

Class: 5

SAS Tutorial

PRESENTED BY: SHASHI KUMAR

# Working with Date/Time/Date Time:

#### **SAS Date value**

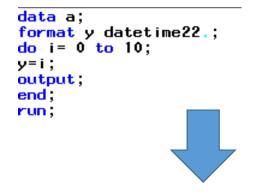
is a value that represents the number of days between January 1, 1960, and a specified date. SAS can perform calculations on dates ranging from A.D. 1582 to A.D. 19,900. Dates before January 1, 1960, are negative numbers; dates after January 1, 1960, are positive numbers.

#### **SAS** time value

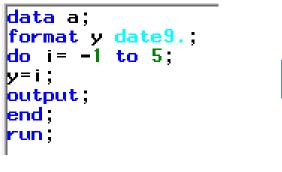
is a value representing the number of seconds since midnight of the current day. SAS time values are between 0 and 86400

#### SAS datetime value

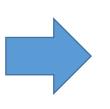
is a value representing the number of seconds between January 1, 1960, and an hour/minute/second within a specified date.



	у	i
1	01JAN1960:00:00	0
2	01JAN1960:00:00:01	1
3	01JAN1960:00:00:02	2
4	01JAN1960:00:00:03	3
5	01JAN1960:00:00:04	4
6	01JAN1960:00:00:05	5



data a;	_
format y time.;	
do i= 0 to 10;	
y=i;	
output;	
end;	
run ;	



31DEC1959	-1
01JAN1960	0
02JAN1960	1
03JAN1960	2
04JAN1960	3
05JAN1960	4
06JAN1960	5

	у	I
1	0:00:00	0
2	0:00:01	1
3	0:00:02	2
4	0:00:03	3
5	0:00:04	4
6	0:00:05	5

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**Format**: Which is used to convert standard data to non standard data.

**Informant**: Which is used to convert Non Standard data into standard data.

10/09/08: Non-Standard :::: Informant ::::::MMDDYY8.

**\$40,000**: Non-Standard :::: Informant ::::::Dollar7.

**74,000 :** Non-Standard :::: Informant ::::::Comma6.

**34555**: Standard ::::::::: ?? (Comma6., MMDDYY8., date9.....)

#### Format variable name <\$> formatW.d;

W: Total Width

d : Number of decimal place\$ : It indicate Character format

## i.e, Format Doj date9.;

(Format either SAS built or User define format (Proc format))

```
*Convert Non-standard DOJ to Standard DOJ;

data one;
infile datalines dlm="";
input Name$ Doj;
informat Doj DDMMYY8.;
datalines;
Shashi 10/09/19
Ravi 21/12/19;
;
run;
```

	Name	Doj
1	Shashi	21802
2	Ravi	21904

```
*Convert Non-standard DOJ to Standard DOJ and standard DOJ;

| data two; | infile datalines dlm=""; | input Name$ Doj; | informat Doj DDMMYY8.; | format Doj date9.; | datalines; | Shashi 10/09/19 | Ravi 21/12/19 | ;
```

	Name	Doj
1	Shashi	10SEP2019
2	Ravi	21DEC2019

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run;

Input	Format		Output
1	Date7.	1	01JAN60
1	Date9.	1	01JAN1960
1	DDMMYY10.	1	01/01/1960
1	DDMMYY.	18703	17/03/11
1	DDMMYY10.	18703	17/03/2011
1	DDMMYYB.	18703	17 03 11
1	DDMMYYB10.	18703	17 03 2011

There are various date / Time / Date time formats as per your need your choose your format.
Especially in transections data datetime format is datetime22.

Format	Input	Output
ннмм.	53132	14:46
HOUR.	53132	15
MMSS.	53132	885
TIME.	53132	14:45:32
TOD.	53132	14:45:32

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- **1. Today**:- Return a current date from a SAS date value.
- **2. Day**:- Extract the day of the month from a SAS date and returns a number from 1-31.
- **3. Weekdays**:- Returns the day of the week from SAS date and return a number from 1 to 7.

(Sunday =1; Monday=2;Tuesday=3;Wednesday=4;Thrusday=5;Friday=6;Saturday=7)

**4. Month**:- Extract the month from the SAS date and return a number from 1 to 12.

(January =1;February=2;March=3;April=4......December=12)

- **5.** Year:- Extract the year from the SAS date and returns 4 digit of years.
- **6. Qtr**:- Extract the quarter from the SAS date and returns number from 1-4.

