

Quick Overview of SAS Studio

PhUSE – February 2019

What is SAS® Studio?



- SAS® Studio is a web interface application for SAS that is accessed through our web browser.
- With SAS® Studio, we can:
 - access data files, libraries, and existing programs, and write new programs
 - use the predefined tasks in SAS® Studio to generate SAS code
- When we run a program or task, SAS® Studio connects to a SAS server to process the SAS code. In our case, we are using SAS® Studio Basic, so our SAS® Studio URL only connects to a single SAS Server in a one to one relationship. After the code is processed, the results are returned to SAS® Studio in our browser
- SAS® Studio supports multiple web browsers, such as Microsoft Internet Explorer, Mozilla Firefox, Apple Safari and Google Chrome
- Includes:
 - Coding Editor
 - Results Viewer
 - Data Viewer

Why would you use SAS Studio?

- Modernize
 - SAS® Institute is preparing for Viya and SAS Grid
- SAS Users have three choices:
 - SAS Windowing Environment (Late 1980's)
 - SAS Enterprise Guide (1999)
 - SAS Studio (2014) ← Future of SAS®
- SAS University Edition: free for learning purposes

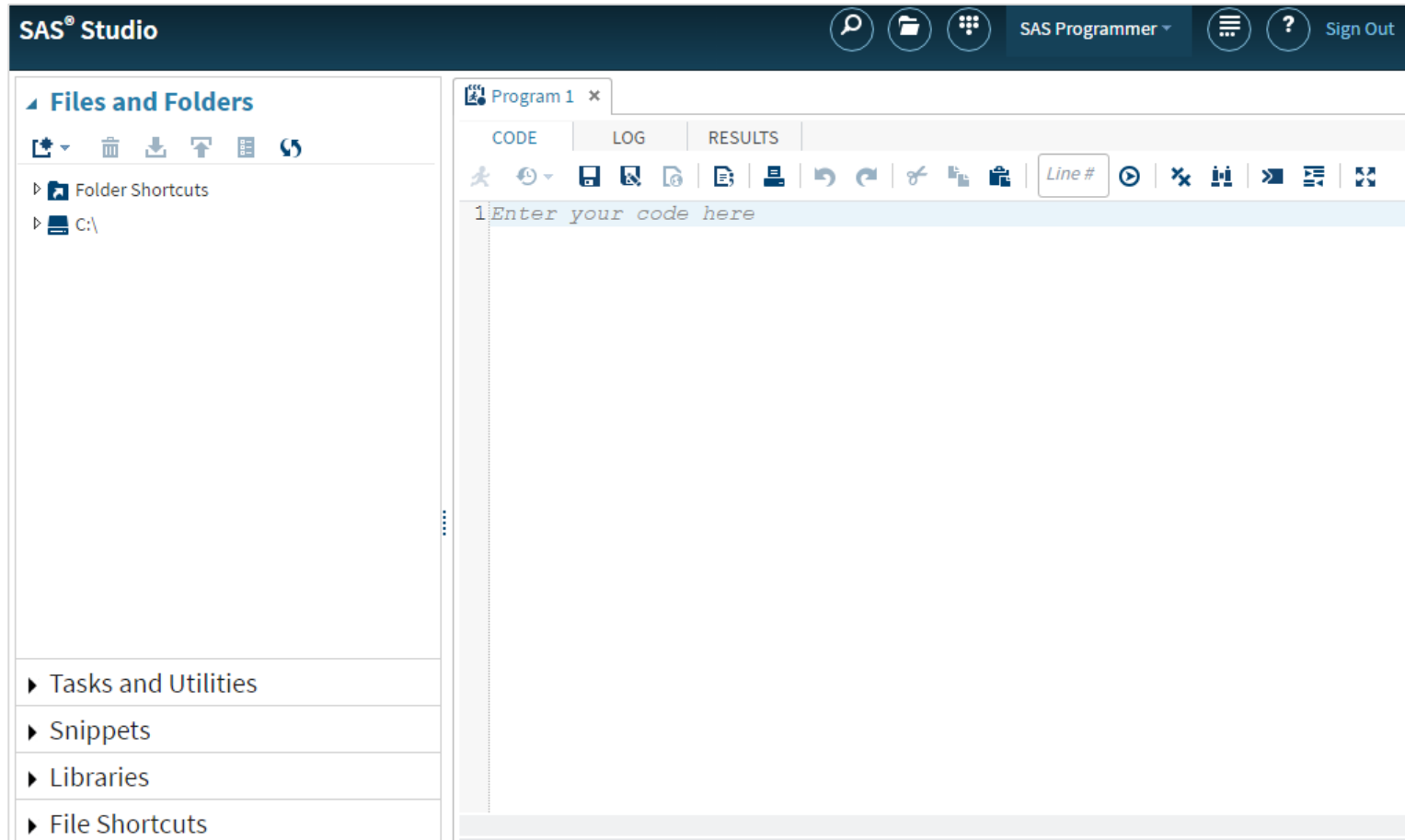
What about SAS Studio?

- Comes with Base SAS
 - Local computer (single-user version)
 - SAS Servers on a network (e.g. Linux)
- SAS Studio
 - Opens in a web browser
 - Programs are submitted to SAS Server
 - Results are returned to the browser

SAS Studio – Additional Benefits

- Easy access to SAS data sets
 - View data, columns and properties on one screen
 - Easily sort and filter data in the viewer
- On-demand Syntax Help
- Drag and drop variable and dataset names into code
- Code formatter
- Code snippets

SAS Studio Interface



SAS Studio Tools continued...

- SAS Log Summary of Errors, Warnings and Notes
- Save Results to HTML, PDF or RTF with one click
- Access older versions of submitted code
- Built-in tasks for code generation
- Interactive PROC SQL code generation

Creating Folder Shortcuts from Folders



1. In the 'Server Files and Folders' tree, select the 'hpawrk' folder.

2. In the 'wiencb00' folder, right-click to open the context menu.

3. In the context menu, select 'Create'.

4. In the sub-menu, select 'Folder Shortcut'.

Navigating a SAS Dataset in the Viewer

6. Rearrange columns by dragging and dropping column headings, or dragging and dropping column names in Columns section on the left

Total rows: 5209 Total columns: 17 Filtered rows: 869

	Status	DeathCause	AgeCHDdiag	Sex	AgeAtStart
1	Alive			Female	57
2	Alive			Female	58
3	Alive			Female	59
4	Alive			Female	50
5	Dead	Unknown		Female	59
6	Dead	Cerebral Vascular Disease	65	Female	51
7	Dead	Cancer		Female	59

	Status	AgeCHDdiag	Sex	DeathCause
1	Alive		Female	
2	Alive		Female	
3	Alive		Female	
4	Alive		Female	
5	Dead		Female	Unknown
6	Dead	65	Female	Cerebral Vascular Disease

Columns

☒ Select all

☒ Status

☒ AgeCHDdiag

☒ Sex

☒ DeathCause

☒ AgeAtStart

☐ Height

☐ Weight

☐ Diastolic

☐ Systolic

☐ MRW

Total rows: 5209 Total columns: 17 Filtered rows: 869

	Status	AgeCHDdiag	Sex	DeathCause	AgeAtStart
1	Alive		Female		57
2	Alive		Female		58
3	Alive		Female		59
4	Alive		Female		50
5	Dead		Female	Unknown	59
6	Dead	65	Female	Cerebral Vascular Disease	51
7	Dead		Female	Cancer	59
8	Dead	65	Female	Cerebral Vascular Disease	53
9	Dead	75	Female	Coronary Heart Disease	51
10	Alive		Female		58
11	Dead		Female	Other	52

Navigating a SAS Dataset in the Viewer

6. Rearrange columns by dragging and dropping column headings, or dragging and dropping column names in Columns section on the left

SASHELP.HEART x

View: Column names Filter: Sex="Female" AND AgeAtStart>=50

Columns

- Select all
- Status
- AgeCHDdiag
- Sex
- DeathCause
- AgeAtStart

Total rows: 5209 Total columns: 17 Filtered rows: 869

	Status	AgeCHDdiag	Sex	DeathCause	AgeAtStart
1	Alive		Female		57
2	Alive		Female		58
3	Alive		Female		59
4	Alive		Female		50
5	Dead		Female	Unknown	59
6	Dead	65	Female	Cerebral Vascular Disease	51

SASHELP.HEART x

View: Column names

Columns

- Select all
- Status
- AgeCHDdiag
- Sex
- DeathCause
- AgeAtStart

Total rows: 5209 Total columns: 17 Filtered rows: 869

	Status	DeathCause	AgeCHDdiag	Sex	AgeAtStart
1	Alive			Female	57
2	Alive			Female	58
3	Alive			Female	59
4	Alive			Female	50
5	Dead	Unknown		Female	59
6	Dead	Cerebral Vascular Disease	65	Female	51

SASHELP.HEART x

View: Column names Filter: Sex="Female" AND AgeAtStart>=50

Columns

- Select all
- Status
- DeathCause
- AgeCHDdiag
- Sex
- AgeAtStart

Total rows: 5209 Total columns: 17 Filtered rows: 869

	Status	DeathCause	AgeCHDdiag	Sex	AgeAtStart
1	Alive			Female	57
2	Alive			Female	58
3	Alive			Female	59
4	Alive			Female	50
5	Dead	Unknown		Female	59
6	Dead	Cerebral Vascular Disease	65	Female	51

