**Pgm 7 final :** Write a program to construct a**Bayesian network** considering medical data. Use this model to demonstrate the diagnosis of heart patients using standard Heart Disease Data Set. You can use Java/Python ML library classes/API.

import numpy as np

from urllib.request import urlopen

import urllib

import sklearn as skl

import pandas as pd

import pgmpy

Cleveland\_data\_URL = 'http://archive.ics.uci.edu/ml/machine-learning-databases/heart-disease/processed.hungarian.data'

names = ['age', 'sex', 'cp', 'trestbps', 'chol', 'fbs', 'restecg', 'thalach', 'exang', 'oldpeak', 'slope', 'ca', 'thal', 'heartdisease']

heartDisease = pd.read\_csv(urlopen(Cleveland\_data\_URL), names = names)

from pgmpy.models import BayesianModel

from pgmpy.estimators import MaximumLikelihoodEstimator, BayesianEstimator

model = BayesianModel([('age', 'trestbps'), ('age', 'fbs'), ('sex', 'trestbps'), ('sex', 'trestbps'),

('exang', 'trestbps'),('trestbps','heartdisease'),('fbs','heartdisease'),

('heartdisease','restecg'),('heartdisease','thalach'),('heartdisease','chol')])

model.fit(heartDisease, estimator=MaximumLikelihoodEstimator)

print(model.get\_cpds('age'))

print(model.get\_cpds('chol'))

print(model.get\_cpds('sex'))

model.get\_independencies()

from pgmpy.inference import VariableElimination

HeartDisease\_infer = VariableElimination(model)

q = HeartDisease\_infer.query(variables=['heartdisease'], evidence={'age': 22})

print(q['heartdisease'])

q = HeartDisease\_infer.query(variables=['heartdisease'], evidence={'chol': 128})

print(q['heartdisease'])