Introduction to SAS, Importing a wide range of data formats

Overview

- Space delimited files
- Comma delimited files
- Tab delimited files
- Tilde delimited files
- Fixed width files
- String data
- First line names

Importing choices (1 of 2)

- A wide range of formats
  - Space delimited
  - Comma separated values
  - Tab delimited
  - Fixed format
- Strings in your input

Importing choices (2 of 2)

- proc import
  - First row includes variable names
  - Binary data files
- Manual reformatting
  - Global search and replace
  - Not usually a good idea
- Skipping rows
- Converting strings to numbers

Space delimited, example

```
4 8 40
8 16 80
12 24 120
16 32 160
24 48 240
```

Space delimited, SAS code (1/3)

```
* 5507-03-simon-import-space-delimited.sas
* author: Steve Simon
* creation date: 2019-07-01
* purpose: to import data with spaces as
delimiters
* license: public domain;
```

Space delimited, SAS code (2/3)

```
%let path=q:/introduction-to-sas;

ods pdf file=
    "&path/results/5507-03-simon-import-space-
delimited.pdf";

libname perm
    "&path/data";

filename raw_data
    "&path/data/space-delimited.txt";
```

Space delimited, SAS code (3/3)

```
data perm.space_delimited;
  infile raw_data;
  input x y z;
run;

proc print
    data=perm.space_delimited(obs=2);
  title1 "First two rows of data";
run;

ods pdf close;
```

Break #1

- What have you learned
  - Space delimited files
- What's next
  - Comma delimited files

Comma delimited, example

```
4,8,40
8,16,80
12,24,120
16,32,160
24,48,240
```

Comma delimited, SAS code (1/3)

```
* 5507-03-simon-import-comma-delimited.sas
* author: Steve Simon
* creation date: 2019-07-01
* purpose: to import comma delimited files
* license: public domain;
```

Comma delimited, SAS code (2/3)

```
%let path=q:/introduction-to-sas;

ods pdf file=
    "&path/results/5507-03-simon-import-comma-
delimited.pdf";

libname perm
    "&path/data";

filename raw_data
    "&path/data/comma-delimited.csv";

options papersize=(8in 4in) nonumber nodate;
```

Comma delimited, SAS code (3/3)

```
data perm.comma_delimited;
  infile raw_data delimiter=",";
  input x y z;
run;

proc print
    data=perm.comma_delimited(obs=2);
  title1 "First two rows of data";
run;
ods pdf close;
```

Break #2

- What have you learned
  - Comma delimited files
- What's next
  - Tab delimited files

Tab delimited, example

```
4   8   40
8   16  80
12  24  120
16  32  160
24  48  240
```

Tab delimited, SAS code (1/3)

```
* 5507-03-simon-import-tab-delimited.sas
* author: Steve Simon
* creation date: 2019-07-01
* purpose: to import a comma delimited file into
SAS
* license: public domain;
```

Tab delimited, SAS code (2/3)

```
%let path=q:/introduction-to-sas;

ods pdf file=
    "&path/results/5507-03-simon-import-tab-
delimited.pdf";

libname perm
    "&path/data";

filename raw_data
  "&path/data/tab-delimited.txt";
```

Tab delimited, SAS code (3/3)

```
data perm.tab_delimited;
  infile raw_data delimiter="09"X;
  input x y z;
run;

proc print
    data=perm.tab_delimited(obs=2);
  title1 "First two rows of data";
run;

ods pdf close;
```

Break #3

- What have you learned
  - Tab delimited files
- What's next
  - Tilde delimited files

Tilde delimited, example

```
4~8~40
8~16~80
12~24~120
16~32~160
24~48~240
```

Tilde delimited, SAS code (1/3)

```
* 5507-03-simon-import-tilde-delimited.sas
* author: Steve Simon
* creation date: 2019-07-01
* purpose: to import comma delimited files
* license: public domain;
```

