STA 311 Statistical Computing & Data Management

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Topics

- Review: Input Styles, OPTIONS, LENGTH, FORMAT/INFORMAT, etc.
- SET statement – Reading existing SAS data sets
- Reading in other format data generated from other applications- WIZARD
- Reading in data from other applications – PROC INPORT.
- Export SAS data set to a CSV file

Three Basic Input Styles: Examples

```
DATA temp;
  input subj 1-4 name $ 6-23 gender 25 height 27-28 weight 30-32;
  CARDS;
1024 Alice Smith         1 65 125
1167 Maryann White       1 68 140
1168 Thomas Jones        2 68 190
1201 Benedictine Arnold 2 68 190
1302 Felicia Ho          1 63 115
  ;
RUN;

PROC PRINT data=temp;
  title 'Output dataset: TEMP';
RUN;
```

Column Input

```
DATA temp;
  input subj name $ gender height weight;
  CARDS;
  1024 Alice 1 65 125
  1167 Maryann 1 68 140
  1168 Thomas 2 68 190
  1201 Benedictine . 68 190
  1302 Felicia 1 63 115
  ;
RUN;

PROC PRINT data=temp NOOBS;
  title 'Output dataset: TEMP';
RUN;
```

List Input

```
DATA temp;
  input @1  subj 4.
        @6  f_name $11.
        @18 l_name $6.
        +3 height 2.
        +5 wt_date mmddyy8.
        +1 calorie comma5.;
  format wt_date mmddyy8. calorie comma5.;
  DATALINES;
1024 Alice       Smith  1 65 125 12/1/95  2,036
1167 Maryann     White  1 68 140 12/01/95 1,800
1168 Thomas      Jones  2    190 12/2/95  2,302
1201 Benedictine Arnold 2 68 190 11/30/95 2,432
1302 Felicia     Ho     1 63 115 1/1/96   1,972
  ;
RUN;

PROC PRINT data = temp;
  title 'Output dataset: TEMP';
  id subj;
RUN;
```

Formatted Input

Formats and Informats of SAS Variables

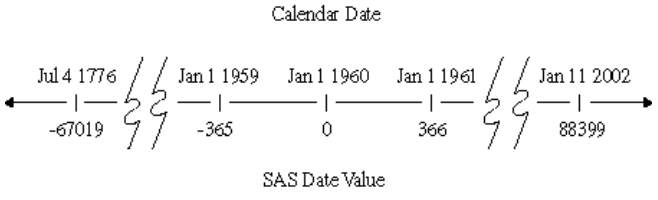
- **Informats** is used to tell SAS how to **read a variable** whereas **Formats** is used to tell SAS how to **display or write values** of a variable.
- **Informats** is basically used when you read or import data from either an external file (Text/Excel/CSV) or read in sample data which was created using CARDS/DATALINES statement. It is also used when you create a new variable in a dataset.
- **Formats** can be used in both Data Steps and PROC Steps *whereas Informat can be used only in Data Steps*.

Setting the Length of a Variable

- **The default length for character and numeric variables is 8 bytes in SAS.**
- **SAS uses exactly one byte for one character! This means that if the value of a character variable has more than 8 characters, SAS only keeps the first 8 characters (including the white space if any) and truncate the rest.**
- However, for a **numeric variable SAS variable, 8 bytes can store a number with up to 16 digits**. In other words, the default length of numeric variable is 16 digits.
- It is important to note that the **minimum length of a numeric is 3 bytes**. It does not mean it cannot store a numeric value lower than 3 digits. It can store values of 1 or 2 digits.
- The **maximum length** of any **character** value in **SAS** is 32,767 bytes!

A First Glance of SAS Dates: Value and Formats

A SAS date is stored as a numerical value - 1/1/1960 00:00:00 as ZERO



A SAS Date has different formats, so does SAS time!

Summary: SAS Data Sets

SAS Data Set - a binary formatted representation of the input data set stored in such a way that future SAS programs do not need to input the data in again.

Temporary SAS Data Sets - created and remain in working memory for the SAS session, but disappear when the SAS session ends. Fine for small to moderate size, simple input programs.

Permanent SAS Data Sets - created in one SAS session but stored on disk for later reuse. Convenient for large or complex input data sets that may require multiple analysis steps. Reduces time and computer resources.

LIBNAME statement - identifies to the SAS program where the previously created SAS data set is located.

