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/* FIRST.VARIABLE & LAST.VARIABLE IN SAS: */
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/* a. CREATING A COUNTER VARIABLE */  
/* b. PROCESSING IN PDV */  
/* c. SUBSET NTH OBSERVATION OF BY VARIABLE */  
/* d. COMPUTING CUMULATIVE SUM */  
/* e. TOTAL ON BY VARIABLE */
```

```
/* a. CREATING A COUNTER VARIABLE */
```

```
/* PREREQUISITS: */  
/* 1. SORT THE DATA BASED ON VARIABLE THROUGH WHICH YOU CREATE A COUNTER. */
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```
.....  
PROC SORT DATA=WORK.COUNTERS;  
BY NAME;  
RUN;
```

```
.....  
DATA COUNTER1;  
SET WORK.COUNTERS;  
BY NAME;
```

```
IF FIRST.NAME THEN COUNTER=1;  
ELSE COUNTER+1;  
RUN;
```

```
.....  
DATA COUNTER1;  
SET WORK.COUNTERS;  
BY NAME;  
IF LAST.NAME THEN COUNTER=1;  
ELSE COUNTER+1;  
RUN;
```

```
/* c. SUBSET NTH OBSERVATION OF BY VARIABLE */
```

```
.....  
DATA COUNTER11;  
SET WORK.COUNTER1;  
BY NAME;
```

```
IF FIRST.NAME THEN COUNTER=1;  
ELSE COUNTER+1;
```

```
IF COUNTER = 3 THEN OUTPUT;  
RUN;
```

```
/* d. COMPUTING CUMULATIVE SUM */
```

```
/* ONE WAY TO DO THIS: */
```

```
DATA COUNTER11;  
SET WORK.COUNTER1;  
BY NAME;  
  
IF FIRST.NAME THEN COUNTER=1;  
ELSE COUNTER+1;  
  
IF COUNTER=1 THEN CUM_TRAN_AMOUNT=TRAN_AMOUNT;  
ELSE CUM_TRAN_AMOUNT+TRAN_AMOUNT;  
RUN;
```

```
/* ANOTHER WAY TO DO THIS: */
```

```
DATA COUNTER11;  
SET WORK.COUNTER1;  
BY NAME;  
  
IF FIRST.NAME THEN CUM_TRAN_AMOUNT=TRAN_AMOUNT;  
ELSE CUM_TRAN_AMOUNT+TRAN_AMOUNT;  
RUN;
```

```
/* e. TOTAL ON BY VARIABLE */
```

```
DATA COUNTER11;  
SET WORK.COUNTER1;  
BY NAME;  
  
IF FIRST.NAME THEN CUM_TRAN_AMOUNT=TRAN_AMOUNT;  
ELSE CUM_TRAN_AMOUNT+TRAN_AMOUNT;  
  
IF LAST.NAME THEN OUTPUT;  
RUN;
```