Tilde delimited, SAS code (2/3)

```
%let path=q:/introduction-to-sas;

ods pdf file=
  "&path/results/5507-03-simon-import-tilde-
delimited.pdf";

libname module01
  "&path/data";

filename raw_data
  "&path/data/tilde-delimited.txt";

options papersize=(8in 4in) nonumber nodate;
```

Tilde delimited, SAS code (3/3)

```
data module01.tilde_delimited;
  infile raw_data delimiter="~";
  input x y z;
run;

proc print
    data=module01.tilde_delimited(obs=2);
  title1 "First two rows of data";
run;

ods pdf close;
```

Break #4

- What have you learned
  - Tilde delimited files
- What's next
  - Fixed width files

Fixed width, example

```
 4 8 40
 816 80
1224120
1632160
2448240
```

Fixed width, SAS code (1/3)

```
* 5507-03-simon-import-fixed-width.sas
* author: Steve Simon
* creation date: 2019-07-01
* purpose: to import data in a fixed width format
* license: public domain;
```

Fixed width, SAS code (2/3)

```
%let path=q:/introduction-to-sas;

ods pdf file=
    "&path/results/5507-03-simon-import-fixed-
width.pdf";

libname perm
    "&path/data";

filename raw_data
    "&path/data/fixed-width.txt";

options papersize=(8in 4in) nonumber nodate;
```

Fixed width, SAS code (3/3)

```
data perm.fixed_width;
  infile raw_data delimiter=",";
  input
    x 1-2
    y 3-4
    z 5-7;
run;

proc print
    data=perm.fixed_width(obs=2);
  title1 "First two rows of data";
run;

ods pdf close;
```

Break #5

- What have you learned
  - Fixed width files
- What's next
  - String data

String data, example

```
Alpha 4 8
Bravo 8 16
Charlie 12 24
Delta 16 32
Echo 24 48
```

String data, SAS code (1/3)

```
* 5507-03-simon-import-string-data.sas
* author: Steve Simon
* creation date: 2019-07-02
* purpose: to import data that includes a string
* license: public domain;
```

String data, SAS code (2/3)

```
%let path=q:/introduction-to-sas;

ods pdf file=
    "&path/results/5507-03-simon-import-string-
data.pdf";

libname perm
    "&path/data";

filename raw_data
    "&path/data/string-data.txt";

options papersize=(8in 4in) nonumber nodate;
```

String data, SAS code (3/3)

```
data perm.string_data;
  infile raw_data delimiter=" ";
  input
    name $
    x
    y;
run;

proc print
    data=perm.string_data(obs=2);
  title1 "First two rows of data";
run;

ods pdf close;
```

Complications with string data

- Strings longer than eight characters
  - Informat statement
- Strings with delimiters
  - Use different delimiter
  - Enclose sting in quotes
- Strings with quotes
  - Use double quotes around string with single quote
    - “It’s my bidthday!”
  - Use single quotes around string with double quote
    - ‘Smile and say “Cheese!” when I take this picture’
  - Use escape codes

Break #6

- What have you learned
  - String data
- What's next
  - First line names

First line names, example

```
name,x,y
Alpha,4,8
Bravo,8,16
Charlie,12,24
Delta,16,32
Echo,24,48
```

First line names, SAS code (1/3)

```
* 5507-03-simon-import-first-line-names.sas
* author: Steve Simon
* creation date: 2019-07-02
* purpose: to import data with variable names on
the first line
* license: public domain;
```

First line names, SAS code (2/3)

```
%let path=q:/introduction-to-sas;

ods pdf file=
    "&path/results/5507-03-simon-import-first-
line-names.pdf";

libname perm
    "&path/data";

filename raw_data
    "&path/data/first-line-names.csv";
```

First line names, SAS code (3/3)

```
proc import
    datafile=raw_data dbms=dlm
    out=perm.first_line_names replace;
  delimiter=",";
  getnames=yes;
run;

proc print
    data=perm.first_line_names(obs=2);
  title1 "First two rows of data";
run;

ods pdf close;
```

Summary

- What have you learned
  - Space delimited files
  - Comma delimited files
  - Tab delimited files
  - Tilde delimited files
  - Fixed width files
  - String data
  - First line names