

SAS进阶

第一部分 SAS格式

(1)SAS格式

- SAS变量包含数值型、字符型变量;
- 输入格式、输出格式;
- Format Categories;

(2)示例



```
/* SAS INFORMAT */
DATA DEMOY;
INPUT NAME $11. BIRTH HEIGHT;
INFORMAT BIRTH YYMMDD10. HEIGHT 5.1;
CARDS;
LIXIA01      1959/10/21 170.5
LIXIA02      1959/10/22 176.5
WANGMING     1992/02/21 177.8
;
RUN;

PROC PRINT DATA = DEMOY;
RUN;
```

The SAS System

Obs	NAME	BIRTH	HEIGHT
1	LIXIAO1	-72	170.5
2	LIXIAO2	-71	176.5
3	WANGMING	11739	177.8

```

DATA DEMON;
INPUT NAME $11. BIRTH $11. HEIGHT;
CARDS;
LIXIAO1      1959/10/21 170.5
LIXIAO2      1959/10/22 176.5
WANGMING     1992/02/21 177.8
;
RUN;

PROC PRINT DATA = DEMON;
RUN;

```

The SAS System

Obs	NAME	BIRTH	HEIGHT
1	LIXIAO1	1959/10/2	1
2	LIXIAO2	1959/10/2	2
3	WANGMING	1992/02/2	1

```

DATA DDATE;
SDATE = "01JAN2018"D;
F1DATE = SDATE;
F2DATE = SDATE;
F3DATE = SDATE;
RUN;

PROC PRINT DATA = DDATE;
RUN;

DATA DDATE;
SDATE = "01JAN2018"D;
FORMAT F1DATE YYMMDD10. F2DATE YYMMDD8. F3DATE YYMMDD6.;
F1DATE = SDATE;
F2DATE = SDATE;
F3DATE = SDATE;
RUN;

PROC PRINT DATA = DDATE;
RUN;

```

The SAS System

Obs	SDATE	F1DATE	F2DATE	F3DATE
1	21185	21185	21185	21185

The SAS System

Obs	SDATE	F1DATE	F2DATE	F3DATE
1	21185	2018-01-01	18-01-01	180101

第二部分 SAS日期

(1)日期转换

SAS 将日期和时间存储为一个唯一数字；

- SAS 日期值，如"21DEC2018"D；

介于 1960 年 1 月 1 日和指定日期之间的天数；

- SAS 时间值，如"09:39:00"T；

自当日午夜 12 时算起的秒数，SAS 时间值介于 0 和 86400 之间；

- SAS 日期时间值，如"21DEC2018 09:39:00"DT；

自 1960 年 1 月 1 日和指定日期内的小时/分钟/秒之间的秒数的值；

```
/* SAS DATE */
DATA SASDATE;
SDATE = "21DEC2018"D;
STIME = "09:39:00"T;
SDATETIME = "21DEC2018 09:39:00"DT;
RUN;

PROC PRINT DATA = SASDATE;
RUN;

DATA SASDATE_TR;
SDATE = "21DEC2018"D;
```

```
STIME = "09:39:00" T;
SDATETIME = "21DEC2018 09:39:00" DT;
FORMAT F1DATE YYMMDD10. F2DATE YYMMDD8. FTIME TIME10. FDATETIME DATETIME20.;
F1DATE = SDATE;
F2DATE = SDATE;
FTIME = STIME;
FDATETIME = SDATETIME;
RUN;

PROC PRINT DATA = SASDATE_TR;
RUN;
```

The SAS System

Obs	SDATE	STIME	SDATETIME
1	21539	34740	1861004340

The SAS System

Obs	SDATE	STIME	SDATETIME	F1DATE	F2DATE	FTIME	FDATETIME
1	21539	34740	1861004340	2018-12-21	18-12-21	9:39:00	21DEC2018:09:39:00

(2)日期计算

- 直接进行数值运算；
- 内置函数；

INTNX

计算从特定日期开始相隔指定间隔的日期；

INTNX(interval, start-from, increment, <'alignment'>);

其中, 'alignment':

“B”: Beginning, 返回的日期时间对齐间隔时间的开始；

“M”: Middle, 返回的日期时间对齐间隔时间的中间；

“E”: End, 返回的日期时间对齐间隔时间的结束；

“S”: Same, 返回的日期时间和开始时间具有相同的对齐；

INTCK

计算两个日期间的间隔长度；

INTNX(interval, start-date, end-date, <'method'>);

