

# SAS Enterprise Guide 4.3

An introduction to  
SAS Enterprise Guide 4.3  
with a focus on selected topics

# About the courses in SAS EG

SAS Enterprise Guide is point-and-click software with a variety of tools available within statistics and data manipulation.

This introduction course will provide the participant with an in-depth fundamental knowledge in the basic SAS Enterprise Guide functions.

# Agenda

- About SAS Eg 4.3
- Opening SAS EG

## - Part 1

- Creating a library
- Creating a new dataset
- Exporting a dataset to Word/Excel

## - Part 2

- Import an Excel File
- Date Settings
- Data Manipulation
  - Recode existing variables
  - Compute a new variable
  - Sort dataset
  - Filter dataset
- Investigation of Process Flows
- Project Management
- Assignment 1
- **10 minutes Break**

## - Part 3

- Merge Datasets
  - Expanding by rows (Cases)
  - Expanding by Columns (Variables)

## - Part 4

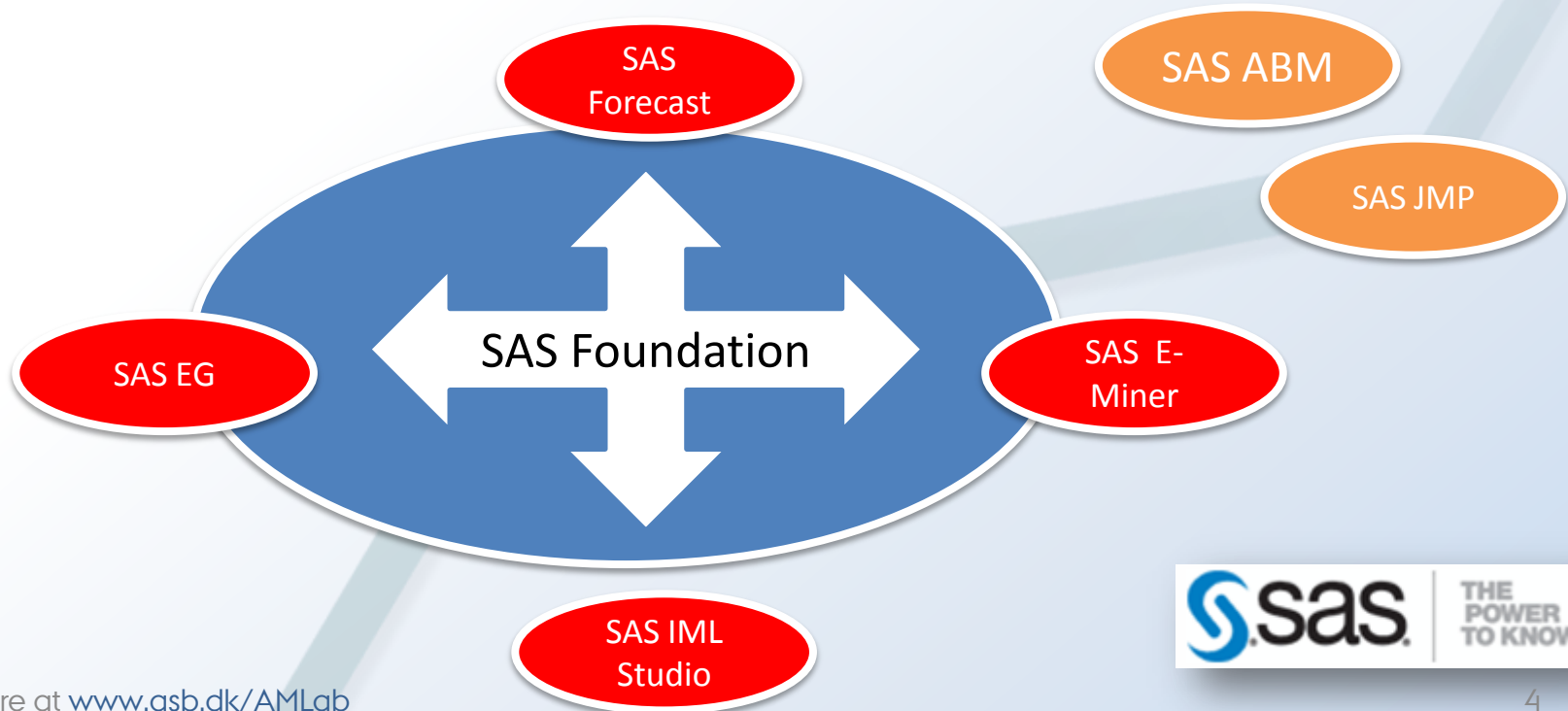
- Simple Descriptive statistics
- Change output format
- Creating charts
- Typing in SAS code
- Assignment 2
- Assignment 3 - If time allows
- Closing notes
  - SAS - In Real Life!
  - Connecting to the SAS Server
  - Help Function
  - Where to learn more SAS
- Participate in our evaluation Survey

All Courses are available from the AMLab – sign up at the CourseEvent (Kursusplanen) or read more about the Analytics Management Lab at [www.asb.dk/AMLab](http://www.asb.dk/AMLab)

Courses in SAS Base, SAS Stat, SAS JMP, SAS IML & SAS IML Studio are also available

# About SAS EG 4.3

- SAS Foundation is the base engine in many of the SAS products, here among SAS Forecast Server, SAS E-miner and SAS Enterprise Guide.
- Other SAS Products are SAS ABM and SAS JMP
- Read more about the SAS Products at [www.sas.com](http://www.sas.com)



# About SAS EG 4.3 – Some Quick Common Q&A's

## What is SAS EG?

- SAS EG is a point-and-click statistical software, which requires SAS foundation.

## Why use SAS EG?

- Provide a self-service environment for analysts and statisticians.
- Provide easy access to data sources through a SAS graphical interface.
- Make reporting and analytics available to everyone as it is easy to use (compared to SAS Foundation/Base)
- Many companies use the SAS systems, so basic knowledge to the SAS software might be required

# About SAS EG 4.3 – Some Quick Common Q&A's

## Where can I access SAS EG?

- All public computers in the H- and D-Wing have SAS Foundation and SAS EG installed (SAS Foundation is required for SAS EG to work)
- You can download SAS from our homepage:  
Go to [www.asb.dk/aq](http://www.asb.dk/aq) -> Download SAS 9.2 and SPSS -> SAS 9.2

You will need your ASB Credentials in order to download SAS

Username: **ASB\**CampusNet username

*- Remember the ASB\ in front*

Password: CampusNet password

## Which platforms is supported?

Windows 2000 Professional, Windows XP Professional, Windows Server 2003, Windows Vista & Windows 7 (Enterprise, Business, Ultimate and **SOME** Home editions supported)

## Can I get SAS EG on my MAC?

No – you cannot!

