**Course Project Component 1: Initial Data Analysis and Summary Statistics**

**Code for loading data from SQL Server into R structures**

install.packages("RODBC")

install.packages("DBI")

install.packages("odbc")

library(RODBC)

library(DBI)

library(odbc)

con <- dbConnect(odbc :: odbc(), "SQLServer\_1", timeout = 60)

**Screenshot showing successful connection to AdventureWorks2019 Database from SQL Server.**

Graphical user interface, text, application, email

Description automatically generated

**Code for retrieving Top 10 Product orders by Sales revenue with order dates in 2013**

SalesRevenue <- dbGetQuery(con,

"SELECT TOP 10

p.Name, sod.LineTotal as Revenue,

DATEPART(yy, soh.OrderDate) as Year

from Production.Product as p

Inner join Sales.SalesOrderDetail as sod

on p.ProductID = sod.ProductID

Inner join Sales.SalesOrderHeader as soh

on sod.SalesOrderID = soh.SalesOrderID

WHERE Year(soh.OrderDate) = '2013'

Group BY p.Name, DATEPART(yy, soh.OrderDate),

sod.LineTotal"

**Code for retrieving Top 10 Product orders by Unit volume with order dates in 2013**

UnitVolume <- dbGetQuery(con,

"SELECT TOP 10

p.Name, sod.OrderQty as UnitVolume,

DATEPART(yy, soh.OrderDate) as Year

from Production.Product as p

Inner join Sales.SalesOrderDetail as sod

on p.ProductID = sod.ProductID

Inner join Sales.SalesOrderHeader as soh

on sod.SalesOrderID = soh.SalesOrderID

WHERE Year(soh.OrderDate) = '2013'

Group BY p.Name, DATEPART(yy, soh.OrderDate),

sod.OrderQty"

)

**Code for retrieving Summary statistics for all sales orders**

SummaryOrderAmount <- dbGetQuery(con,

"SELECT soh.TotalDue

from Sales.SalesOrderHeader as soh

WHERE DATEPART(yy, soh.OrderDate) = '2013'

")

summary(SummaryOrderAmount)

**Code for displaying data in a table.**

library(DT)

datatable(SalesRevenue)

datatable(UnitVolume)

**Component Questions**

1. Any initial thoughts based on your initial discovery?

The Mountain and Road products are appearing repetitively in the top 10 products for 2013. I realize that they have low quantities being ordered and most of them have the same return on investment i.e., revenue.

1. What are the advantages/disadvantages to presenting tabular data as opposed to visual data?

Tables are suitable for presenting all the details of each record. However, graphs can be a very good way to present data i.e., a properly designed graph will be that picture that’s worth a thousand words. Graphs save the viewer from time-consuming number crunching and analysis. It's easier to diagnose where the problem is... e.g., in a graph, you can pinpoint which direction something is going in, where a decline is occurring, and/or if an added variable is having the desired impact or not.

Tables are also helpful if someone has a probing question, challenges the existing findings, or wants a “deeper” look into the data but can be a little more demanding in the sense that they're not exactly a visual aid.

Data table storage is limited only by the amount of available disk space that the database has access to. Despite this singular limitation, performance is based on the number of data rows in the data table. Data tables should not have more than 100,000 rows when queries are desired to take only a few seconds.

Tables require expert knowledge**.** A layperson will not be able to decipher the intricacies that are mentioned in the figures within a tabular presentation. Its interpretation and analysis can only be undertaken by a person with the requisite expertise. However, visuals can be interpreted by even tech-savvy people like decision-makers who are mostly interested in a summarization of the data rather than all the details.

In conclusion, whether data tables or visuals should be considered for data visualization depends on the audience and how the data will be used.

**References**

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Vedantu. (2022, April 27). *Tabular presentation of data*. VEDANTU. https://www.vedantu.com/commerce/tabular-presentation-of-data