

# SAS Programming 2: Data Manipulation Techniques

Course Code: SIPRG2

Delivery Method: Instructor-led (classroom)

Duration: 3 Days

## OVERVIEW

Learn how to:

- Control SAS data set input and output
- Combine SAS data sets
- Summarize, read and write different types of data
- Perform DO loop and SAS array processing
- Transform character, numeric, and date variables

## WHO SHOULD ATTEND

Business analysts and SAS programmers

## PREREQUISITES

Before attending this course, you should have at least six (6) months of experience writing SAS programs or have completed the SAS Programming 1: Essentials course and used SAS for at least one month.

Specifically, you should be able to:

- Submit a SAS program
- Diagnose and correct syntax errors
- Examine descriptor and data portions of a SAS data set
- Access SAS data libraries
- Read and create SAS data sets
- Read Excel spreadsheets
- Read delimited raw data files
- Examine data errors when reading raw data files
- Use SAS procedures to validate data
- Clean invalid data
- Create variables

### AVANTUS TRAINING PTE LTD

79 Robinson Road #15-04 CPF Building Singapore 068897

Main Tel: (65) 6416 3068

Email: [enquiries@AvantusTraining.com](mailto:enquiries@AvantusTraining.com)

[www.AvantusTraining.com](http://www.AvantusTraining.com)

- Combine SAS data sets
- Use global statements
- Use labels and formats, including user-defined formats
- Subset observation
- Produce summary reports using the FREQ and MEANS procedures

This course is appropriate for students who are using SAS 9 software.

## **COURSE OUTLINE**

### Introduction

- An overview of SAS foundation
- Course logistics
- Course data files

### Controlling Input and Output

- Writing observations explicitly
- Writing to multiple SAS data sets
- Selecting variables and observations

### Summarizing Data

- Creating and accumulating total variable
- Accumulating totals for a group of data

### Reading Raw Data Files

- Reading raw data files with formatted input
- Controlling when a record loads

### Data Transformations

- Manipulating character values
- Manipulating numeric values
- Converting variable type

### Debugging Techniques

- Using the PUTLOG statement

### Processing Data Iteratively

- DO loop processing
- Conditional DO loop processing
- SAS array processing
- Using SAS arrays

### Restructuring a Data Set

- Rotating with the DATA step

### Combining SAS Data Sets

- Using data manipulation techniques with match-merging

### Creating and Maintaining Permanent Formats

- Creating permanent formats

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Other SAS Languages

- An overview of other languages
- Using the SQL procedure
- The SAS macro language

Learning More

- SAS resources
- Next steps

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