

# Creating Custom Excel Spreadsheets with Built-in Autofilters Using SAS® Output Delivery System (ODS)

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## ABSTRACT

Spreadsheets have become the most popular and successful data tool ever conceived. Current estimates show that there are more than 750 million Excel users worldwide. A spreadsheet's simplicity and ease of use are two reasons for the growth and widespread use of Excel around the globe. Additional value-added features have also helped to expand the spreadsheet usefulness among a growing number of users including its collaborative capabilities, being customizable, ability to manipulate data, application of data visualization techniques, mobile device usage, automation of repetitive tasks, integration with other software, data analysis, and filtering capabilities using autofilters. This last value-added feature, filtering with autofilters, is the theme for this paper. An example application will be illustrated that creates a custom Excel spreadsheet with built-in autofilters, or filters that provide users with the ability to make choices from a list of text, numeric, or date values to find data of interest quickly, using the SAS® Output Delivery System (ODS) Excel destination and the REPORT procedure.

**Keywords:** sas, excel, excel spreadsheet, ods, ods excel, proc report, autofilter, filter

## INTRODUCTION

The application of custom autofilters in Excel spreadsheets provides users with the ability to find, show, or hide text, numeric, and/or date values. Users can build custom Excel spreadsheets with built-in autofilters from any SAS dataset using the SAS Output Delivery System (ODS) Excel destination. One, two, or more column(s) or variable(s) can serve as autofilters in the resulting Excel spreadsheet. After the first column is filtered, users can then refine the filtered results by filtering two or more additional columns. This paper illustrates a step-by-step approach to building custom Excel spreadsheets with built-in autofilters using the SAS® Output Delivery System (ODS) Excel destination and the REPORT procedure.

## DATASET USED IN EXAMPLES

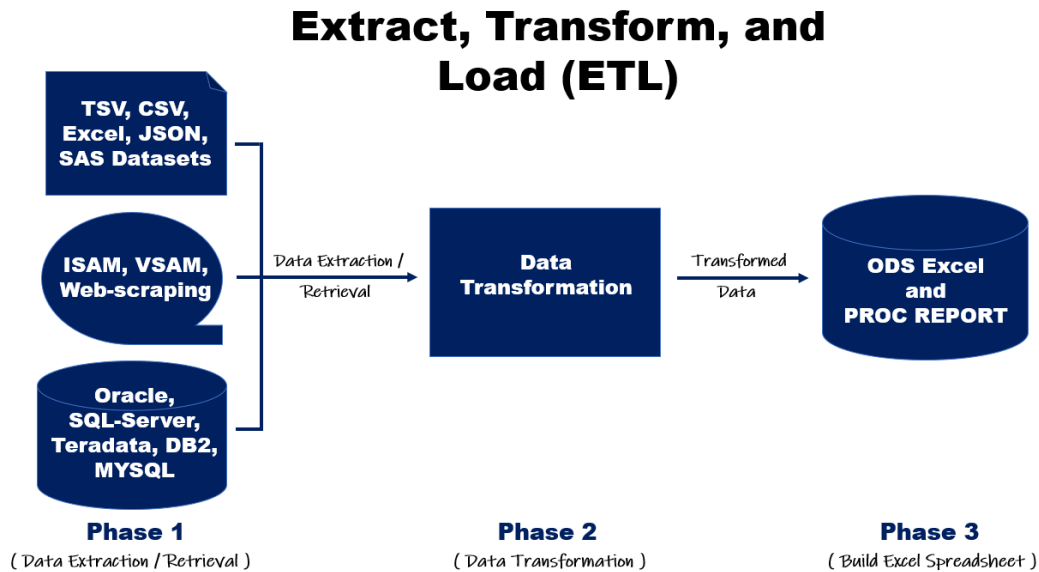
A SAS dataset was created containing popular restaurants located in the San Diego downtown area. This dataset consists of 87 observations (or restaurants) and 17 variables, illustrated below.

The CONTENTS Procedure			
Data Set Name	MYDATA.WUSS_2023.RESTAURANTS	Observations	87
Member Type	DATA	Variables	17
Engine	V9	Indexes	0
Created	08/19/2023 04:01:23	Observation Length	776
Last Modified	08/19/2023 04:01:23	Deleted Observations	0
Protection		Compressed	NO
Data Set Type		Sorted	NO
Label			
Data Representation	SOLARIS_X86_64, LINUX_X86_64, ALPHA_TRU64, LINUX_IA64		
Encoding	utf-8 Unicode (UTF-8)		

Alphabetic List of Variables and Attributes				
#	Variable	Type	Len	Format
10	Address	Char	15	
1	Category	Char	30	
11	City	Char	15	
8	Cost	Char	8	
15	Google_Maps	Char	400	
6	Hours	Char	17	
5	KirksFavorite	Char	3	
3	Nationality	Char	30	
4	Neighborhood	Char	32	
9	OutdoorSeating	Char	3	
2	RestaurantName	Char	40	
16	Restaurant_Latitude	Num	8	14.6
17	Restaurant_Longitude	Num	8	14.6
7	StarRating	Char	9	
12	State	Char	2	
14	Website	Char	150	
13	Zip	Char	5	

## THE EXTRACT, TRANSFORM, AND LOAD (ETL) PROCESS

The extract, transform, and load (ETL) process involves moving / migrating data from various sources to an Excel spreadsheet. The best way to understand how ETL works is to examine what happens in each phase of the process. The ETL process and its three phases are displayed in the figure below.