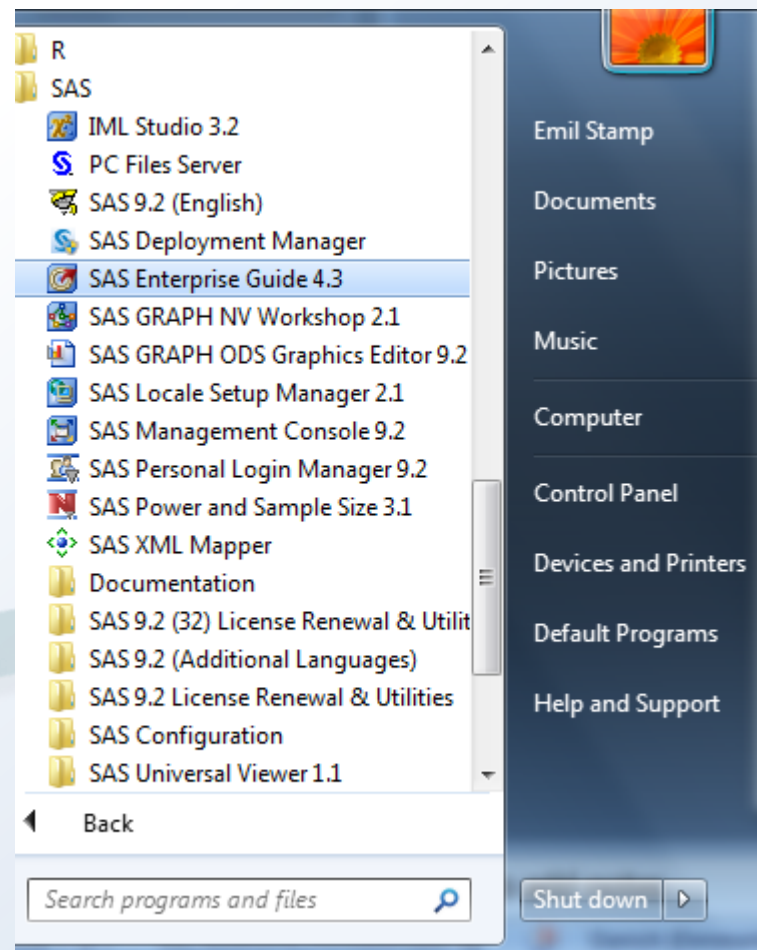
# Opening SAS EG 4.3

## Windows / & Vista

Windows Button → All Programs →  
SAS → SAS Enterprise Guide 4.3

## Windows XP & 2000

Start → Programs →  
SAS → SAS Enterprise Guide 4.3



# Opening SAS EG 4.3

The ribbon allows you to perform various tasks

The screenshot shows the SAS Enterprise Guide 4.3 interface. The top ribbon contains menus (File, Edit, View, Tasks, Program, Tools, Help) and a toolbar with icons for various tasks. The main workspace is divided into several panes: Project Tree on the left, Process Flow in the center, Server List at the bottom left, and Task Status at the bottom right. The Process Flow pane shows a grid for creating and editing data steps. The Task Status pane shows a table of tasks in progress.

The Project Tree will show all the datasets in the Project

This Window will show you the current analysis or dataset.  
The Process Flow will show you all the analysis and data manipulation steps you have performed.

The Task Status shows which analysis or data steps are currently in progress

From the Server List you can access data from other sources

No profile selected

# Introduction to SAS EG - Part 1

In this introduction we want to:

- Create a library
- Create a new Dataset in the library
- Export the dataset to other programs (MS Word & Excel)

# Data Library

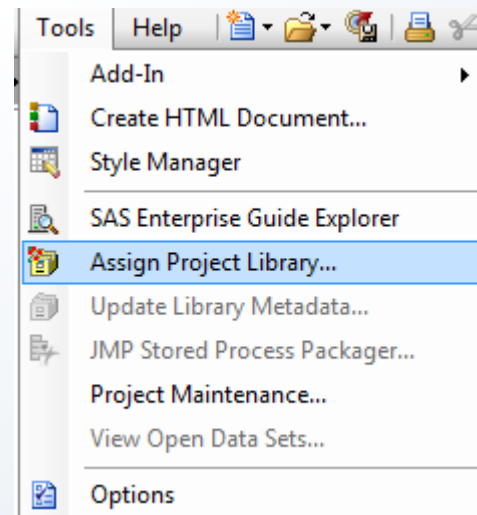
- SAS library references: Highway to data
- Default library references
  - SAS User
  - Work (temporary) – *After closing the SAS session, all data in the work folder will be deleted.*
- User defined library references
  - The physical location on your computer/server where you want SAS to retrieve data sets from and store them in.
- Libraries are essential when working in SAS Foundation

# Creating a Data Library

- 1) Click on **Tools** → **Assign Project Library**
- 2) Assign a name to the library

Name (enter 8 or fewer characters):  
COURSE1

Server:  
Local - The SAS server on your machine



- 3) Choose the Engine type and the path to the directory (Where your datafiles and projects should be saved to).

e.g.  
"M:\SAS\"

Engine type:  
File System

Additional information needed for 'File System'

☒ Let SAS choose the engine based on the contents of the specified path.

Engine:

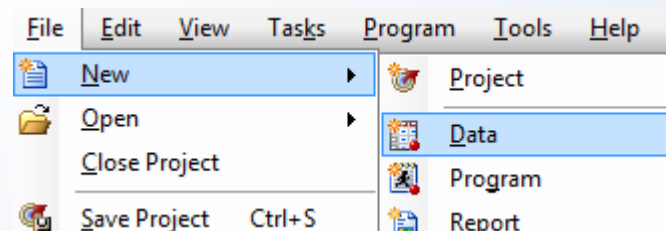
Path:  
M:\SAS

Browse...

# Creating a Dataset

Once the library is determined, a new dataset can be created.

1) Go to **File** → **New** → **Data**

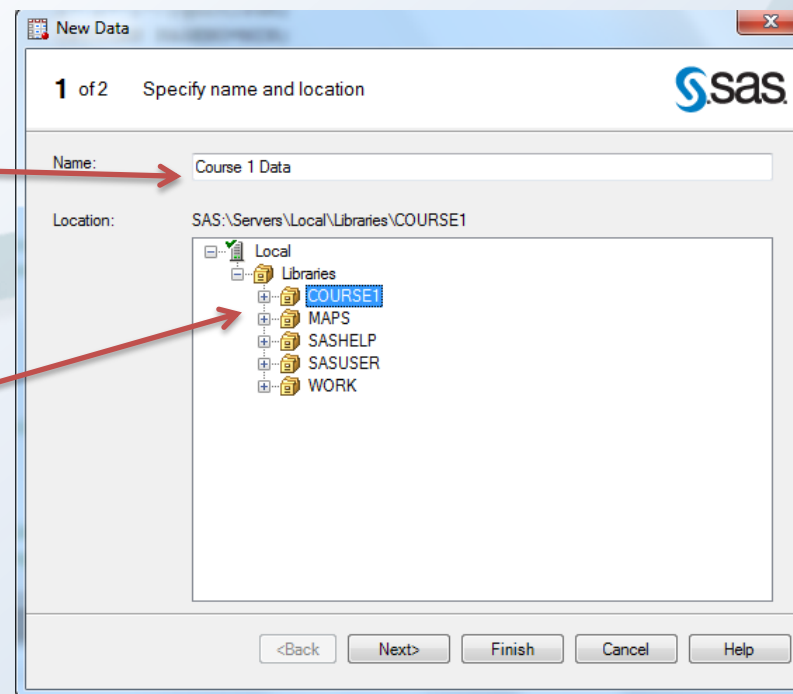


2) Choose a suitable name for the new data set

*(spaces, æøå and other signs are not allowed)*

3) Choose an appropriate data location (library)

*(Notice your new library is available)*



# Creating a Dataset Cont'd

**Variables currently in the Dataset**

**Create a new variable**

**Duplicate an existing variable**

**Variable Name** (No spaces, æøå, or other signs allowed)

**Variable Label** (The label that will be displayed in the output – if none, then the variable name will be shown)

**Variable Type** (Choose Character/Numeric)

**Variable Group** (If a numeric variable, choose Numeric, Date, Time or currency)

**Display Format** (Shows the format that should be viewed in the Dataset)

**Columns:**

Name	Length (in bytes)
A	12
B	12
C	12
D	12
E	12
F	12

**Column Properties:**

Name	F
Label	
Type	Character
Group	Character
Length	12
Display format	
Read-in format	

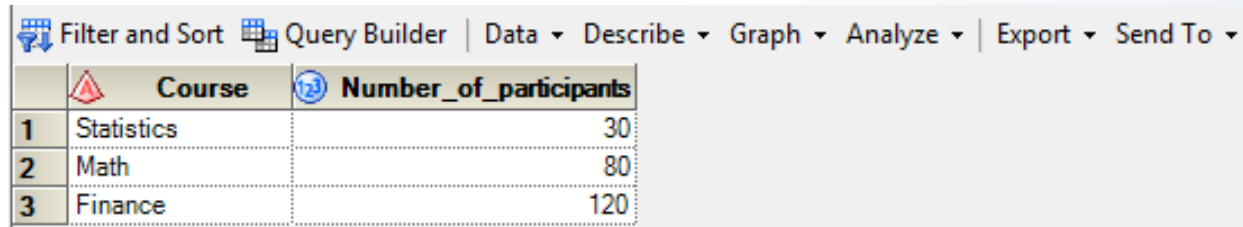
Buttons: New, Duplicate, Paste..., <Back, Next>, Finish, Cancel, Help

# Creating a Dataset Cont'd

Create a data set with 2 variables

- **Course** – Character variable
- **Number\_of\_Participants** – Numeric Variable

Fill out the dataset as shown below:



The screenshot shows a software interface with a menu bar at the top containing 'Filter and Sort', 'Query Builder', 'Data', 'Describe', 'Graph', 'Analyze', 'Export', and 'Send To'. Below the menu is a table with two columns: 'Course' and 'Number\_of\_participants'. The table contains three rows of data.

	Course	Number_of_participants
1	Statistics	30
2	Math	80
3	Finance	120

Delete all excessive rows.