Navigating a SAS Dataset in the Viewer

7. Select columns to view in Columns section on the left

Columns
⌕

☐ Select all

☒  Status

☒  AgeCHDdiag

☒  Sex

☒  DeathCause

☒  AgeAtStart

☐  Height

☐  Weight

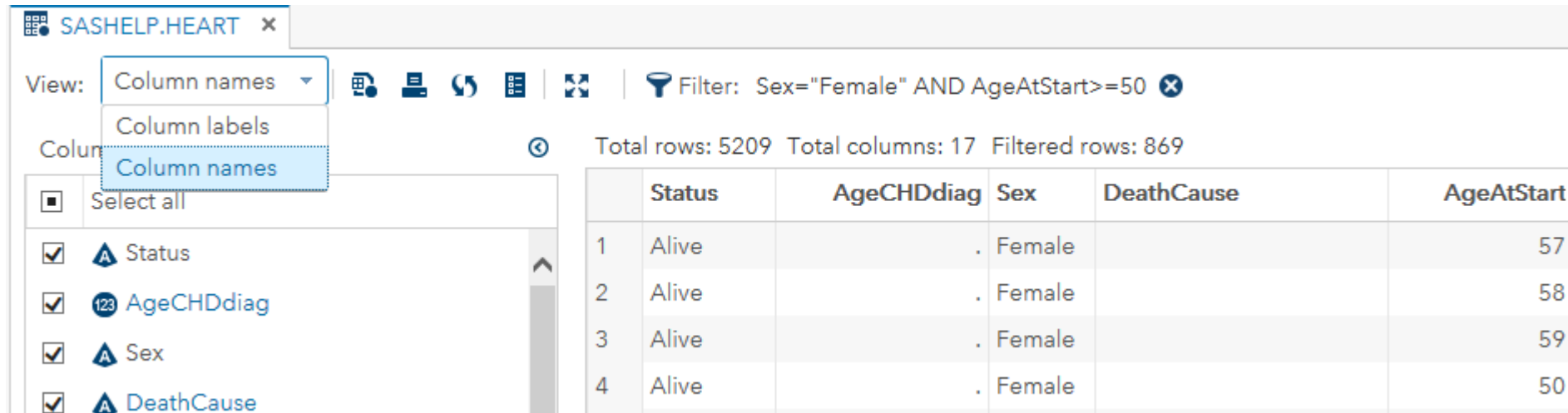
☐  Diastolic

Total rows: 5209 Total columns: 17 Filtered rows: 869

	Status	AgeCHDdiag	Sex	DeathCause	AgeAtStart	
1	Alive	.	Female		57	
2	Alive	.	Female		58	
3	Alive	.	Female		59	
4	Alive	.	Female		50	
5	Dead	.	Female	Unknown	59	
6	Dead	65	Female	Cerebral Vascular Disease	51	
7	Dead	.	Female	Cancer	59	
8	Dead	65	Female	Cerebral Vascular Disease	53	

Navigating a SAS Dataset in the Viewer

8. Show column labels by clicking the down-arrow next to **Column names** and selecting **Column labels**



The screenshot shows the SAS Viewer interface for the dataset SASHELP.HEART. The 'View' dropdown menu is open, showing options: 'Column names' (selected), 'Column labels', and 'Column names'. The 'Filter' bar shows the filter: Sex="Female" AND AgeAtStart >= 50. The table displays the following data:

	Status	AgeCHDdiag	Sex	DeathCause	AgeAtStart
1	Alive	.	Female		57
2	Alive	.	Female		58
3	Alive	.	Female		59
4	Alive	.	Female		50

Sorting and Filters

1. Click any column heading to change sort order

a) Right-click column heading and select sort order

SASHELP.HEART x

View: Column names Filter: Sex="Female" AND AgeAtStart>=50

Columns: Select all, Status, DeathCause, AgeCHDdiag, Sex, AgeAtStart, Height

Total rows: 5209 Total columns: 17 Filtered rows: 869

	Status	DeathCause	AgeCHDdiag	Sex
1	A			Female
2	A			Female
3	A			Female
4	A			Female
5	D			Female
6	Dead	Cerebral Vascular Disease	65	Female

Context menu options: Sort Ascending, Sort Descending, Sort by Data Order, Add Filter, Size grid columns to content, Restore original column widths

SASHELP.HEART x

View: Column names Filter: Sex="Female" AND AgeAtStart>=50

Columns: Select all, Status, DeathCause, AgeCHDdiag, Sex, AgeAtStart, Height

Total rows: 5209 Total columns: 17 Filtered rows: 869

	Status	DeathCause	AgeCHDdiag	Sex
1	Alive		52	Female
2	Alive		69	Female
3	Alive			Female
4	Alive			Female
5	Alive			Female
6	Alive			Female



Sorting and Filters

2. Right-click Systolic column heading and select Add Filter

SASHELP.HEART x

View: Column names Filter: Sex="Female" AND AgeAtStart>=50

Columns Total rows: 5209 Total columns: 17 Filtered rows: 869 Rows 1-100

	Status	DeathCause	AgeCHDdiag	Sex	AgeAtStart	Height	Weight	Diastolic	Systolic	MR
1	Alive		52	Female	50				158	
2	Alive		69	Female	51				168	1
3	Alive		.	Female	52	6			154	1
4	Alive		.	Female	51				112	1
5	Alive		.	Female	51				140	1
6	Alive		.	Female	51	61.75	139	80	132	1

Context menu options:

- Sort Ascending
- Sort Descending
- Sort by Data Order
- Add Filter
- Size grid columns to content
- Restore original column widths

Sorting and Filters

3. Choose > 120 and click Filter

Add Filter ✕

Specify the criteria for "Systolic"

>

120

+

Filter

Cancel

SASHELP.HEART ✕

View: Column names ⌵ Filter: Systolic>120 ✕

Columns ⌵ Total rows: 5209 Total columns: 17 Filtered rows: 3810

☒ Select all
☒ Status
☒ DeathCause
☒ AgeCHDdiag
☒ Sex

	Status ▲	DeathCause	AgeCHDdiag	Sex
1	Alive		.	Female
2	Alive		61	Female
3	Alive		.	Male
4	Alive		42	Male

Sorting and Filters

4. Right-click Smoking column heading and select Add Filter entering > 0 and click Filter

Add Filter
×

Specify the criteria for "Smoking"

>

+

Filter
Cancel

SASHELP.HEART
×

View: Column names

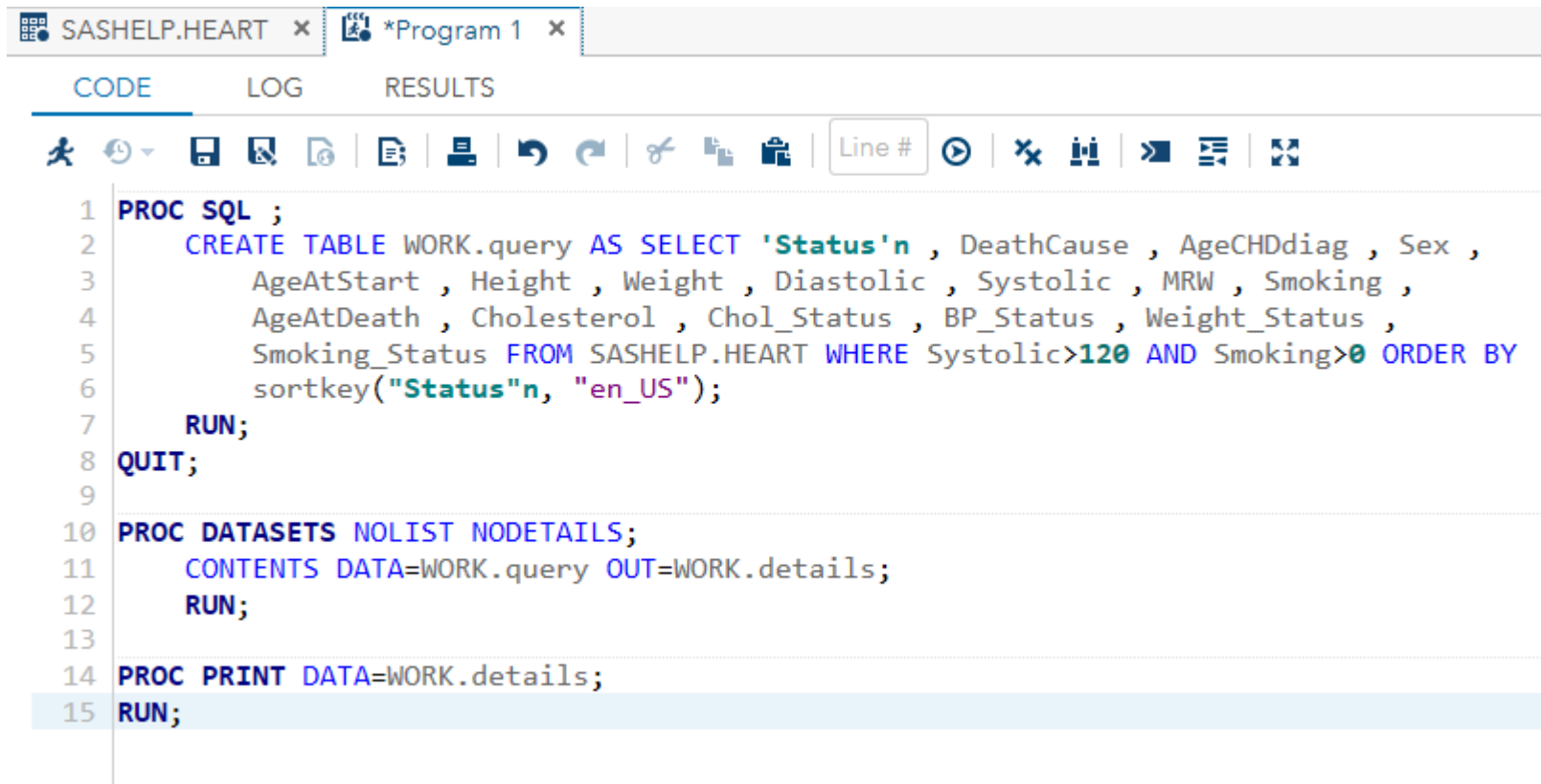
Filter: Systolic>120 AND Smoking>0
×

Total rows: 5209 Total columns: 17 Filtered rows: 1861

	Systolic	MRW	Smoking	AgeAtDeath	Chole
	150	86	30	.	
	126	120	20	.	
	132	112	30	.	
	124	78	15	.	
	140	124	20	.	
	124	103	5	.	
	144	142	30	.	

