R Script add column name

IMPORT DATASET

R Script add column name

In this session

- Import dataset from local CVS file to R data frame (R Studio)
- Add column name Using R code (R Studio)
- Import dataset from internet (R Studio)
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- Add column name Using R code (Azure ML Studio)
- Data Visualization (Azure ML Studio)

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Import dataset from local CVS file to R data frame (R Studio)

adult100.csv

	A	B	C	D	E	F
1	age	workclass	marital-status	occupation	race	sex
2	39	State-gov	Never-married	Adm-clerical	White	Male
3	50	Self-emp-not-inc	Married-civ-spouse	Exec-managerial	White	Male
4	38	Private	Divorced	Handlers-cleaners	White	Male
5	53	Private	Married-civ-spouse	Handlers-cleaners	Black	Male
6	28	Private	Married-civ-spouse	Prof-specialty	Black	Female
7	37	Private	Married-civ-spouse	Exec-managerial	White	Female
8	49	Private	Married-spouse-absent	Other-service	Black	Female
9	52	Self-emp-not-inc	Married-civ-spouse	Exec-managerial	White	Male
10	31	Private	Never-married	Prof-specialty	White	Female
11	42	Private	Married-civ-spouse	Exec-managerial	White	Male

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Import dataset from local CVS file to R data frame (R Studio)

```
getwd()                                  # get working directory
setwd("c:/temp")                         # set working directory
list.files()                             # list file in current directory
d1 <- read.csv("adult100.csv", header = FALSE)
str(d1)                                  # show structure of d1
```

```
'data.frame':   99 obs. of  6 variables:
 $ age           : int  39 50 38 53 28 37 49 52 31 42 ...
 $ workclass     : Factor w/ 7 levels " ?"," Federal-gov",..: 7 6 4 4 4 4 4 6 4 4 ...
 $ marital-status: Factor w/ 6 levels " Divorced"," Married-AF-spouse",..: 5 3 1 3 3 3 4 3 5 3 ...
 $ occupation    : Factor w/ 13 levels " ?"," Adm-clerical",..: 2 4 6 6 9 4 8 4 9 4 ...
 $ race          : Factor w/ 5 levels " Amer-Indian-Eskimo",..: 5 5 5 3 3 5 3 5 5 5 ...
 $ sex           : Factor w/ 2 levels " Female"," Male": 2 2 2 2 1 1 1 2 1 2 ...
```

```
typeof(d1)                               # show data type of d1
class(d1)                                # show class of d1
dim(d1)                                  # show dimension of d1
```

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Import dataset from local CVS file to R data frame (R Studio)

```
ncol(d1)                    # number of columns
nrow(d1)                    # number of rows
d1                          # show all data rows
head(d1)                    # preview data in d1
head(d1, n = 10)            # show top 10 rows
tail(d1)                    # preview data in d1
tail(d1, n = 10)            # show bottom 10 rows
d1[1:3]                     # show column 1 to column 3
head(d1[1:3], n = 10)       # show top 10 rows column 1 to column 3
```

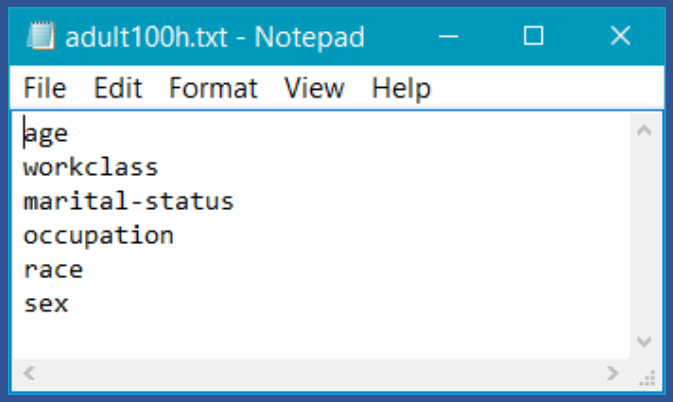
R Script add column name

Add column name Using R code (R Studio)

Adult100n.csv

	A	B	C	D	E	F
1	39	State-gov	Never-ma	Adm-cleri	White	Male
2	50	Self-emp-r	Married-c	Exec-mana	White	Male
3	38	Private	Divorced	Handlers-c	White	Male
4	53	Private	Married-c	Handlers-c	Black	Male
5	28	Private	Married-c	Prof-speci	Black	Female
6	37	Private	Married-c	Exec-mana	White	Female
7	49	Private	Married-s	Other-serv	Black	Female

Adult100h.txt



R Script add column name

Add column name Using R code (R Studio)

```
ls()                                    # print all object in workspace
rm(list=ls())                           # Clear R workspace
d1 <- read.csv("adult100n.csv", header = FALSE)  # import dataset without column
** typeof, structure, class, preview d1
d2 <- readLines("adult100h.txt")        # import column name
** typeof, structure, class, preview d2
colnames(d1) <- d2                      # update d1 column names
** preview d1
```

R Script add column name

Import dataset from internet (R Studio)

UCI Machine Learning Repository: Adult Data Set

home page

https://archive.ics.uci.edu/ml/datasets/adult

Description

https://archive.ics.uci.edu/ml/machine-learning-databases/adult/adult.names

Data Set

http://archive.ics.uci.edu/ml/machine-learning-databases/adult/adult.data

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Import dataset from internet (R Studio)

UCI

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Machine Learning Repository

Center for Machine Learning and Intelligent Systems

View ALL Data Sets

Adult Data Set

Download: Data Folder, Data Set Description

Abstract: Predict whether income exceeds $50K/yr based on census data. Also known as "Census Income" dataset.

Data Set Characteristics:	Multivariate	**Number of Instances:**	48842	**Area:**	Social
Attribute Characteristics:	Categorical, Integer	**Number of Attributes:**	14	**Date Donated**	1996-05-01
Associated Tasks:	Classification	**Missing Values?**	Yes	**Number of Web Hits:**	899430

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Import dataset from internet (R Studio)

```
rm(list=ls())   # Clear R workspace
u <- "http://archive.ics.uci.edu/ml/machine-learning-databases/adult/adult.data"
d1 <- read.csv(url(u), header = FALSE)    # import dataset
View(d1)              # invoke spreadsheet-style data viewer on a matrix-like R object
d2 <- readLines("cencol.txt")    # import column name
colnames(d1) <- d2     # update d1 column names
```

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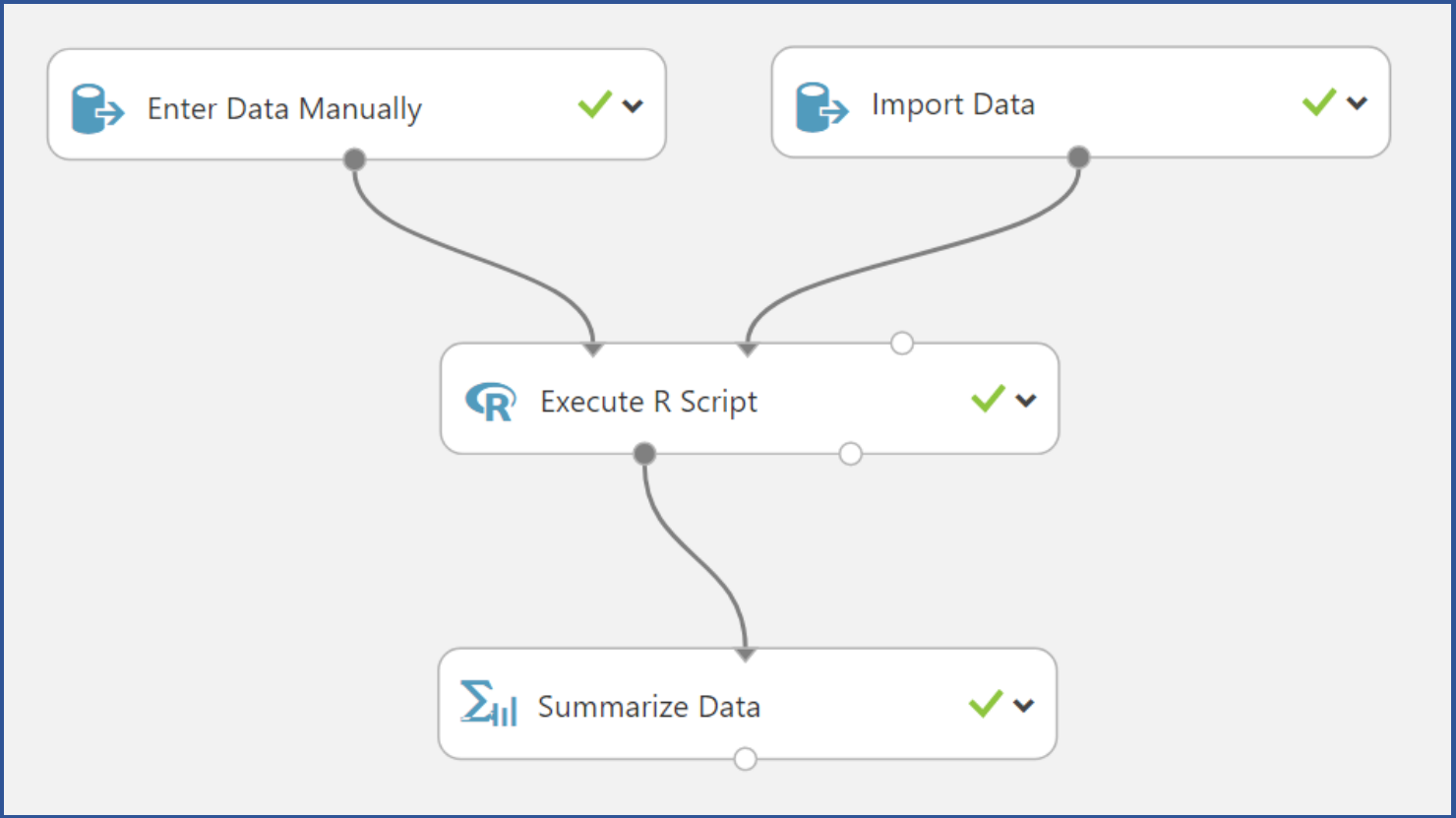
Import dataset from internet (Azure ML Studio)