# Exporting dataset

While the new dataset is open, click on

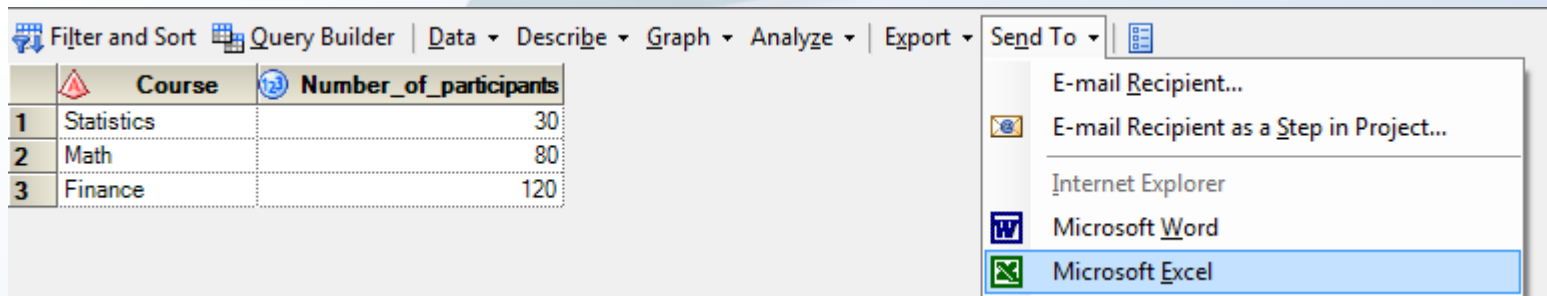
**Either:**

**File → Export → Export 'Dataset Name'...**

- Choose filetype (e.g. XLS (for an Excel File)).
- Save the file on the desktop

**Or:**

**Send To → Microsoft Word/Excel**



# Introduction to SAS EG - Part 2

In this introduction we want to:

- Import an Excel file (XLS)
- Change the date settings
- Data manipulation (Filter & Queries)
  - Recode an existing variable (from a character variable)
  - Build a new variable based on existing variables (From numerical variables)
  - Sort the dataset
  - Filter out some irrelevant variables
- Save the final dataset as a SAS file
- Investigate the Process Flow

# Importing a dataset – From Excel (XLS, XLSX)

The Excel file '**Flightinformation.xls**' contains information regarding different flight routes from an airline company.

- FlightID                                      – Flight ID number ( ***Character***)
- Destination                                   – Mnemonic for the flight destination ( ***Character***)
- Model     – Model of the Airplane ( ***Character***)
- Date    – Date of the Flight ( ***Date***)
- FClasspass – Number of First class passengers ( ***Numeric***)
- BClasspass – Number of Business class passengers ( ***Numeric***)
- EClasspass – Number of Economy class passengers ( ***Numeric***)

The variable type is shown with bold in the brackets .

It is also possible to import other file formats like CSV, TXT, SPSS or database files. The import wizard is the same (almost).

# Importing a dataset – From Excel (XLS, XLSX)

1) Go to **File** → **Import Data** – find the file 'Flightinformation.xls'

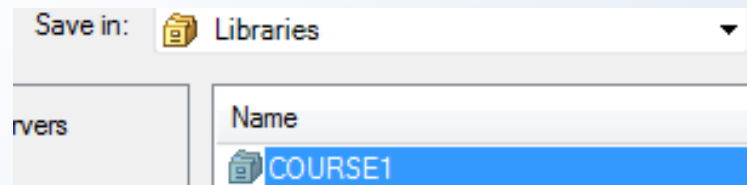
2) Click on **Browse**



Output SAS data set

SAS server:	Local	Browse...
Library:	WORK	
Data set:	Flightinformation1	

3) Choose the library we created earlier “**Course1**”



Save in: Libraries

Name
COURSE1

4) Save the dataset as **Flightinformation**

5) Click on **Next**

# Importing a dataset – From Excel (XLS, XLSX)

6) As the first row in the excel data file contains the variable names, remember to wing the check box.

Select range

☒ Use a worksheet

Flightinfo

☒ First row of range contains field names

☐ Rename columns to comply with SAS naming conventions.

7) In the next step you alter the import preferences for the various variables.

Change the  
**Variable Type** of  
the Date-variable  
to **Date**


Select columns and define attributes:

Inc	Source Name	Name	Label	Type	Source Informat	Len.	Output Format	Output Informat
<input checked="" type="checkbox"/>	FlightID	FlightID	FlightID	String	\$CHAR7.	7	\$CHAR7.	\$CHAR7.
<input checked="" type="checkbox"/>	Destination	Destination	Destination	String	\$CHAR3.	3	\$CHAR3.	\$CHAR3.
<input checked="" type="checkbox"/>	Model	Model	Model	String	\$CHAR16.	16	\$CHAR16.	\$CHAR16.
<input checked="" type="checkbox"/>	Date	Date	Date	Date	ANYDTD...	8	DATE9.	DATE9.
<input checked="" type="checkbox"/>	FClassPass	FClassPass	FClassPass	Number	BEST12.	8	BEST12.	BEST12.
<input checked="" type="checkbox"/>	BClassPass	BClassPass	BClassPass	Number	BEST12.	8	BEST12.	BEST12.
<input checked="" type="checkbox"/>	EClassPass	EClassPass	EClassPass	Number	BEST12.	8	BEST12.	BEST12.

8) Click on **Finish** (*The dataset has now been created in the folder of your library.*)

# Change the date settings

The date settings are currently of the format **DD/MMM/YYYY**

 <b>Date</b>
02DEC2000
03DEC2000
06DEC2000
08DEC2000
09DEC2000
13DEC2000

1) First the dataset must be unprotected by **Edit → Protect Data**

*All data when imported to SAS are protected such that common users to not alter existing data files.*

2) Right click on the **Date column → Properties**

*The date value represents the number of days between January 1, 1960, and a specified date. Dates before 1<sup>st</sup> of Januar are negative and dates after are positive.*

In the properties for a given variable, the number of decimals and other formatting settings can be changed

# Change the date settings

The screenshot shows the SAS Properties dialog box with the 'Formats' tab selected. The 'Categories' list on the left has 'Date' selected. The 'Formats' list on the right shows several date formats, with 'DATEw.d' selected. The 'Attributes' section shows 'Overall width' set to 11 and 'Decimal places' set to 0. The 'Description' field contains 'date value'. The 'Example' section shows a 'Value' of 14245 (01Jan1999) and an 'Output' of 01 - JAN - 1999. Red boxes and arrows highlight these elements, with callout text boxes providing instructions.

Go to **Formats**

The data is of the form **Date**

Choose among a long list of given formats – The formats with **DA** in front are danish formats

Remember to change the width of the variable to fit the given format

Shows a preview of the given format

# Creating new variables

Instead of making changes to an existing dataset, it is often preferred to create a new dataset, where the changes are applied.

## 1) Recode an existing variable:

- Based on the variable Destination:
  - ANC → Anchorage (Character)
  - HNL → Honolulu (Character)
  - SEA → Seattle (Character)

## 2) Compute a new variable based on existing variables:

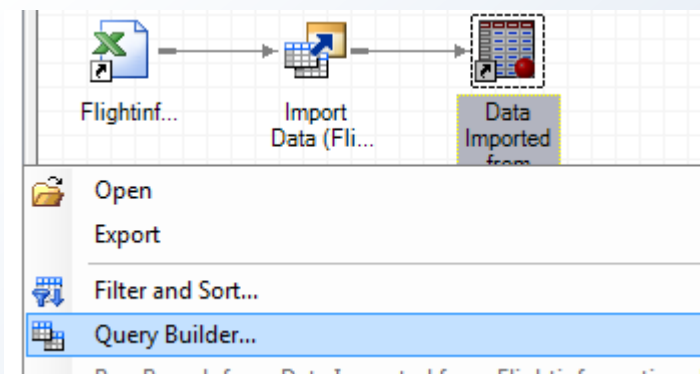
- Calculate the variable "TotalPassengers" for all flights:

$$\text{TotalPassengers} = \text{FClassPass} + \text{BClassPass} + \text{EClassPass}$$

# Creating new variables

In order to create a new dataset containing the new variables, the Query builder must be used.