Sorting and Filters

5. View SQL code for the Filter by clicking the Display the code that generates the current table icon 



The screenshot shows the SAS Studio interface with the 'CODE' tab selected. The editor displays the following SQL code:

```
1 PROC SQL ;
2   CREATE TABLE WORK.query AS SELECT 'Status'n , DeathCause , AgeCHDdiag , Sex ,
3     AgeAtStart , Height , Weight , Diastolic , Systolic , MRW , Smoking ,
4     AgeAtDeath , Cholesterol , Chol_Status , BP_Status , Weight_Status ,
5     Smoking_Status FROM SASHELP.HEART WHERE Systolic>120 AND Smoking>0 ORDER BY
6     sortkey("Status"n, "en_US");
7   RUN;
8 QUIT;
9
10 PROC DATASETS NOLIST NODETAILS;
11   CONTENTS DATA=WORK.query OUT=WORK.details;
12   RUN;
13
14 PROC PRINT DATA=WORK.details;
15 RUN;
```

Sorting and Filters

- Remove the filter by clicking the Clear filter icon  next to the filter above the data table

SASHELP.HEART x *Program 1 x

View: Column names      Filter: Systolic>120 AND Smoking>0 

Columns  Total rows: 5209 Total columns: 17 Filtered rows: 1861

	AgeAtStart	Height	Weight	Diastolic	Systolic
	39	67.5	121	100	150
	32	62	139	76	126
	40	66.25	151	72	132
	35	70	118	70	124

Columns

- ☒ Select all
- ☒  Status
- ☒  DeathCause
- ☒  AgeCHDdiag
- ☒  Sex



SASHELP.HEART x *Program 1 x

View: Column names      Filter: (none)

Columns  Total rows: 5209 Total columns: 17

Sex	AgeAtStart	Height	Weight	Diastolic	Systolic
Female	31	60.25	141	76	120
Male	52	68.75	137	88	140
Female	33	63.5	119	76	112
Male	47	65.75	137	84	136

Columns

- ☒ Select all
- ☒  Status
- ☒  DeathCause
- ☒  AgeCHDdiag
- ☒  Sex

Maximizing Space for Dataset Review

SAS® Studio

Server Files and Folders

- Folder Shortcuts
 - Home
 - hpa folder
 - Files (/)

Tasks and Utilities

- Snippets
- Libraries
- File Shortcuts

SASHELP.HEART

View: Column names Filter: (none)

Columns

- Select all
- Status
- DeathCause
- AgeCHDdiag
- Sex
- AgeAtStart
- Height
- Weight
- Diastolic
- Systolic
- MRW
- Smoking
- AgeAtDeath
- Cholesterol
- Cho_Status
- BP_Status

Property Value

Property	Value
Label	
Name	
Length	
Type	
Format	
Informat	

Total rows: 5209 Total columns: 17

	Status	DeathCause	AgeCHDdiag	Sex	AgeAtStart	Height	Weight	Diastolic	Systolic	MRW	Smoking
1	Dead	Other		Female	29	62.5	140	78	124	121	0
2	Dead	Cancer		Female	41	59.75	194	92	144	183	0
3	Alive			Female	57	62.25	132	90	170	114	10
4	Alive			Female	39	65.75	158	80	128	123	0
5	Alive			Male	42	66	156	76	110	116	20
6	Alive			Female	58	61.75	131	92	176	117	0
7	Alive			Female	36	64.75	136	80	112	110	15
8	Dead	Other		Male	53	65.5	130	80	114	99	0
9	Alive			Male	35	71	194	68	132	124	0
10	Dead	Cerebral Vascular Disease		Male	52	62.5	129	78	124	106	5
11	Alive			Male	39	66.25	179	76	128	133	30
12	Alive		57	Male	33	64.25	151	68	108	118	0
13	Alive		55	Male	33	70	174	90	142	114	0
14	Alive		79	Male	57	67.25	165	76	128	118	15
15	Alive		66	Male	44	69	155	90	130	105	30
16	Alive			Female	37	64.5	134	76	120	108	10
17	Alive			Male	40	66.25	151	72	132	112	30
18	Dead	Cancer	56	Male	56	67.25	122	72	120	87	15
19	Alive			Female	42	67.75	162	96	138	119	1
20	Dead	Coronary Heart Disease	74	Male	46	66.5	157	84	142	116	30
21	Alive			Female	37	66.25	148	78	110	112	15
22	Alive			Female	45	64	147	74	120	119	5
23	Alive			Female	59	65.75	156	74	156	122	0
24	Alive			Female	36	63.75	122	84	132	102	0
25	Alive			Female	50	67.5	185	88	150	136	15
26	Alive			Female	35	66	123	76	132	93	0
27	Alive			Male	42	72.25	182	78	136	113	0

Maximizing Space for Dataset Review

SAS® Studio

Server Files and Folders

- Folder Shortcuts
 - Home
 - hpa folder
 - Files (/)
- Tasks and Utilities
- Snippets
- Libraries
- File Shortcuts

SASHELP.HEART

View: Column names Filter: (none)

Columns

Select all

- Status
- DeathCause
- AgeCHDdiag
- Sex
- AgeAtStart
- Height
- Weight
- Diastolic
- Systolic
- MRW
- Smoking
- AgeAtDeath
- Cholesterol
- Chol_Status
- BP_Status

Property Value

Status	DeathCause	AgeCHDdiag	Sex	AgeAtStart	Height	Weight	Diastolic	Systolic	MRW	Smoking
Dead	Cancer		Female	29	62.5	140	78	124	121	0
Dead	Cancer		Female	41	59.75	194	92	144	183	0
Alive			Female	57	62.25	132	90	170	114	10
Alive			Female	39	65.75	158	80	128	123	0
Alive			Male	42	66	156	76	110	116	20
Alive			Female	58	61.75	131	92	176	117	0
Alive			Female	36	64.75	136	80	112	110	15
Dead	Other		Male	53	65.5	130	80	114	99	0
Alive			Male	35	71	194	68	132	124	0
Dead	Cerebral Vascular Disease		Male	52	62.5	129	78	124	106	5
Alive			Male	39	66.25	179	76	128	133	30
Alive		57	Male	33	64.25	151	68	108	118	0
Alive		55	Male	33	70	174	90	142	114	0
Alive		79	Male	57	67.25	165	76	128	118	15
Alive		66	Male	44	69	155	90	130	105	30
Alive			Female	37	64.5	134	76	120	108	10
Alive			Male	40	66.25	151	72	132	112	30
Dead	Cancer	56	Male	56	67.25	122	72	120	87	15
Alive			Female	42	67.75	162	96	138	119	1
Dead	Coronary Heart Disease	74	Male	46	66.5	157	84	142	116	30
Alive			Female	37	66.25	148	78	110	112	15
Alive			Female	45	64	147	74	120	119	5
Alive			Female	59	65.75	156	74	156	122	0
Alive			Female	36	63.75	122	84	132	102	0
Alive			Female	50	67.5	185	88	150	136	15
Alive			Female	35	66	123	76	132	93	0
Alive			Male	42	72.25	182	78	136	113	0

Minimize: Closes Left Panel

Hides Column and Property Panels

Maximizing Space for Dataset Review

SAS® Studio

SASHELP.HEART x

View: Column names | Filter: (none)

Total rows: 5209 Total columns: 17

Rows 1-100

	Status	DeathCause	AgeCHDdiag	Sex	AgeAtStart	Height	Weight	Diastolic	Systolic	MRW	Smoking	AgeAtDeath	Cholesterol	Chol_Status	BP_Status	Smoking_Status	Weight_Status
1	Dead	Other	.	Female	29	62.5	140	78	124	121	0	55	.		Normal	Non-smoker	Overweight
2	Dead	Cancer	.	Female	41	59.75	194	92	144	183	0	57	181	Desirable	High	Non-smoker	Overweight
3	Alive		.	Female	57	62.25	132	90	170	114	10	.	250	High	High	Moderate (6-15)	Overweight
4	Alive		.	Female	39	65.75	158	80	128	123	0	.	242	High	Normal	Non-smoker	Overweight
5	Alive		.	Male	42	66	156	76	110	116	20	.	281	High	Optimal	Heavy (16-25)	Overweight
6	Alive		.	Female	58	61.75	131	92	176	117	0	.	196	Desirable	High	Non-smoker	Overweight
7	Alive		.	Female	36	64.75	136	80	112	110	15	.	196	Desirable	Normal	Moderate (6-15)	Overweight
8	Dead	Other	.	Male	53	65.5	130	80	114	99	0	77	276	High	Normal	Non-smoker	Normal
9	Alive		.	Male	35	71	194	68	132	124	0	.	211	Borderline	Normal	Non-smoker	Overweight
10	Dead	Cerebral Vascular Disease	.	Male	52	62.5	129	78	124	106	5	82	284	High	Normal	Light (1-5)	Normal
11	Alive		.	Male	39	66.25	179	76	128	133	30	.	225	Borderline	Normal	Very Heavy (> 25)	Overweight
12	Alive		57	Male	33	64.25	151	68	108	118	0	.	221	Borderline	Optimal	Non-smoker	Overweight
13	Alive		55	Male	33	70	174	90	142	114	0	.	188	Desirable	High	Non-smoker	Overweight
14	Alive		79	Male	57	67.25	165	76	128	118	15	.	.		Normal	Moderate (6-15)	Overweight
15	Alive		66	Male	44	69	155	90	130	105	30	.	292	High	High	Very Heavy (> 25)	Normal
16	Alive		.	Female	37	64.5	134	76	120	108	10	.	196	Desirable	Normal	Moderate (6-15)	Normal
17	Alive		.	Male	40	66.25	151	72	132	112	30	.	192	Desirable	Normal	Very Heavy (> 25)	Overweight
18	Dead	Cancer	56	Male	56	67.25	122	72	120	87	15	72	194	Desirable	Normal	Moderate (6-15)	Underweight
19	Alive		.	Female	42	67.75	162	96	138	119	1	.	200	Borderline	High	Light (1-5)	Overweight
20	Dead	Coronary Heart Disease	74	Male	46	66.5	157	84	142	116	30	76	233	Borderline	High	Very Heavy (> 25)	Overweight
21	Alive		.	Female	37	66.25	148	78	110	112	15	.	192	Desirable	Optimal	Moderate (6-15)	Overweight
22	Alive		.	Female	45	64	147	74	120	119	5	.	209	Borderline	Normal	Light (1-5)	Overweight
23	Alive		.	Female	59	65.75	156	74	156	122	0	.	200	Borderline	High	Non-smoker	Overweight
24	Alive		.	Female	36	63.75	122	84	132	102	0	.	184	Desirable	Normal	Non-smoker	Normal
25	Alive		.	Female	50	67.5	185	88	150	136	15	.	228	Borderline	High	Moderate (6-15)	Overweight
26	Alive		.	Female	35	66	123	76	132	93	0	.	150	Desirable	Normal	Non-smoker	Normal
27	Alive		.	Male	42	72.25	182	78	136	113	0	.	221	Borderline	Normal	Non-smoker	Overweight

Comparing Datasets



SAS® Studio

Server Files and Folders

Tasks and Utilities

Snippets

Libraries

- MDASSOC
- MDBMSG
- METAIMDB
- METAMSG
- MILEAGES
- MON1001
- MON111
- MONIKER
- MRRGSTRY
- NVST1
- NVST2
- NVST3
- NVST4
- NVST5
- OMAASSC
- OMAVARB
- ORSALES
- PLFIPS
- PRDSAL2
- PRDSAL3
- PRDSALE
- PRICEDATA**
- PROJ4DEF
- QSEEDS
- QTR1001
- QTR111
- RENT
- RETAIL
- REVHUB2