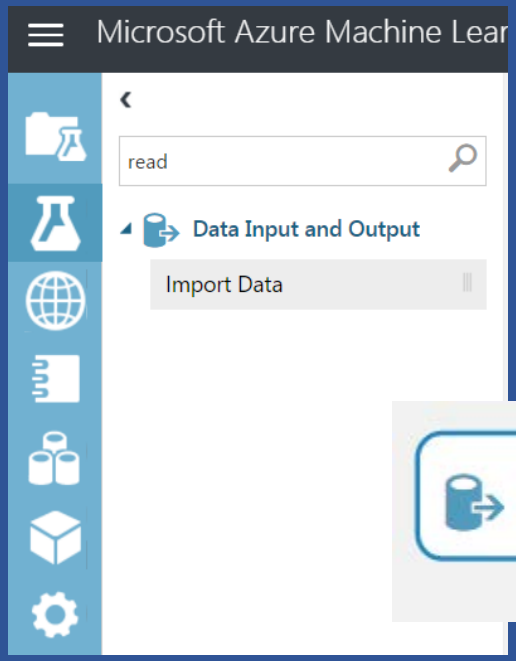
This experiment on completed



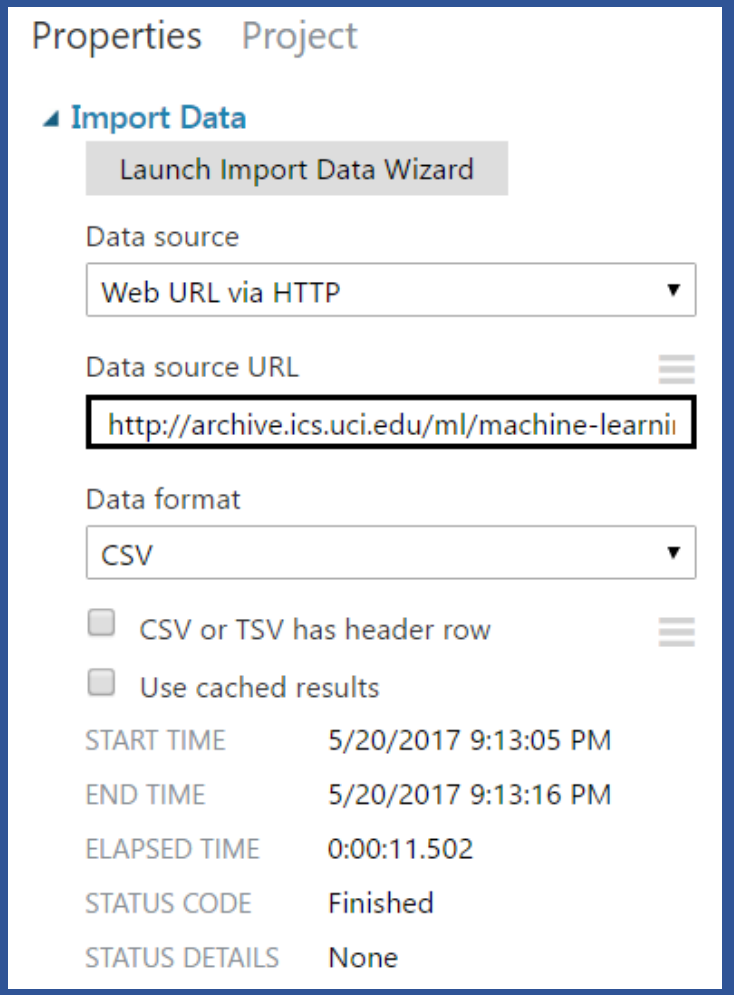
R Script add column name

Import dataset from internet (Azure ML Studio)