**Right click on original dataset → Query Builder...**



# Creating new variables

The screenshot shows a software interface for creating a new dataset. The dialog box is titled 'Adding Variables for Local:COURSE1.FLIGHTINFORMATION'. It has a 'Query name' field set to 'Adding Variables' and an 'Output name' field set to 'COURSE1.Flightinfo2'. A 'Change...' button is next to the output name. Below these fields are tabs for 'Computed Columns', 'Prompt Manager', 'Preview', 'Tools', and 'Options'. The 'Computed Columns' tab is active, showing a tree view of variables from 't1 (FLIGHTINFORMATION)': FlightID, Destination, Model, Date, FClassPass, BClassPass, and EClassPass. To the right, the 'Select Data' tab is active, showing a table of selected variables. This table has columns for 'Column Name', 'Identifier', and 'Summary'. The selected variables are Destination, Date, FClassPass, BClassPass, and EClassPass. At the bottom, there is a 'Run' button, a 'Save and Close' button, a 'Cancel' button, and a 'Help' button. A checkbox for 'Select distinct rows only' is also present.

Annotations:

- Name of the Query
- Create new Variables
- Variables available in original dataset
- Filter on new dataset
- Choose data destination and name for the new dataset
- Sort the new dataset by a given variable
- Variables transferred to the dataset.

Column Name	Identifier	Summary
Destination	t1.Destination	
Date	t1.Date	
FClassPass	t1.FClassPass	
BClassPass	t1.BClassPass	
EClassPass	t1.EClassPass	

# Recode an existing variable

Click on **Computed Columns** → **New** → **Recoded Column** →  
Mark the given variable (*Destination*).

Fill out the table as shown

Shows the  
original values  
of the variable

Replaces the  
original values  
with the new  
values

Add a new  
condition for the  
replacement

Choose  
Character (in  
this case)

New Computed Column

3 of 5 Specify a replacement

Replace

Replace	With
= ANC	'Anchorage'
= HNL	'Honolulu'
= SEA	'Seattle'

Other values

Replace all other values with:

☒ The current value

☐ A missing value

☐ Specify a value:

☒ Enclose value in quotes

Column type

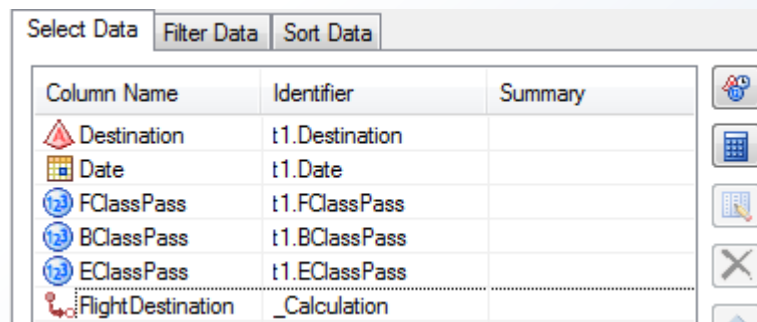
☒ Character

☐ Numeric

<Back Next> Finish Cancel Help

# Recode an existing variable

Remember to provide the new variable with a suitable name (e.g. Flightdestination). Once a new variable has been created it will automatically be added to the new dataset.



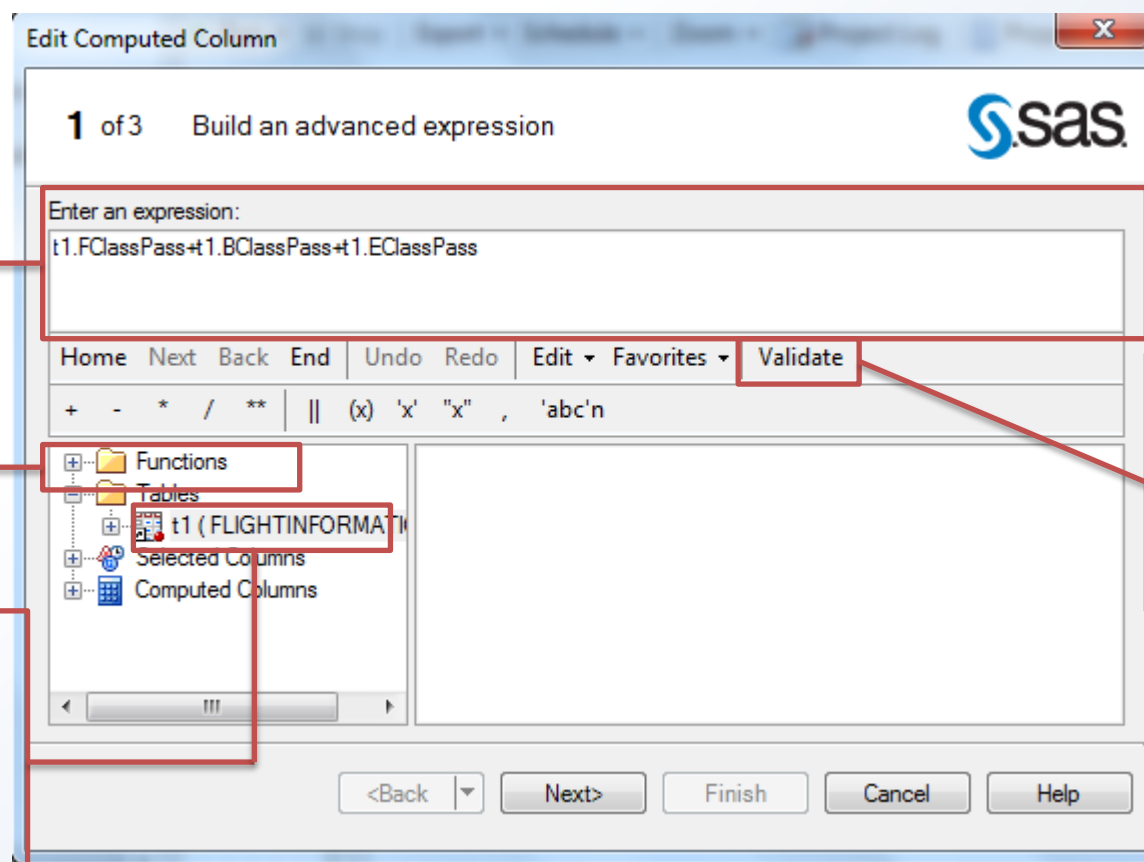
Column Name	Identifier	Summary
Destination	t1.Destination	
Date	t1.Date	
FClassPass	t1.FClassPass	
BClassPass	t1.BClassPass	
EClassPass	t1.EClassPass	
FlightDestination	_Calculation	

The icon for this variable will look like 

This procedure could also be applied when creating e.g. dummy variables. Then the variable the variable type should be numerical

# Compute a new variable

Click on **Computed Columns** → **New** → **Advanced Expression**



Enter the  
expression

Find all  
mathematical  
functions (e.g.  
SUM/MEAN/  
MAX/MIN/...)

Locate all variables  
from the original  
dataset (double  
click to get the  
variable to the  
expression line)

Validates the  
expression (checks  
for errors). Error will  
be present here  
(missing values)

# Compute a new variable

Only **numerical variables** can be applied when using the expression builder.

SAS is a US product, so the decimal separator is a period (.) not a comma.

The power function are applied by using the double star (\*\*) instead of the hat (^) in e.g. Excel

Try to incorporate BOTH the sum function (integrated in SAS) and the self-written mathematical expression.

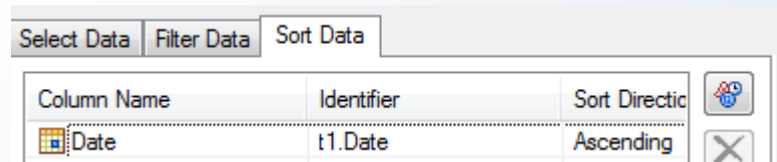
The sum function will see the missing values as 0, whereas the self-written mathematical expression will return missing values for all expressions which contains a missing value.

# Sort & filter

You can choose to filter the data by any action – this will be done in the upcoming assignment.

The actions; greater than, equal to, less than are among some of the many options available.

You sort the data by **date** – either Ascending or Descending.

