

```

*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
*** c02s2d1.sas ***;
dm "output;clear;log;clear";
data work.staff;
  infile 'C:\_SASCourse2006\Course1\Sas_Data\emplist.dat';
  input LastName $ 1-20 FirstName $ 21-30
         JobTitle $ 36-43 Salary 54-59;
run;

proc print data=work.staff;
run;

proc means data=work.staff;
  class Jobtitle;
  var Salary;
run;

proc contents data=work.staff;
run;

*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
*** c02s2d3.sas ***;
dm "output;clear;log;clear";

/* Create work.staff data set */
data work.staff;
  infile 'C:\_SASCourse2006\Course1\Sas_Data\emplist.dat';
  input LastName $ 1-20 FirstName $ 21-30
         JobTitle $ 36-43 Salary 54-59;
run;

/* Produce listing report of work.staff */
proc print data=work.staff;
run;

* An alternative form of comment statement can be
  created by starting a SAS statement with an
  asterisk, entering the comment, and ending the
  comment with a semicolon;

*****;
*** I often start my programs with a box      ***;
*** that describes the program and references ***;
*** sources where appropriate.                ***;
*****;

* Everything between a leading asterisk and a semicolon is a comment;

```

```
*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
*** c02s4d1.sas ***;
dm "output;clear;log;clear";
daat work.staff;
  infile 'C:\_SASCourse2006\Course1\Sas_Data\emplist.dat';
  input LastName $ 1-20 FirstName $ 21-30
         JobTitle $ 36-43 Salary 54-59;
run;

proc print data=work.staff
run;

proc means data=work.staff average max;
  class JobTitle;
  var Salary;
run;

*** c02s4d2.sas ***;

proc means data=work.staff mean max;
  class JobTitle;
  var Salary;
run;

*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
*** c03s1d1.sas ***;
dm "output;clear;log;clear";

*** Creating a library ***;
libname IA 'C:\_SasCourse2006\Course1\SAS_Data\IA';
data IA.empdata;
  infile 'C:\_SasCourse2006\Course1\SAS_Data\emplist.dat';
  input LastName $ 1-20 FirstName $ 21-30
         JobTitle $ 36-43 Salary 54-59;
run;

*** Examining the contents of a library ***;
proc contents data=ia._all_ nods;
run;

proc contents data=ia.empdata;
run;
```

```

*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
*** c04s1d1.sas ***;
dm "output;clear;log;clear";

*** Creating a library ***;
libname IA 'C:\_SasCourse2006\Course1\SAS_Data\IA';
data IA.empdata2;
  infile 'C:\_SasCourse2006\Course1\SAS_Data\employe2.dat';
  input EmpID $ 1-4 LastName $ 5-17 FirstName $ 18-30
        JobTitle $ 31-35 JobLevel 36 Salary 37-45;
run;

proc print data=ia.empdata2;
run;
proc print data=ia.empdata2;
  var JobTitle FirstName LastName Salary;
run;
proc print data=ia.empdata2 noobs;
  var JobTitle FirstName LastName Salary;
run;
proc print data=ia.empdata2 noobs;
  var JobTitle FirstName LastName Salary;
  where JobTitle='PILOT';
run;
proc print data=ia.empdata2 noobs;
  var JobTitle EmpID Salary;
  sum Salary;
run;

*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
*** c05s2d1.sas ***;
dm "output;clear;log;clear";

Libname ia "C:\_SasCourse2006\Course1\SAS_Data";

*** Original print instruction ***;
proc print data=ia.empdata split=' ';
  label LastName='Last Name'
        FirstName='First Name'
        Salary='Annual Salary';
  title1 'Salary Report';
run;

*** Print instruction with formatted salary ***;
proc print data=ia.empdata split=' ';
  label LastName='Last Name'
        FirstName='First Name'
        Salary='Annual Salary';
  format Salary dollar11.2;
  title1 'Salary Report';
run;

