



Webs Jyoti

IT Education Centre

Duration: 2.5 Months

SAS FUNDAMENTALS

Session-1

Introduction to the SAS System

- Introduction to the SAS System
- Components of Base SAS Software
- Output Produced by the SAS System
- Ways to Run SAS Programs
- Running Programs in the SAS Windowing Environment
- Review of SAS Tools
- Learning More

Session-2

Introduction to DATA Step Processing

- Introduction to DATA Step Processing
- The SAS Data Set: Your Key to the SAS System
- How the DATA Step Works: A Basic Introduction
- Supplying Information to Create a SAS Data Set
- Review of SAS Tools
- Learning More

Session-3

Starting with Raw Data: The Basics

- Introduction to Raw Data
- Examine the Structure of the Raw Data: Factors to Consider
- Reading Unaligned Data
- Reading Data That Is Aligned in Columns
- Reading Data That Requires Special Instructions
- Reading Unaligned Data with More Flexibility
- Mixing Styles of Input

Session-4

Starting with Raw Data: Beyond the Basics

- Introduction to Beyond the Basics with Raw Data
- Testing a Condition before Creating an Observation
- Creating Multiple Observations from a Single Record
- Reading Multiple Records to Create a Single Observation
- Problem Solving: When an Input Record Unexpectedly Does Not Have Enough Values

Session-5

Starting with SAS Data Sets

- Introduction to Starting with SAS Data Sets
- Understanding the Basics
- Input SAS Data Set for Examples
- Reading Selected Observations
- Reading Selected Variables
- Creating More Than One Data Set in a Single DATA Step
- Using the DROP= and KEEP= Data Set Options for Efficiency



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SAS Basic Programming - Beginner

Basics of SAS Programming

Session-6

Understanding DATA Step Processing

- Introduction to DATA Step Processing
- Input SAS Data Set for Examples
- Adding Information to a SAS Data Set
- Defining Enough Storage Space for Variables
- Conditionally Deleting an Observation

Session-7

Working with Numeric Variables

- Introduction to Working with Numeric Variables
- About Numeric Variables in SAS
- Input SAS Data Set for Examples
- Calculating with Numeric Variables
- Comparing Numeric Variables
- Storing Numeric Variables Efficiently

Session-8

Working with Character Variables

- Introduction to Working with Character Variables
- Input SAS Data Set for Examples
- Identifying Character Variables and Expressing Character Values
- Setting the Length of Character Variables
- Handling Missing Values
- Creating New Character Values
- Saving Storage Space by Treating Numbers as Characters

Session-9

Acting on Selected Observations

- Introduction to Acting on Selected Observations
- Input SAS Data Set for Examples
- Selecting Observations
- Constructing Conditions
- Comparing Characters

Session-10

Creating Subsets of Observations

- Introduction to Creating Subsets of Observations
- Input SAS Data Set for Examples
- Selecting Observations for a New SAS Data Set
- Conditionally Writing Observations to One or More SAS Data Sets

Session-11

Working with Grouped or Sorted Observations

- Introduction to Working with Grouped or Sorted Observations



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- Input SAS Data Set for Examples
- Working with Grouped Data
- Working with Sorted Data

Session-12

Using More Than One Observation in a Calculation

- Introduction to Using More Than One Observation in a Calculation
- Input File and SAS Data Set for Examples
- Accumulating a Total for an Entire Data Set
- Obtaining a Total for Each BY Group
- Writing to Separate Data Sets
- Using a Value in a Later Observation

Session-13

Finding Shortcuts in Programming

- Introduction to Shortcuts
- Input File and SAS Data Set
- Performing More Than One Action in an IF-THEN Statement
- Performing the Same Action for a Series of Variables

Session-14

Working with Dates in the SAS System

- Introduction to Working with Dates
- Understanding How SAS Handles Dates
- Input File and SAS Data Set for Examples
- Entering Dates
- Displaying Dates
- Using Dates in Calculations
- Using SAS Date Functions
- Comparing Durations and SAS Date Values



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SAS ADVANCED PROGRAMMING

Combining SAS Data Sets

Session-15

Methods of Combining SAS Data Sets

- Introduction to Combining SAS Data Sets
- Definition of Concatenating
- Definition of Interleaving
- Definition of Merging
- Definition of Updating
- Definition of Modifying
- Comparing Modifying, Merging, and Updating Data Sets

Session-16

Concatenating SAS Data Sets

- Introduction to Concatenating SAS Data Sets
- Concatenating Data Sets with the SET Statement
- Concatenating Data Sets Using the APPEND Procedure
- Choosing between the SET Statement and the APPEND Procedure

Session-17

Interleaving SAS Data Sets

- Introduction to Interleaving SAS Data Sets
- Understanding BY-Group Processing Concepts
- Interleaving Data Sets

Session-18

Merging SAS Data Sets

- Introduction to Merging SAS Data Sets
- Understanding the MERGE Statement
- One-to-One Merging
- Match-Merging
- Choosing between One-to-One Merging and Match-Merging

Session-19

Updating SAS Data Sets

- Introduction to Updating SAS Data Sets
- Understanding the UPDATE Statement
- Understanding How to Select BY Variables
- Updating a Data Set
- Updating with Incremental Values
- Understanding the Differences between Updating and Merging
- Handling Missing Values

