EXPERIMENT NO 8

Aim: To implement a python program for Bayes Belief Network

Code:

from pgmpy.models import BayesianNetwork

from pgmpy.factors.discrete import TabularCPD

from pgmpy.inference import VariableElimination

model = BayesianNetwork([('A', 'C'), ('B', 'C'), ('C', 'D')])

cpd\_A = TabularCPD(variable='A', variable\_card=2, values=[[0.8], [0.2]])

cpd\_B = TabularCPD(variable='B', variable\_card=2, values=[[0.7], [0.3]])

cpd\_C = TabularCPD(variable='C', variable\_card=2,

                   values=[[0.9, 0.6, 0.7, 0.1],

                           [0.1, 0.4, 0.3, 0.9]],

                   evidence=['A', 'B'], evidence\_card=[2, 2])

cpd\_D = TabularCPD(variable='D', variable\_card=2,

                   values=[[0.95, 0.8],

                           [0.05, 0.2]],

                   evidence=['C'], evidence\_card=[2])

model.add\_cpds(cpd\_A, cpd\_B, cpd\_C, cpd\_D)

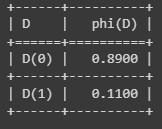
model.check\_model()

inference = VariableElimination(model)

query\_result = inference.query(variables=['D'], evidence={'A': 0, 'B': 1})

print(query\_result)

Output:

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Conclusion: Thus we have implemented a python program for Bayes Belief Network.