R and MS SQL Server

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## Using ODBC

R can use ODBC to connect to MS SQLServer, starting with loading odbc library

library(odbc)

## Create Connection String

con <- dbConnect(odbc(),  
 #Driver = "Simba SQL Server ODBC Driver",  
 Driver = "ODBC Driver 17 for SQL Server",  
 Server = "veedb.database.windows.net",  
 Database = "datasciencedb",  
 UID = "veerasak",  
 PWD = "#admin1234", ##PWD = rstudioapi::askForPassword("Database password"),  
 Port = 1433)

## Query Database

query database and save it to Data Frame

customer <- dbGetQuery(con, "SELECT \* FROM SalesLT.Customer")

## Show Structure of Data

str(customer)

## 'data.frame': 847 obs. of 15 variables:  
## $ CustomerID : int 1 2 3 4 5 6 7 10 11 12 ...  
## $ NameStyle : logi FALSE FALSE FALSE FALSE FALSE FALSE ...  
## $ Title : chr "Mr." "Mr." "Ms." "Ms." ...  
## $ FirstName : chr "Orlando" "Keith" "Donna" "Janet" ...  
## $ MiddleName : chr "N." NA "F." "M." ...  
## $ LastName : chr "Gee" "Harris" "Carreras" "Gates" ...  
## $ Suffix : chr NA NA NA NA ...  
## $ CompanyName : chr "A Bike Store" "Progressive Sports" "Advanced Bike Components" "Modular Cycle Systems" ...  
## $ SalesPerson : chr "adventure-works\\pamela0" "adventure-works\\david8" "adventure-works\\jillian0" "adventure-works\\jillian0" ...  
## $ EmailAddress: chr "orlando0@adventure-works.com" "keith0@adventure-works.com" "donna0@adventure-works.com" "janet1@adventure-works.com" ...  
## $ Phone : chr "245-555-0173" "170-555-0127" "279-555-0130" "710-555-0173" ...  
## $ PasswordHash: chr "L/Rlwxzp4w7RWmEgXX+/A7cXaePEPcp+KwQhl2fJL7w=" "YPdtRdvqeAhj6wyxEsFdshBDNXxkCXn+CRgbvJItknw=" "LNoK27abGQo48gGue3EBV/UrlYSToV0/s87dCRV7uJk=" "ElzTpSNbUW1Ut+L5cWlfR7MF6nBZia8WpmGaQPjLOJA=" ...  
## $ PasswordSalt: chr "1KjXYs4=" "fs1ZGhY=" "YTNH5Rw=" "nm7D5e4=" ...  
## $ rowguid : chr "3F5AE95E-B87D-4AED-95B4-C3797AFCB74F" "E552F657-A9AF-4A7D-A645-C429D6E02491" "130774B1-DB21-4EF3-98C8-C104BCD6ED6D" "FF862851-1DAA-4044-BE7C-3E85583C054D" ...  
## $ ModifiedDate: POSIXct, format: "2005-08-01 00:00:00" "2006-08-01 00:00:00" ...

## Show Data

head(customer)