(Jan-March = 1;Apr-June=2;July-Sep=3;October-December=4)

7. MDY:- Return a SAS date value from numeric month, day and year value.

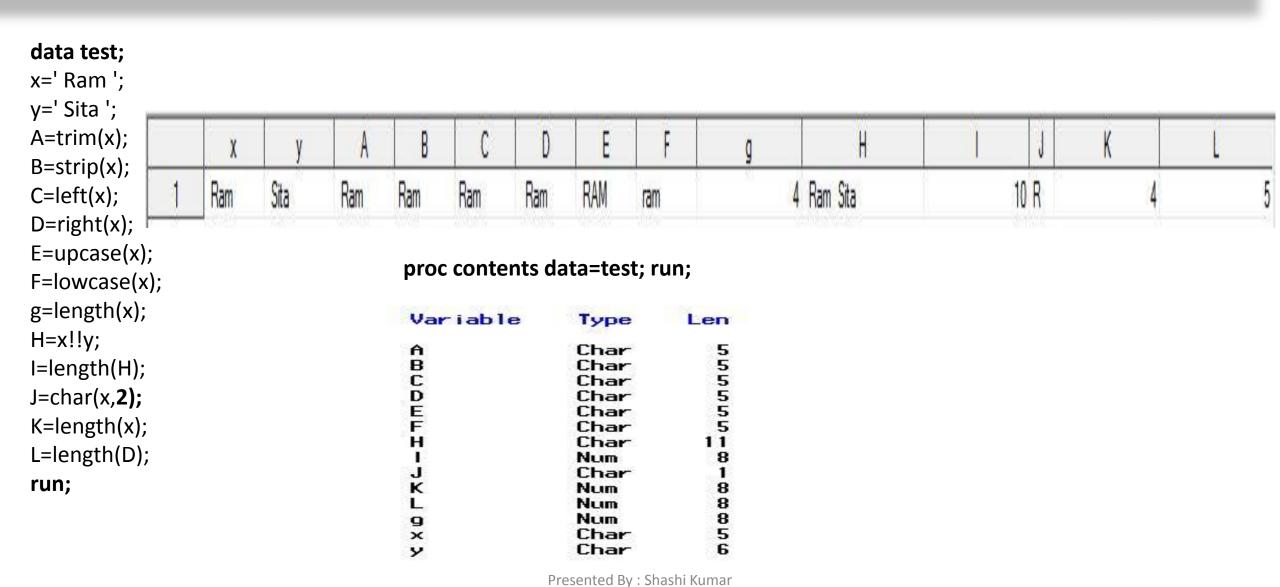
Function	Input	Output
Today	Current System Date	21534
Day	13FEB2019	13
Weekday	13FEB2019	4
Month	13FEB2019	2
Qtr	13FEB2019	1
Year	13FEB2019	2019
MDY	(02,13,2019) *Arg should be numeric Prese	21534 (Days From 1 Jan 1960) ented By : Shashi Kumar

run;