其中, 'method':

“C”: Continuous, 测量连续时间, 间隔是根据开始日期而开始计算;

“D”: Discrete, 测量离散时间, 离散方法计算间隔边界;

• 其它函数:

TODAY(), YEAR(), MONTH(), DAY(), WEEKEND()等等

```
/* INTNX */
DATA DINTNX;
  SDATE = "01JAN2018"D;
  FORMAT FDATE SDATED SDATEM SDATEY YYMMDD10.;
  FDATE = SDATE;
  SDATED = INTNX("DAY", SDATE, 1);
  SDATEM = INTNX("MONTH", SDATE, 1);
  SDATEY = INTNX("YEAR", SDATE, 1);
  RUN;

PROC PRINT DATA = DINTNX;
  RUN;

DATA DINTNXM;
  SDATE = "02JAN2018"D;
  FORMAT FDATE SDATEMB SDATEMM SDATEME SDATEMS YYMMDD10.;
  FDATE = SDATE;
  SDATEMB = INTNX("MONTH", SDATE, 1, "B");
  SDATEMM = INTNX("MONTH", SDATE, 1, "M");
  SDATEME = INTNX("MONTH", SDATE, 1, "E");
  SDATEMS = INTNX("MONTH", SDATE, 1, "S");
  RUN;

PROC PRINT DATA = DINTNXM;
  RUN;

DATA DINTNXY;
  SDATE = "02JAN2018"D;
  FORMAT FDATE SDATEMB SDATEMM SDATEME SDATEMS YYMMDD10.;
  FDATE = SDATE;
  SDATEMB = INTNX("YEAR", SDATE, 1, "B");
  SDATEMM = INTNX("YEAR", SDATE, 1, "M");
  SDATEME = INTNX("YEAR", SDATE, 1, "E");
  SDATEMS = INTNX("YEAR", SDATE, 1, "S");
  RUN;
```

```
PROC PRINT DATA = DINTNX;
RUN;
```

The SAS System

Obs	SDATE	FDATE	SDATED	SDATEM	SDATEY
1	21185	2018-01-01	2018-01-02	2018-02-01	2019-01-01

The SAS System

Obs	SDATE	FDATE	SDATEMB	SDATEMM	SDATEME	SDATEMS
1	21186	2018-01-02	2018-02-01	2018-02-14	2018-02-28	2018-02-02

The SAS System

Obs	SDATE	FDATE	SDATEMB	SDATEMM	SDATEME	SDATEMS
1	21186	2018-01-02	2019-01-01	2019-07-02	2019-12-31	2019-01-02

```
/* INTCK */
DATA DINTCK;
  SDATE_M11 = "01DEC2018"D;
  SDATE_M12 = "05NOV2018"D;
  GAP_DAYS = INTCK("DAY", SDATE_M12, SDATE_M11);
  GAP_MONS = INTCK("MONTH", SDATE_M12, SDATE_M11);
RUN;

PROC PRINT DATA = DINTCK;
RUN;
```

The SAS System

Obs	SDATE_M11	SDATE_M12	GAP_DAYS	GAP_MONS
1	21519	21493	26	1

第三部分 SAS类型转换

SAS类型转换 PUT/INPUT

基本形式：

数值转字符: VAR_A = PUT(VAR_B, \$w.)

字符转数值: VAR_B = INPUT(VAR_A, w.)

VAR_A为字符类型，VAR_B为数值类型，w为字段长度；

```
/* PUT INPUT */
DATA DPUT1;
DATE18 = 20181221;
DATEP18 = PUT(Date18, $8.);
RUN;

PROC PRINT DATA = DPUT1;
RUN;

DATA DPUT2;
DATE18 = 20181221;
DATEP18 = PUT(Date18, $8.);
DATEI18 = INPUT(DateP18, YMMDD8.);
/* DATEI18 = INPUT(put(Date18, $8.), YMMDD8.); */
DATEPN18 = PUT(DateI18, YMMDDN8.);
DATEIN18 = INPUT(DatePN18, 8.);
RUN;

PROC PRINT DATA = DPUT2;
RUN;
```

The SAS System

Obs	DATE18	DATEP18
1	20181221	20181221

The SAS System

Obs	DATE18	DATEP18	DATEI18	DATEPN18	DATEIN18
1	20181221	20181221	21539	20181221	20181221