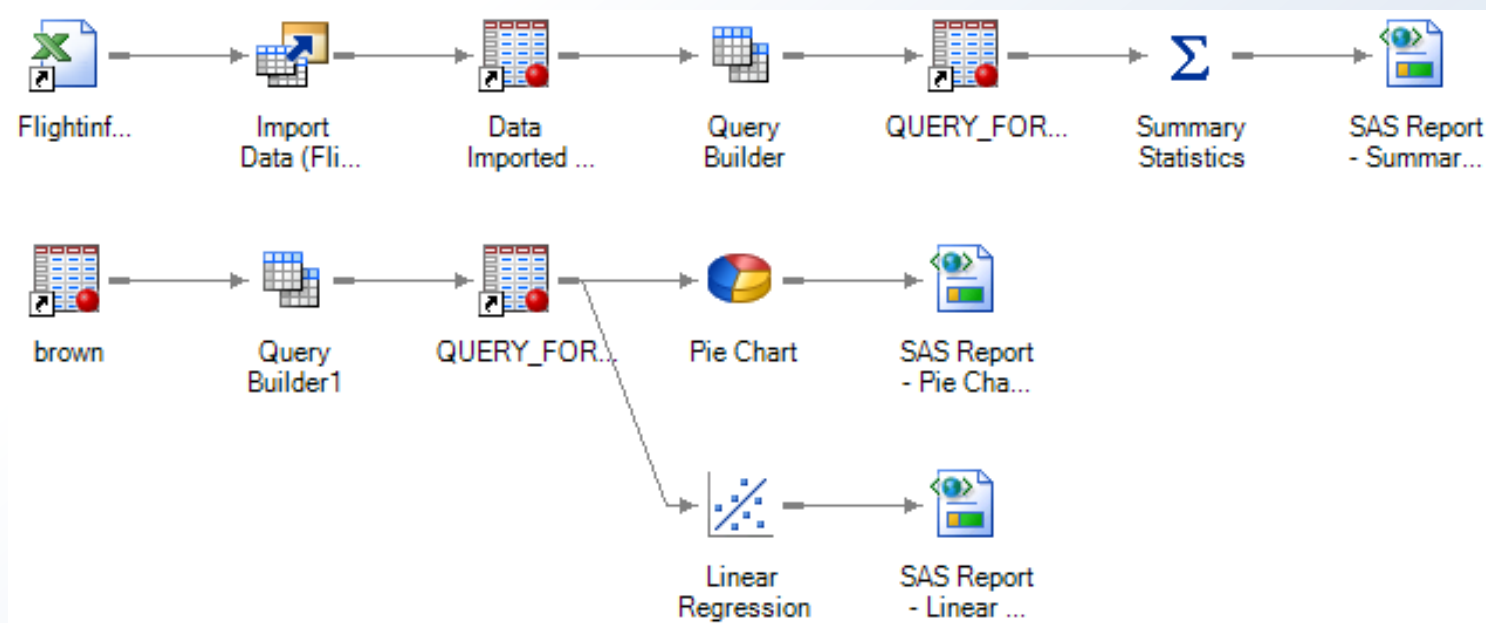


Lastly click on **Run** to generate the new dataset. By the output name it is determined where the and with what name, the dataset should be saved.

# Process Flow

The process flow will allow you to see all the steps you have conducted in your analysis.

There might be multiple process flows within a project – the case below shows two process flows.

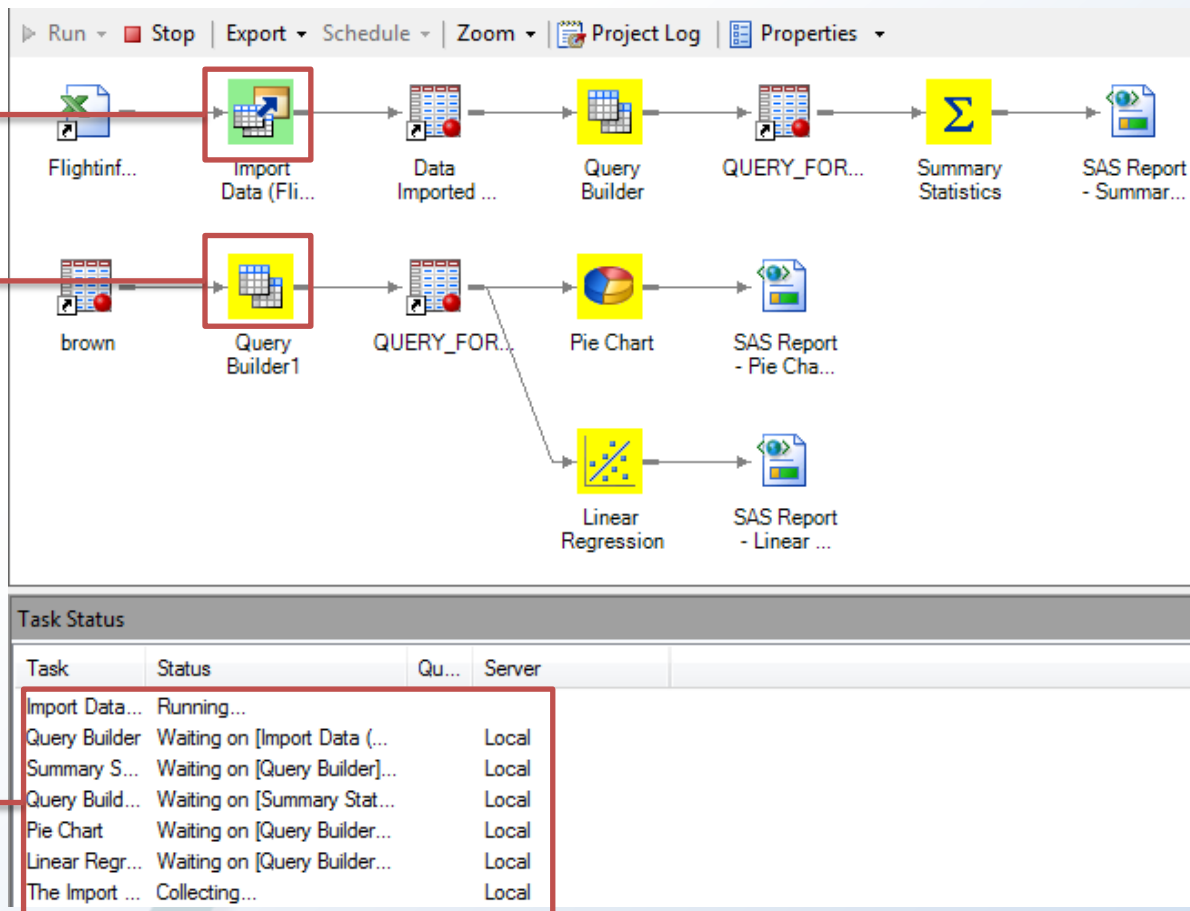


# Process Flow

You can re-run a specific process flow by clicking on **Run → Process Flow.**

Current running process

Waiting process



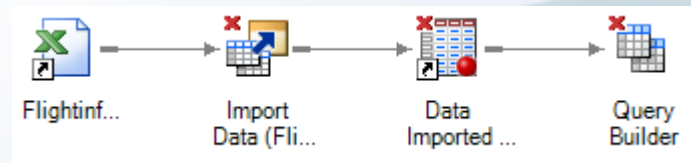
Waiting process

# Project management

You can choose to save your project by by going to **File → Save Project As..**

When you save a project the data files will ***not*** be stored within the project – therefore the data must not be deleted nor moved to another location. Only the specific data steps and analysis are stored within the process.

The picture below shows a run process flow failure



Whenever you open a project, you must run the process flow in order to import the given data and recalculate the models.

# Assignment 1

- Import the file **Payment.xls** (worksheet **All**)
- **Filter out** all the writers who earns less than 100,000 DKK
- Make a new variable named **tax** (which is 40% of income)
- Make a new variable named **Disp\_Income** (**Income** minus **Tax**)
- Sort the data by Name
- Filter out the variable **Speciel\_Benefit**
- Save the new dataset in your own library

# Break – 10 minutes

# Introduction to SAS EG - Part 3

In this introduction we want to:

- Merge two dataset
  - Expanding dataset with more cases (rows)
  - Expanding dataset with more variables (columns)
    - Last merge must be combined by the use of a key variable

*When you do perform a survey analysis, these two types of mergers are often used.*

# Merge – Adding cases

The dataset **sales\_eu** contains sales from the European division for each month of 2010. Another dataset “**sales\_na**” contains the corresponding sales from the North American division.