```

```

*** Print instruction with user defined formats ***;
proc format;
  value $codefmt
    'FLTAT'='Flight Attendant'
    'PILOT'='Pilot';
  value money low-<25000 ='Less than 25,000'
              25000-50000='25,000 to 50,000'
              50000<-high='More than 50,000';
run;

proc print data=ia.empdata split=' ' noobs;
  label LastName='Last Name'
         FirstName='First Name'
         Salary='Annual Salary';
  format Salary money. Jobcode $codefmt.;
  title1 'Salary Report in Categories';
run;

*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
*** c05s3d1.sas ***;
dm "output;clear;log;clear";

Libname ia "c:\_SasCourse2006\Course1\SAS_Data";

proc format;
  value $codefmt
    'FLTAT'='Flight Attendant'
    'PILOT'='Pilot';
  value money low-<25000 ='Less than 25,000'
              25000-50000='25,000 to 50,000'
              50000<-high='More than 50,000';
run;

*** Creating a HTML document (default) ***;
ods html file='C:\_SasCourse2006\Course1\SAS_Data\c05s3d1.html';

proc print data=ia.empdata label noobs;
  label Salary='Annual Salary';
  format Salary money. Jobcode $codefmt.;
  title1 'Salary Report';
run;

ods html close;

```

```

*** Creating a HTML document (minimal) ***;
ODS HTML style=minimal
file='C:\_SasCourse2006\Course1\SAS_Data\c05s3d1b.html';

proc print data=ia.empdata label noobs;
  label Salary='Annual Salary';
  format Salary money. Jobcode $codefmt.;
  title1 'Salary Report';
  title2 'HTML listing with simplified formatting';
run;

ods html close;

*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
** c06s1d1.sas ***;
dm "output;clear;log;clear";
options ps=256 ls=100 nocenter nodate nonumber nolabel;

*---+---1---+---2---+---3---+---4---+---5;
/* Raw data
43912/11/00LAX 20137
92112/11/00DFW 20131
11412/12/00LAX 15170
98212/12/00dfw 5 85
43912/13/00LAX 14196
98212/13/00DFW 15116
43112/14/00LaX 17166
98212/14/00DFW 7 88
11412/15/00LAX 187
98212/15/00DFW 14 31
*/

*** Original read - into SAS work library by default ***;
data dfwlax;
  infile 'C:\_SasCourse2006\Course1\SAS_Data\dfwlax.dat';
  input Flight $ 1-3 Date $ 4-11
        Dest $ 12-14 FirstClass 15-17
        Economy 18-20;
run;

proc print data=dfwlax;
  Title1 'Print from work directory';
run;

```

```

*** Data step creating a permanent SAS data set ***;
Libname ia "C:\_SasCourse2006\Course1\SAS_Data\IA";

data ia.dfwlax;
  infile 'C:\_SasCourse2006\Course1\SAS_Data\dfwlax.dat';
  input Flight $ 1-3 Date $ 4-11
        Dest $ 12-14 FirstClass 15-17
        Economy 18-20;
run;
proc print data=ia.dfwlax;
  Title1 'Print from permanent directory';
run;

*----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+----;
** c06s2d1.sas ***;
dm "output;clear;log;clear";
options ps=256 ls=100 nocenter nodate nonumber nolabel;

*----+-----1-----+-----2-----+-----3-----+-----4;
/* Raw data
43912/11/00LAX 20137
92112/11/00DFW 20131
11412/12/00LAX 15170
98212/12/00dfw  5 85
43912/13/00LAX 14196
98212/13/00DFW 15116
43112/14/00LaX 17166
98212/14/00DFW  7 88
11412/15/00LAX  187
98212/15/00DFW 14 31
*/

*** Read into SAS work library with formatted date ***;
dm "output;clear;log;clear";

data work.dfwlax;
  infile 'C:\_SasCourse2006\Course1\SAS_Data\dfwlax.dat';
  input @1 Flight $3. @4 Date mmddyy8.
        @12 Dest $3. @15 FirstClass 3.
        @18 Economy 3.;
run;

proc print data=work.dfwlax;
  Title1 'Print from work directory with unformatted date output';
run;

** c06s2d2.sas ***;
proc print data=work.dfwlax;
  Title1 'Print from work directory with formatted date output';
  format Date date9.;
run;

