

# How to Easily Implement IF-THEN-DO Logic in SAS

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## RECOMMENDED CITATION

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IF-THEN-DO in SAS is a type of programming code used to perform a specific action depending on the conditions specified in the IF-THEN statement. It usually involves an IF-THEN statement followed by a DO statement which defines the action to be taken. Examples of this could include selecting certain observations from a dataset, creating a new dataset, or printing out a report. The IF-THEN-DO statement is a useful tool for data selection, manipulation, and analysis.

You can use an **IF-THEN-DO** statement in SAS to *do* a block of statements *if* some condition is true.

This statement uses the following basic syntax:

```
if var1 = "value" then do;  
new_var2 = 10;  
new_var3 = 5;  
end;
```

**Note:** An IF-THEN statement is used when you only want to do *one* statement. An IF-THEN-DO statement is used when you want to do several statements.

The following example shows how to use an **IF-THEN-DO** statement in practice.

### Example: IF-THEN-DO in SAS

Suppose we have the following dataset in SAS that shows the total sales made by two stores during consecutive days:

```
/*create dataset*/  
data original_data;  
input store $ sales;  
datalines;  
A 14  
A 19  
A 22  
A 20  
A 16  
A 26  
B 40  
B 43  
B 29  
B 30
```

**B 35**

**B 33**

;

**run;**

**/\*view dataset\*/**

**proc print data=original\_data;**

| Obs | store | sales |
|-----|-------|-------|
| 1   | A     | 14    |
| 2   | A     | 19    |
| 3   | A     | 22    |
| 4   | A     | 20    |
| 5   | A     | 16    |
| 6   | A     | 26    |
| 7   | B     | 40    |
| 8   | B     | 43    |
| 9   | B     | 29    |
| 10  | B     | 30    |
| 11  | B     | 35    |
| 12  | B     | 33    |

We can use the following IF-THEN-DO statement to create two new variables that take on certain values if the store is equal to "A" in the original dataset:

**/\*create new dataset\*/**

**data new\_data;**

**set original\_data;**

**if store = "A" then do;**

**region="East";**

**country="Canada";**

**end;**

**run;**

**/\*view new dataset\*/**

**proc print data=new\_data;**

| Obs | store | sales | region | country |
|-----|-------|-------|--------|---------|
| 1   | A     | 14    | East   | Canada  |
| 2   | A     | 19    | East   | Canada  |
| 3   | A     | 22    | East   | Canada  |
| 4   | A     | 20    | East   | Canada  |
| 5   | A     | 16    | East   | Canada  |
| 6   | A     | 26    | East   | Canada  |
| 7   | B     | 40    |        |         |
| 8   | B     | 43    |        |         |
| 9   | B     | 29    |        |         |
| 10  | B     | 30    |        |         |
| 11  | B     | 35    |        |         |
| 12  | B     | 33    |        |         |

Here's how this chunk of code worked:

If the store was equal to "A" then a new variable called **region** was created with a value of "East" and a new variable called **country** was created with a value of Canada."

Note that we can use multiple IF-THEN-DO statements as well:

```
/*create new dataset*/
```

```
data new_data;
```

```
set original_data;
```

```
if store = "A" then do;
```

```
region="East";
```

```
country="Canada";
```

```
end;
```

```
if store = "B" then do;
```

```
region="West";
```

```
country="USA";
```

```
end;
```

```
run;
```

```
/*view new dataset*/
```

```
proc print data=new_data;
```

| Obs | store | sales | region | country |
|-----|-------|-------|--------|---------|
| 1   | A     | 14    | East   | Canada  |
| 2   | A     | 19    | East   | Canada  |
| 3   | A     | 22    | East   | Canada  |
| 4   | A     | 20    | East   | Canada  |
| 5   | A     | 16    | East   | Canada  |
| 6   | A     | 26    | East   | Canada  |
| 7   | B     | 40    | West   | USA     |
| 8   | B     | 43    | West   | USA     |
| 9   | B     | 29    | West   | USA     |
| 10  | B     | 30    | West   | USA     |
| 11  | B     | 35    | West   | USA     |
| 12  | B     | 33    | West   | USA     |

If the store was equal to "A" then a new variable called **region** was created with a value of "East" and a new variable called **country** was created with a value of Canada."

If the store was equal to "B" then the value for **region** was West" and the value for **country** was "USA."

The following tutorials explain how to perform other common tasks in SAS: