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HOME SAS R PYTHON DATA SCIENCE CREDIT RISK SQL EXCEL SPSS INFOGRAPHICS

SEARCH... GO

Home » SAS » Check number of observations in SAS dataset

CHECK NUMBER OF OBSERVATIONS IN SAS DATASET

Deepanshu Bhalla 7 Comments SAS

This post explains how to determine the number of observations in a SAS dataset. Most of the times we need to check whether a SAS dataset is empty or not. In macro, we generally tell SAS to go to the next iteration only when SAS dataset is non-empty. In this post, we will see various methods to count number of rows (records) in SAS table.

Efficient)

In the example below, we will use **CARS** dataset from **SASHELP** library. This dataset contains 428 observations and 15 columns.

The easiest method is to use **count(*)** in Proc SQL. It returns all rows (missing plus non-missing rows) in a dataset.

```
proc sql;
  select count(*) as N from
sashelp.cars;
quit;
```

Result : 428

In case you want to store it in a macro variable, you can use **INTO :** keyword.

```
proc sql noprint;
  select count(*) into :N from
sashelp.cars;
```

```
%put &N;
```

This will print the number of records in SAS log. Check log after running the above program.

Is it an efficient method?

> ***No, it is not efficient at all***. *It does not use metadata information of SAS dataset. Instead it reads through each record (row) of your SAS dataset. It takes a long time to do it in big SAS tables. However, it is a simple and handy trick to calculate the number of rows in a SAS dataset.*

Method 2 : Descriptor Portion (Efficient)

Before getting into detail, we need to understand

SAS dataset consists of the following two portion -

1. **Descriptor portion**. It constitutes information about name of dataset, number of observations and variables, creation date, engine type.
2. **Data portion**. It stores values of data.

This method is one of the **most efficient way to count observations** in a SAS table as it uses metadata information and does not search in dataset.

```
data _NULL_;
  if 0 then set sashelp.cars
nobs=n;
 put "no. of observations =" n;
  stop;
run;
```

Explanation

1. The '**if 0**' statement does not process at execution time because IF statement does not hold TRUE. Thus, both IF THEN

information of the data set and later hand over to the compiler to adjust it to the PDV.

2. **NOBS** is a SAS automatic variable which contains the number of rows in a dataset i.e. SASHELP.CARS dataset.
3. **NOBS = N** puts the returns count of records in the variable n.
4. The **STOP statement** is used to stop an endless loop.

Like the first method, we can keep it in a macro variable. See the implementation below -

```
data _NULL_;
  if 0 then set sashelp.cars
nobs=n;
  call symputx('totobs',n);
  stop;
run;
%put no. of observations =
&totobs;
```

SAS Output

CALL SYMPUT is one of the method to create a SAS macro variable in data step. In this case, we have used a newer function i.e. **CALL SYMPUTX** which left justifies and trims trailing blanks from a numeric value. If you want to stick to the old style CALL SYMPUT, you can write like below -

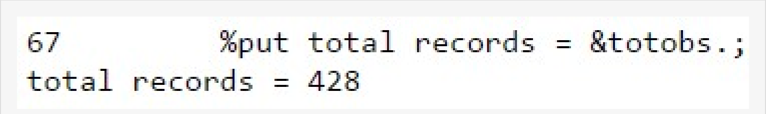
```
call symput('totobs',left(n));
```

3. Proc SQL Dictionary Method (Efficient)

Like second method, we can use metadata information of a dataset with PROC SQL **Dictionary.Tables**.

```
proc sql noprint;
  select nobs into :totobs
separated by ' ' from
```

```
memname='CARS';
quit;
%put total records = &totobs.;
```



```
67          %put total records = &totobs.;
total records = 428
```

Proc SQL Dictionary.Tables

It is an efficient method as it does not look into each values of a dataset to determine the count. The **LIBNAME=** refers to the name of the library in which data is stored. The **MEMNAME=** refers to SAS table (dataset). The separated by ' ' is used in this case to left align the numeric value.