```

```

*---+----1-----2-----3-----4-----5-----6-----+----;
** c06s3d1.sas ***;
dm "output;clear;log;clear";
options ps=256 ls=100 nocenter nodate nonumber nolabel;

*---+----1-----2-----3-----4-----+----5;
/* Raw data
0031GOLDENBERG      DESIREE           PILOT1 50221.62
0040WILLIAMS        ARLENE M.         FLTAT1 23666.12
0071PERRY           ROBERT A.         FLTAT1 21957.71
0082MCGWIER-WATTS  CHRISTINA         PILOT3 96387.39
0091SCOTT           HARVEY F.         FLTAT2 32278.40
0106THACKER        DAVID S.          FLTAT1 24161.14
0275GRAHAM          DEBORAH S.        FLTAT2 32024.93
0286DREWRY          SUSAN             PILOT1 55377.00
0309HORTON          THOMAS L.         FLTAT1 23705.12
0334DOWN            EDWARD           PILOT1 56584.87
0347CHERVENY        BRENDA B.         FLTAT2 38563.45
0355BELL            THOMAS B.         PILOT1 59803.16
0366GLENN           MARTHA S.         PILOT3120202.38
0730BELL            CARLA            PILOT1 37397.93
0739SAYRE           MARCO            PILOT1 59268.61
*/

Libname ia "C:\_SasCourse2006\Course1\SAS_Data\ia";
data work.empdata2;
  infile 'C:\_SasCourse2006\Course1\SAS_Data\employe2.dat';
  input EmpID $ 1-4 LastName $ 5-17 FirstName $ 18-30
        JobCode $ 31-36 Salary 37-45;
run;

proc print data=work.empdata2;
  Title1 'Listing of employee data';
run;

** c06s3d2.sas ***;
data work.empdata2;
  infile 'C:\_SasCourse2006\Course1\SAS_Data\employe2.dat';
  input EmpID $ 1-4 LastName $ 5-17 FirstName $ 18-30
        JobCode 31-36 Salary 37-45;
run;

proc print data=work.empdata2;
  Title1 'Listing of employee data with missing data. Why?';
run;

