19 in /usr/local/lib/python3.10/dist-packages (from sympy->torch->pgmpy) (1.3.0)
Installing collected packages: nvidia-nvtx-cu12, nvidia-nvjitlink-cu12, nvidia-nccl-cu12, nvidia-curand-cu12, nvidia-cufft-cu12, nvidia-cuda-r
Successfully installed nvidia-cublas-cu12-12.1.3.1 nvidia-cuda-cupti-cu12-12.1.105 nvidia-cuda-nvrtc-cu12-12.1.105 nvidia-cuda-runtime-cu12-12
WARNING:pgmpy:BayesianModel has been renamed to BayesianNetwork. Please use BayesianNetwork class, BayesianModel will be removed in future.
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+------+----------+
| C    |   phi(C) |
+======+==========+
| C(0) |   0.2000 |
+------+----------+
| C(1) |   0.8000 |
+------+----------+
```