## COMBINING THE POWER OF ODS EXCEL AND PROC REPORT

The example code showing the SORT procedure, ODS Excel, and REPORT procedure below creates a custom Excel spreadsheet with seven (7) built-in autofilters.

### Code:

```
LIBNAME MYDATA "/home/Programs/Restaurant_Finder App/App Data" ;
```

```
PROC SORT DATA=MYDATA.WUSS_2023_Restaurants
      OUT=WORK.WUSS_2023_Restaurants_sorted ;
  BY RestaurantName ;
RUN ;
```

```
ODS EXCEL FILE="/home/Restaurant_Finder App/Results/WUSS 2023 Restaurant Finder.xlsx"
      OPTIONS(sheet_name="WUSS 2023 Restaurant Finder"
             sheet_interval="none"
             frozen_headers="1"
             frozen_rowheaders="7"
             autofilter="1-7") ;
```

```
PROC REPORT DATA=WORK.WUSS_2023_Restaurants_sorted ;
  COLUMNS RestaurantName Category Nationality Neighborhood StarRating Cost
            OutdoorSeating KirksFavorite Address Hours Website Google_Maps ;
  DEFINE Nationality / DISPLAY CENTER ;
  DEFINE Neighborhood / DISPLAY CENTER ;
  DEFINE StarRating / DISPLAY CENTER ;
  DEFINE Cost / DISPLAY WIDTH=8 CENTER ;
  DEFINE OutdoorSeating / DISPLAY CENTER ;
  DEFINE KirksFavorite / DISPLAY CENTER ;
  DEFINE Hours / DISPLAY CENTER ;
  DEFINE Website / DISPLAY WIDTH=30 ;
```



### 3. Nationality

RestaurantName | Category | **Nationality**

A Z Sort A to Z  
Z A Sort Z to A

Sort by Color >  
Sheet View >

Clear Filter From "Nationality"

Filter by Color >  
Text Filters >

Search

- (Select All)
- American
- American -Burgers &Sandwiche
- American Food
- American,Southern
- Bar & LightBites
- Barbeque
- Brazilian
- Coffee andTake-awayMeals

OK Cancel

### 4. Neighborhood

Category | Nationality | **Neighborhood**

A Z Sort A to Z  
Z A Sort Z to A

Sort by Color >  
Sheet View >

Clear Filter From "Neighborhood"

Filter by Color >  
Text Filters >

Search

- (Select All)
- Downtown -Gaslamp
- Downtown -Little Italy
- WUSS 2023ConferenceHotel

OK Cancel

### 5. StarRating

ality | Neighborhood | **StarRating**

A Z Sort A to Z  
Z A Sort Z to A

Sort by Color >  
Sheet View >

Clear Filter From "StarRating"

Filter by Color >  
Text Filters >

Search

- (Select All)
- 3.5 Stars
- 4 Stars
- 4.5 Stars
- 5 Stars

OK Cancel

### 6. Cost

neighborhood | StarRating | **Cost**

A Z Sort A to Z  
Z A Sort Z to A

Sort by Color >  
Sheet View >

Clear Filter From "Cost"

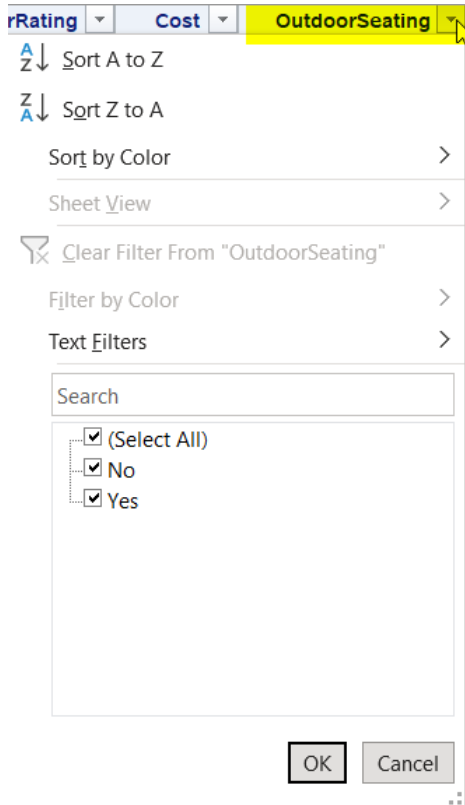
Filter by Color >  
Text Filters >

Search

- (Select All)
- \$
- \$\$
- \$\$\$
- \$\$\$\$
- (Blanks)

OK Cancel

## 7. OutdoorSeating



## CONCLUSION

The application of custom autofilters in Excel spreadsheets provides users with the ability to find, show, or hide text, numeric, and/or date values. This paper illustrated a step-by-step approach to building custom built-in autofilters in Excel spreadsheets. The contents of any SAS dataset can be sent to an Excel spreadsheet containing built-in autofilters that find, show, or hide text, numeric, and/or date values using the SAS Output Delivery System (ODS) Excel destination and the REPORT procedure. With the ability to specify one, two, or more column(s) or variable(s) to serve as autofilters in the resulting Excel spreadsheet, users have complete control in building powerful and flexible Excel spreadsheet applications.

## REFERENCES

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