MIS 545 Lab03 R Script and Rapid Miner

1. RScript:

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# MIS 545 01
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# Import csv files, assign data types, subset datasets, calculate summary
# statistics, manipulate tibbles and prepare histogram and boxplot visualizations

# Install the tidyverse package
install.packages("tidyverse")

# Load the tidyverse library
library(tidyverse)

# Set the working directory to your Lab03 folder
setwd("C:/Users/ual-laptop/Documents/Lab03")

# Read GroceryTransactions.csv into a tibble called groceryTransactions1
groceryTransactions1 <- read_csv(file = "GroceryTransactions.csv",
                                 col_types = "iDffffiffffffin",
                                 col_names = TRUE)

# Display groceryTransactions1 in the console
print(groceryTransactions1)

# Display the first 20 rows of groceryTransactions1 in the console
head(groceryTransactions1, n=20)
```

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# Display the structure of groceryTransactions1 in the console
str(groceryTransactions1)

# Display the summary of groceryTransactions1 in the console
summary(groceryTransactions1)

# Use the dplyr summarize() function to display the following on the console
# Mean of revenue
print(summarize(.data = groceryTransactions1, mean(Revenue)))

#Median of units sold
print(summarize(.data = groceryTransactions1, median(UnitsSold)))

# Standard deviation of revenue
print(summarize(.data = groceryTransactions1, sd(Revenue)))

# Inter-quartile range of units sold
print(summarize(.data = groceryTransactions1, IQR(UnitsSold)))

# Minimum of revenue
print(summarize(.data = groceryTransactions1, min(Revenue)))

# Maximum of children
print(summarize(.data = groceryTransactions1, max(Children)))

# Create a new tibble called groceryTransactions2 that contains only the
# following columns
# PurchaseDate
# Homeowner
# Children
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# AnnualIncome
# UnitsSold
# Revenue
groceryTransactions2 <- select(.data = groceryTransactions1,
                               PurchaseDate,
                               Homeowner,