- Open Microsoft Azure Machine Learning Studio
- Create New blank experiment name = R add col name
- Click Data Input and Output
- Drag & drop Import Data
- Set properties



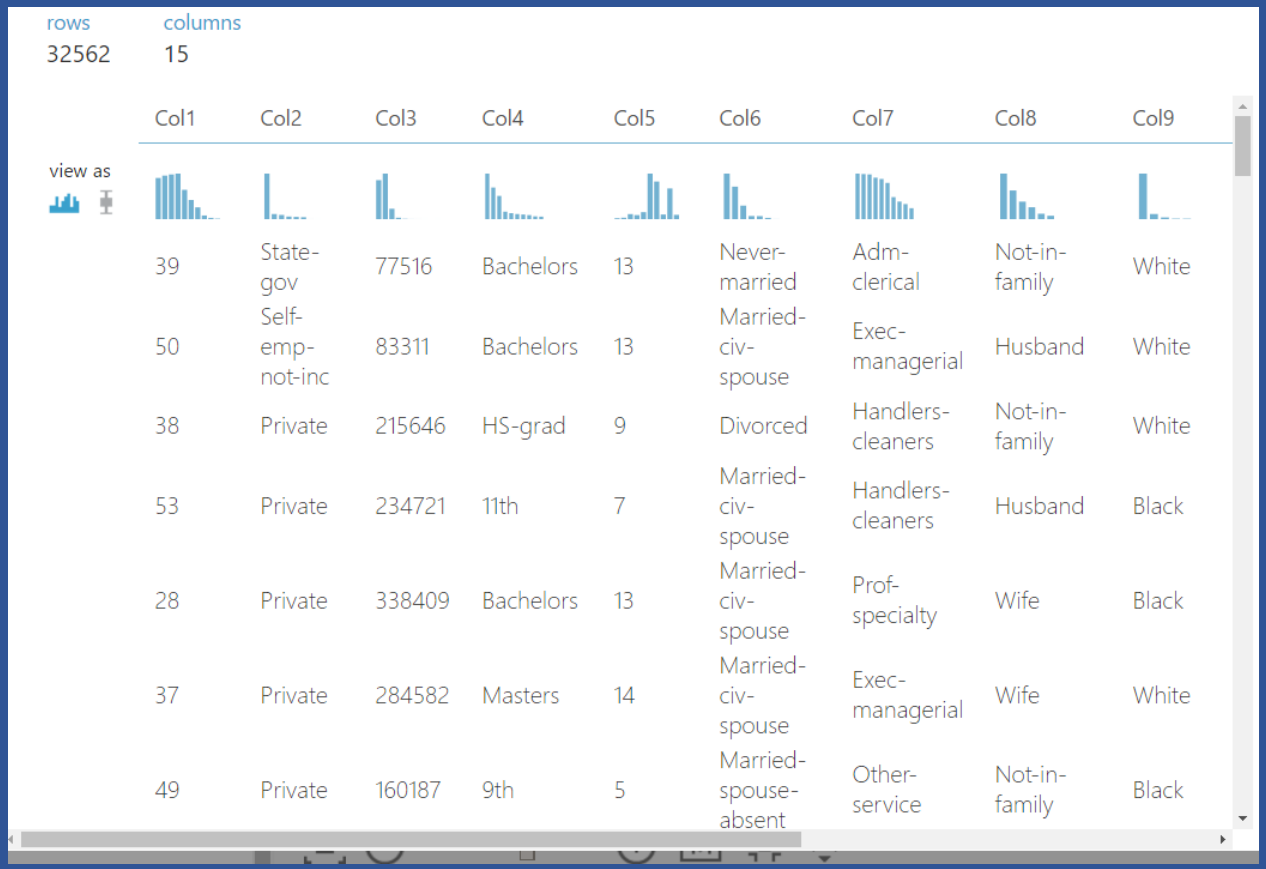
http://archive.ics.uci.edu/ml/machine-learning-databases/adult/adult.data



R Script add column name

Import dataset from internet (Azure ML Studio)

Right-click result dataset (Dataset) at Import Data Visualize



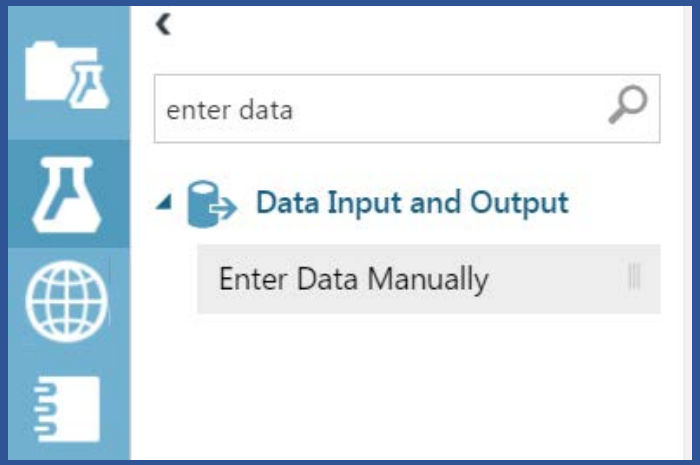
rows 32562 columns 15

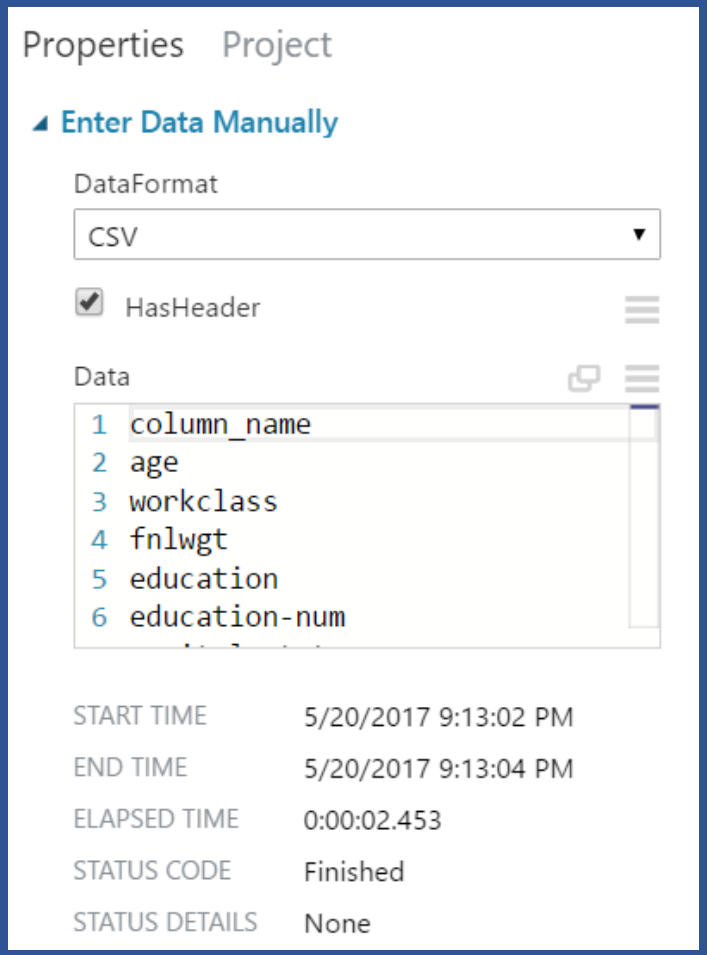
	Col1	Col2	Col3	Col4	Col5	Col6	Col7	Col8	Col9
view as									
	39	State-gov	77516	Bachelors	13	Never-married	Adm-clerical	Not-in-family	White
	50	Self-emp-not-inc	83311	Bachelors	13	Married-civ-spouse	Exec-managerial	Husband	White
	38	Private	215646	HS-grad	9	Divorced	Handlers-cleaners	Not-in-family	White
	53	Private	234721	11th	7	Married-civ-spouse	Handlers-cleaners	Husband	Black
	28	Private	338409	Bachelors	13	Married-civ-spouse	Prof-specialty	Wife	Black
	37	Private	284582	Masters	14	Married-civ-spouse	Exec-managerial	Wife	White
	49	Private	160187	9th	5	Married-spouse-absent	Other-service	Not-in-family	Black

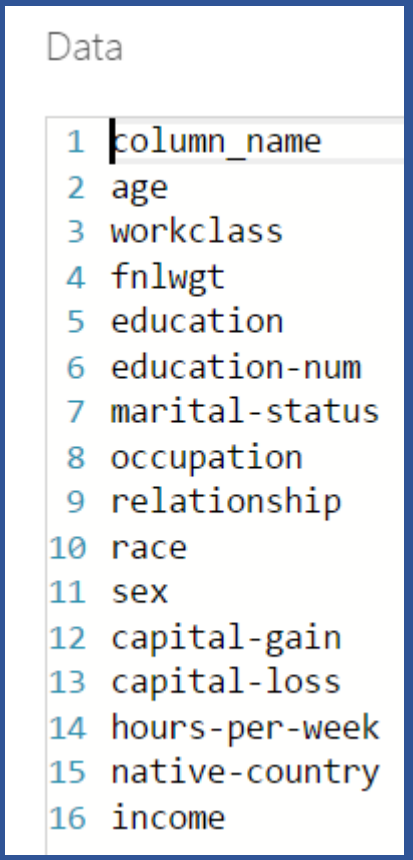
R Script add column name

Add column name Using R instructions (Azure ML Studio)

- Drag & drop Enter Data Manually from Data Input and Output to canvas
- Set properties



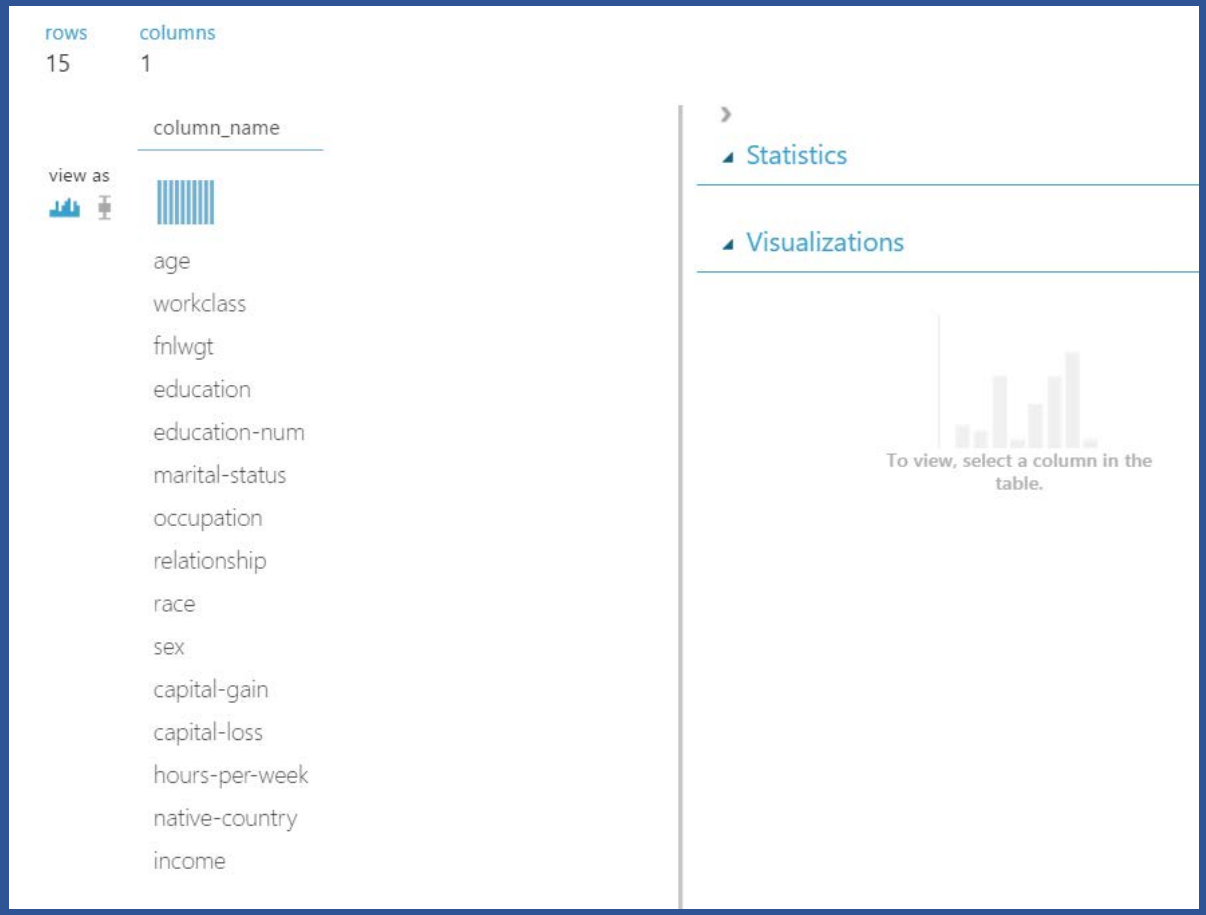




R Script add column name

Add column name Using R instructions (Azure ML Studio)

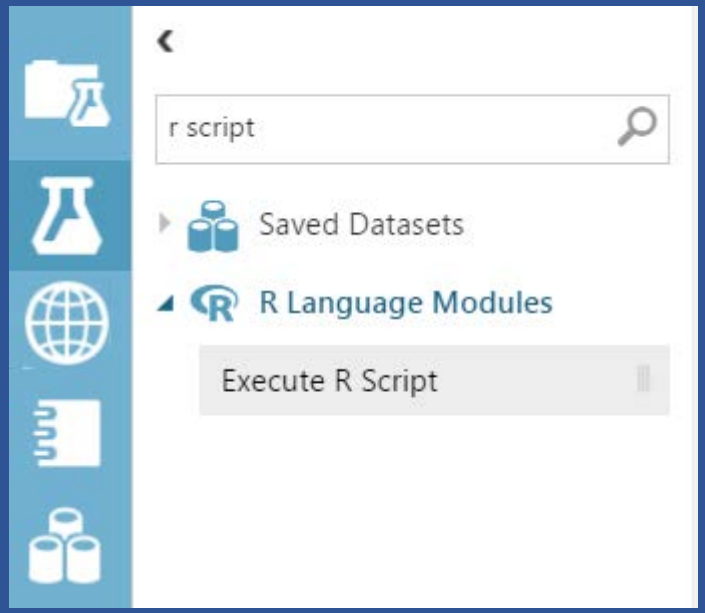
Right-click at Enter Data manually dataset (Dataset) Visualize

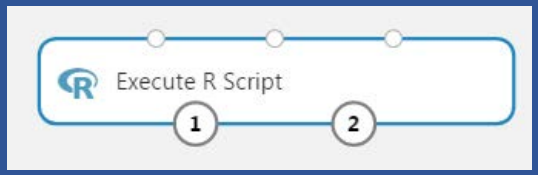


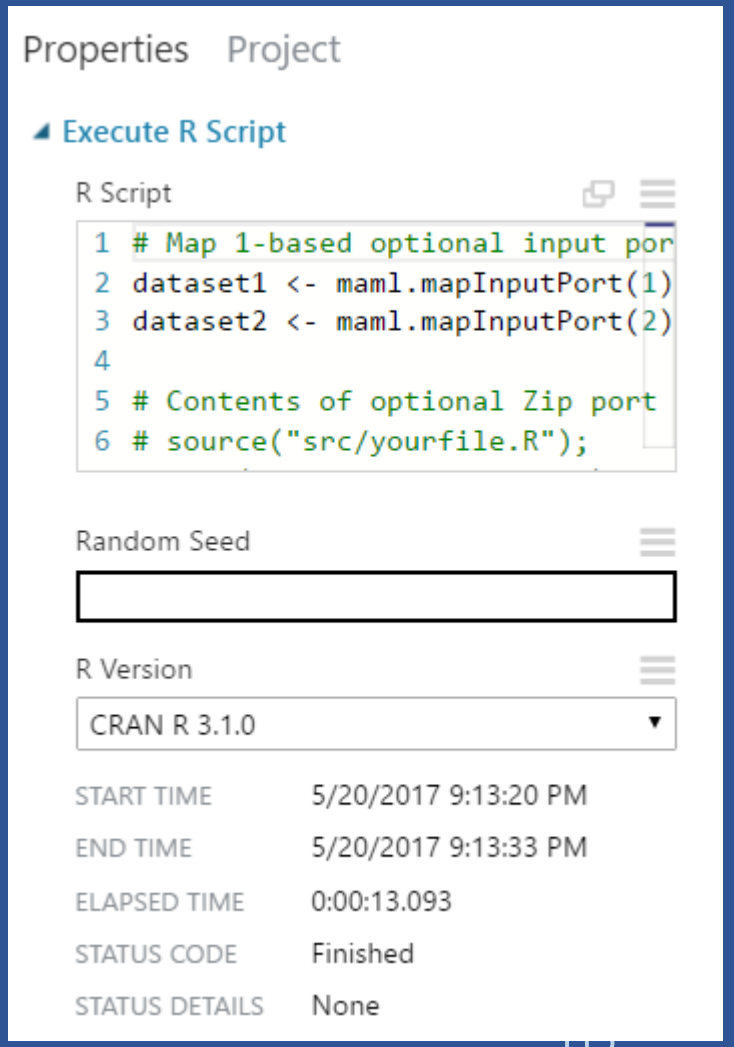
R Script add column name

Add column name Using R instructions (Azure ML Studio)