View: Column names Filter: (none)

Columns

- Select all
- date
- sale
- price
- discount
- cost
- price1
- price2
- price3
- price4
- price5
- price6
- price7
- price8
- price9
- price10

Property Value

Label

Name

Length

Type

Format

Informat

Total rows: 1020 Total columns: 28

	date	sale	price	discount	cost	price1	price2	price3	price4	price5	price6	price7	price8	price9
1	JAN98	355	52.3	0	23.9	52.3	115	33.4	67.9	36	38.88	42	59	65.2
2	FEB98	398	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
3	MAR98	387	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
4	APR98	380	52.3	0	23.9	52.3	115	28.39	67.9	36	48.6	42	59	65.2
5	MAY98	555	44.455	0.15	23.9	44.455	115	33.4	67.9	36	48.6	42	59	65.2
6	JUN98	385	52.3	0	23.9	52.3	103.5	33.4	67.9	36	48.6	42	59	65.2
7	JUL98	390	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	55.42
8	AUG98	377	52.3	0	23.9	52.3	115	33.4	61.11	36	48.6	42	53.1	65.2
9	SEP98	386	52.3	0	23.9	52.3	115	33.4	67.9	30.6	48.6	42	59	65.2
10	OCT98	367	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	33.6	59	65.2
11	NOV98	372	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
12	DEC98	378	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
13	JAN99	391	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
14	FEB99	386	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
15	MAR99	356	52.3	0	23.9	52.3	103.5	33.4	67.9	36	48.6	42	59	65.2
16	APR99	380	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
17	MAY99	393	52.3	0	23.9	52.3	115	26.72	67.9	36	48.6	35.7	59	65.2
18	JUN99	389	52.3	0	23.9	52.3	115	33.4	67.9	36	41.31	42	59	65.2
19	JUL99	388	52.3	0	23.9	52.3	115	33.4	67.9	32.4	48.6	42	59	65.2
20	AUG99	397	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	50.15	65.2
21	SEP99	379	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
22	OCT99	502	47.07	0.1	23.9	47.07	115	33.4	54.32	36	48.6	42	59	58.68
23	NOV99	342	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
24	DEC99	334	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
25	JAN00	366	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
26	FEB00	361	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	35.7	59	65.2
27	MAR00	572	44.455	0.15	23.9	44.455	115	33.4	67.9	36	48.6	42	59	65.2

Comparing Datasets



SAS® Studio

View: Column names Filter: (none)

Columns

Select all

- ☒ date
- ☒ sale
- ☒ price
- ☒ discount
- ☒ cost
- ☒ price1
- ☒ price2
- ☒ price3
- ☒ price4
- ☒ price5
- ☒ price6
- ☒ price7
- ☒ price8
- ☒ price9
- ☒ price10

Property Value

Property	Value
Label	
Name	
Length	
Type	
Format	
Informat	

Total rows: 1020 Total columns: 28

	date	sale	price	discount	cost	price1	price2	price3	price4	price5	price6	price7	price8	price9
1	JAN98	355	52.3	0	23.9	52.3	115	33.4	67.9	36	38.88	42	59	65.2
2	FEB98	398	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
3	MAR98	387	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
4	APR98	380	52.3	0	23.9	52.3	115	28.39	67.9	36	48.6	42	59	65.2
5	MAY98	555	44.455	0.15	23.9	44.455	115	33.4	67.9	36	48.6	42	59	65.2
6	JUN98	385	52.3	0	23.9	52.3	103.5	33.4	67.9	36	48.6	42	59	65.2
7	JUL98	390	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	55.42
8	AUG98	377	52.3	0	23.9	52.3	115	33.4	61.11	36	48.6	42	53.1	65.2
9	SEP98	386	52.3	0	23.9	52.3	115	33.4	67.9	30.6	48.6	42	59	65.2
10	OCT98	367	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	33.6	59	65.2
11	NOV98	372	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
12	DEC98	378	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
13	JAN99	391	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
14	FEB99	386	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
15	MAR99	356	52.3	0	23.9	52.3	103.5	33.4	67.9	36	48.6	42	59	65.2
16	APR99	380	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
17	MAY99	393	52.3	0	23.9	52.3	115	26.72	67.9	36	48.6	35.7	59	65.2
18	JUN99	389	52.3	0	23.9	52.3	115	33.4	67.9	36	41.31	42	59	65.2
19	JUL99	388	52.3	0	23.9	52.3	115	33.4	67.9	32.4	48.6	42	59	65.2
20	AUG99	397	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	50.15	65.2
21	SEP99	379	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
22	OCT99	502	47.07	0.1	23.9	47.07	115	33.4	54.32	36	48.6	42	59	58.68
23	NOV99	342	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
24	DEC99	334	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
25	JAN00	366	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	42	59	65.2
26	FEB00	361	52.3	0	23.9	52.3	115	33.4	67.9	36	48.6	35.7	59	65.2
27	MAR00	572	44.455	0.15	23.9	44.455	115	33.4	67.9	36	48.6	42	59	65.2

Comparing Datasets



SAS Studio

SASHELP.HEART

View: Column names Filter: (none)

Total rows: 5209 Total columns: 17

	Status	DeathCause	AgeCHDdiag	Sex	AgeAtStart	Height	Weight	Diastolic
1	Dead	Other		Female	29	62.5	140	78
2	Dead	Cancer		Female	41	59.75	194	92
3	Alive			Female	57	62.25	132	90
4	Alive			Female	39	65.75	158	80
5	Alive			Male	42	66	156	76
6	Alive			Female	58	61.75	131	92
7	Alive			Female	36	64.75	136	80
8	Dead	Other		Male	53	65.5	130	80
9	Alive			Male	35	71	194	68
10	Dead	Cerebral Vascular Disease		Male	52	62.5	129	78
11	Alive			Male	39	66.25	179	76
12	Alive			57 Male	33	64.25	151	68
13	Alive			55 Male	33	70	174	90
14	Alive			79 Male	57	67.25	165	76
15	Alive			66 Male	44	69	155	90
16	Alive			Female	37	64.5	134	76
17	Alive			Male	40	66.25	151	72
18	Dead	Cancer		56 Male	56	67.25	122	72
19	Alive			Female	42	67.75	162	96
20	Dead	Coronary Heart Disease		74 Male	46	66.5	157	84
21	Alive			Female	37	66.25	148	78
22	Alive			Female	45	64	147	74
23	Alive			Female	59	65.75	156	74
24	Alive			Female	36	63.75	122	84
25	Alive			Female	50	67.5	185	88
26	Alive			Female	35	66	123	76
27	Alive			Male	42	72.25	182	78

SASHELP.PRICEDATA

View: Column names Filter: (none)

Total rows: 1020 Total columns: 28

	date	sale	price	discount	cost	price1	price2	price3
1	JAN98	355	52.3	0	23.9	52.3	115	33.4
2	FEB98	398	52.3	0	23.9	52.3	115	33.4
3	MAR98	387	52.3	0	23.9	52.3	115	33.4
4	APR98	380	52.3	0	23.9	52.3	115	28.39
5	MAY98	555	44.455	0.15	23.9	44.455	115	33.4
6	JUN98	385	52.3	0	23.9	52.3	103.5	33.4
7	JUL98	390	52.3	0	23.9	52.3	115	33.4
8	AUG98	377	52.3	0	23.9	52.3	115	33.4
9	SEP98	386	52.3	0	23.9	52.3	115	33.4
10	OCT98	367	52.3	0	23.9	52.3	115	33.4
11	NOV98	372	52.3	0	23.9	52.3	115	33.4
12	DEC98	378	52.3	0	23.9	52.3	115	33.4
13	JAN99	391	52.3	0	23.9	52.3	115	33.4
14	FEB99	386	52.3	0	23.9	52.3	115	33.4
15	MAR99	356	52.3	0	23.9	52.3	103.5	33.4
16	APR99	380	52.3	0	23.9	52.3	115	33.4
17	MAY99	393	52.3	0	23.9	52.3	115	26.72
18	JUN99	389	52.3	0	23.9	52.3	115	33.4
19	JUL99	388	52.3	0	23.9	52.3	115	33.4
20	AUG99	397	52.3	0	23.9	52.3	115	33.4
21	SEP99	379	52.3	0	23.9	52.3	115	33.4
22	OCT99	502	47.07	0.1	23.9	47.07	115	33.4
23	NOV99	342	52.3	0	23.9	52.3	115	33.4
24	DEC99	334	52.3	0	23.9	52.3	115	33.4
25	JAN00	366	52.3	0	23.9	52.3	115	33.4
26	FEB00	361	52.3	0	23.9	52.3	115	33.4
27	MAR00	572	44.455	0.15	23.9	44.455	115	33.4

Columns

- Select all
- date
- sale
- price
- discount
- cost
- price1
- price2
- price3
- price4
- price5
- price6
- price7
- price8
- price9
- price10

Property Value

Label

Name

Length

Type

Format

Inform

Customizing Your Space



SAS® Studio

Server Files and Folders

- Folder Shortcuts
 - Home
 - hpa folder
 - outputs
 - BDWSIM.sas**
 - Chatfield86.sas
 - coursedata.zip
 - eMaxSimulationsPOC.sas
 - example macro call.sas
 - high_priority_issues.sas
 - IML2.sas
 - Macro to generate and analyse
 - PROC_IML-results.pdf
 - PROC_IML.html
 - PROC_IML.log
 - PROC_IML.sas
 - sample_size_adaptive.sas
 - scenario1.sas7bdat
 - scenario2.sas7bdat
 - scenario3.sas7bdat
 - scenario4.sas7bdat
 - scenario5.sas7bdat
 - Stat_Training.sas
 - Test Code 1 Proc IML.html
 - Test Code 1 Proc IML.log
 - Test Code 1 Proc IML.sas

- Files (/)
- Tasks and Utilities
- Snippets
- Libraries
- File Shortcuts

SASHELP.HEART x BDWSIM.sas x

CODE LOG

Errors, Warnings, Notes

- Errors
- Warnings
- Notes (17)
 - 148 ODS RTF (ID=WEB) CLOSE;
 - 149 ODS PDF (ID=WEB) CLOSE;
 - NOTE: ODS PDF(WEB) printed 2 pages to /saswork/SAS_workB5E4000056A_us1salx00676.c
 - 150 FILENAME _GSFNAME;
 - NOTE: Fileref _GSFNAME has been deassigned.
 - 151 DATA _NULL_;
 - 152 RUN;
 - NOTE: DATA statement used (Total process time):
real time 0.00 seconds
cpu time 0.01 seconds
 - 153 OPTIONS VALIDMEMNAME=COMPAT;
 - 154 OPTIONS NOTES STIMER SOURCE SYNTAXCHECK;
 - 155

