

# introduction to sas

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# introduction

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# what is sas

*SAS is an integrated system of software solutions*

It enables:

- data management
- report generation
- plotting
- statistical and mathematical analyses
- and more

- Base SAS
- SAS/STAT
- SAS/ETS
- SAS Text Miner
- SAS Energy Forecasting
- and much, much more

Products & Solutions A-Z

base sas

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Includes:

- a programming language
- a data management facility
- data analysis and reporting utilities

# programming language

*The SAS language contains statements, expressions, functions and CALL routines, options, formats, and informats*

There are two main components:

- data steps
- procedure steps

SAS programs—files ending in the .sas file extension—typically include several DATA and PROC steps

Example of a DATA step

```
data example;  
    infile 'path/to/file';  
    input x1 x2 x3;  
run;
```



## Syntax

One of the most important rules is that **SAS statements must end with a semicolon**

SAS statements can span multiple lines

Multiple SAS statements can appear on the same line, so long as each is separated by a semicolon

`run;` statements aren't necessary in some cases, but their use is recommended

## SAS Names

Are used for data sets, variables, and other items

In general, these names must:

- contain only letters, numbers, or underscores ( \_ )
- begin with a letter or underscore
- have a length between one and 32 characters
  - maximum length varies by name type (e.g., variable names versus library references)
- not contain blanks

Names are *not* case sensitive

# data representation

In SAS, data is organized into rows and columns in what is called a SAS data set

x1	x2	x3
25	m	berkeley
26	f	san francisco
23	f	oakland
24	m	marin

Each row is sometimes called an “observation” and each column a “variable”

DATA steps begin with the data statement and are typically used to create, modify, or replace SAS data sets

Data can either be read inline or from external sources, such as .txt, .csv, or .sas7bdat files

SAS data sets can either be temporary or permanent





## references

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- <http://www.stat.berkeley.edu/~spector/s100/sas.pdf>
- [http://www.ats.ucla.edu/stat/sas/library/SASRead\\_os.htm](http://www.ats.ucla.edu/stat/sas/library/SASRead_os.htm)
- <http://www2.sas.com/proceedings/sugi31/246-31.pdf>
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