## CustomerID NameStyle Title FirstName MiddleName LastName Suffix  
## 1 1 FALSE Mr. Orlando N. Gee <NA>  
## 2 2 FALSE Mr. Keith <NA> Harris <NA>  
## 3 3 FALSE Ms. Donna F. Carreras <NA>  
## 4 4 FALSE Ms. Janet M. Gates <NA>  
## 5 5 FALSE Mr. Lucy <NA> Harrington <NA>  
## 6 6 FALSE Ms. Rosmarie J. Carroll <NA>  
## CompanyName SalesPerson  
## 1 A Bike Store adventure-works\\pamela0  
## 2 Progressive Sports adventure-works\\david8  
## 3 Advanced Bike Components adventure-works\\jillian0  
## 4 Modular Cycle Systems adventure-works\\jillian0  
## 5 Metropolitan Sports Supply adventure-works\\shu0  
## 6 Aerobic Exercise Company adventure-works\\linda3  
## EmailAddress Phone  
## 1 orlando0@adventure-works.com 245-555-0173  
## 2 keith0@adventure-works.com 170-555-0127  
## 3 donna0@adventure-works.com 279-555-0130  
## 4 janet1@adventure-works.com 710-555-0173  
## 5 lucy0@adventure-works.com 828-555-0186  
## 6 rosmarie0@adventure-works.com 244-555-0112  
## PasswordHash PasswordSalt  
## 1 L/Rlwxzp4w7RWmEgXX+/A7cXaePEPcp+KwQhl2fJL7w= 1KjXYs4=  
## 2 YPdtRdvqeAhj6wyxEsFdshBDNXxkCXn+CRgbvJItknw= fs1ZGhY=  
## 3 LNoK27abGQo48gGue3EBV/UrlYSToV0/s87dCRV7uJk= YTNH5Rw=  
## 4 ElzTpSNbUW1Ut+L5cWlfR7MF6nBZia8WpmGaQPjLOJA= nm7D5e4=  
## 5 KJqV15wsX3PG8TS5GSddp6LFFVdd3CoRftZM/tP0+R4= cNFKU4w=  
## 6 OKT0scizCdIzymHHOtyJKQiC/fCILSooSZ8dQ2Y34VM= ihWf50M=  
## rowguid ModifiedDate  
## 1 3F5AE95E-B87D-4AED-95B4-C3797AFCB74F 2005-08-01  
## 2 E552F657-A9AF-4A7D-A645-C429D6E02491 2006-08-01  
## 3 130774B1-DB21-4EF3-98C8-C104BCD6ED6D 2005-09-01  
## 4 FF862851-1DAA-4044-BE7C-3E85583C054D 2006-07-01  
## 5 83905BDC-6F5E-4F71-B162-C98DA069F38A 2006-09-01  
## 6 1A92DF88-BFA2-467D-BD54-FCB9E647FDD7 2007-09-01

customer.address <- dbGetQuery(con, "SELECT \* FROM SalesLT.CustomerAddress")

## Show Structure of Data

str(customer.address)

## 'data.frame': 417 obs. of 5 variables:  
## $ CustomerID : int 29485 29486 29489 29490 29492 29494 29496 29497 29499 29502 ...  
## $ AddressID : int 1086 621 1069 887 618 537 1072 889 527 893 ...  
## $ AddressType : chr "Main Office" "Main Office" "Main Office" "Main Office" ...  
## $ rowguid : chr "16765338-DBE4-4421-B5E9-3836B9278E63" "22B3E910-14AF-4ED5-8B4D-23BBE757414D" "A095C88B-D7E6-4178-A078-2ECA44214801" "F12E1702-D897-4035-B614-0FE2C72168A9" ...  
## $ ModifiedDate: POSIXct, format: "2007-09-01" "2005-09-01" ...

## Show Data

head(customer.address)

## CustomerID AddressID AddressType rowguid  
## 1 29485 1086 Main Office 16765338-DBE4-4421-B5E9-3836B9278E63  
## 2 29486 621 Main Office 22B3E910-14AF-4ED5-8B4D-23BBE757414D  
## 3 29489 1069 Main Office A095C88B-D7E6-4178-A078-2ECA44214801  
## 4 29490 887 Main Office F12E1702-D897-4035-B614-0FE2C72168A9  
## 5 29492 618 Main Office 5B3B3EB2-3F43-47ED-A20C-23697DABF23B  
## 6 29494 537 Main Office 492D92B6-31AF-47EA-8E00-7C11C7CCC20D  
## ModifiedDate  
## 1 2007-09-01  
## 2 2005-09-01  
## 3 2005-07-01  
## 4 2006-09-01  
## 5 2006-12-01  
## 6 2005-09-01

## Merge Data

customer.all <- merge(customer, customer.address, by.x="CustomerID", by.y="CustomerID")