**These two dataset should be merged to 3 variables (columns) & 24 cases (rows):**

## EU

	123	Month	Region	123	Sales
1		9	Europe		2146457
2		3	Europe		2094220
3		12	Europe		2247953
4		4	Europe		2130248
5		5	Europe		2100211
6		10	Europe		2294300
7		11	Europe		2144188
8		8	Europe		2159234
9		7	Europe		2252662
10		6	Europe		2164796
11		2	Europe		1960034
12		1	Europe		2118222

## North American

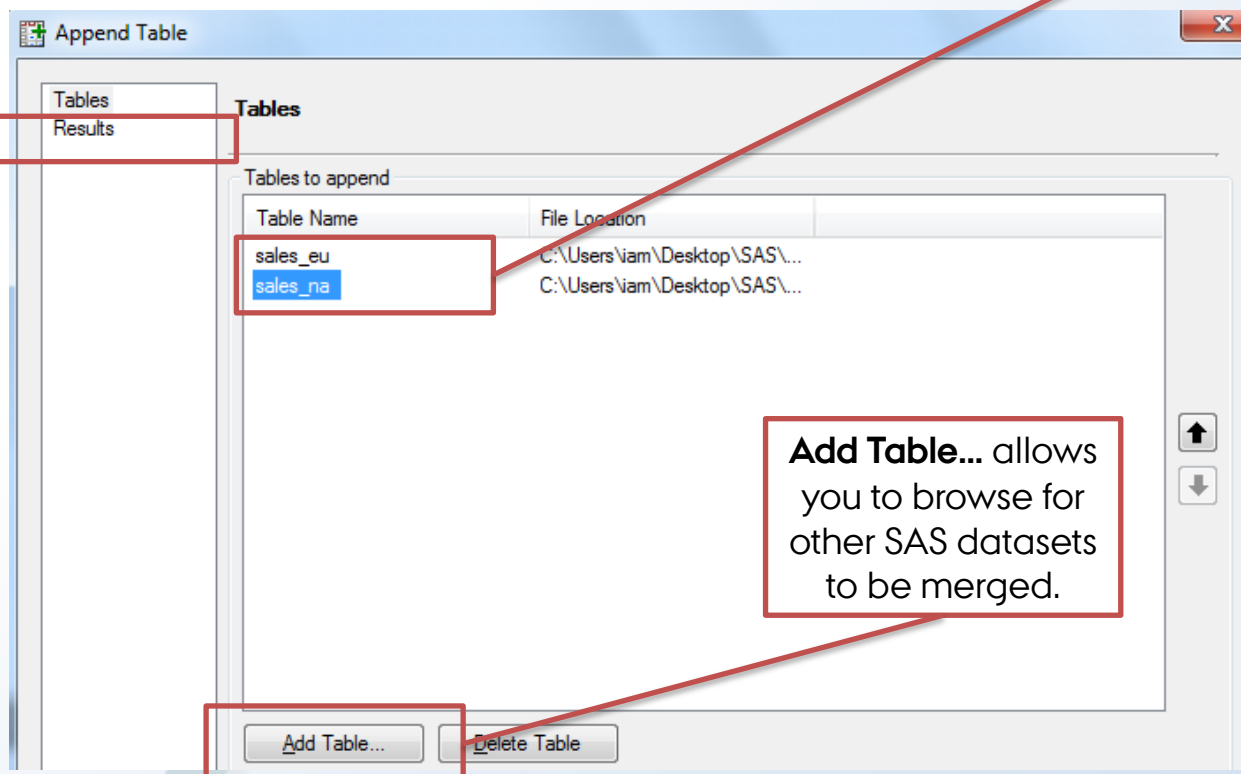
	123	Month	Region	123	Sales
1		7	North America		3104977
2		3	North America		3065902
3		6	North America		3088312
4		12	North America		3153807
5		11	North America		2943110
6		5	North America		3135696
7		10	North America		3049582
8		9	North America		2863599
9		1	North America		3135765
10		2	North America		2926929
11		4	North America		3496058
12		8	North America		3113833

# Merge – Adding cases

- 1) Open the two datasets
- 2) Go to **Tasks** → **Data** → **Append Table...**

Make sure that all tables that should be merged are on the list.

Click on **Results** to save to a given library with a given name

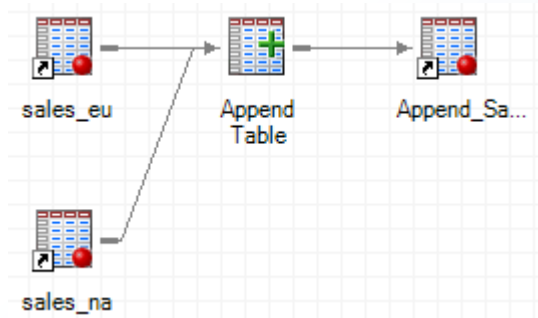


**Add Table...** allows you to browse for other SAS datasets to be merged.

# Merge – Adding cases

After the merge, the new dataset contains 24 cases as it should.

The merge will be shown in the process Flow.



By right clicking on the **Append-Table** process → **Modify Append-Table** the given command can be modified and re-runned

	Month	Region	Sales
1	9	Europe	2146457
2	3	Europe	2094220
3	12	Europe	2247953
4	4	Europe	2130248
5	5	Europe	2100211
6	10	Europe	2294300
7	11	Europe	2144188
8	8	Europe	2159234
9	7	Europe	2252662
10	6	Europe	2164796
11	2	Europe	1960034
12	1	Europe	2118222
13	7	North America	3104977
14	3	North America	3065902
15	6	North America	3088312
16	12	North America	3153807
17	11	North America	2943110
18	5	North America	3135696
19	10	North America	3049582
20	9	North America	2863599
21	1	North America	3135765
22	2	North America	2926929
23	4	North America	3496058
24	8	North America	3113833

# Merge – Adding variables

Two datasets are of interest.

The dataset **Travel\_information** contains information from various flights *(20 cases -5 var.)*

The dataset **Pilot\_information** contains information on all the pilots. *(20 cases -10 var.)*

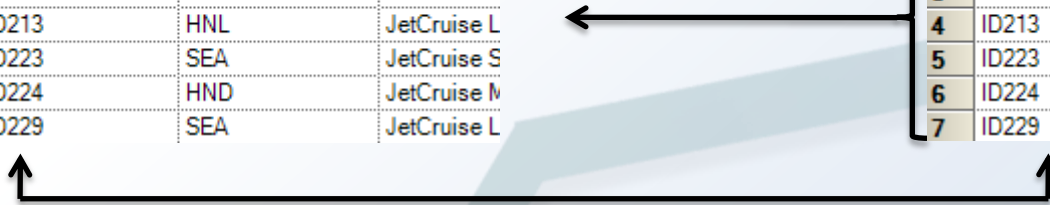
**These two dataset should be merged to 15 (10 + 5) variables (columns) & 20 cases (rows):**

Travel info

	FlightID	Destination	Mo
1	ID201	HND	JetCruise L
2	ID202	SEA	JetCruise S
3	ID209	HND	JetCruise L
4	ID213	HNL	JetCruise L
5	ID223	SEA	JetCruise S
6	ID224	HND	JetCruise M
7	ID229	SEA	JetCruise L

Pilot info

	IDNum	LName	FN
1	ID201	BLAIR	JUSTIN
2	ID202	BOYCE	JONATHAN
3	ID209	BRADY	CHRISTINE
4	ID213	CARTER	DONALD
5	ID223	DENNIS	ROGER
6	ID224	GRAHAM	ALVIN
7	ID229	GRANT	DANIEL



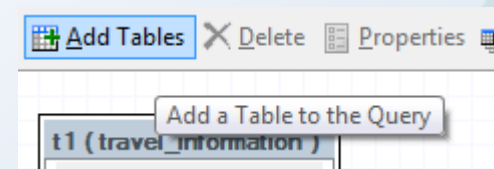
The pilot details and the given flight must be combined in such a way, that the **flightID** and the **IDNum** variables match. This key is an **unique key** – which refers to the given flight.

# Merge – Adding variables

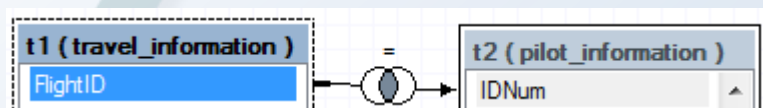
- 1) Open the two datasets
- 2) **Right click** on one of the dataset → **Query Builder...** → **Join Tables**



- 3) Click on **Add Tables** and choose the other dataset.



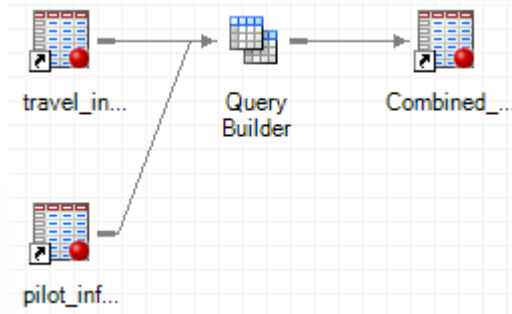
- 4) Since the combine-variable in the two datasets does not have the same name, the join must be done manually.
- 5) Drag from one of the match variables to the other. This will up a option combining window – choose the **Inner Join**



# Merge – Adding variables

6) Fill out the query builder as seen earlier (remember to include all the variables from both datasets)

The merge will be shown in the Process Flow.



If the two matching variables (key variables) were named identically, then the match would be done automatically.

Many other joining options are available for the manual merging procedure.

# Introduction to SAS EG - Part 4

In this introduction we want to:

- Open an existing SAS file
- Do some simple descriptive statistics
- Change the output format
- Creating Charts

# Descriptive Statistics

The dataset **Realestate** contains various information on 195 house on sale in the US.

Go to **Tasks** → **Describe** → **Summary Statistics...**

The screenshot shows the 'Summary Statistics' task configuration window. It is divided into two main sections: 'Variables to assign:' and 'Task roles:'. The 'Variables to assign:' section contains a list of variables: ADDRESS, SquareFeet, BATHRMS, BEDRMS, ASKPRICE, and AGE. The 'Task roles:' section contains a list of roles: Analysis variables, Classification variables, Frequency count (Limit: 1), Relative weight (Limit: 1), Copy variables, and Group analysis by. Annotations with red boxes and lines point to specific elements:

- A box labeled 'Variables in dataset' points to the list of variables in the 'Variables to assign:' section.
- A box labeled 'Analysis variable is the variable of interest' points to the 'Analysis variables' role in the 'Task roles:' section.
- A box labeled 'Classification and group variables splits the analysis' points to the 'Classification variables' and 'Group analysis by' roles in the 'Task roles:' section.

The difference between the group and the classification variable are in the presentation of the results

# Descriptive Statistics

Parameter groups  
in the output

Statistics

Basic

Percentiles

Additional

Plots

Results

Titles

Properties

Basic statistics

- ☒ Mean
- ☒ Standard deviation
- ☒ Standard error
- ☒ Variance
- ☒ Minimum
- ☒ Maximum
- ☐ Mode
- ☐ Range
- ☐ Sum
- ☐ Sum of weights
- ☒ Number of observations
- ☐ Number of missing values

Maximum decimal places:

Best fit

Divisor for standard deviation and  
variance:

Degrees of freedom

Under **Results** you  
can choose to  
create a new  
dataset with the  
output parameters

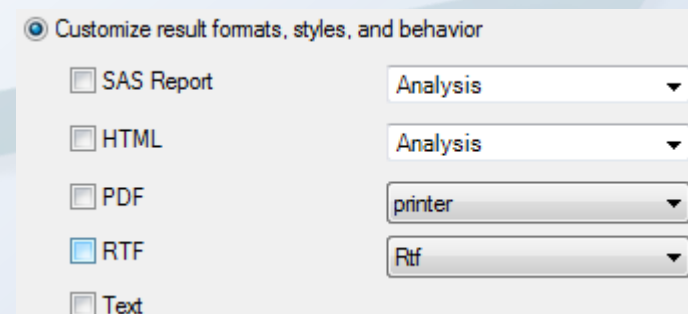
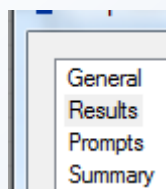
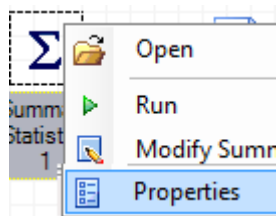
Choose the parameters  
which should be shown in  
the results.

# Analysis output format

The output is shown in HTML format, which cannot be copied into e.g. your MS Word file.

Analysis Variable : ASKPRICE						
Mean	Std Dev	Std Error	Variance	Minimum	Maximum	N
126137.95	19172.32	1372.96	367577934	74900.00	168900.00	195

If you wish to have the output displayed in another format, then go to the Process flow. Find the Summary Statistic Process, **Right click** → **Properties**.



Click on **Results**

**Choose the format of interest**

*After the changes has been applied, re-run the process*

# Graphs

A variety of graphs are available from the graph menu.

Depending on the graph at hand the input variables might vary, but the procedure is rather the same.

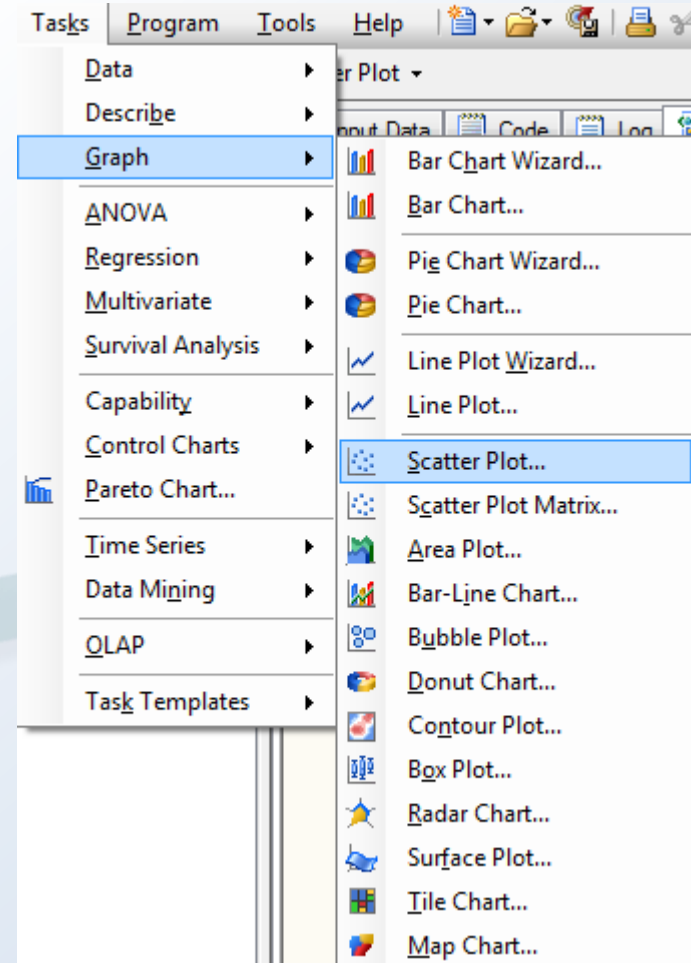
In this exercise we want to create a scatter plot with:

Y-axis: **ASKPRICE**

X-axis: **Squarefeet**

A positive relationship is expected.

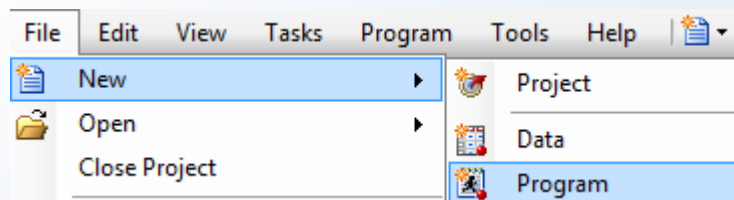
Go to **Tasks → Graph → Scatter Plot...**



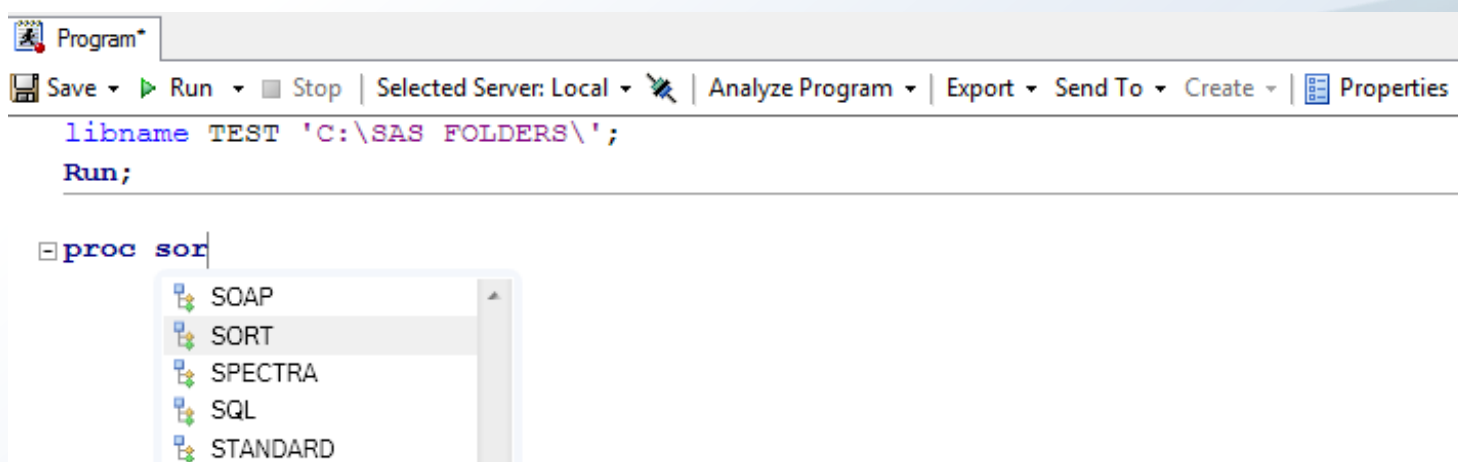
# Typing in SAS Code

SAS EG are not bound to the analysis located in the menu bars.