1 JAN49 112 22DEC2018 1 7 1 1 1949 01JAN1960 01JAN1949 0 Saturday, Jan 1, 1949 2 FEB49 118 22DEC2018 1 3 2 1 1949 01JAN1960 01FEB1949 31 Tuesday, Feb 1, 1949 3 MAR49 132 22DEC2018 1 3 3 3 1 1949 01JAN1960 01MAR1949 60 Tuesday, Mar 1, 1949 4 APR49 129 22DEC2018 1 6 4 2 1949 01JAN1960 01APR1949 91 Friday, Apr 1, 1949 4 APR49 121 22DEC2018 1 1 5 2 1949 01JAN1960 01APR1949 121 Sunday, May 1, 1949 5 MAY49 121 22DEC2018 1 1 4 6 2 1949 01JAN1960 01JUL1949 121 Sunday, May 1, 1949 6 3 Jan4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			DATE	international airline travel (thousands)	A	В	С	D	E	F	G	Н	1	J
MAR49   132 22DEC2018   1   3   3   1   1949 01JAN1960   01MAR1949   60   Tuesday, Mar 1, 1949		1	JAN49	112	22DEC2018	1	7	8	8	1 194	9 01JAN1960	01JAN1949	0	Saturday, Jan 1, 1949
data test;  MAY49  MAYA		2	FEB49	118	22DEC2018	1	3	2		1 1949	9 01JAN1960	01FEB1949	31	Tuesday, Feb 1, 1949
data test;  6 JUN49 135 22DEC2018 1 1 1 5 2 1949 01JAN1960 01JUN1949 121 Sunday, May 1, 1949		3	MAR49	132	22DEC2018	1	3		1	1 1949	9 01JAN1960	01MAR1949	60	Tuesday, Mar 1, 1949
data test; 6 JUN49 135 22DEC2018 1 4 6 2 1949 01JAN1960 01JUN1949 152 Wednesday, Jun 1, 1949 Set sashelp.air; 7 JUL49 148 22DEC2018 1 6 7 3 1949 01JAN1960 01JUL1949 182 Friday, Jul 1, 1949 A=today(); 8 AUG49 148 22DEC2018 1 2 8 3 1949 01JAN1960 01AUG1949 213 Monday, Aug 1, 1949 B=day(date); 10 OCT49 119 22DEC2018 1 7 10 4 1949 01JAN1960 01SEP1949 244 Thursday, Sep 1, 1949 C=weekday(date); 11 NOV49 104 22DEC2018 1 3 11 4 1949 01JAN1960 01OCT1949 274 Saturday, Oct 1, 1949 C=weekday(date); D=month(date); D=month(date); E=qtr(date); 14 FEB50 126 22DEC2018 1 1 1 1 1 1950 01JAN1960 01MAR1950 01 Wednesday, Feb 1, 1950 11JAN1960 01MAR1950 01MAR19		4	APR49			1	6	4				01APR1949		
Set sashelp.air;  A=today();  B=day(date);  D=month(date);  D=month(date);  Set sashelp.air;  A=today();  B=qtr(date);  D=month(date);  D=mont	lata test:		0.000			1	1							10 20 10 Tel 10
A=today();  A=today();  B		6				1								
A=today();  9 SEP49 136 22DEC2018 1 5 9 3 1949 01JAN1960 01SEP1949 244 Thursday, Sep 1, 1949 0CT49 119 22DEC2018 1 7 10 4 1949 01JAN1960 01OCT1949 274 Saturday, Oct 1, 1949 0LEC49 118 22DEC2018 1 3 11 4 1949 01JAN1960 01NOV1949 305 Tuesday, Nov 1, 1949 0LEC49 118 22DEC2018 1 5 12 4 1949 01JAN1960 01DEC1949 335 Thursday, Dec 1, 1949 0LEC49 118 22DEC2018 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	et sashelp.air: —	/				31								
B=day(date);  10 OCT49 119 22DEC2018 1 7 10 4 1949 01JAN1960 01OCT1949 274 Saturday, Oct 1, 1949  B=day(date);  11 NOV49 104 22DEC2018 1 3 11 4 1949 01JAN1960 01NOV1949 305 Tuesday, Nov 1, 1949  C=weekday(date);  12 DEC49 118 22DEC2018 1 5 12 4 1949 01JAN1960 01DEC1949 335 Thursday, Dec 1, 1949  JAN50 115 22DEC2018 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						- 1								
B=day(date);	<b>λ=τοααγ()</b> ;													
C=weekday(date);    12	3=dav(date):					1								
D=month(date);    13	1					í								
D=month(date);  =qtr(date);  =year(date);  14   FEB50   126 22DEC2018   1   4   2   1   1950 01JAN1960 01FEB1950   31   Wednesday, Feb 1, 1950 01JAN1960 01MAR1950   01MAR1950   00   00   00   00   00   00   00	= (		A 970 November 1971			1	1						0	The state of the s
E=qtr(date);  15 MAR50 141 22DEC2018 1 4 3 1 1950 01JAN1960 01MAR1950 60 Wednesday, Mar 1, 1950 1950 1950 1950 1950 1950 1950 1950	)=month(date):	14	FEB50			1	4	2					31	The state of the s
=year(date); 17 MAY50 125 22DEC2018 1 2 5 2 1950 01JAN1960 01MAY1950 121 Monday, May 1, 1950 18 JUN50 149 22DEC2018 1 5 6 2 1950 01JAN1960 01JUN1950 152 Thursday, Jun 1, 1950	` ''	15	MAR50	141	22DEC2018	1	4	3		1 195	0 01JAN1960	01MAR1950	60	Wednesday, Mar 1, 195
-=year(date); 18 JUN50 149 22DEC2018 1 5 6 2 1950 01JAN1960 01JUN1950 152 Thursday, Jun 1, 1950	=qtr(date);	16	APR50	135	22DEC2018	1		4		2 195	0 01JAN1960	01APR1950	91	Saturday, Apr 1, 1950
7 10 10 10 10 10 10 10 10 10 10 10 10 10	=vear(date):	17	MAY50			1						01MAY1950		Monday, May 1, 1950
G=MDY(1.1.1960): 19 JUL50 170 22DEC2018 1 7 7 3 1950 01JAN1960 01JUL1950 182 Saturday, Jul 1, 1950	, , , , , , , , , , , , , , , , , , , ,					1						01JUN1950		
	5=MDY( <b>1.1.1960)</b> : —	19	JUL50	170	22DEC2018	1	7			3 195	0 01JAN1960	01JUL1950	182	Saturday, Jul 1, 1950
	1-IVIUT (U,D,F),													
H=MDY(D,B,F);	=MDY(month(date),1	.vea	ar('08	<b>JAN196</b>	60'd));									
	, , , ,	•	•		***									
n=MDY(month(date), <b>1,year('08JAN1960'd));</b> J=date;	-uate,													

