MET MA 603: SAS Programming and Applications

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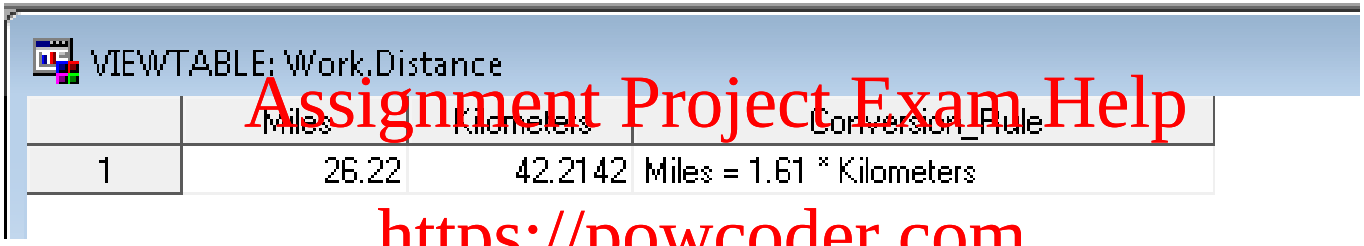
Datasets and Data Types

Datasets

A **dataset** is a structure for storing information.

Example of a dataset:



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A dataset is organized into rows and columns (i.e., tabular data). Each row is called an **observation** and each column is called a **variable**. Each variable must have a name. Observations are identified by number.

Variables can be either of two types: **numeric** or **character**. *An observation can include variables or different types, but all of the observations for a particular variable must be of the same type.*

Data Types

Numeric data can only contain valid combinations of the following characters:

0 1 2 3 4 5 6 7 8 9 + – . E

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Numeric data has a size limit of 8 bytes, which corresponds to maximum number of around $9x10^{15}$ (i.e., 9E15). Missing data is represented by a dot (.)

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There is no restriction on what can be stored as **Character** data. The size limit (>32k) is almost never an issue in practice. Missing data is represented by a blank (note: not a space). Note that character data is case-sensitive.

Generally, only use the numeric type on data for which mathematical operations may be performed. Otherwise, use the character type, which stores data more efficiently.

Dates

Dates are a special case of numeric data.

In the SAS date system, each date is represented by an integer, with 0 corresponding to January 1, 1960.

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Examples of the SAS date system:

January 10, 1960 corresponds to 9.
October 31, 1995 corresponds to 13087.
May 15, 1810 corresponds to -18128.

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Since dates are numeric data, missing values are represented with a dot.

Date data is usually displayed using a date **format** so as to be more intuitive to work with.

Naming Rules

The following rules apply to naming datasets as well as to naming variables:

- Only letters, digits, and underscores may be used.
- Names cannot begin with digits.
- Names cannot be longer than 32 characters.
- Name are not case sensitive.

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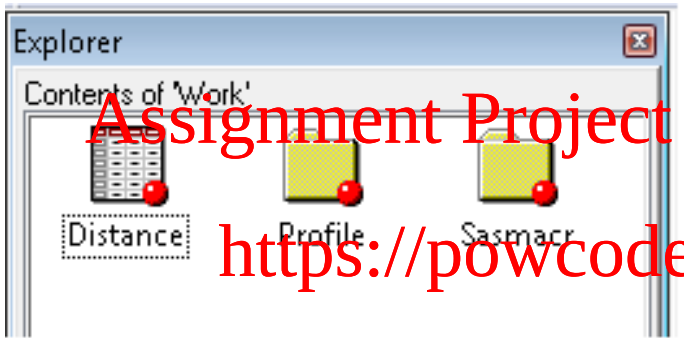
Example of a valid name: MyData_2016_10_11

Example of an invalid name: 2016 10 11.MyData

Dataset Properties

Datasets are listed in the Explorer Window. Double-click a dataset to open it in the Viewtable Window.



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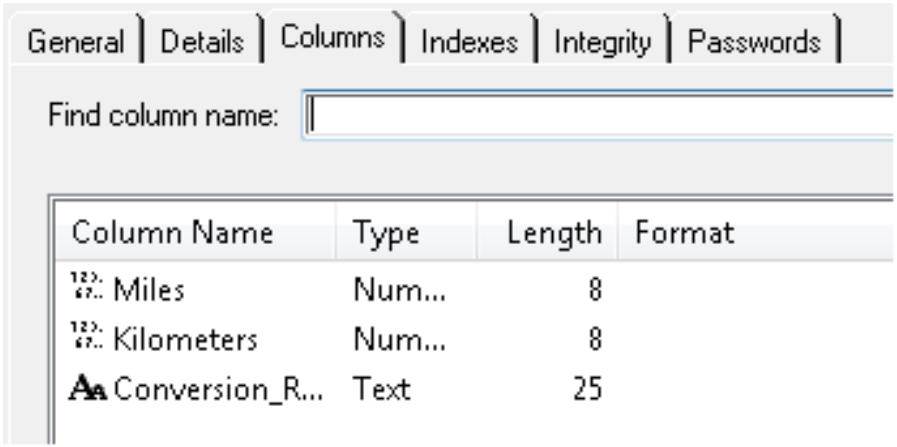
Edit Mode can be used to modify datasets in the Viewtable Window. Right-click a dataset to open Properties Window.



Practice

Of the eight items listed below, identify the ones that could be stored as numeric data:

36105

3.14159

hello

<*blank space*>

1.1E4

ten

.

123…4

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Practice

Of the eight items below, identify the ones that are valid names in SAS:

Losss-2016

losses

Losses_January_01_2016_to_December_31_2016

_2016_Losses

Losses

Losses!

Losses_2016

2016_Losses

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Readings

- Textbook section 1.2, 1.11, 1.12
- http://support.sas.com/documentation/cdl/en/basess/58133/HTML/default/viewer.htm#a001397898.htm

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