RESULTS OUTPUT DATA

Table: WORK.BDWSIM View: Column names Filter: (none)

Columns

- Select all
- subjid
- month
- ERS
- CAT

Property Value

Label

Name

Total rows: 10800000 Total columns: 15 Rows 1-100

	subjid	month	ERS	CAT	smkst
1	1	1	-3.15603242	0.212018548579419	0
2	1	2	-0.110545319	NA	0
3	1	3	0.3349409376	NA	0
4	1	4	-3.498750948	NA	0
5	1	5	-4.8394742	NA	0
6	1	6	7.2174562936	-6.2592336078265	0
7	2	1	-8.10567302	14.7653508310085	1

SASHELP.PRICEDATA x

View: Column names Filter: (none)

Columns

- Select all
- date
- sale
- price
- discount
- cost
- price1
- price2
- price3
- price4
- price5
- price6
- price7
- price8
- price9
- price10

Property Value

Label

Name

Length

Type

Format

Inform

Total rows: 1020 Total columns: 28 Rows 1-100

	date	sale	price	discount	cost	price1	price2
1	JAN98	355	52.3	0	23.9	52.3	11!
2	FEB98	398	52.3	0	23.9	52.3	11!
3	MAR98	387	52.3	0	23.9	52.3	11!
4	APR98	380	52.3	0	23.9	52.3	11!
5	MAY98	555	44.455	0.15	23.9	44.455	11!
6	JUN98	385	52.3	0	23.9	52.3	103!
7	JUL98	390	52.3	0	23.9	52.3	11!
8	AUG98	377	52.3	0	23.9	52.3	11!
9	SEP98	386	52.3	0	23.9	52.3	11!
10	OCT98	367	52.3	0	23.9	52.3	11!
11	NOV98	372	52.3	0	23.9	52.3	11!
12	DEC98	378	52.3	0	23.9	52.3	11!
13	JAN99	391	52.3	0	23.9	52.3	11!
14	FEB99	386	52.3	0	23.9	52.3	11!
15	MAR99	356	52.3	0	23.9	52.3	103!
16	APR99	380	52.3	0	23.9	52.3	11!
17	MAY99	393	52.3	0	23.9	52.3	11!
18	JUN99	389	52.3	0	23.9	52.3	11!
19	JUL99	388	52.3	0	23.9	52.3	11!
20	AUG99	397	52.3	0	23.9	52.3	11!
21	SEP99	379	52.3	0	23.9	52.3	11!
22	OCT99	502	47.07	0.1	23.9	47.07	11!
23	NOV99	342	52.3	0	23.9	52.3	11!
24	DEC99	334	52.3	0	23.9	52.3	11!
25	JAN00	366	52.3	0	23.9	52.3	11!
26	FEB00	361	52.3	0	23.9	52.3	11!
27	MAR00	572	44.455	0.15	23.9	44.455	11!

Background Submit



SAS Studio interface showing the 'Background Submit' option in the context menu for the file 'BDWSIM.sas'.

The 'Background Submit' option is highlighted in the context menu.

The main window displays the SAS code editor with the following code:

```
148 ODS RTF (ID=WEB) CLOSE;  
149 ODS PDF (ID=WEB) CLOSE;  
NOTE: ODS PDF(WEB) printed 2 pages to /saswork/SAS_workB5E4000056A_us1salx00676.c  
150 FILENAME _GSFNAME;  
NOTE: Fileref _GSFNAME has been deassigned.  
151 DATA _NULL_;  
152 RUN;  
  
NOTE: DATA statement used (Total process time):  
      real time           0.00 seconds  
      cpu time            0.01 seconds  
  
153 OPTIONS VALIDMEMNAME=COMPAT;  
154 OPTIONS NOTES STIMER SOURCE SYNTAXCHECK;  
155
```

The 'OUTPUT DATA' pane shows the results of the submission, including the table 'WORK.BDWSIM' with 10800000 rows and 15 columns. The columns are: subjID, month, ERS, CAT, and smkst.

The 'SASHELP.PRICEDATA' table is also displayed, showing 1020 rows and 28 columns. The columns are: date, sale, price, discount, cost, price1, and price2.

Background Submit



SAS® Studio

Server Files and Folders

- Folder Shortcuts
 - Home
 - hpa folder
 - outputs
 - BDWSIM.sas
 - Chatfield06.sas
 - coursedata.zip
 - eMaxSimulationsPOC.sas
 - example macro call.sas
 - high_priority_issues.sas
 - IML2.sas
 - Macro to generate and analyse
 - PROC_IML-results.pdf
 - PROC_IML.html
 - PROC_IML.log
 - PROC_IML.sas
 - sample_size_adaptive.sas
 - scenario1.sas7bdat
 - scenario2.sas7bdat
 - scenario3.sas7bdat
 - scenario4.sas7bdat
 - scenario5.sas7bdat
 - Stat_Training.sas
 - Test Code 1 Proc IML.html
 - Test Code 1 Proc IML.log
 - Test Code 1 Proc IML.sas
- Files (/)
- Tasks and Utilities
- Snippets
- Libraries
- File Shortcuts

SASHELP.HEART x BDWSIM.sas x BDWSIM.log x

NOTE: PROCEDURE PRINTTO used (Total process time):
real time 0.00 seconds
cpu time 0.00 seconds

```
5      OPTIONS LOCALE=en_US DFLANG=LOCALE VALIDVARNAME=V7;  
6      OPTIONS VA  
7      FILENAME _  
8      FILENAME _  
9      DATA _NULL  
10     CALL SYMPU  
11     CALL SYMPU  
12     RC=TSVL(''  
13     _ERROR_=0;  
14     IF (RC^=''  
15     CALL SYMPU  
16     CALL SYMPU  
17     END;  
18     RUN;
```

NOTE: DATA statement
real time
cpu time

```
19     DATA _NULL  
20     RC=SYSPROD  
21     IF (RC^=1)  
22     CALL SYMPU  
23     CALL SYMPU  
24     END;  
25     RUN;
```

NOTE: DATA statement
real time
cpu time

```
26     %LET SYSCO  
27     %LET _CLIE  
28     %LET _CLIE  
29     %LET _SASS  
30     %LET _CLIE  
31     %LET _CLIE  
32     %LET _CLIE  
33  
34     %LET _SAS  
35     %LET _EXEC  
36     %LET _SAS  
37     %LET _SAS  
38     %LET _SAS
```

Background Job Status

Name	Start Time	End Time	Status
BDWSIM.sas	August 8, 2018 14:00:57	August 8, 2018 14:01:21	Completed

Close

SASHELP.PRICEDATA x

View: Column names

Columns

- Select all
- date

Total rows: 1020 Total columns: 28

Filter: (none)

Rows 1-100

	date	sale	price	discount	cost	price1	price2
1	JAN98	355	52.3	0	23.9	52.3	111
		398	52.3	0	23.9	52.3	111
		387	52.3	0	23.9	52.3	111
		380	52.3	0	23.9	52.3	111
		555	44.455	0.15	23.9	44.455	111
		385	52.3	0	23.9	52.3	103
		390	52.3	0	23.9	52.3	111
		377	52.3	0	23.9	52.3	111
		386	52.3	0	23.9	52.3	111
		367	52.3	0	23.9	52.3	111
		372	52.3	0	23.9	52.3	111
		378	52.3	0	23.9	52.3	111
		391	52.3	0	23.9	52.3	111
		386	52.3	0	23.9	52.3	111
		356	52.3	0	23.9	52.3	103
		380	52.3	0	23.9	52.3	111
		393	52.3	0	23.9	52.3	111
		389	52.3	0	23.9	52.3	111
		388	52.3	0	23.9	52.3	111
		397	52.3	0	23.9	52.3	111
		379	52.3	0	23.9	52.3	111
22	OCT99	502	47.07	0.1	23.9	47.07	111
23	NOV99	342	52.3	0	23.9	52.3	111
24	DEC99	334	52.3	0	23.9	52.3	111
25	JAN00	366	52.3	0	23.9	52.3	111
26	FEB00	361	52.3	0	23.9	52.3	111
27	MAR00	572	44.455	0.15	23.9	44.455	111

Background Submit



Background Job Status

Background Job Properties

File: /hpawrk/wiencb00/BDWSIM.sas
Log: /hpawrk/wiencb00/BDWSIM.log
HTML: /hpawrk/wiencb00/BDWSIM.html
Start time: August 8, 2018 14:00:57
End time: August 8, 2018 14:01:21
Status: Completed
Failure reason: None

Close

Background Job Status

Name	Start Time	End Time	Status
BDWSIM.sas	August 8, 2018 14:00:57	August 8, 2018 14:01:21	Completed

