```
pip install git+https://github.com/pgmpy/pgmpy.git
```

```
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Downloading nvidia_curand_cu12-10.3.5.147-py3-none-manylinux2014_x86_64.whl (56.3 MB)
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Downloading nvidia_cusolver_cu12-11.6.1.9-py3-none-manylinux2014_x86_64.whl (127.9 MB)
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Downloading nvidia_cusparse_cu12-12.3.1.170-py3-none-manylinux2014_x86_64.whl (207.5 MB)
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Downloading nvidia_nvjitlink_cu12-12.4.127-py3-none-manylinux2014_x86_64.whl (21.1 MB)
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Downloading pyro_api-0.1.2-py3-none-any.whl (11 kB)
Building wheels for collected packages: pgmpy
  Building wheel for pgmpy (pyproject.toml) ... done
  Created wheel for pgmpy: filename=pgmpy-1.0.0-py3-none-any.whl size=2040442 sha256=e6af956c9b80b7fb3947eefb67d40bf1c37305cb437a6fac
  Stored in directory: /tmp/pip-ephem-wheel-cache-u514sp14/wheels/d9/9f/45/a2e53089feda9327b2633091eed8fd63db751b9c8b9b1c94f7
Successfully built pgmpy
Installing collected packages: pyro-api, nvidia-nvjitlink-cu12, nvidia-curand-cu12, nvidia-cufft-cu12, nvidia-cuda-runtime-cu12, nvid
  Attempting uninstall: nvidia-nvjitlink-cu12
    Found existing installation: nvidia-nvjitlink-cu12 12.5.82
    Uninstalling nvidia-nvjitlink-cu12-12.5.82:
      Successfully uninstalled nvidia-nvjitlink-cu12-12.5.82
  Attempting uninstall: nvidia-curand-cu12
    Found existing installation: nvidia-curand-cu12 10.3.6.82
    Uninstalling nvidia-curand-cu12-10.3.6.82:
      Successfully uninstalled nvidia-curand-cu12-10.3.6.82
  Attempting uninstall: nvidia-cufft-cu12
    Found existing installation: nvidia-cufft-cu12 11.2.3.61
    Uninstalling nvidia-cufft-cu12-11.2.3.61:
      Successfully uninstalled nvidia-cufft-cu12-11.2.3.61
  Attempting uninstall: nvidia-cuda-runtime-cu12
    Found existing installation: nvidia-cuda-runtime-cu12 12.5.82
    Uninstalling nvidia-cuda-runtime-cu12-12.5.82:
      Successfully uninstalled nvidia-cuda-runtime-cu12-12.5.82
  Attempting uninstall: nvidia-cuda-nvrtc-cu12
    Found existing installation: nvidia-cuda-nvrtc-cu12 12.5.82
    Uninstalling nvidia-cuda-nvrtc-cu12-12.5.82:
      Successfully uninstalled nvidia-cuda-nvrtc-cu12-12.5.82
  Attempting uninstall: nvidia-cuda-cupti-cu12
    Found existing installation: nvidia-cuda-cupti-cu12 12.5.82
    Uninstalling nvidia-cuda-cupti-cu12-12.5.82:
      Successfully uninstalled nvidia-cuda-cupti-cu12-12.5.82
  Attempting uninstall: nvidia-cublas-cu12
    Found existing installation: nvidia-cublas-cu12 12.5.3.2
    Uninstalling nvidia-cublas-cu12-12.5.3.2:
      Successfully uninstalled nvidia-cublas-cu12-12.5.3.2
  Attempting uninstall: nvidia-cusparse-cu12
    Found existing installation: nvidia-cusparse-cu12 12.5.1.3
    Uninstalling nvidia-cusparse-cu12-12.5.1.3:
      Successfully uninstalled nvidia-cusparse-cu12-12.5.1.3
  Attempting uninstall: nvidia-cudnn-cu12
    Found existing installation: nvidia-cudnn-cu12 9.3.0.75
    Uninstalling nvidia-cudnn-cu12-9.3.0.75:
      Successfully uninstalled nvidia-cudnn-cu12-9.3.0.75
  Attempting uninstall: nvidia-cusolver-cu12
    Found existing installation: nvidia-cusolver-cu12 11.6.3.83
    Uninstalling nvidia-cusolver-cu12-11.6.3.83:
      Successfully uninstalled nvidia-cusolver-cu12-11.6.3.83
Successfully installed nvidia-cublas-cu12-12.4.5.8 nvidia-cuda-cupti-cu12-12.4.127 nvidia-cuda-nvrtc-cu12-12.4.127 nvidia-cuda-runtim
```

```
import pandas as pd
from pgmpy.models import DiscreteBayesianNetwork
from pgmpy.estimators import MaximumLikelihoodEstimator
from pgmpy.inference import VariableElimination


df = pd.read_csv('/content/drive/MyDrive/heart_disease.csv')


df = df.drop_duplicates()
df = df.dropna()


df['age'] = pd.cut(df['age'], bins=5, labels=["very_low", "low", "medium", "high", "very_high"])
df['chol'] = pd.cut(df['chol'], bins=3, labels=["low", "medium", "high"])
df['thalach'] = pd.cut(df['thalach'], bins=3, labels=["low", "medium", "high"])
df['fbs'] = df['fbs'].astype(str)


model = DiscreteBayesianNetwork([
    ('age', 'fbs'),
```