Reading in Existing SAS Data Sets

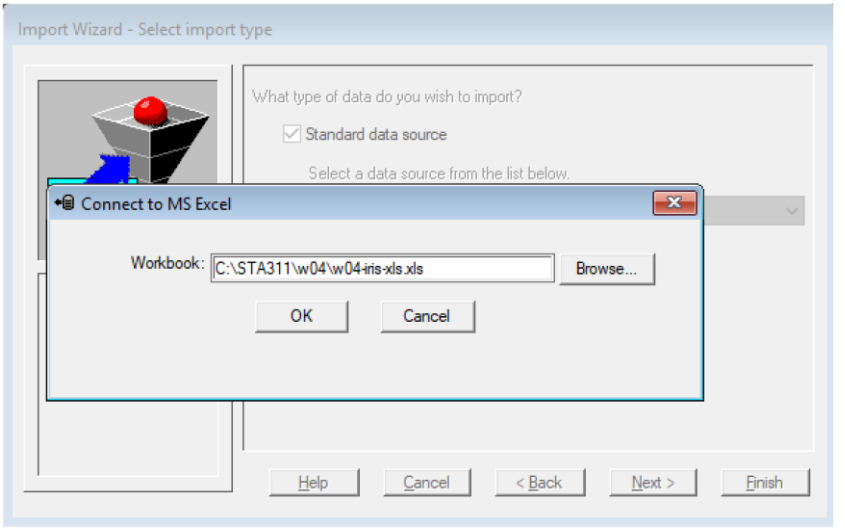
Reading a single existing SAS data set using SET Statement

```
DATA perm.myInDataset;
    SET perm.MyExistingSASDataset;
RUN;
```

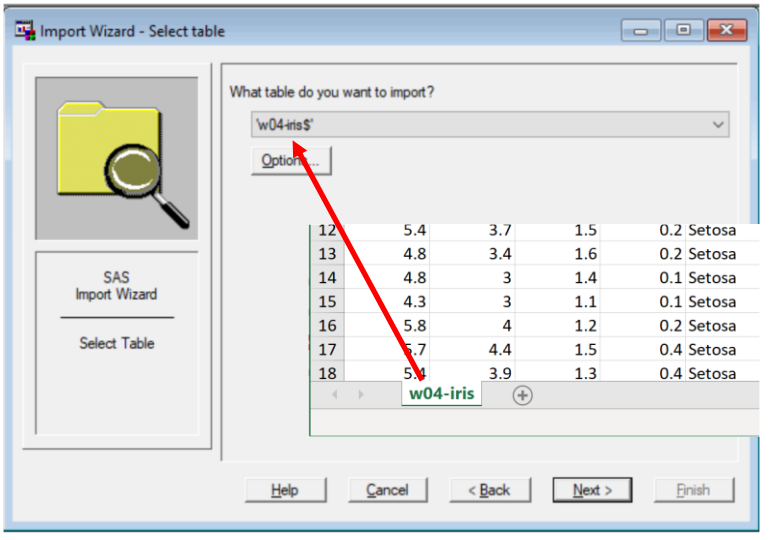
A Comparison between INPUT and SET

- SET reads an observation from an existing SAS data set.
- INPUT reads raw data from an external file (with INFILE statement) or from in-stream data lines (with DATALINES) in order to create SAS variables and observations.

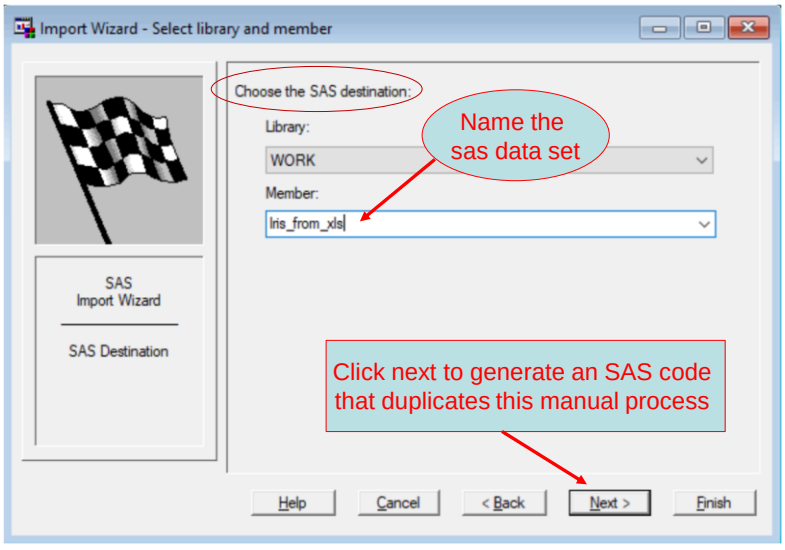
Create SAS Data Sets from Other Applications: Locating the xls File



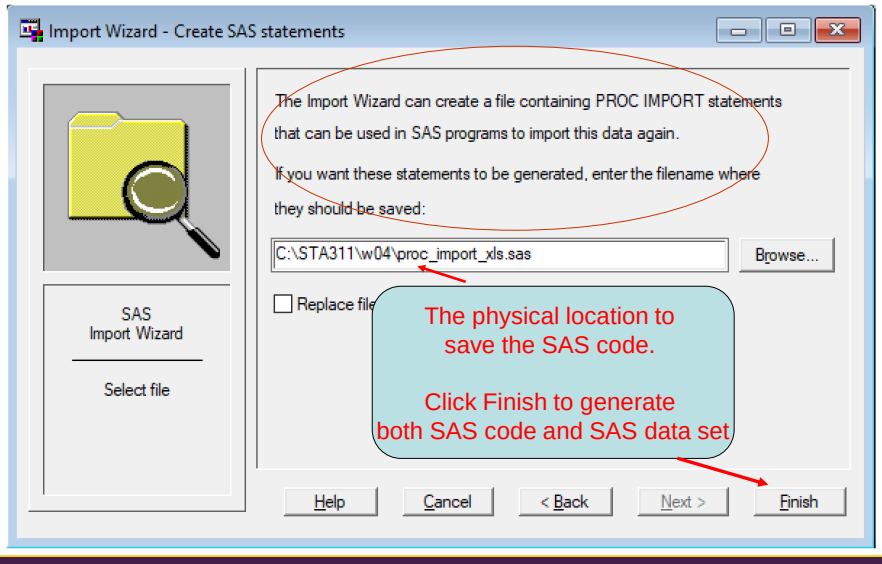
Create SAS Data Sets from Other Applications: Specifying tab in xls File



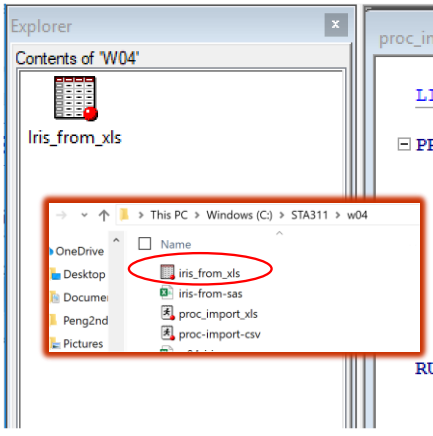
Create SAS Data Sets from Other Applications: Save SAS Data Set



Create SAS Data Sets from Other Applications: Save SAS Data Set



Create SAS Data Sets from Other Applications: Save SAS Data Set



proc_import_xls *

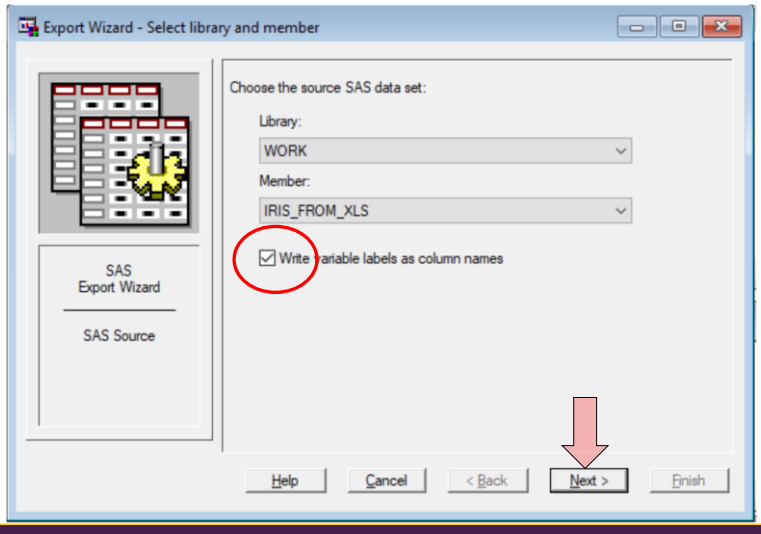
```
LIBNAME w04 "C:\STA311\w04";

PROC IMPORT OUT= w04.IRIS_FROM_XLS
            DATAFILE= "C:\STA311\w04\w04-iris-xls.xls"
            DBMS=EXCEL REPLACE;
     RANGE="'w04-iris$'";
     GETNAMES=YES;
     MIXED=NO;
     SCANTEXT=YES;
     USEDATE=YES;
     SCANTIME=YES;
RUN;
```


