

# SAS



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## Chapter 1

SAS Language and Datasets

Two parts of SAS program

DATA steps built-in loop

Choosing a mode for submitting SAS programs

Windows and commands in SAS windowing Environment

Submitting a program in SAS windowing Environment

Reading the SAS log

Viewing your results in output window

Creating HTML output

SAS data libraries

Viewing dataset with SAS explorer

Using SAS system options

## 2 Getting your data into SAS

Methods for getting data into SAS

Entering data with the view table window

Reading files with the import wizard

Telling SAS where to find your Raw data

Reading raw data separated by spaces

Reading raw data arranged in columns

Reading Raw data Not in Standard format

Selected Informants

Mixing input styles

Reading messy Raw data

Reading multiple line of raw data per  
observation

Reading multiple observations per line of  
raw data

Reading part of a Raw data file



Controlling input with options in the INFILE Statement  
Reading delimited files with the data step  
Reading delimited files with the IMPORT procedure  
Reading PC files with the IMPORT procedure  
Reading PC files with DDE  
Temporary versus Permanent SAS datasets  
Using permanent SAS datasets with LIBNAME statements  
Using permanent SAS datasets by direct referencing  
Listing the contents of a SAS dataset

### 3 Working with your Data

Creating and redefining variables  
Using SAS functions  
Selected SAS functions  
Using IF-THEN statements  
Grouping Statements with IF-THEN/ ELSE statements  
Subsetting your data  
Working with SAS dates  
Selected Data informats, function and formats  
Using the retain and SUM statements  
Simplifying programs with arrays  
Using shortcuts for list of variable names



## 4 Sorting, Printing, and summarising your data

Using SAS procedures

Sub-setting in procedures with the **WHERE** statements

Sort data with **PROC SORT**

Print data with **PROC print**

Change the appearance of printed values with formats

Selected standard formats

Create own formats using **PROC formats**

Writing simple custom reports

Summarising data with **PROC means**

Write summary statistics to a **SAS** dataset

Counting data with **PROC FREQ**

Producing tabular reports with **PROC tabulate**

Adding statistic to a **PROC tabulate** output

Enhancing the appearance **PROC tabulate** output

Changing headers in **PROC tabulate** output

Specifying multiple formats for data cells in **PROC tabulate** output

Producing simple output with **PROC report**

Using **DEFINE** statements in **PROC report**

Creating summary reports with **PROC report**

Adding summary breaks to **PROC report** output

Adding statistics to **PROC report** output.



## 5 Enhancing output with ODS

- Concepts of output delivery system
- Tracing and selecting procedure output
- Creating SAS dataset from procedure output
- Using ODS statements to create HTML output
- Using ODS statements to create RTF output
- Using ODS statements to create PRINTER output
- Customizing titles and footnotes
- Customizing PROC print output with the style = option
- Customizing PROC report output with the style = option
- Customizing PROC tabulate output with the style = option
- Adding traffic-lighting to your output
- Selected style attributes

## 6 Modifying and Combining SAS data sets

- Modifying a data set using the SET statement
- Stacking data sets using SET statement
- Interleaving data sets using the SET statement
- Combining data sets using a one-to-one match merge
- Combining data sets using a one-to-many match merge
- Merging summary statistics with the original data
- Combining a grand total with the original data
- Updating a master data set with  
    transections
- Using SAS data set options
- Tracking and selecting observations with  
    the IN= option



Writing multiple data sets using the output statement  
Making several observations from one using the  
    **OUTPUT** statement  
Changing observations to variables using **PROC**  
    **TRANPOSE**  
Using **SAS** automatic variables

## 7 Writing flexible codes with the SAS macro facility

Macro concepts  
Substituting text with macro variables  
Creating modular code with Macros  
Adding parameters to Macros  
Writing Macros with conditional logic  
Writing data-driven programs with **CALL SYMPUT**  
Debugging Macro errors

## 8 Using basic Statistical procedures

Examining the distribution of data with **PROC**  
    **UNIVERIATE**  
Producing statistic with **PROC MEANS**  
Testing categorical data with **PROC FREQ**  
Examining correlation with **PROC CORR**  
Using **PROC REG** for simple regression  
    Analysis  
Reading the output of **PROC REG**  
Using **PROC ANOVA** for One-Way  
    analysis of variance



## Reading the output of PROC ANOVA

### Graphical interfaces for statistical analysis

## 9 Exporting your data

- Methods for exporting your data
- Writing files using the export wizard
- Writing delimited files with the export procedure
- Writing PC files with the export procedure
- Writing RAW data files with the data step
- Writing delimited and HTML files using ODS
- Sharing SAS data sets with other types of computers

## 10 Debugging SAS programs

- Writing SAS program that work
- Fixing program that don't work
- Searching for the missing semicolon
- Note: INPUT statement reached past the end of the line
- Note: lost card
- Note: invalid data
- Note: missing values were generated
- Note: Numeric values have been  
converted to character (or vice-versa)
- DATA step produces wrong results  
but no error message.