You can choose to write your own Syntax code – click on  
**File → New → Program**

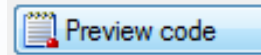


This will open a program code window. This command window will have auto-completion.



# Modifying existing SAS Code

Whenever you run an analysis you can click on the icon



This will show the selected SAS code, e.g.:

Descriptive  
Statistics

```
PROC MEANS DATA=WORK.SORTTempTableSorted
  FW=12
  PRINT ALL TYPES
  CHARTYPE
  VARDEF=DF
  MEAN
  STD
  MIN
  MAX
  N ;
VAR SALES4;

RUN;
```

Analysis  
Variable

The dataset  
to be used

Shows the parameters in the  
output – Eg. Make a new line  
with “KURT” – which will show  
the kurtosis as well

The SAS code is often very easy to read – and If you are interested in SAS coding, please sign up for the SAS Base/Foundation course at the CourseEvents.

## Assignment 2

Open the dataset **Car\_speed**. The dataset contains the observed speed of cars in the highway on Nordsjælland (going towards Copenhagen). The speed allowed is 70 Km per hour. Based on this information perform the following:

- Create a line graph of the observed speed (with time on the horizontal axis).
- What is the average speed? What is the std. dev?
- How many cars was speeding?
- Show the percentage of speeding's for each hour
- When is the fraction of speeding's highest/lowest?
  - Does the result surprise – why, why not?

## Assignment 3 – if time allows

The dataset **Salesnumbers** contains revenue information for an airline company for December 1999. The company had a total number of 1638 flights in December.

- Create a variable that measures the total revenue for each flight (use the SUM formula)
- Create a dataset that shows the revenue for each business line and the total revenue, for each day in December.
- Create a line graph that shows the evolvement of total revenue over time.
- How much was the total revenue for December 1999?

# SAS – In real life!

Assignment 2 clearly demonstrates that SAS is able to cover large data amounts (nearly 25.000 observations). This is however a very small dataset compared to what can be expected in real life.

Data are typically generated by e.g. an ERP system and then analyzed using SAS foundation (sometimes also SAS EG – even though it works slower due to the graphical interface).

With large data amounts (1-2 gb. Data, (multi million observations & columns)) you could run the analysis on your own computer, but this might stall your computer for hours.

Instead you could run your analysis on a remote server.

# Connecting to a SAS Server

In the lower right corner of the SAS window you will find the icon



If you wish to connect to a remote server, click on this and then click on **Add**. Set up the settings as shown below

Machine: **Remote**

Sas-metadata.asb.local

Port: 8561

User: CampusNet userID

Password: Password for CN

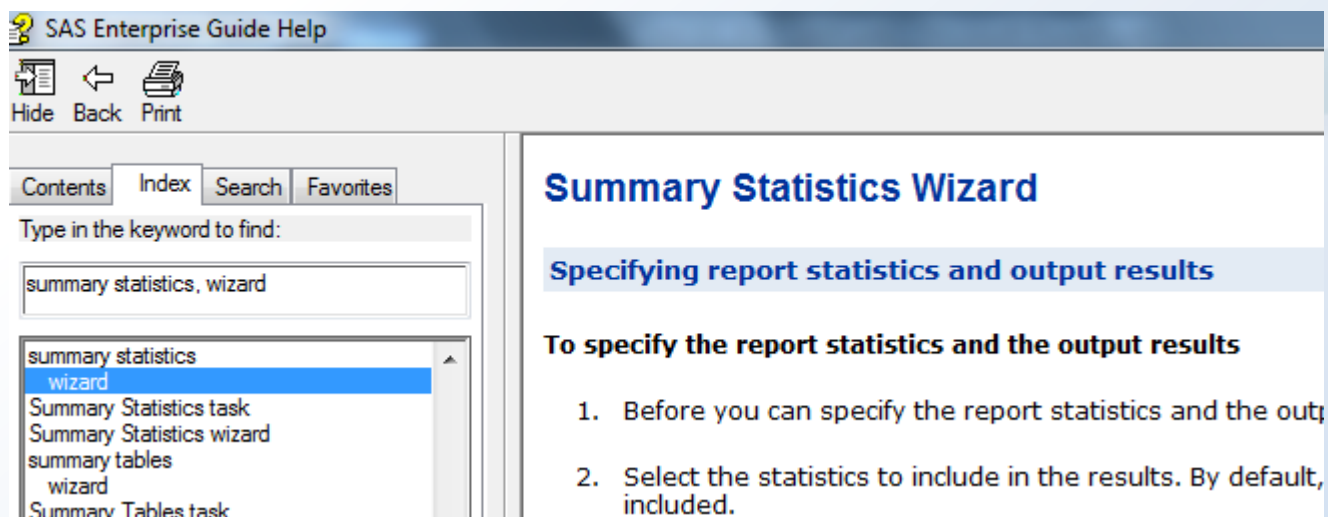
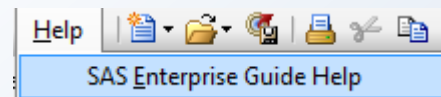
Domain: ASB

A screenshot of the "Modify Profile" dialog box in SAS. The dialog has a title bar with "Modify Profile" and standard window controls. It contains several fields and checkboxes. The "Name" field is set to "ASB". The "Description" field is set to "ASB SAS Server". Under the "Machine" section, the "Remote" radio button is selected, and the "Local" radio button is unselected. The "Machine" text field contains "sas-metadata.asb.local". The "Port" field is set to "8561". There are two checkboxes: "Use Integrated Windows Authentication" (unchecked) and "Save login in profile" (unchecked). Below the first checkbox is an "Advanced..." button. At the bottom, there are fields for "User:" (containing "iam"), "Password:" (masked with dots), and "Authentication Domain:" (containing "ASB").

# Help function

The help function is very useful whenever you want to look up any details regarding a specific analysis.

Click on **Help** → **SAS Enterprise Guide Help**



# Where to find more?

As many companies requires a high knowledge to the SAS systems it is preferred that you participate other SAS courses. All courses are free and can be found at the EventPlanner – here among:

- **SAS Foundation – Basic introduction to the coding practice**
- SAS Stat – Basic introduction to simple statistics using SAS Foundation
- SAS IML – Introduction to SAS IML – the usage of matrix notation in the SAS system
- SAS IML Extended – Adv. Mathematic and econometrics using SAS IML (*Upcoming*)
- SAS IML Studio – Introduction to the SAS Studio software (*Upcoming*)

The course in bold are HIGHLY recommended to participate in.

For a SAS Certificate contact AMLab at [IAM@asb.dk](mailto:IAM@asb.dk) or see [www.sas.com](http://www.sas.com) for further information.

# Where to find more?

The AMLab also conducts other courses in the SAS modules.  
Here among:

- SAS ABM – Activity Based Management
- SAS JMP – Various Cross-sectional analysis using the SAS JMP system (*Upcoming*)
- SAS SPM – Strategic Performance Management
- SAS Enterprise Miner – Data mining and various Analysis (*Upcoming*)
- SAS Forecast – Forecasting of data using the SAS Forecast Server (*Upcoming*)

For a SAS Certificate contact AMLab at [IAM@asb.dk](mailto:IAM@asb.dk) or see [www.sas.com](http://www.sas.com) for further information.

# Help us improve our courses...

Please help us improve our courses by filling out our questionnaire.

A link to **our survey** can be found in the folder you downloaded with the data to the course.

Thank you for participating.....