- Add Execute R Script module
- Configure R Script module
- Enter R Script







R Script add column name

Add column name Using R instructions (Azure ML Studio)

```
# Map 1-based optional input ports to variables
dataset1 <- maml.mapInputPort(1) # class: data.frame
dataset2 <- maml.mapInputPort(2) # class: data.frame

# Sample operation
colnames(dataset2) <- c(dataset1['column_name'])$column_name;
data.set = dataset2;

# Select data.frame to be sent to the output Dataset port
maml.mapOutputPort("data.set");
```

R Script add column name

Add column name Using R instructions (Azure ML Studio)

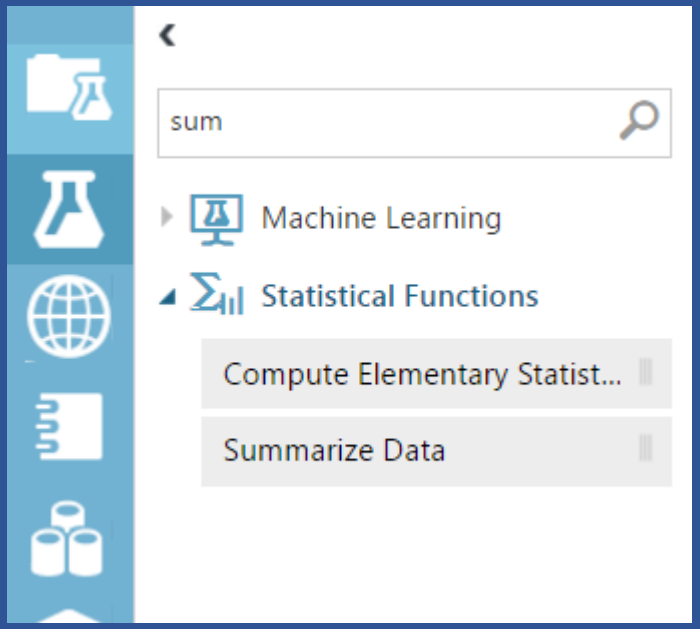
Visualize at the output of Execute R Script module

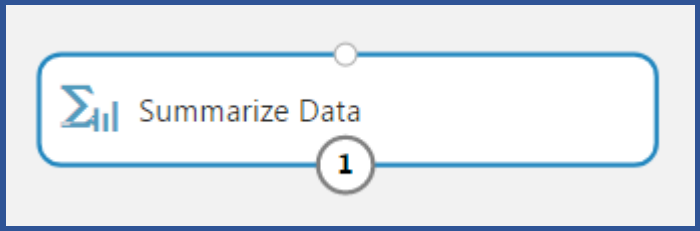
age	workclass	fnlwgt	education	education-num	marital-status	occupation	relationship	race	sex	capital-gain	ca lo
39	State-gov	77516	Bachelors	13	Never-married	Adm-clerical	Not-in-family	White	Male	2174	0
50	Self-emp-not-inc	83311	Bachelors	13	Married-civ-spouse	Exec-managerial	Husband	White	Male	0	0
38	Private	215646	HS-grad	9	Divorced	Handlers-cleaners	Not-in-family	White	Male	0	0
53	Private	234721	11th	7	Married-civ-spouse	Handlers-cleaners	Husband	Black	Male	0	0
28	Private	338409	Bachelors	13	Married-civ-spouse	Prof-specialty	Wife	Black	Female	0	0
37	Private	284582	Masters	14	Married-civ-spouse	Exec-managerial	Wife	White	Female	0	0

R Script add column name

Data Visualization (Azure ML Studio)

- Add Summarize data module
- Link to Execute R Script module





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Data Visualization (Azure ML Studio)

Summarize dataset visualization

Feature	Count	Unique Value Count	Missing Value Count	Min	Max	Mean	Mean Deviation	1st Quartile	Median	3rd Quartile
age	32561	73	1	17	90	38.581647	11.189182	28	37	48
workclass	30725	9	1837							
fnlwgt	32561	21648	1	12285	1484705	189778.366512	77608.21854	117827	178356	237051
education	32561	17	1							
education-num	32561	16	1	1	16	10.080679	1.903048	9	10	12
marital-status	32561	8	1							
occupation	30718	15	1844							
relationship	32561	7	1							
race	32561	6	1							
sex	32561	3	1							

R Script add column name

More Information

Import your training data into Azure Machine Learning Studio from various data sources

https://docs.microsoft.com/en-us/azure/machine-learning/machine-learning-data-science-import-data

This experiment

https://gallery.cortanaintelligence.com/Experiment/R-add-col-name