

# Inferring Causal Graphs from Correlation Matrices

In this file, we show a simple example of inferring Causal Graphs given data, in the form of correlation table 1 created during our EDA step.

```
#install.packages("bnlearn")
#install.packages("pcalg")
library(bnlearn)
library(pcalg)

collision_corr <- read.csv("/Users/megha/Work_Space/traffic_collisions_ml_team3/data_sources/corr.csv",

# Reading number of row and label names
n <- nrow (collision_corr)
V <- colnames(collision_corr) # labels aka node names

#Estimaing causal graph using PC algorithm
pc.fit <- pc(suffStat = list(C = collision_corr, n = n),
indepTest = gaussCIttest, ## indep.test: partial correlations
alpha=0.05, labels = V, verbose = FALSE)

#Converting pcAlgo type objects to bn type objects.
Estimated = as.bn(pc.fit, check.cycles = FALSE)
#Plotting
if (require(Rgraphviz)) {
# show estimated CPDAG
graphviz.plot(Estimated, main = "Constraint-based Causal Graph")
}
```

# Constraint-based Causal Graph