Session-20

Modifying SAS Data Sets

- Introduction
- Input SAS Data Set for Examples



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- Modifying a SAS Data Set: The Simplest Case
- Modifying a Master Data Set with Observations from a Transaction Data Set
- Understanding How Duplicate BY Variables Affect File Update
- Handling Missing Values

Session-21

Conditionally Processing Observations from Multiple SAS Data Sets

- Introduction to Conditional Processing from Multiple SAS Data Sets
- Input SAS Data Sets for Examples
- Determining Which Data Set Contributed the Observation
- Combining Selected Observations from Multiple Data Sets
- Performing a Calculation Based on the Last Observation



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SAS DATASOURCE AND REPORTING

Advanced Contents

Session-22

Introducing the SAS Macro Language

- Introduction
- Macro Variables: What Are They?
- Some Built-In Macro Variables
- Assigning Values to Macro Variables with a %LET Statement
- Demonstrating a Simple Macro
- A Word about Tokens
- Another Example of Using a Macro Variable as a Prefix
- Using a Macro Variable to Transfer a Value between DATA Steps

Session-23

Introducing the Structured Query Language

- Introduction
- Some Basics
- Joining Two Tables (Merge)
- Left, Right, and Full Joins
- Concatenating Data Sets
- Using Summary Functions
- Demonstrating an ORDER Clause
- An Example of Fuzzy Matching

Producing Reports

Session-24

Producing Detail Reports with the PRINT Procedure

- Introduction to Producing Detail Reports with the PRINT Procedure
- Input File and SAS Data Sets for Examples
- Creating Simple Reports
- Creating Enhanced Reports
- Creating Customized Reports
- Making Your Reports Easy to Change

Session-25

Creating Summary Tables with the TABULATE Procedure

- Introduction to Creating Summary Tables with the TABULATE Procedure
- Understanding Summary Table Design
- Understanding the Basics of the TABULATE Procedure
- Input File and SAS Data Set for Examples
- Creating Simple Summary Tables
- Creating More Sophisticated Summary Tables



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Session-26

Creating Detail and Summary Reports with the REPORT Procedure

- Introduction to Creating Detail and Summary Reports with the Procedure
- Understanding How to Construct a Report
- Input File and SAS Data Set for Examples
- Creating Simple Reports
- Creating More Sophisticated Reports

Producing Plots and Charts

Session-27

Plotting the Relationship between Variables

- Introduction to Plotting the Relationship between Variables
- Input File and SAS Data Set for Examples
- Plotting One Set of Variables
- Enhancing the Plot
- Plotting Multiple Sets of Variables

Session-28

Producing Charts to Summarize Variables

- Introduction to Producing Charts to Summarize Variables
- Understanding the Charting Tools
- Input File and SAS Data Set for Examples
- Charting Frequencies with the CHART Procedure
- Customizing Frequency Charts
- Creating High-Resolution Histograms

Designing Your Own Output

Session-29

Writing Lines to the SAS Log or to an Output File

- Introduction to Writing Lines to the SAS Log or to an Output File
- Understanding the PUT Statement
- Writing Output without Creating a Data Set
- Writing Simple Text
- Writing a Report

Session-30

Understanding and Customizing SAS Output: The Basics

- Introduction to the Basics of Understanding and Customizing SAS Output
- Understanding Output
- Input SAS Data Set for Examples
- Locating Procedure Output



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- Making Output Informative
- Controlling Output Appearance
- Controlling the Appearance of Pages
- Representing Missing Values

Session-31

Understanding and Customizing SAS Output: The Output Delivery System

- Introduction to Customizing SAS Output by Using the Output Delivery System
- Input Data Set for Examples
- Understanding ODS Output Formats and Destinations
- Selecting an Output Format
- Creating Formatted Output
- Selecting the Output That You Want to Format
- Customizing ODS Output
- Storing Links to ODS Output



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WORKING WITH SAS DATASOURCES

Storing and Managing Data in SAS Files

Session-32

Understanding SAS Data Libraries

- Introduction to Understanding SAS Data Libraries
- What Is a SAS Data Library?
- Accessing a SAS Data Library
- Storing Files in a SAS Data Library
- Referencing SAS Data Sets in a SAS Data Library

Session-33

Managing SAS Data Libraries 603

- Introduction
- Choosing Your Tools
- Understanding the DATASETS Procedure
- Looking at a PROC DATASETS Session

Session-34

Getting Information about Your SAS Data Sets

- Introduction to Getting Information about Your SAS Data Sets
- Input Data Library for Examples
- Requesting a Directory Listing for a SAS Data Library
- Requesting Contents Information about SAS Data Sets
- Requesting Contents Information in Different Formats

Session-35

Modifying SAS Data Set Names and Variable Attributes

- Introduction to Modifying SAS Data Set Names and Variable Attributes
- Input Data Library for Examples
- Renaming SAS Data Sets
- Modifying Variable Attributes

Session-36

Copying, Moving, and Deleting SAS Data Sets

- Introduction to Copying, Moving, and Deleting SAS Data Sets
- Input Data Libraries for Examples
- Copying SAS Data Sets
- Copying Specific SAS Data Sets
- Moving SAS Data Libraries and SAS Data Sets
- Deleting SAS Data Sets
- Deleting All Files in a SAS Data Library