**-- Example 33.1**

EXEC sp\_configure 'external scripts enabled', 1

GO

RECONFIGURE WITH OVERRIDE

GO

USE sample;

DECLARE @pscript NVARCHAR(MAX);

SET @pscript = N'

df = InputDataSet

OutputDataSet = df';

DECLARE @select NVARCHAR(MAX);

SET @select = N'

SELECT project\_no, budget

FROM project';

EXEC sp\_execute\_external\_script

@language = N'Python',

@script = @pscript,

@input\_data\_1 = @select;

GO

**-- Example 33.2**

USE sample;

DECLARE @pscript NVARCHAR(MAX);

SET @pscript = N'

df1 = InputDataSet

OutputDataSet = round(df1/7, 2)';

DECLARE @select NVARCHAR(MAX);

SET @select = N'

SELECT budget AS balanced\_budget

FROM project';

EXEC sp\_execute\_external\_script

@language = N'Python',

@script = @pscript,

@input\_data\_1 = @select

WITH RESULT SETS ((Balanced\_budget FLOAT));

GO

**-- Example 33.3**

USE AdventureWorks;

DECLARE @pscript NVARCHAR(MAX);

SET @pscript = N'

df1 = InputDataSet

OutputDataSet = df1.groupby("Units", as\_index=False).max()';

DECLARE @select NVARCHAR(MAX);

SET @select = N'

SELECT v.UnitMeasureCode AS Units

FROM Purchasing.PurchaseOrderHeader h

INNER JOIN Purchasing.PurchaseOrderDetail d

ON h.PurchaseOrderID = d.PurchaseOrderID

INNER JOIN Purchasing.ProductVendor v ON d.ProductID=v.ProductID';

EXEC sp\_execute\_external\_script

@language = N'Python',

@script = @pscript,

@input\_data\_1 = @select;

**-- Example 33.4**

USE AdventureWorks;

DECLARE @pscript NVARCHAR(MAX);

SET @pscript = N'

df1 = InputDataSet

df2 = df1.groupby("Units", as\_index=False).sum()

OutputDataSet = df2';

DECLARE @select NVARCHAR(MAX);

SET @select = N'

SELECT CAST(h.subtotal AS FLOAT) AS Total, v.UnitMeasureCode AS Units

FROM Purchasing.PurchaseOrderHeader h

INNER JOIN Purchasing.PurchaseOrderDetail d

ON h.PurchaseOrderID = d.PurchaseOrderID

INNER JOIN Purchasing.ProductVendor v ON d.ProductID=v.ProductID';

EXEC sp\_execute\_external\_script

@language = N'Python',

@script = @pscript,

@input\_data\_1 = @select

WITH RESULT SETS((UnitCodes NVARCHAR(50), TotalSales MONEY));

**-- Example 33.5**

Use AdventureWorks;

DECLARE @pscript NVARCHAR(MAX);

SET @pscript = N'

import matplotlib

matplotlib.use("PDF")

import matplotlib.pyplot as plt

df1 = InputDataSet

df2 = df1.groupby("Units", as\_index=True).sum()

pt = df2.plot.barh()

# Set title

pt.set\_title (label="Total Purchases per Unit Code", y=1.1)

# Set labels for x and y axes

pt.set\_xlabel("Purchase Amounts")

pt.set\_ylabel("Unit Mesaure Codes")

# Set names for all items of Unit Code

pt.set\_yticklabels (labels=df2.index, fontsize=8, color="green")

#save bar chart to .pdf file

plt.savefig("c:\\temp\\Figure33\_1.pdf", bbox\_inches="tight")';

DECLARE @sql NVARCHAR(MAX);

SET @sql = N'

SELECT CAST(h.subtotal AS FLOAT) AS total, v.UnitMeasureCode AS Units

FROM Purchasing.PurchaseOrderHeader h

INNER JOIN Purchasing.PurchaseOrderDetail d

ON h.PurchaseOrderID = d.PurchaseOrderID

INNER JOIN Purchasing.ProductVendor v ON d.ProductID=v.ProductID';

EXEC sp\_execute\_external\_script

@language = N'Python',

@script = @pscript,

@input\_data\_1 = @sql;

GO

**-- Example 33.6**

USE sample;

CREATE TABLE Measures (x\_value INT, y\_value DEC (6,2));

INSERT INTO Measures VALUES (1, 33.5);

INSERT INTO Measures VALUES (2, 35.9);

INSERT INTO Measures VALUES (3, 37.9);

INSERT INTO Measures VALUES (4, 39.8);

INSERT INTO Measures VALUES (5, 41.6);

INSERT INTO Measures VALUES (6, 45.4);

INSERT INTO Measures VALUES (7, 44.6);

INSERT INTO Measures VALUES (8, 47.4);

INSERT INTO Measures VALUES (9, 48.2);

INSERT INTO Measures VALUES (10, 50.3);

**-- Example 33.7**

USE sample;

EXEC sp\_execute\_external\_script

@language = N'Python' , @script = N'

from revoscalepy import rx\_lin\_mod, rx\_predict

linearmodel=rx\_lin\_mod(formula ="Y\_Value~X\_Value",data=InputDataSet);

print(linearmodel.summary())',

@input\_data\_1 = N'SELECT x\_value AS X\_Value,

CAST (y\_value AS FLOAT) AS Y\_Value FROM Measures'

**-- Example 33.8**

USE sample;

EXEC sp\_execute\_external\_script

@language = N'Python'

, @script = N'

#Importing Packages

import matplotlib

matplotlib.use("PDF")

from revoscalepy import rx\_lin\_mod, rx\_predict

import matplotlib.pyplot as plt

import pandas as pd

linearmodel = rx\_lin\_mod(formula = "Y\_Value ~ X\_Value", data = InputDataSet);

df = InputDataSet

plt.scatter(df.X\_Value,df.Y\_Value)

plt.xlabel("Values of Independent Variable ")

plt.ylabel("Values of Dependent Variable")

#plt.title("Graphical Output of Example 33.8")

plt.plot()

plt.savefig("C:\\temp\\Figure33\_2.png") ',

@input\_data\_1 = N'SELECT x\_value AS X\_Value,

CAST (y\_value AS FLOAT) AS Y\_Value FROM dbo.Measures'

AS FLOAT) AS Y\_Value FROM Measures'