## Show Data

head(customer.all)

## CustomerID NameStyle Title FirstName MiddleName LastName Suffix  
## 1 29485 FALSE Ms. Catherine R. Abel <NA>  
## 2 29486 FALSE Ms. Kim <NA> Abercrombie <NA>  
## 3 29489 FALSE Ms. Frances B. Adams <NA>  
## 4 29490 FALSE Ms. Margaret J. Smith <NA>  
## 5 29492 FALSE Mr. Jay <NA> Adams <NA>  
## 6 29494 FALSE Mr. Samuel N. Agcaoili <NA>  
## CompanyName SalesPerson  
## 1 Professional Sales and Service adventure-works\\linda3  
## 2 Riders Company adventure-works\\jillian0  
## 3 Area Bike Accessories adventure-works\\shu0  
## 4 Bicycle Accessories and Kits adventure-works\\david8  
## 5 Valley Bicycle Specialists adventure-works\\jillian0  
## 6 Vinyl and Plastic Goods Corporation adventure-works\\josé1  
## EmailAddress Phone  
## 1 catherine0@adventure-works.com 747-555-0171  
## 2 kim2@adventure-works.com 334-555-0137  
## 3 frances0@adventure-works.com 991-555-0183  
## 4 margaret0@adventure-works.com 959-555-0151  
## 5 jay1@adventure-works.com 158-555-0142  
## 6 samuel0@adventure-works.com 554-555-0110  
## PasswordHash PasswordSalt  
## 1 zh3goJUbYsPv92k4bVZuJtlLHwuvpQtu6uNcjkKSdF8= rpyd5Tw=  
## 2 4I8349R6c33cK+j1ef3dZt0JHOQ9MV7OvEXpCbwhQrQ= rrgbG/U=  
## 3 bmEI+phqLCE2jKmotM8SBAICQD2IvZEmy8X0LmUpMaw= jA7oD80=  
## 4 3cd7qJyW8ZTgRdwOO9nLYDZg2EM6lehJe/nqKlKKcPY= i2U3DxA=  
## 5 jCFDuqUMHmknfadTRSkMvN0IDObtE/GslvN9q2Wa5xU= 117fxZM=  
## 6 jt9vdIyi0zI03wECUFk1hdZLTVOqN09/Fdogi+cTeQU= uFYBREA=  
## rowguid.x ModifiedDate.x AddressID  
## 1 392AE773-D7EC-48AC-B8D0-6E65B770285C 2009-05-16 16:33:33 1086  
## 2 2A5ABA2E-8DB0-4856-A773-21D185F1679E 2009-05-16 16:33:33 621  
## 3 C353FE38-6147-40A3-944D-3736F6297B8C 2009-05-16 16:33:33 1069  
## 4 7F2D6183-6AEE-4AD1-973D-F45A19B70BF7 2009-05-16 16:33:33 887  
## 5 7A2EB695-B6B9-48D4-BAD2-BD33E8CE8CA1 2009-05-16 16:33:33 618  
## 6 66D2DC13-4220-43B8-B2C7-131183CAEC34 2005-09-01 00:00:00 537  
## AddressType rowguid.y ModifiedDate.y  
## 1 Main Office 16765338-DBE4-4421-B5E9-3836B9278E63 2007-09-01  
## 2 Main Office 22B3E910-14AF-4ED5-8B4D-23BBE757414D 2005-09-01  
## 3 Main Office A095C88B-D7E6-4178-A078-2ECA44214801 2005-07-01  
## 4 Main Office F12E1702-D897-4035-B614-0FE2C72168A9 2006-09-01  
## 5 Main Office 5B3B3EB2-3F43-47ED-A20C-23697DABF23B 2006-12-01  
## 6 Main Office 492D92B6-31AF-47EA-8E00-7C11C7CCC20D 2005-09-01

## Disconnect it

dbDisconnect(con)