What can I help you build?

```
    ('fbs', 'target'),
    ('target', 'chol'),
    ('target', 'thalach')
])
```

```
model.fit(df, estimator=MaximumLikelihoodEstimator)
```

```
<pgmpy.models.DiscreteBayesianNetwork.DiscreteBayesianNetwork at 0x7d1c2fae3790>
```

```
inference = VariableElimination(model)
result = inference.query(variables=["target"], evidence={"age": "medium"})
```

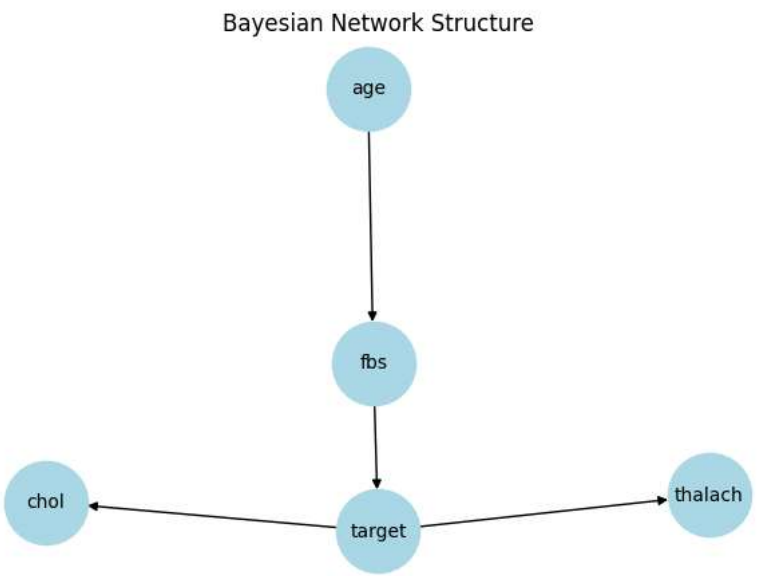
```
print(result)
```

```
+-----------+---------------+
| target    |   phi(target) |
+===========+===============+
| target(0) |        0.4579 |
+-----------+---------------+
| target(1) |        0.5421 |
+-----------+---------------+
```

```
import networkx as nx
import matplotlib.pyplot as plt
```

```
G = nx.DiGraph()
G.add_edges_from(model.edges())
```

```
plt.figure(figsize=(6, 4))
nx.draw(G, with_labels=True, node_size=2000, node_color="lightblue", font_size=10, arrows=True)
plt.title("Bayesian Network Structure")
plt.show()
```



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