Cancel

Output

Close

SASHELP.HEART x BDWSIM.sas x BDWSIM.log x

```
NOTE: PROCEDURE PRINTO used (Total process time):
real time      0.00 seconds
cpu time       0.00 seconds

5      OPTIONS LOCALE=en_US DFLANG=LOCALE VALIDVARNAME=V7;
6      OPTIONS VALIDMEMNAME=COMPAT;
7      FILENAME _HTMLOUT %nrstr("/hpawrk/wiencb00/BDWSIM.html");
8      FILENAME _GSFNAME TEMP;
9      DATA _NULL_;
10     CALL SYMPUT("GRAPHINIT","");
11     CALL SYMPUT("GRAPHTERM","");
12     RC=TSVLV('GEOCODE','N');
13     _ERROR_=0;
14     IF (RC^= ' ') THEN DO;
15     CALL SYMPUT("GRAPHINIT","GOPTIONS RESET=ALL GSFNAME=_GSFNAME;");
16     CALL SYMPUT("GRAPHTERM","GOPTIONS NOACCESSIBLE;");
17     END;
18     RUN;

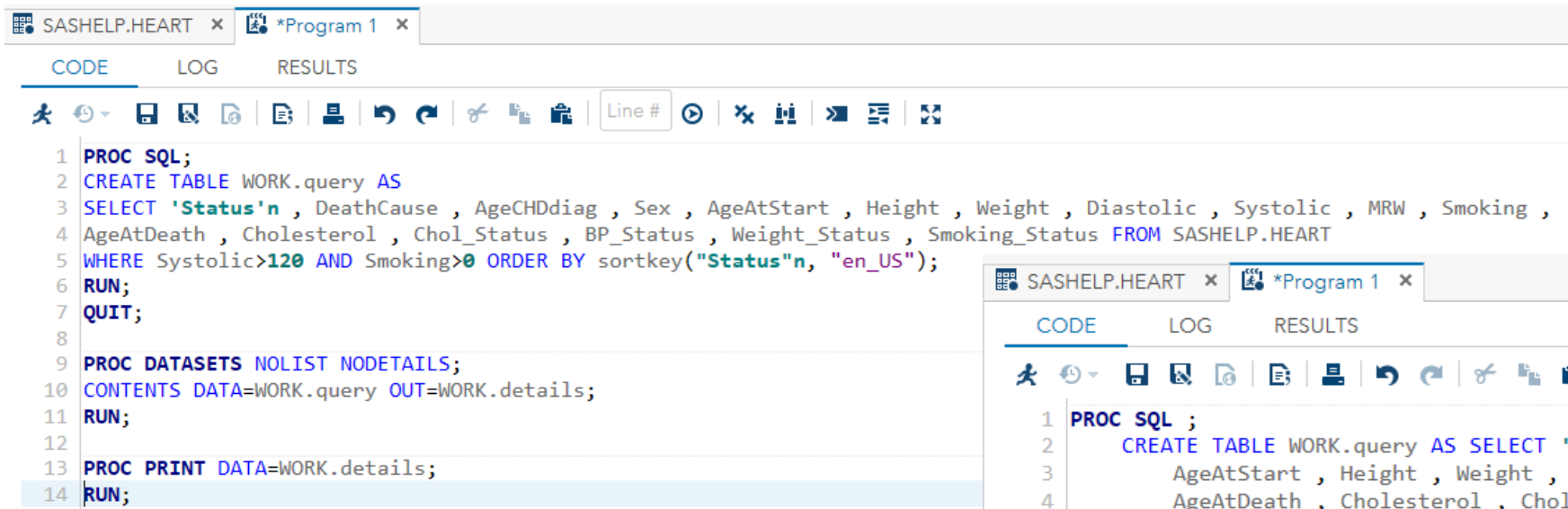
NOTE: DATA statement used (Total process time):
real time      0.01 seconds
cpu time       0.02 seconds

19     DATA _NULL_;
20     RC=SYSPROD("PRODNUM002");
21     IF (RC^=1) THEN DO;
22     CALL SYMPUT("GRAPHINIT","");
23     CALL SYMPUT("GRAPHTERM","");
24     END;
25     RUN;

NOTE: DATA statement used (Total process time):
real time      0.00 seconds
cpu time       0.01 seconds

26     %LET SYSCC=0;
27     %LET _CLIENTAPP=SAS Studio;
28     %LET _CLIENTAPPVERSION=3.6;
29     %LET _SASSERVERNAME=%BQUOTE(localhost);
30     %LET _CLIENTUSERID=%BQUOTE(wiencb00);
31     %LET _CLIENTUSERNAME=%BQUOTE();
32     %LET _CLIENTMACHINE=%BQUOTE(10.204.40.1);
33
34     %LET _SASPROGRAMFILE = %BQUOTE(/hpawrk/wiencb00/BDWSIM.sas);
35     %LET _EXECENV=SASStudio Background;
36     %LET _SASWS_ = %BQUOTE(/home/wiencb00);
37     %LET _SASWSTEMP_=%BQUOTE();
38     %LET _SASWSTEMP_=%BQUOTE();
```

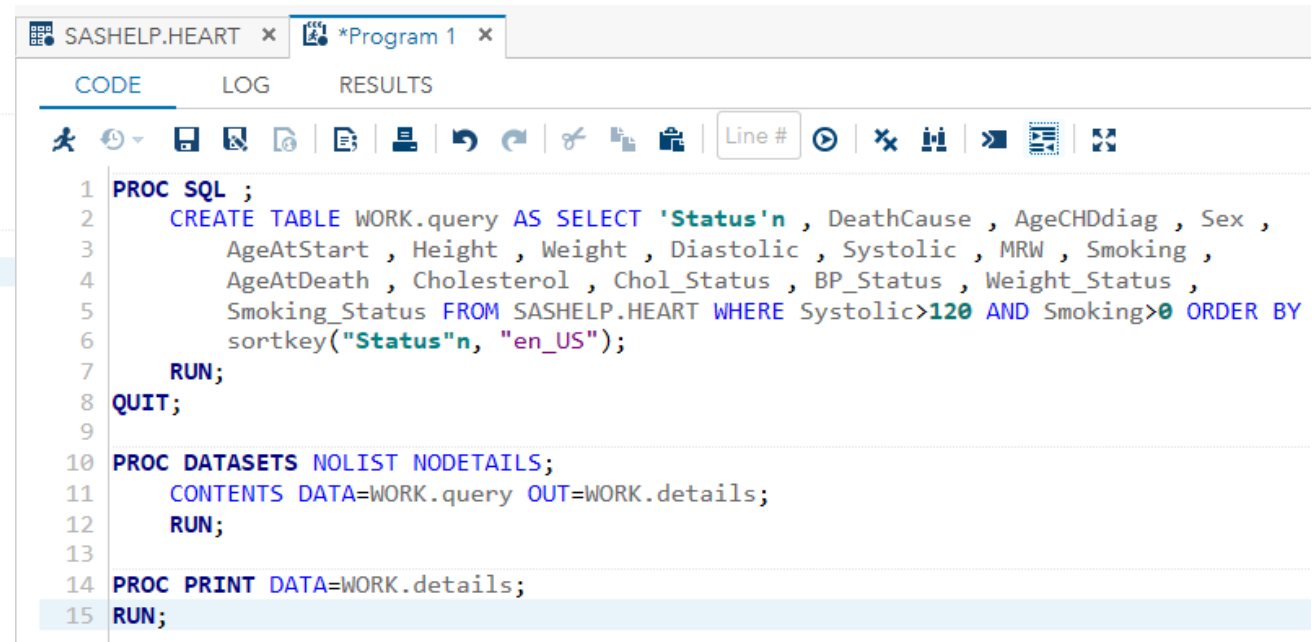
Some Hands-On Examples of the Editor



The screenshot shows the SAS Studio editor with two tabs: 'SASHELP.HEART' and '*Program 1'. The 'CODE' tab is active. The code is unformatted and spans 14 lines. The toolbar above the code includes icons for running, saving, undo, redo, and other editing functions. The code is as follows:

```

1 PROC SQL;
2 CREATE TABLE WORK.query AS
3 SELECT 'Status'n , DeathCause , AgeCHDdiag , Sex , AgeAtStart , Height , Weight , Diastolic , Systolic , MRW , Smoking ,
4 AgeAtDeath , Cholesterol , Chol_Status , BP_Status , Weight_Status , Smoking_Status FROM SASHELP.HEART
5 WHERE Systolic>120 AND Smoking>0 ORDER BY sortkey("Status"n, "en_US");
6 RUN;
7 QUIT;
8
9 PROC DATASETS NOLIST NODETAILS;
10 CONTENTS DATA=WORK.query OUT=WORK.details;
11 RUN;
12
13 PROC PRINT DATA=WORK.details;
14 RUN;
  
```



The screenshot shows the same SAS Studio editor with the code formatted. The code is now properly indented and spans 15 lines. The toolbar and tabs are the same as in the previous screenshot. The formatted code is as follows:

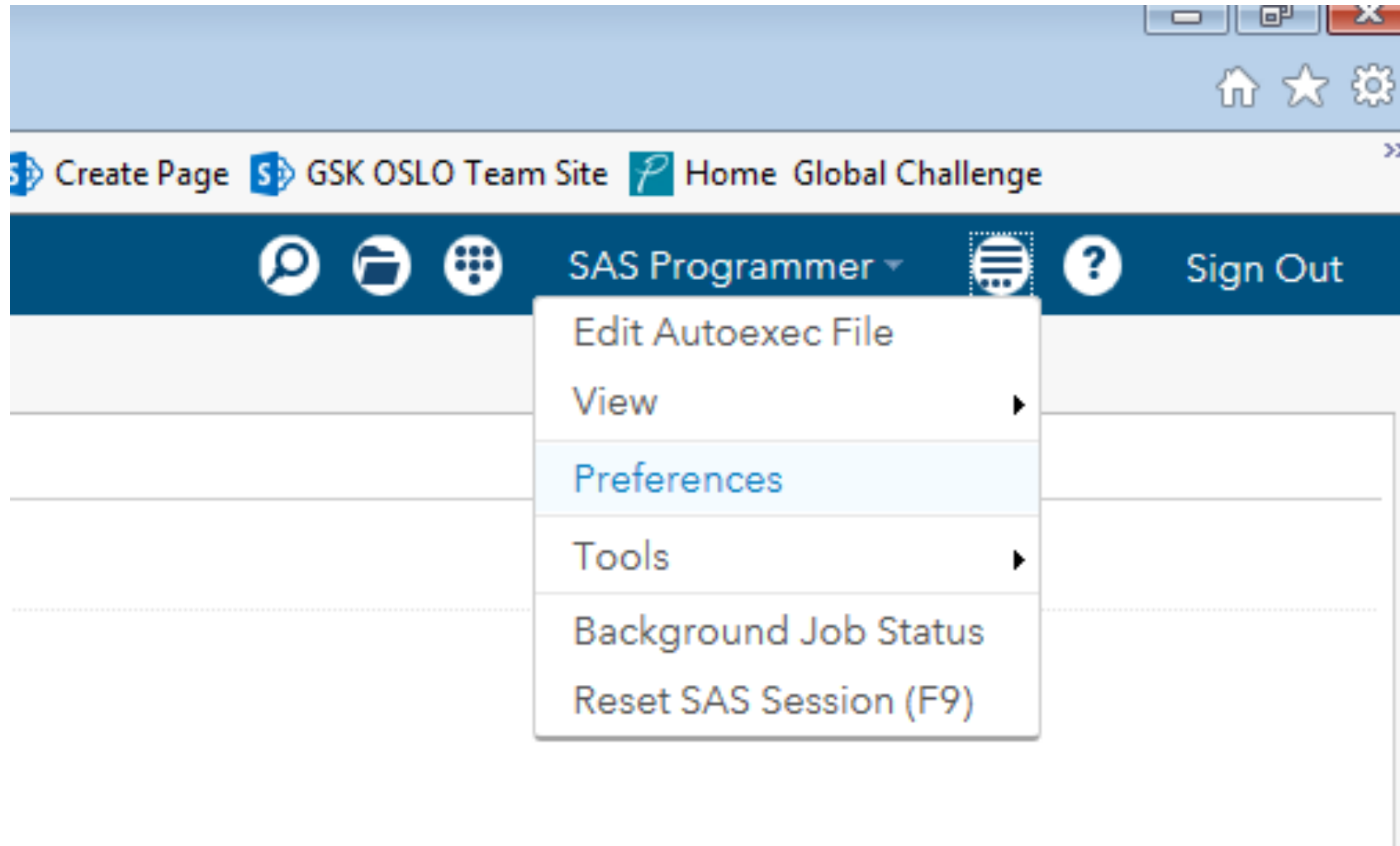
```

1 PROC SQL ;
2     CREATE TABLE WORK.query AS SELECT 'Status'n , DeathCause , AgeCHDdiag , Sex ,
3         AgeAtStart , Height , Weight , Diastolic , Systolic , MRW , Smoking ,
4         AgeAtDeath , Cholesterol , Chol_Status , BP_Status , Weight_Status ,
5         Smoking_Status FROM SASHELP.HEART WHERE Systolic>120 AND Smoking>0 ORDER BY
6         sortkey("Status"n, "en_US");
7     RUN;
8 QUIT;
9
10 PROC DATASETS NOLIST NODETAILS;
11     CONTENTS DATA=WORK.query OUT=WORK.details;
12     RUN;
13
14 PROC PRINT DATA=WORK.details;
15 RUN;
  
```

➤ Auto-Format Code

- Take some code and remove the formatting.
- Click the Format code icon  on the toolbar above the code

More Application Options...Preferences



More Application Options...Preferences...General

Preferences

General

Start Up

Editor

Results

Tasks

Repositories

Background Jobs

Display

- ☒ Show generated code in the SAS log
- ☒ Include a "Show Details" button in error messages
- ☒ Size grid columns to content
- ☐ Start new programs in interactive mode

Refresh

- ☒ Automatically refresh libraries after each submission
- ☐ Automatically refresh files and folders after each submission

Character policy

SAS variable name policy: V7

Default text encoding: ISO-8859-1

Messages

- ☒ Display a message on arrival

Duration: 5 seconds

- ☒ Capture all log events

[Reset to Defaults](#)

Save

Cancel

More Application Options...Preferences...Start Up

Preferences



General

Start Up

Editor

Results

Tasks

Repositories

Background Jobs

On startup

- ☐ Open a new program/process flow tab
- ☒ Continue where you left off

Session time-out

Time-out interval:

3 hours

More Application Options...Preferences...Editor

Preferences

General

Start Up

Editor

Results

Tasks

Repositories

Background Jobs

☒ Enable autocomplete (Ctrl+spacebar or Command+spacebar)

☒ Enable hint

Tab width: spaces

☐ Substitute spaces for tabs

☒ Enable color coding

☒ Show line numbers

Font size: ▼

☒ Enable autosave

Autosave interval: seconds

More Application Options...Preferences...Results

Preferences

General

Start Up

Editor

Results

Tasks

Repositories

Background Jobs

HTML

HTML output style:

Htmlblue

☐ Generate HTML graphs as SVG

☒ Display warning if HTML results are larger than: 3 MB

PDF

☒ Produce PDF output

PDF output style:

Pearl

☒ Generate the default table of contents

RTF

☒ Produce RTF output

RTF output style:

Rtf

Output Data

☒ Automatically open generated output data

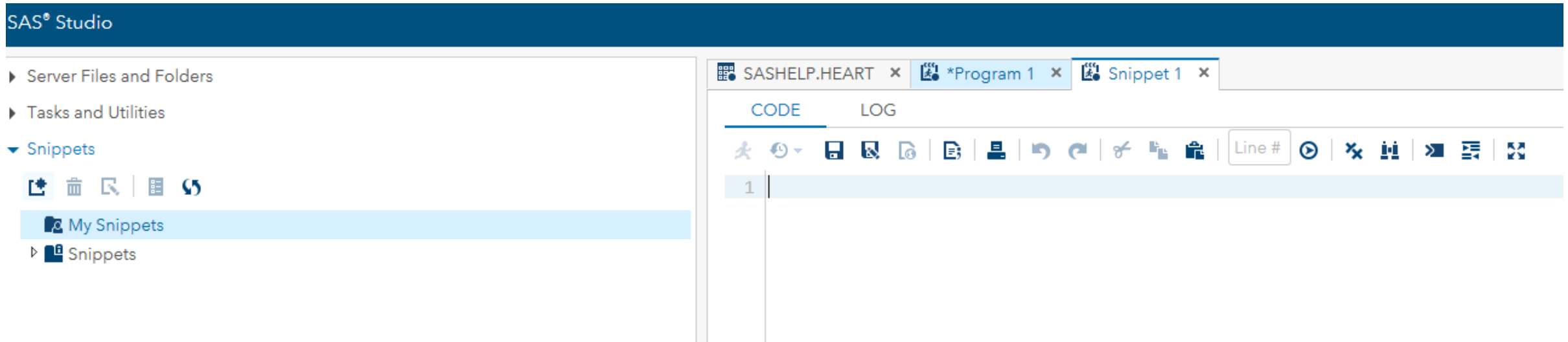
View and Create Code Snippets

- From the Snippets section of the navigation pane, expand Snippets to view built-in snippets
- Save your own snippet by highlighting a section of code (e.g. the LIBNAME statement) and clicking the Add to My Snippets icon  on the toolbar above the code editor
- Give the snippet a name (e.g. My libname) and click Save
- Expand My Snippets in the Snippets section of the navigation pane to confirm that the snippet was saved.

```
%macro ODSOff();  
/* Call prior to BY-group processing */  
ods graphics off;  
ods exclude all;  
ods noresults;  
options nonotes;  
/* OPTIONAL: use NONOTES to suppress notes to the log */  
%mend;
```

```
%macro ODSON(); /* Call after BY-group processing */  
options notes;  
ods graphics on;  
ods exclude none;  
ods results;  
%mend;
```

Snippets



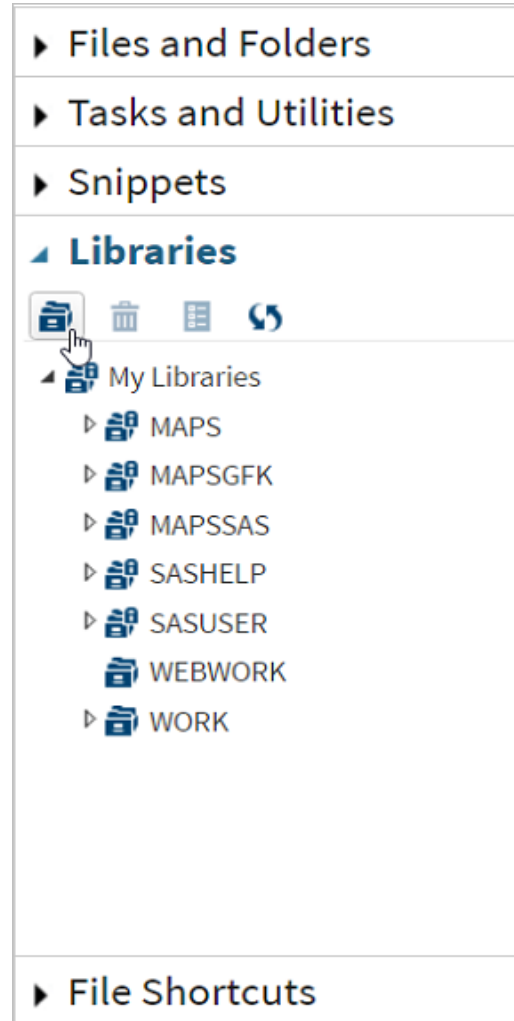
QUESTIONS

BACKUP SLIDES

Review SAS Studio Interface

1. The navigation pane is on the left, the work area is on the right
2. The work area has tabs (Code, Log, and Results for the code editor)
3. Try out the Maximize icon  on toolbar in work area
4. View files in Files and Folders section of navigation pane
5. View SAS data sets in Libraries section of navigation pane

Creating New Libraries from Libraries



Create New SAS Libraries

1. From the Libraries section of the navigation pane, click the New Library icon 
2. Give the library the name Mylib, use my file shortcut, mytest_678.
3. It fills in the expanded path: /home/wienccb00/mytest/. Click OK.
4. Expand Mylib library, then expand the Montana data set to view variable names
5. In the Files and Folders section, navigate to the folder: /home/wienccb00/mytest
6. Right-click folder name, mytest, and choose Create ► Library
7. Give the library a name different than Mylib (e.g. BDWTEST) and click OK

You now have two ways to create a Library within SAS Studio!

Navigating a SAS Dataset in the Viewer

1. Drag and drop **HEART** from the **SASHELP** library from the Library section of the navigation pane, or double-click from the Libraries section
2. Review: Column names, Column Properties, Data, Total rows and columns
3. Scroll through data rows over 100 by clicking arrows in upper right

⏪ ⏩ Rows 1-100 ⏪ ⏩

4. Size grid columns by dragging column dividers

	Status	DeathCause	AgeCHDdiag	Sex	
1	Alive			Female	

5. Re-size all grid columns by right-clicking any column heading and selecting **Size grid columns to content**

Total rows: 5209 Total columns: 17 Filtered rows: 869

	Status	DeathCause	Age
1	Alive		
2	Alive		
3	Alive		
4	Alive		
5	Dead	U	
6	Dead	Cerebral Vascular Disease	

- Sort Ascending
- Sort Descending
- Sort by Data Order
- Add Filter
- Size grid columns to content
- Restore original column widths

Status	DeathCause	AgeCHDdiag
Alive		.
Alive		.
Alive		.
Alive		.
Dead	Unknown	.
Dead	Cerebral Vascular Disease	65

Sorting and Filters

1. Click any column heading to change sort order
 - a) Right-click column heading and select sort order
2. Right-click Systolic column heading and select Add Filter
3. Choose > 120 and click Filter
4. Right-click Smoking column heading and select Add Filter entering > 0 and click Filter
5. View SQL code for the Filter by clicking the Display the code that generates the current table icon 
6. Remove the filter by clicking the Clear filter icon  next to the filter above the data table

Try the Code Editor

1. Try out the Autocomplete feature by entering some SAS statements into the blank code editor labeled Program 1 (e.g. PROC FREQ DATA=)
2. Open the Preferences window by clicking More application options icon  and selecting Preferences
3. On the Editor page of Preferences window, turn off Enable autocomplete, turn on Enable Hint, and click Save
4. Enter more SAS statements in the code editor to see the difference
5. Try using Ctrl <spacebar> to show autocomplete now that you have autocomplete turned off by default
6. Hover over keywords to show help (Hint feature)
7. From the Libraries section of the navigation pane, try dragging and dropping variable and data set names into the code editor.

