3SBC

3S Business Corporation

SAS

BASE AND ADVANCED

TRAINING

COURSE CONTENT

Basic Concepts

- § Overview
- § SAS Programs
- § SAS Libraries
- § Referencing SAS Files
- § SAS Data Sets
- § Variable Attributes
- § Practice

Referencing Files and Setting Options

- § Overview
- § Referencing Files
- § Viewing the Contents of SAS Libraries
- § Setting SAS System Options
- § Viewing System Options
- § Additional System Options
- § Practice

Editing and Debugging SAS Programs

- § Overview
- § SAS Program Layout
- § Interpreting Error Messages
- § Correcting Errors
- § Resolving Common Problems
- § Additional Features
- § Practice

Creating List Reports

- § Overview
- § Types of Reports
- § Creating a Basic Report
- § Identifying Observations
- § Selecting Observations
- § Sorting Data
- § Generating Column Totals
- § Double-Spacing Listing Output
- § Specifying Titles and Footnotes
- § Assigning Descriptive Labels
- § Formatting Data Values
- § Using Permanently Assigned Labels and Formats
- § Additional Features
- § Practice

Creating SAS Data Sets from Raw Data

- § Overview
- § Raw Data Files
- § Steps to Create a SAS Data Set
- § Referencing a SAS Library
- § Referencing a Raw Data File
- § Writing a DATA Step Program
- § Submitting the DATA Step Program
- § Creating and Modifying Variables
- § Sub setting Data
- § Reading In stream Data
- § Steps to Create a Raw Data File Additional Features
- § Practice

Understanding DATA Step Processing

- § Overview
- § Writing Basic DATA Steps
- § How SAS Processes Programs
- § Compilation Phase
- § Execution Phase

- § Debugging a DATA Step
- § Testing Your Programs
- § Practice

Creating and Applying User Defined Formats

- § Overview
- § Introduction to PROC FORMAT
- § Invoking PROC FORMAT
- § Defining a Unique Format
- § Associating User-Defined Formats with Variables
- § Practice

Creating Enhanced List and Summary Reports

- § Overview
- § Creating a Default List Report
- § Selecting Variables
- § Selecting Observations
- § Defining Variables
- § Defining Column Attributes
- § Defining Column Headings
- § Specifying Column Justification
- § Enhancing the Heading's Appearance
- § Defining Variable Usage
- § Practice

Producing Descriptive Statistics

- § Overview
- § Computing Statistics for Numeric Variables
- § Producing Frequency Tables
- § Practice

Producing HTML Output

§ Overview
§ The Output Delivery System
§ Opening and Closing ODS Destinations
§ Creating Simple HTML
§ Creating HTML Output with a Table of Contents
§ Using Options to Specify Links and Paths
§ Changing the Appearance of HTML Output
§ Additional Features
§ Practice

Creating and Managing Variables

§ Overview
§ Creating and Modifying Variables
§ Assigning Values Conditionally
§ Specifying Lengths for Variables
§ Sub setting Data
§ Assigning Permanent Labels and Formats
§ Assigning Values Conditionally Using SELECT Groups
§ Grouping Statements Using DO Groups
§ Practice

Reading SAS Data Sets

§ Overview
§ Reading a Single Data Set
§ Manipulating Data
§ Using BY-Group Processing Reading Observations
§ Using Direct Access Detecting the End of a Data Set
§ Understanding How Data Sets Are Read
§ Additional Features Summary
§ Practice

Combining SAS Data Sets

§ Overview
§ One-to-One Reading
§ Concatenating
§ Interleaving

- § Simple Match--Merging
- § Match-Merge Processing
- § Renaming Variables
- § Excluding Unmatched Observations
- § Selecting Variables
- § Additional Features
- § Practice

Transforming Data with SAS Functions

- § Overview
- § Understanding SAS Functions
- § General Form of SAS Functions
- § Converting Data with Functions
- § Manipulating SAS Date Values with Functions
- § Modifying Character Values with Functions
- § Modifying Numeric Values with Functions
- § Nesting SAS Functions
- § Practice

Generating Data with DO Loops

- § Overview
- § Constructing DO Loops
- § Nesting DO Loops
- § Iteratively Processing Data That Is Read from a Data Set
- § Conditionally Executing DO Loops (Statistical Analysis System)
- § Using Conditional Clauses with the Iterative DO
- § Statement
- § Creating Samples
- § Practice

Processing Variables with Arrays

- § Overview
- § Creating One-Dimensional Arrays
- § Expanding Your Use of Arrays
- § Additional Features

Reading Raw Data in Fixed Fields

- § Overview
- § Review of Column Input
- § Identifying Standard and Nonstandard Numeric Data
- § Choosing an Input Style
- § Using Formatted Input
- § Using In formats
- § Record Formats
- § Practice

Reading Free-Format Data

- § Overview
- § Reading Free-Format Data
- § Using List Input
- § Reading Missing Values
- § Specifying the Length of Character Values
- § Modifying List Input
- § Creating Free-Format Data
- § Mixing Input Styles
- § Practice

Reading Date and Time Values

- § Overview
- § How SAS Stores Date Values
- § How SAS Stores Time Values
- § More about SAS Date and Time Values
- § Reading Date and Time In formats
- § Using Dates and Times in Calculations
- § Using Date and Time Formats
- § Practice

Creating a Single Observation from Multiple Records

- § Overview
- § Use Line Pointer Controls
- § Reading Multiple Records Sequentially
- § Reading Multiple Records Non-Sequentially
- § Combining Line Pointer Controls

Creating Multiple Observations from a Single Record

- § Overview
- § Reading Repeating Blocks of Data
- § Reading the Same Number of Repeating Fields
- § Reading a Varying Number of Repeating Fields
- § Practice

SAS Marco Language Introduction

- § Purpose of the macro facility
- § Program flow
- § Course data

Macro Variables

- § Introduction
- § Automatic macro variables
- § Macro variable references
- § User defined macro variables
- § Delimiting macro variable names
- § Macro functions

Macro Definitions

- § Defining and calling a macro
- § Macro parameters

DATA Step and SQL Interfaces

- § Creating macro variables in the DATA step
- § Indirect references to macro variables
- § Retrieving macro variables in the DATA step
- § Creating macro variables in SQL.

3S Business Corporation Inc.

11271 richmond Avenue, Suite H107, H108

Houston, Tx 77082

Macro Programs processing

§ Conditional processing
§ Iterative processing global and local symbol tables.

Macro Debugging

§ Avoiding Macro Error
§ Merrror and Serror Options
§ Mlogic, Mprint, Symbolgen Options
§ %put Statements

SAS SQL Getting Started

§ Introducing the Structured Query Language
§ Similarities and Differences

Basic Queries

§ Overview of the SQL procedure
§ Specifying columns
§ Specifying rows
§ Operators
§ Expression

Displaying Query Results

§ Presenting data
§ Summarizing data

Sub queries

- § Non correlated sub queries
- § Exists
- § Calculated

Combining Tables Horizontally Using PROC SQL

- § Overview
- § Understanding Joins
- § Generating a Cartesian Product
- § Using Inner Joins
- § Using Outer Joins
- § Creating an Inner Join with Outer Join-Style Syntax
- § Comparing SQL Joins and DATA Step Match-Merges
- § Using In-Line Views
- § Joining Multiple Tables and Views
- § Practice

Combining Tables Vertically Using PROC SQL

- § Overview
- § Understanding Set Operations
- § Using the EXCEPT Set Operator
- § Using the INTERSECT Set Operator
- § Using the UNION Set Operator
- § Using the OUTER UNION Set Operator
- § Comparing Outer Unions and Other SAS Techniques
- § Practice

Creating Tables and Views

- § Creating tables with the SQL procedure
- § Integrity constraints
- § Creating views with the SQL procedure
- § Inserting Data

3S Business Corporation Inc.

11271 richmond Avenue, Suite H107, H108

Houston, Tx 77082

Managing Tables and Views

- § Drop and Alter the Tables and Views
- § Inserting, Deleting, Update the Rows
- § Creating and dropping the indexes

Additional SQL Features

- § Setting SQL procedure options
- § Dictionary tables and views
- § Interfacing PROC SQL with the Macro language
- § Program testing and performance

Accessing Relational Databases

- § Connecting to databases using LIBNAME and CONNECT statements
- § Using database tables in SQL procedure queries
- § Database execution of naïve SQL statements (SQL Pass-through)

SAS Graph

- § Overview
- § Charts
- § Two-Dimensional Plots
- § Go options Statements
- § Legend Statements
- § Axis Statements
- § Symbol Statements
- § Pattern Statements
- § The G polt Procedure
- § The G chart Procedure
- § Practice

SAS STAT

- § The Distribution of data with Proc UNIVARIATE
- § Producing Statistics with Proc MEANS
- § Testing categorical data Proc FREQ
- § Examining correlations 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
- § Practice