                               Children,
                               AnnualIncome,
                               UnitsSold,
                               Revenue)

# Display all of the features in groceryTransactions2 for transactions made by
# non-homeowners with at least 4 children
print(filter(.data = groceryTransactions2,
             Homeowner == "N" & Children >= 4))

# Display all of the records and features in groceryTransactions2 that were
# either made by customers in the $150K + annual income category OR had more
# than 6units sold
print(filter(.data = groceryTransactions2,
             AnnualIncome == "$150K +" | UnitsSold > 6))

# Display the average transaction revenue grouped by annual income level
# Sort the results by average transaction revenue from largest to smallest
print(groceryTransactions2 %>%
        group_by(AnnualIncome) %>%
        summarize(AverageRevenue = mean(Revenue)) %>%
        arrange(desc(AverageRevenue)),
      n = Inf)
```
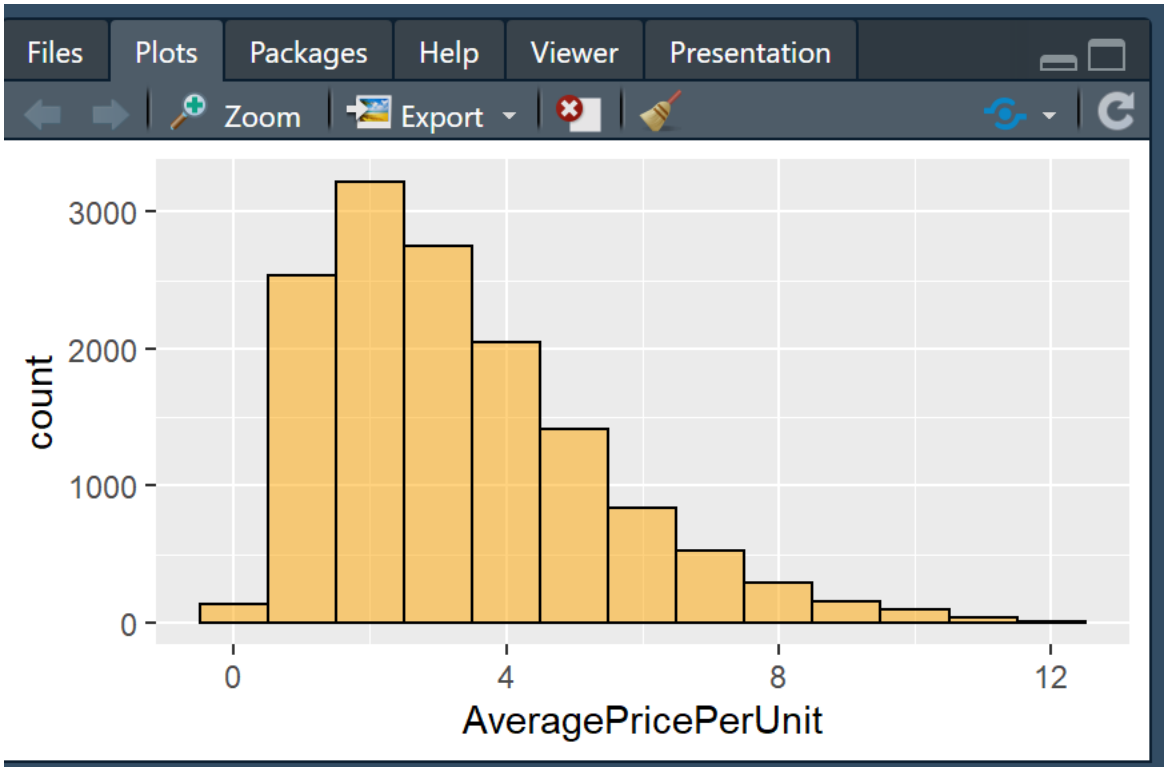
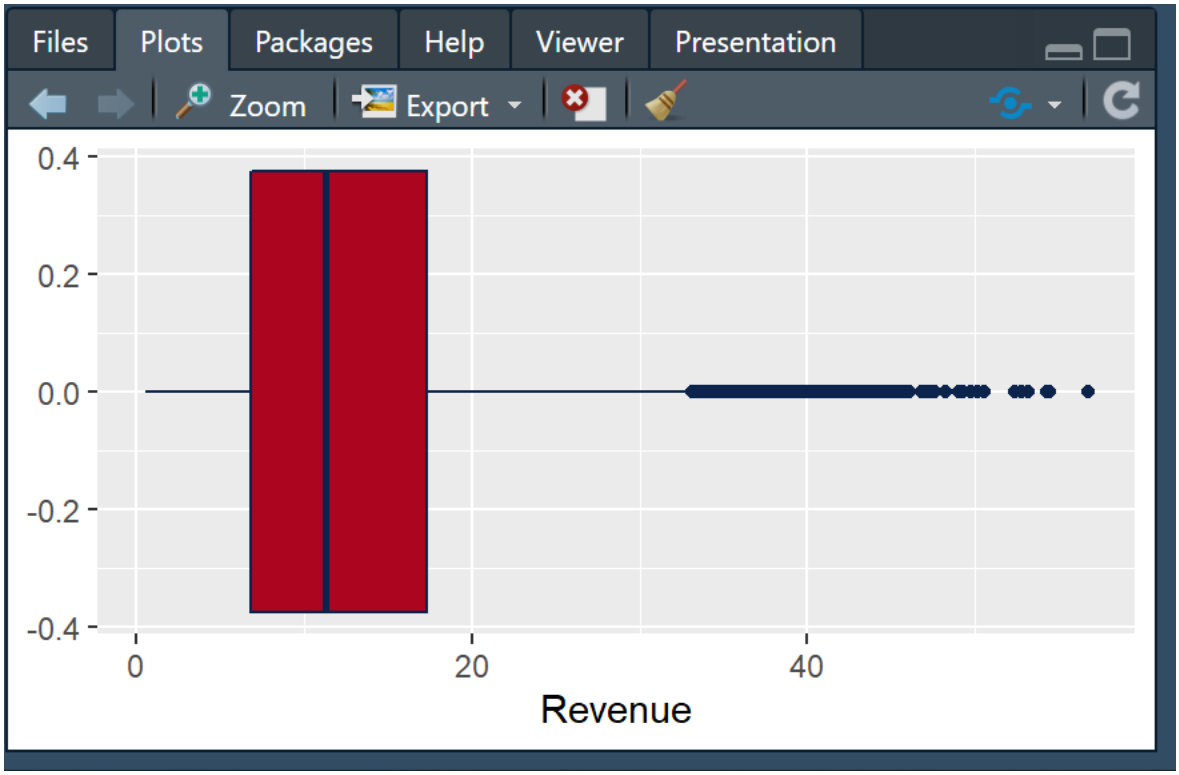

```
# Create a new tibble called groceryTransactions3 that contains all of the
# features in groceryTransactions2 along with a new calculated feature called
# AveragePricePerUnit calculated by dividing revenue by units sold
groceryTransactions3 <- groceryTransactions2 %>%
  mutate(AveragePricePerUnit = Revenue / UnitsSold)

# Display the groceryTransactions3 tibble on the console
print(groceryTransactions3)

# Use ggplot() to create a histogram of AveragePricePerUnit with a bin width of
# 1, a bin outline of black, a bin fill of orange, and a bin transparency of 50%
histogram <- ggplot(data = groceryTransactions3,
                    aes(x = AveragePricePerUnit))
histogram + geom_histogram(binwidth = 1,
                           color = "black",
                           fill = "orange",
                           alpha = 0.5)

# Use ggplot() to create a boxplot of revenue with an outline color of Arizona
# Blue (#0C234B) and a fill color of Arizona Red (#AB0520)
boxplot <- ggplot(data = groceryTransactions3,
                    aes(x = Revenue))
boxplot + geom_boxplot(color = "#0C234B",
                       fill = "#AB0520")
```