Some Hands-On Examples of the Editor (Cont.)

- Run a Program – View the Log and Results Tabs
 - Run the program by clicking the Run icon  on the toolbar
 - Click **LOG** tab and try out navigation in the SAS log (e.g. expand Notes and click on a note in the list to jump to that line in the log)
 - Click the **RESULTS** tab and try out navigation in the results (e.g. expand Table of Contents and click on a result)
 - From the Results tab, click the Download the results as a PDF file icon  (file is saved in the Downloads folder)
 - Click the **OUTPUT DATA** tab to view the dataset that was created
 - Select the desired data set from the **Table** pull-down menu on the toolbar
 - Click the **CODE** tab and introduce some mistakes in the program by removing some semicolons
 - Run the program and use navigation in the log to find error messages

Some Hands-On Examples of the Editor (Cont.)

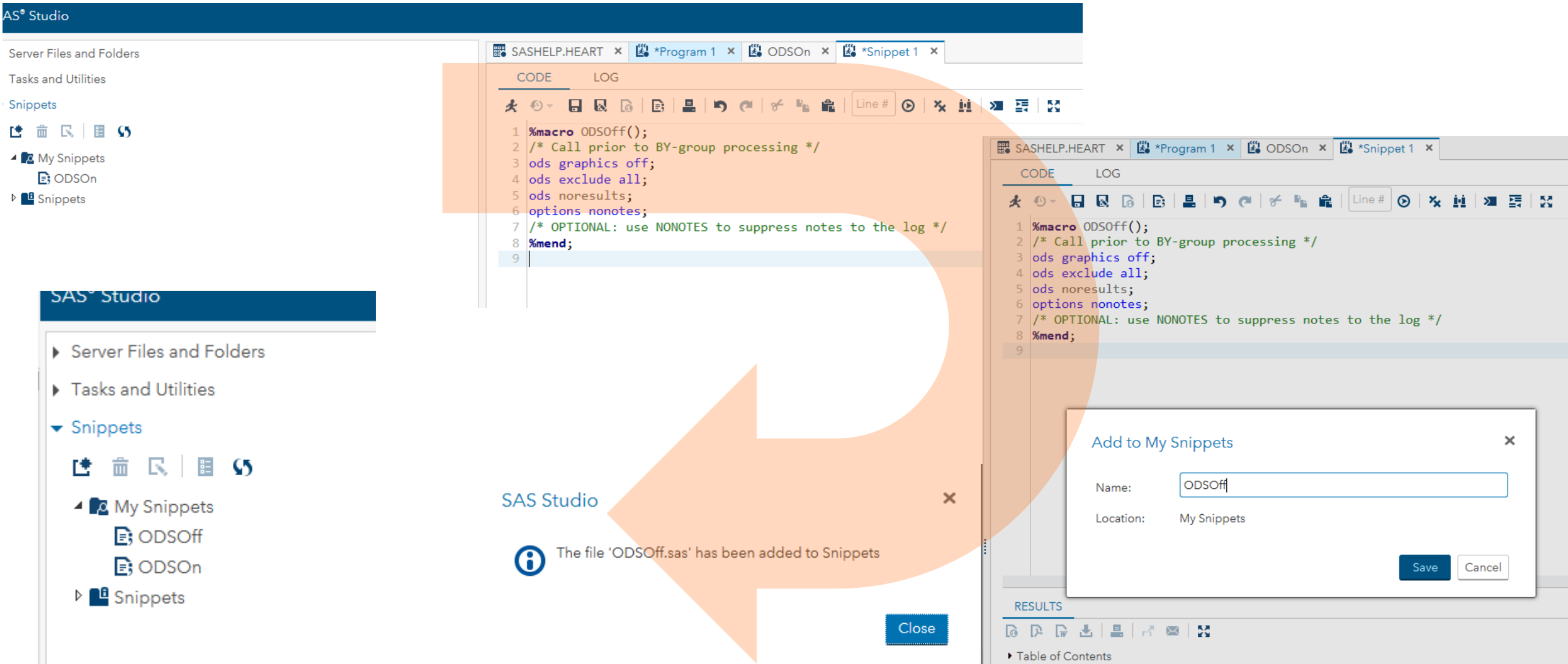
➤ **View Submission History**

- Click the Submission history icon  on the toolbar of the Code tab
- Choose an earlier version of the program to view a read-only copy of submitted code

➤ **Submit Background Job**

- From the Files and Folders section of the navigation pane, right-click the program file to submit and select Background submit
- Check its status by clicking the More application options icon  and selecting Background Job status

Snippets



The screenshot illustrates the process of adding a SAS snippet to the 'My Snippets' collection in SAS Studio. The main editor window displays the following SAS code:

```

1 %macro ODSOff();
2 /* Call prior to BY-group processing */
3 ods graphics off;
4 ods exclude all;
5 ods noresults;
6 options nonotes;
7 /* OPTIONAL: use NONOTES to suppress notes to the log */
8 %mend;
9

```

An 'Add to My Snippets' dialog box is open, showing the snippet's name and location:

- Name: ODSOff
- Location: My Snippets

A message box at the bottom of the SAS Studio interface confirms the action:

The file 'ODSOFF.sas' has been added to Snippets

The left sidebar shows the 'Snippets' pane with the following structure:

- My Snippets
 - ODSOFF
 - ODSON
- Snippets

Snippets

The image shows two side-by-side screenshots of the SAS Studio interface. The left screenshot shows a code editor with a SAS macro definition. The right screenshot shows the same code editor with a dialog box open to add the snippet to 'My Snippets'.

Left Screenshot:

- Windows: SASHELP.HEART, *Program 1, *Snippet 1
- Tab: CODE
- Code:

```
1 %macro ODSOn(); /* Call after BY-group processing */
2 options notes;
3 ods graphics on;
4 ods exclude none;
5 ods results;
6 %mend;
7
```

Right Screenshot:

- Windows: SASHELP.HEART, *Program 1, *Snippet 1
- Tab: CODE
- Code:

```
1 %macro ODSOn(); /* Call after BY-group processing */
2 options notes;
3 ods graphics on;
4 ods exclude none;
5 ods results;
6 %mend;
7
```
- Dialog: Add to My Snippets
- Name: ODSOn
- Location: My Snippets
- Buttons: Save, Cancel

Bottom Left:

- SAS Studio
- Message: The file 'ODSON.sas' has been added to Snippets
- Close button

Bottom Right:

- RESULTS
- Table of Contents

Snippets



SAS® Studio

Server Files and Folders

Tasks and Utilities

Snippets

- My Snippets
 - ODSOff
 - ODSON
 - Snippets

SASHELP.HEART x *Program 1 x

CODE LOG RESULTS

Line #

```
1  
2  
3 PROC SQL ;  
4     CREATE TABLE WORK.query AS SELECT 'Status'n , DeathCause , AgeCHDdiag , Sex ,  
5         AgeAtStart , Height , Weight , Diastolic , Systolic , MRW , Smoking ,  
6         AgeAtDeath , Cholesterol , Chol_Status , BP_Status , Weight_Status ,  
7         Smoking_Status FROM SASHELP.HEART WHERE Systolic>120 AND Smoking>0 ORDER BY  
8         sortkey("Status"n, "en_US");  
9     RUN;  
10 QUIT;  
11  
12 PROC DATASETS NOLIST NODETAILS;  
13     CONTENTS DATA=WORK.query OUT=WORK.details;  
14     RUN;  
15  
16 PROC PRINT DATA=WORK.details;  
17     RUN;  
18  
19
```

Snippets

SAS® Studio

Server Files and Folders

Tasks and Utilities

Snippets

- My Snippets
 - ODSOff
 - ODSON
- Snippets

SASHELP.HEART x *Program 1 x

CODE LOG RESULTS

Line #

```

1 %macro ODSOff();
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7 /* OPTIONAL: use NONOTES to suppress notes to the log */
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9
10 PROC SQL ;
11     CREATE TABLE WORK.query AS SELECT 'Status'n , DeathCause , AgeCHDdiag , Sex ,
12         AgeAtStart , Height , Weight , Diastolic , Systolic , MRW , Smoking ,
13         AgeAtDeath , Cholesterol , Chol_Status , BP_Status , Weight_Status ,
14         Smoking_Status FROM SASHELP.HEART WHERE Systolic>120 AND Smoking>0 ORDER BY
15         sortkey("Status"n, "en_US");
16     RUN;
17 QUIT;
18
19
20
21 PROC DATASETS NOLIST NODETAILS;
22     CONTENTS DATA=WORK.query OUT=WORK.details;
23     RUN;
24
25 PROC PRINT DATA=WORK.details;
26 RUN;
27
28

```

Snippets

Server Files and Folders

Tasks and Utilities

▼ Snippets

My Snippets

- ODSOff
- ODSON

Snippets

SASHELP.HEART x *Program 1 x

CODE LOG RESULTS

Line #

```

1 %macro ODSOff();
2 /* Call prior to BY-group processing */
3 ods graphics off;
4 ods exclude all;
5 ods noresults;
6 options nonotes;
7 /* OPTIONAL: use NONOTES to suppress notes to the log */
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11     CREATE TABLE WORK.query AS SELECT 'Status'n , DeathCause , AgeCHDdiag , Sex ,
12         AgeAtStart , Height , Weight , Diastolic , Systolic , MRW , Smoking ,
13         AgeAtDeath , Cholesterol , Chol_Status , BP_Status , Weight_Status ,
14         Smoking_Status FROM SASHELP.HEART WHERE Systolic>120 AND Smoking>0 ORDER BY
15         sortkey("Status"n, "en_US");
16     RUN;
17 QUIT;
18
19 %macro ODSON(); /* Call after BY-group processing */
20 options notes;
21 ods graphics on;
22 ods exclude none;
23 ods results;
24 %mend;
25
26 PROC DATASETS NOLIST NODETAILS;
27     CONTENTS DATA=WORK.query OUT=WORK.details;
28     RUN;
29
30 PROC PRINT DATA=WORK.details;
31 RUN;
32

```