SAS Generated PROC IMPORT Code

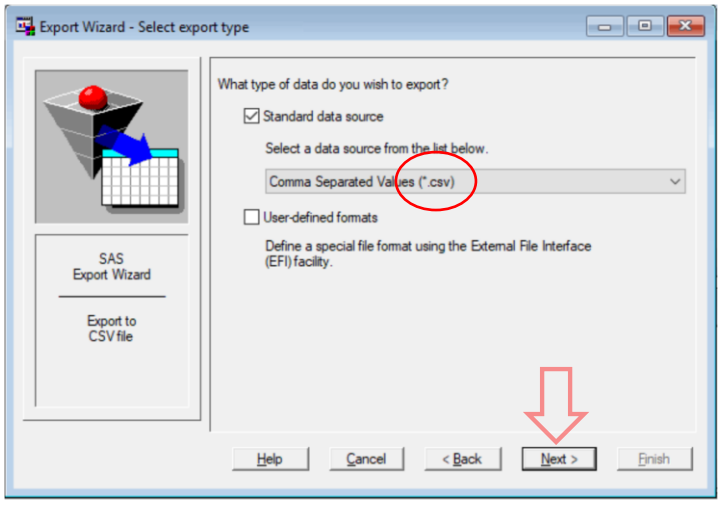
Iris_Import *

```
PROC IMPORT OUT= WORK.iris_xls
            DATAFILE= "C:\STA311\w04-iris-xls.xls"
            DBMS=EXCEL REPLACE;
     RANGE="'w04-iris$'";
     GETNAMES=YES;
     MIXED=NO;
     SCANTEXT=YES;
     USEDATE=YES;
     SCANTIME=YES;
RUN;
```

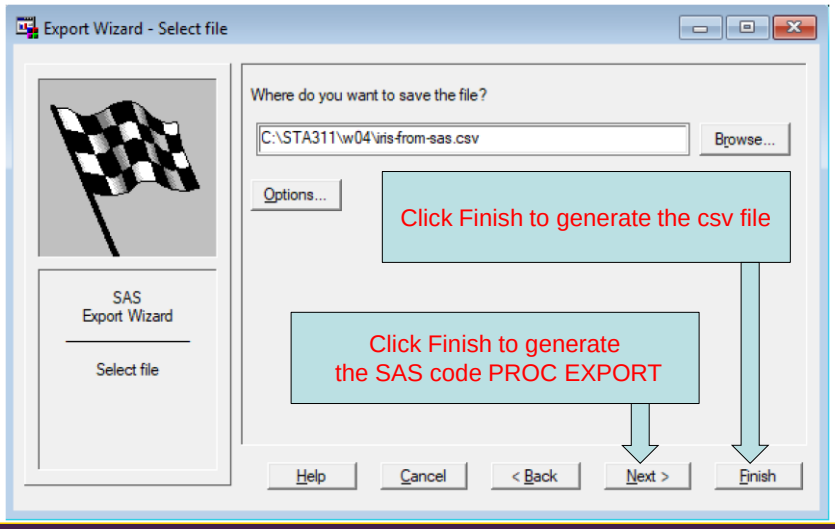
Export SAS Data in CSV File



Export SAS Data in CSV File



Export SAS Data in CSV File



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SAS Generated PROC EXPORT

```
PROC IMPORT OUT= w04.IRIS_FROM_XLS
            DATAFILE= "C:\STA311\w04\w04-iris-xls.xls"
            DBMS=EXCEL REPLACE;
     RANGE="'w04-iris$'";
     GETNAMES=YES;
     MIXED=NO;
     SCANTEXT=YES;
     USEDATE=YES;
     SCANTIME=YES;
RUN;
```


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Input Wizard v.s. PROC IMPORT/EXPORT

If you occasionally load a few data files, there is no difference between input Wizard and PROC IMPORT/EXPORT.

However,

If you work in a data-rich environment in industries such as financial services, healthcare, medicine, transportation, pharmaceutical companies, and some government sectors, you may have to deal with hundreds or thousands of files or streaming data sources. The input/output wizard approach is not a feasible choice. Using PROC IMPORT/EXPORT can automate your manual work!

A Piece of Advice on Output Data

You may not have control over the format of input data. But you have the full control over the output data formats.

Unless you are asked to output data in a specific format, you should always export your SAS data set in CSV format.