➢ **Histogram of AveragePricePerUnit:**

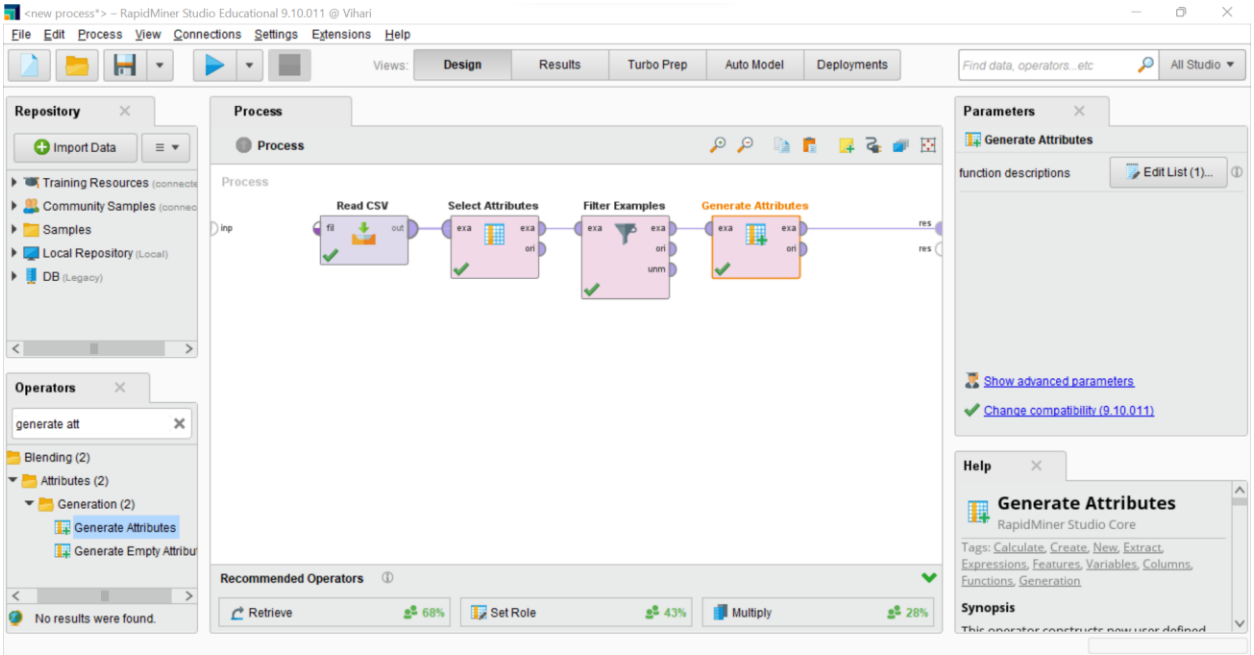


➢ **Boxplot of revenue:**

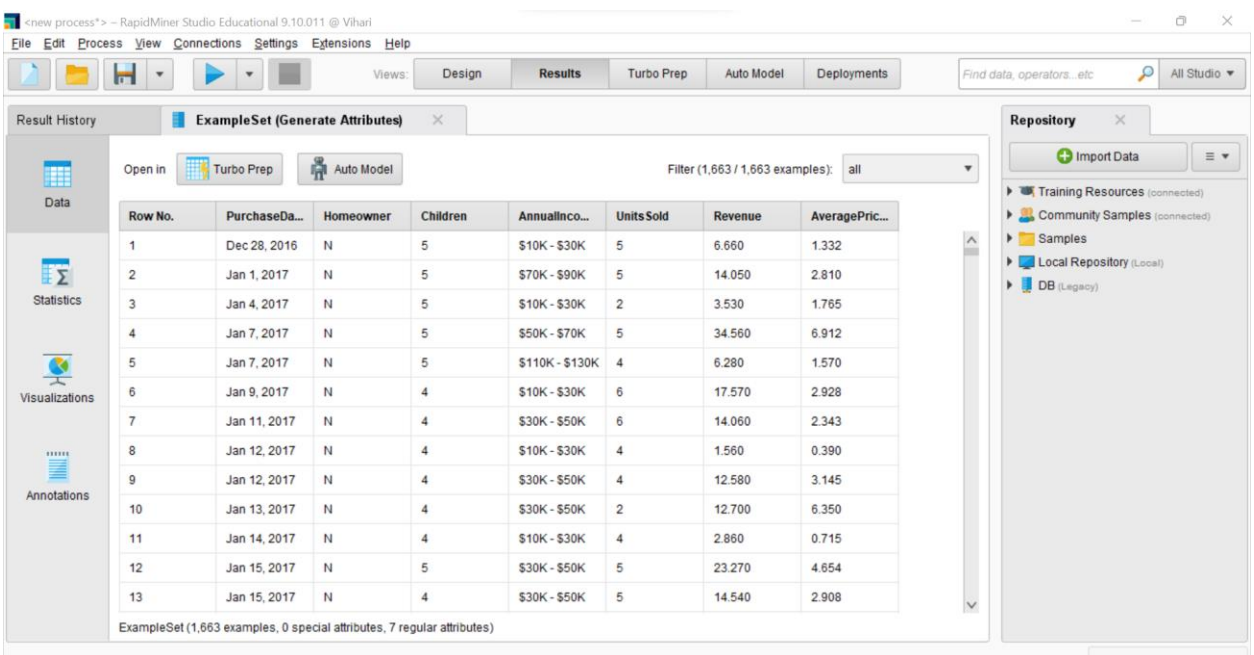


2.Rapid Miner:

➢ Process:



➢ Results:



Row No.	PurchaseDa...	Homeowner	Children	AnnualInco...	Units Sold	Revenue	AveragePric...
1	Dec 28, 2016	N	5	$10K - $30K	5	6.660	1.332
2	Jan 1, 2017	N	5	$70K - $90K	5	14.050	2.810
3	Jan 4, 2017	N	5	$10K - $30K	2	3.530	1.765
4	Jan 7, 2017	N	5	$50K - $70K	5	34.560	6.912
5	Jan 7, 2017	N	5	$110K - $130K	4	6.280	1.570
6	Jan 9, 2017	N	4	$10K - $30K	6	17.570	2.928
7	Jan 11, 2017	N	4	$30K - $50K	6	14.060	2.343
8	Jan 12, 2017	N	4	$10K - $30K	4	1.560	0.390
9	Jan 12, 2017	N	4	$30K - $50K	4	12.580	3.145
10	Jan 13, 2017	N	4	$30K - $50K	2	12.700	6.350
11	Jan 14, 2017	N	4	$10K - $30K	4	2.860	0.715
12	Jan 15, 2017	N	5	$30K - $50K	5	23.270	4.654
13	Jan 15, 2017	N	4	$30K - $50K	5	14.540	2.908

➢ Statistical Histogram: