# Load required packages

install.packages('arules')

install.packages('arulesViz')

install.packages('RColorBrewer')

library(arules)

library(arulesViz)

library(RColorBrewer)

# Load the Groceries dataset and explore it

data("Groceries")

str(Groceries)

inspect(head(Groceries, 2))

Groceries@itemInfo$labels

# Apriori analysis on the Groceries dataset

grocery\_rules <- apriori(Groceries, parameter = list(supp = 0.01, conf = 0.2))

inspect(rules[1:10])

inspect(head(sort(grocery\_rules, by = 'confidence'), 3))

inspect(tail(sort(grocery\_rules, by = 'confidence'), 3))

# Apriori analysis for "whole milk" rules

wholemilk\_rules <- apriori(data = Groceries, parameters = list(supp = 0.001, conf = 0.08), appearance = list(rhs = 'whole milk'))

inspect(head(sort(wholemilk\_rules, by = 'confidence'), 3))

# Apriori analysis with increased support and confidence

grocery\_rules\_increased\_support <- apriori(Groceries, parameter = list(support = 0.02, confidence = 0.5))

inspect(head(sort(grocery\_rules\_increased\_support, by = 'confidence'), 3))

# Item Frequency Plot for Groceries dataset

itemFrequencyPlot(Groceries, topN = 20, type = "absolute", col = brewer.pal(8, 'Pastel2'), main = "Absolute Item Frequency Plot")

# Import and analyze a transaction dataset (restaurant orders)

txn <- read.transactions(file = "C:/Users/student/Downloads/restaurant-1-orders.csv", rm.duplicates = TRUE, format = "single", sep = ",", header = TRUE, cols = c("Order Number", "Item Name"))

str(txn)

inspect(head(txn, 2))

txn@itemInfo$labels

# Apriori analysis on the restaurant orders dataset

rules <- apriori(txn, parameter = list(supp = 0.01, conf = 0.2))

inspect(rules[1:10])

inspect(head(sort(rules, by = "confidence"), 3))

# Apriori analysis for "Pilau Rice" rules

Pilau\_Rice\_rules <- apriori(data = txn, parameter = list(supp = 0.003, conf = 0.08), appearance = list(rhs = "Pilau Rice"))

inspect(head(sort(Pilau\_Rice\_rules, by = "confidence"), 3))

# Apriori analysis with increased support and confidence for restaurant orders

rules\_increased\_support <- apriori(txn, parameter = list(support = 0.02, confidence = 0.5))

inspect(head(sort(rules\_increased\_support, by = "confidence"), 3))

# Import and analyze a transaction dataset (movies)

txn <- read.transactions(file = "D:/Chrome Downloads/movies.csv", rm.duplicates = TRUE, format = "basket", sep = ",", header = TRUE, cols = 3)

str(txn)

inspect(head(txn, 2))

# Apriori analysis on the movies dataset

rules <- apriori(txn, parameter = list(supp = 0.01, conf = 0.2))

inspect(rules[1:10])

inspect(head(sort(rules, by = "confidence"), 3))

# Apriori analysis for "Children" and "IMAX" rules in the movies dataset

Children\_rules <- apriori(data = txn, parameter = list(supp = 0.001, conf = 0.03), appearance = list(rhs = "Children"))

IMAX\_rules <- apriori(data = txn, parameter = list(supp = 0.001, conf = 0.03), appearance = list(rhs = "IMAX"))

inspect(head(sort(Children\_rules, by = "confidence"), 5))

inspect(head(sort(IMAX\_rules, by = "confidence"), 5))

# Apriori analysis with increased support and confidence for movies dataset

rules\_increased\_support <- apriori(txn, parameter = list(support = 0.02, confidence = 0.5))

inspect(head(sort(rules\_increased\_support, by = "confidence"), 3))