```

```
*-----1-----2-----3-----4-----5-----6-----+----;
*** c06s4d1.sas ***;
dm "output;clear;log;clear";

/* Raw data
43912/11/00LAX 20137
92112/11/00DFW 20131
11412/12/00LAX 15170
98212/12/00dfw  5 85
43912/13/00LAX 14196
98212/13/00DFW 15116
43112/14/00LaX 17166
98212/14/00DFW  7 88
11412/15/00LAX  187
98212/15/00DFW 14 31
*/

Libname ia "C:\_SasCourse2006\Course1\SAS_Data\IA";

data ia.dfwlax;
  infile 'C:\_SasCourse2006\Course1\SAS_Data\dfwlax.dat';
  input @1 Flight $3. @4 Date mmddyy8.
        @12 Dest $3. @15 FirstClass 3.
        @18 Economy 3.;
run;

proc contents data=ia.dfwlax;
  TITLE1 'Basic dataset';
run;

proc print data=ia.dfwlax label;
  TITLE1 'Data listing with formatted datasets';
  format Date mmddyy10.;
  label Dest='Destination'
        FirstClass='First Class Passengers'
        Economy='Economy Passengers';
run;

data ia.dfwlax;
  infile 'C:\_SasCourse2006\Course1\SAS_Data\dfwlax.dat';
  input @1 Flight $3. @4 Date mmddyy8.
        @12 Dest $3. @15 FirstClass 3.
        @18 Economy 3.;
  format Date mmddyy10.;
  label Dest='Destination'
        FirstClass='First Class Passengers'
        Economy='Economy Passengers';
run;
```



```
proc contents data=ia.dfwlax;
  TITLE1 'Contents of dataset with formatting and labeling done in
the DATA step';
run;

proc print data=ia.dfwlax label;
  TITLE1 'Listing of dataset with formatting and labeling done in
the DATA step';
run;

proc print data=ia.dfwlax label;
  TITLE1 'Listing of dataset with formatting and labeling done in
the DATA step';
  TITLE2 'Note that date format is altered in the print statement';
  format Date date9.;
run;

*** c06s4d2.sas ***;
*** Generating a new dataset with formatting and labels included ***;
data ia.dfwlax;
  infile 'dfwlax.dat'; *PC and Unix;
  *infile '.progl.rawdata(dfwlax)'; *TSO;
  input @1 Flight $3. @4 Date mmddyy8.
        @12 Dest $3. @15 FirstClass 3.
        @18 Economy 3.;
  format Date mmddyy10.;
  label Dest='Destination'
        FirstClass='First Class Passengers'
        Economy='Economy Passengers';
run;

proc contents data=ia.dfwlax;
  TITLE1 'Contents of dataset with formatting and labeling done in
the DATA step';
run;

proc print data=ia.dfwlax label;
  TITLE1 'Listing of dataset';
run;

*** c06s4d2.sas ***;
proc print data=ia.dfwlax label;
  TITLE1 'Listing of dataset with altered date format';
  format Date date9.;
run;
```

```

*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
*** c06s5d1.sas ***;
dm "output;clear;log;clear";

Libname ia "C:\_SasCourse2006\Course1\SAS_Data\IA";

proc contents data=ia.dfwlax;
run;

proc datasets library=ia;
  modify dfwlax;
  rename Dest=Destination;
run;

proc contents data=ia.dfwlax;
run;

/* Restoring variable name to support subsequent examples
   that assume the original name */
proc datasets library=ia;
  modify dfwlax;
  rename Destination=Dest;
run;

*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
*** C06S6D1 ***;
dm "output;clear;log;clear";

Libname ia "C:\_SasCourse2006\Course1\SAS_Data\IA";

proc print data=work.dfwlax;
run;

PROC IMPORT OUT= WORK.DFWLAX
  DATAFILE = 'C:\_SasCourse2006\Course1\SAS_Data\DallasLA.xls'
  DBMS=EXCEL2000 REPLACE;
  MIXED=YES;
RUN;
PROC IMPORT OUT= WORK.DFWLAX
  DATAFILE = 'C:\_SasCourse2006\Course1\SAS_Data\DallasLA.txt'
  DBMS=TAB REPLACE;
RUN;

libname xlsdata 'C:\_SasCourse2006\Course1\SAS_Data\DallasLA.xls';
proc print data=xlsdata.dfwlax;
run;

```

```

*---+---1---+---2---+---3---+---4---+---5---+---6---+---;

*** C06S6D1 ***;
dm "output;clear;log;clear";

Libname ia "C:\_SasCourse2006\Course1\SAS_Data\IA";
proc print data=work.dfwlax;
  Title1 'Database does not exist';
run;

*** C06S6D2 ***;
/* raw data
Flight   Date     Dest     FirstClass  Economy
439      12/11/00 LAX      20          137
921      12/11/00 DFW      20          131
114      12/12/00 LAX      15          170
982      12/12/00 dfw      5           85
439      12/13/00 LAX      14          196
982      12/13/00 DFW      15          116
431      12/14/00 LaX     17          166
982      12/14/00 DFW      7           88
114      12/15/00 LAX      18          187
982      12/15/00 DFW      14          31
*/

PROC IMPORT OUT= WORK.DFWLAX
  DATAFILE = 'C:\_SasCourse2006\Course1\SAS_Data\DallasLA.xls'
  DBMS=EXCEL2000 REPLACE;
MIXED=YES;
RUN;

proc print data=work.dfwlax;
  Title1 'Listing of data created from EXCEL database';
run;

*** C06S6D3 ***;
PROC IMPORT OUT= WORK.DFWLAX
  DATAFILE = 'C:\_SasCourse2006\Course1\SAS_Data\DallasLA.txt'
  DBMS=TAB REPLACE;
RUN;

proc print data=work.dfwlax;
  Title1 'Listing of data created from tab separated text file';
run;

```

```
*** C06S6D4 ***;
```

```
/* raw data
```

Flight	Date	Dest	FirstClass	Economy
439	12/11/2000	LAX	20	137
921	12/11/2000	DFW	20	131
114	12/12/2000	LAX	15	170
982	12/12/2000	dfw	5	85
439	12/13/2000	LAX	14	196
982	12/13/2000	DFW	15	116
431	12/14/2000	LaX	17	166
982	12/14/2000	DFW	7	88
114	12/15/2000	LAX		187
982	12/15/2000	DFW	14	31

```
*/
```

```
libname xlsdata 'C:\_SasCourse2006\Course1\SAS_Data\DallasLA.xls';
```

```
proc print data=xlsdata.dfwlax;
```

```
    Title1 'Listing of data created from tab separated text file';
```

```
run;
```

```
*** C06S6D- ***;
```

```
/* raw data
```

Flight	Date	Dest	FirstClass	Economy
439	12/11/00	LAX	20	137
921	12/11/00	DFW	20	131
114	12/12/00	LAX	15	170
982	12/12/00	dfw	5	85
439	12/13/00	LAX	14	196
982	12/13/00	DFW	15	116
431	12/14/00	LaX	17	166
982	12/14/00	DFW	7	88
114	12/15/00	LAX		187
982	12/15/00	DFW	14	31

```
*/
```

```
PROC IMPORT OUT= WORK.DFWLAX
```

```
    DATAFILE = 'C:\_SasCourse2006\Course1\SAS_Data\DallasLA.csv'
```

```
    DBMS=CSV REPLACE;
```

```
RUN;
```

```
proc print data=work.dfwlax;
```

```
    Title1 'Listing of data created from tab separated text file';
```

```
run;
```

```
*---+---1---+---2---+---3---+---4---+---5---+---6---+---;
*** c07s1d1.sas ***;
dm "output;clear;log;clear";

Libname ia "C:\_SasCourse2006\Course1\SAS_Data";

** c06s2d1.sas ***;
*** create the permanent SAS dataset DFWLAX ***;
data IA.dfwlax;
  infile 'C:\_SasCourse2006\Course1\SAS_Data\dfwlax.dat';
  input @1 Flight $3. @4 Date mmddyy8.
        @12 Dest $3. @15 FirstClass 3.
        @18 Economy 3.;
run;

proc print data=IA.dfwlax;
  format Date date9.;
run;

*** create the temporary SAS dataset ONBOARD ***;
data onboard;
  set ia.dfwlax;
  Total=FirstClass+Economy;
run;

proc print data=onboard;
  format Date date9.;
run;

** c07s1d2.sas ***;
data onboard;
  set ia.dfwlax;
  Total=sum(FirstClass,Economy);
run;

proc print data=onboard;
  format Date date9.;
run;

** c07s1d3.sas ***;
data onboard;
  set ia.dfwlax;
  Total=FirstClass+Economy;
  DayOfWeek=weekday(Date);
run;

proc print data=onboard;
  var Flight Dest Total DayOfWeek Date;
  format Date weekdate.;
run;
```

```
** c07s1d4.sas ***;
```

```
data onboard;  
  set ia.dfwlax;  
  drop FirstClass Economy;  
  Total=FirstClass+Economy;  
run;
```

```
proc print data=onboard;  
  format Date date9. ;  
run;
```

```
*----+-----1-----+-----2-----+-----3-----+-----4-----+-----5-----+-----6-----+-----;
```