4. Macro Language Method (Efficient)

This method also uses metadata information but it is via the macro language using DATA step functions. The **OPEN function** is used to open a data. The **ATTRN function** returns the value of a numeric attribute for a SAS data set. When it is used with the NOBS argument, it returns the number of observations. Later we are closing the opened dataset using **CLOSE function.**

```
%macro totobs(mydata);
   %let mydataID=%sysfunc(OPEN
(&mydata.,IN));
   %let NOBS=%sysfunc(ATTRN
(&mydataID,NOBS));
   %let RC=%sysfunc(CLOSE
(&mydataID));
   &NOBS
%mend;
%put %totobs(sashelp.cars);
```

SAS : Check if it is empty table

Suppose you only need to check whether a table is empty or not. You can use the same logic as explained above. And if the returned value is 0, write 'Empty Data' in log. Otherwise, count the number of records.

```
if n = 0 then put 'empty dataset';
else put 'Not empty. Total
records=' n;
stop;
run;
```

Result : Not Empty. Total records = 428

Let's create a blank dataset to check the above code. The following program returns empty dataset as 1=2 condition does not meet.

```
proc sql noprint;
create table temp as
select * from sashelp.cars
where 1 = 2;
quit;
```

Try it yourself!

Let's wrap the above code in a SAS macro

```
%macro emptydataset
```

```
data _NULL_;
  if 0 then set &inputdata. nobs=n;
  call symputx('totobs',n);
  stop;
run;
%if &totobs. = 0 %then %put Empty
dataset;
%else %do;
%put TotalObs=&totobs;
%end;
%mend;
```

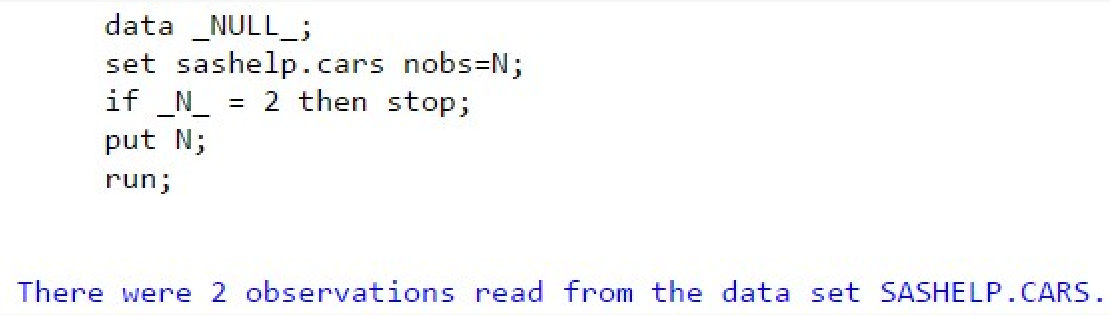
%emptydataset(inputdata=sashelp.cars);
Result : TotalObs=428

%emptydataset(inputdata=work.temp);
Result : Empty dataset

If you think it's difficult to memorize sas code of descriptor portion method, you can use the code below.

```
data _NULL_;
set sashelp.cars nobs=N;
```

> *put N;*
>
> *run;*



```
     data _NULL_;
     set sashelp.cars nobs=N;
     if _N_ = 2 then stop;
     put N;
     run;


There were 2 observations read from the data set SASHELP.CARS.
```

SAS log

It reads only first two observations from the dataset. See log above.

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About Author:

Deepanshu founded ListenData with a simple objective - Make anal easy to understand and follow. He has over 8 years of experience in science. During his tenure, he has worked with global clients in var domains like Banking, Insurance, Telecom and Human Resource.

While I love having friends who agree, I only learn from those who don'
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7 Responses to "Check number of observations in SAS dataset"

Hanish Arora 1 May 2017 at 00:56

Hi,
Can you please help me in deleting all the empty data sets of any library without opening it or how to check if particular data set is empty or not.

Thanks

Reply

▾ Replies

Arun 9 May 2017 at 14:28

Create macro var from proc SQL and use dictionary.tables where nobs=0 then use proc datasets and after delete values use ref to that macro var

Reply

Juan V. 14 May 2017 at 05:24

Hi Deepanshu, very useful post

I have a question about "model scoring" task. I have created and registered a model in Enterprise Miner, now I am scoring this model from Enterprise Guide using "model scoring" task. In the output variables of the model I have three types of var: P_targetvar Q_targetvar U_targetvar V_targetvar

I think that P_targetvar is the predicted value for target variable of the model, but I would like to know the meaning of Q_, U_ and V_ vars.

Another question I would like to know if I can definde and use a Enterprise Miner model with parameters. I mean not only the vars of the dataset, this parameters would be about the type of model (selection criteria, type of decision tree...)

Thanks in advance

Juan

Reply

Unknown 15 October 2017 at 20:37

Thnaks good presentation

Reply

Pavan Kumar 23 August 2018 at 06:05

Excellent site for knowing SAS knowledge. :)

Reply

Unknown 30 April 2019 at 09:06

Very Informative

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