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Trim(variable) *Remove trailing Blank	Cmiss(variable/vector) *count of Missing across row both char & num. Variable.
Strip(variable) *Remove Leading and Trailing Blank	n() * count non missing values
Left(variable) * Left Align a Character String	Scan(String,nth word,delimeter) * Return nth word of the character value
Right(variable) * Right Align a Character String	Find(string,substring,modifier,start position)* It search a target string to specified substring and return numeric value.
Lowcase(variable) * Convert in Low Case	Cat(String1,String2,Stringn) *Doesnot renove leading and trailing blank before concatenate
Upcase(variable) * Convert in Up Case	Catt(String1,String2,Stringn) * Remove trailing blank before concatenate
Propcase(variable) * Convert in 1st character in up case and reaming low case	Cats(String1,String2,Stringn) * Remove leading blank before concatenate
Length(variable) * Return total number of column width	Catx(delimeter,String1,String2,Stringn) * Remove leading and trailing blank and add delimiter between string
Char(variable,pos) *Return a single character from specified position in a character String	Tranwrd (Source,target,replacement) *Search and replace from character string
Int(variable)	Input(Source,Informat) * Convert to numeric
Ceil(variable)	Put(Source,format) * Round and convert to character
Floor(variable)	Substr(String,Start position,Length) * Extract character from string
Round(variable)	Compress(Source, Character, modifier) *Removes the characters listed in the character argument from the source.
Nmiss(variable/vector) *count of Missing across row both numeric variable	Compbl(String) * Remove multiple blank from a String by translating each occurrence of two or more eson to blank into single blank.



run;

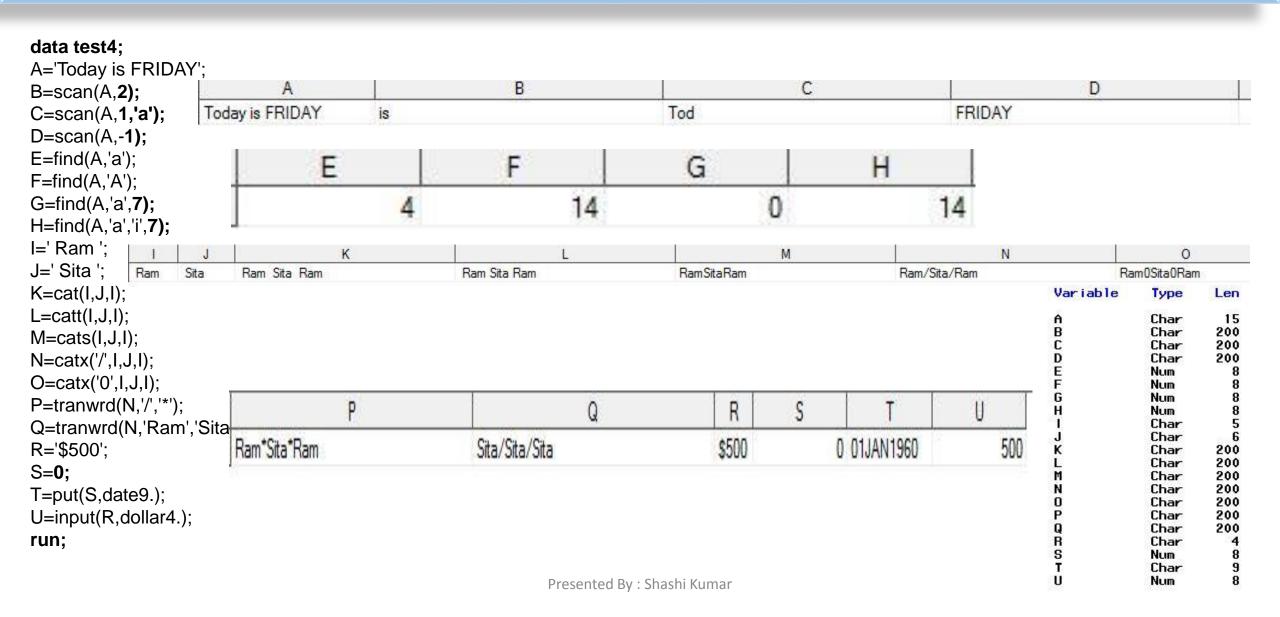
data test2;	num	A	В	C	D	E	F	G
infile datalines;	10	10	10	10	10	10	11	9.9
input num;	15	15	15	15	15	15	11	14.85
A=int(num);	32.5	32	33	32	33	35	33	32.34
B=ceil(num);	79	79	79	79	79	80	77	78.87
C=Floor(num);	37.9	37	38	37	38	40	33	37.95
D=round(num);	-10	-10	-10	-10	-10	-10	-11	-9.9
E=round(num, <b>5)</b> ;	-23.6	-23	-23	-24	-24	-25	-22	-23.76
F=round(num,11); G=round(num,.33); datalines; 10 15 32.5 79 If A is +ve then int(num)=floor(num) If A is -ve then int(num)=Ceil(num) Round: convert to nearest integer with multiple of 2 <sup>nd</sup> argument10 -23.6					Varia A B C D E F G num	Able Type Num	Len 8 8 8 8 8 8	

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A=substr('Mohan',3,1); B=substr(upcase(name),3,4); run;

Variable	Туре	Len
A	Char	5
В	Char	12
name	Char	12
×	Char	12
У	Char	12
z	Char	12



data test8:

run;

string9

!17752.

uala lesto,							
	StudySAS Blog!	17752.	StudySASBlog!17752.	StudySAS Blog	StudySASBlog!.	SSASB!17752.	
string='StudySAS B	log! 17752 ' ;						
string1=compress(str	ing,"); *Compress spa	*Compress spaces. This is default;					
string2=compress(str	ing,'','ak'); *Compress alp	habetic chars(1	,2etc);				
string3=compress(str	ing,",'d'); *Compress nu	*Compress numerical values;					
string4=compress(str	ing,'','1'); *Compress lo	*Compress lowercase characters;					
string5=compress(str	ing,'','u'); *Compress up	*Compress uppercase characters;					
string6=compress(str	ing,'S','k'); *Keeps only s	pecified charact	ers;				
string7=compress(str	ing,'!.','P'); *Compress Pt	nctuations only	•				
string8=compress(str	ing, 's', 'i'); *upper/lower	case specified c	haracters;				
string9=compress(str	ing,'','a'); *Compress al	l upper\lower ca	ase characters;				
string10=compress(st	tring,",'s'); *Compress o	r delete spaces;					
string11=compress(st	ring,",'kd'); *Compress al	phabets (Keeps	only digits);		OR MO		
	string5	- 5	string6	st	ring7	string8	
run:	tudylog!17752.	SSS		StudySAS Blog	17752 tu	dyA Blog! 17752.	

string 10

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string3

string4

string11

17752

# Thank You ...