Power of SAS® Office Analytics in Your Hands:

Monitoring & Ad-hoc Reporting and Updating PowerPoint Slides Using Stored Process

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Roche Molecular Solutions, Inc

Agenda

- Introduction
- What is SAS Office Analytics?
- Components
- What is stored process?
- What is Microsoft Add-In?
- How to Create Stored Process?
- Grant and Access Data Tables
- Tips
- Limitations
- Summary

Introduction

- Reports
  - Descriptive
  - Predictive
  - Forecasting
  - Analytical
- File Type
  - RTF
  - HTML
  - Excel
  - PDF
- Medium Via
  - Email
  - SharePoint
  - Google-Drive
  - Folder Location
- Intervals
  - Daily
  - Weekly
  - Monthly
  - On Demand

Flow of Traditional Ad-hoc Reports

Introduction

Flow of Traditional Ad-hoc Reports

- Problems
  - Time Management
  - Storage Management
  - Resource Management
  - New Requests
  - On Demand

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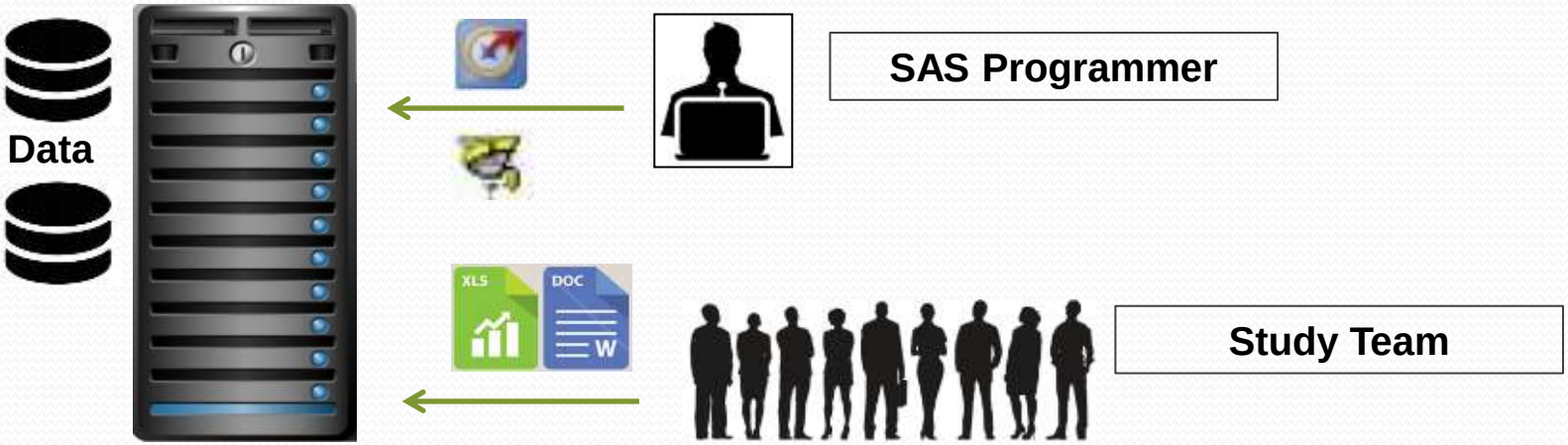
What is Office Analytics?

Package of products which provides access to the **SAS data** and execute **SAS programs** through Microsoft applications using SAS Add-In for Microsoft Office (AMO)



- Microsoft Applications
  - Excel
  - Word
  - Outlook
  - PowerPoint

- Advantages of OA
  - Power in hands of User
  - Explore Data
  - SAS Tasks
  - Reports are Most Current
  - Perform Queries
  - Saves Time
  - Saves Resources

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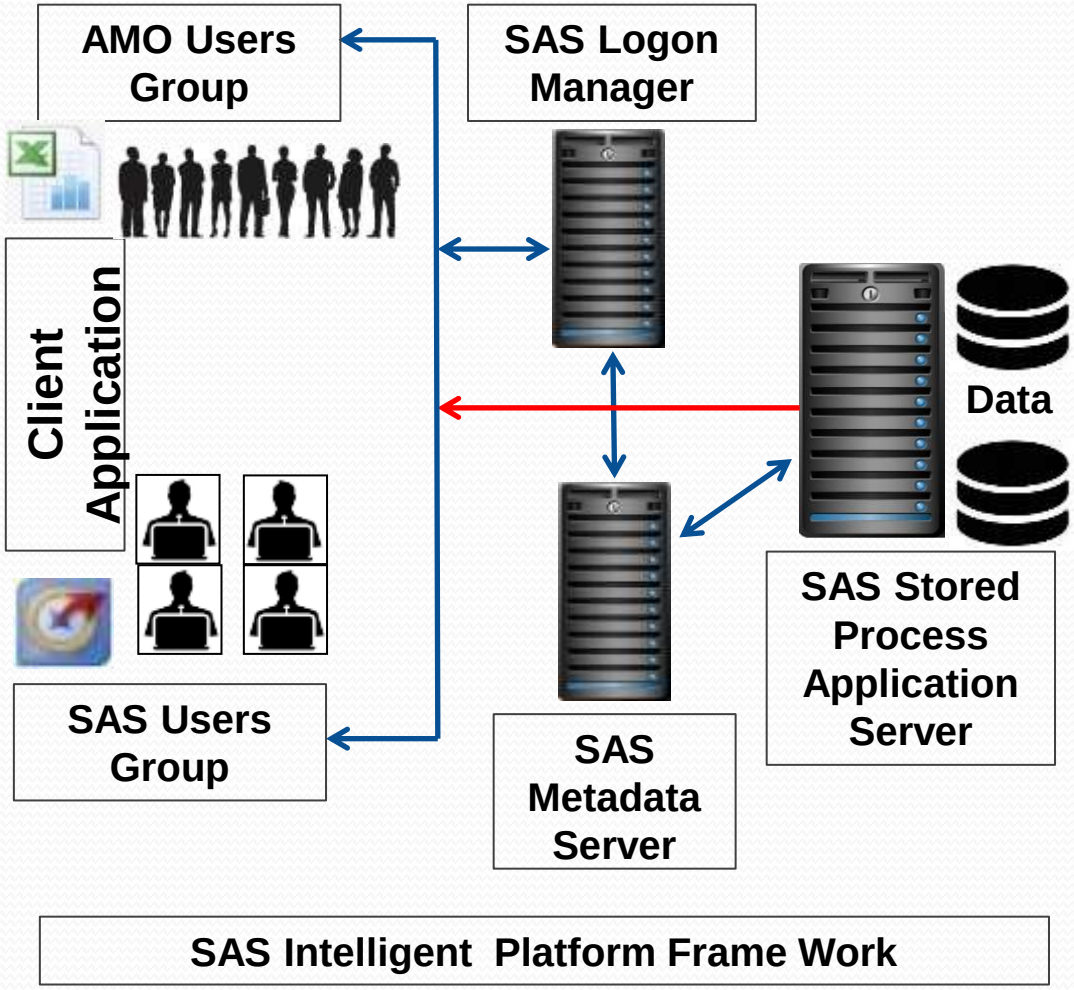
Components



- SAS Servers
  - Application/Work Space
  - Metadata Server
  - Stored Process Server
- Enterprise Guide 7.1
- Management Console 9.4
- SAS Microsoft Add-In 7.1
- Windows 2008R2 Server
- Microsoft Office 2016

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What is Stored Process?

SAS program stored and executed at central location (server) and shared by multiple users

- Execute a Stored process
  - Microsoft Applications
    - Excel
    - Word
    - Outlook
    - Power Point

```
ods rtf file='Report1.rtf';
 ** PROC SQL Step;
 ** PROC PRINT Step;
 ** PROC GCHART Step;
ods rtf close;
```

Basic SAS Program

```
%STPBEGIN;
 ** PROC SQL Step;
 ** PROC PRINT Step;
 ** PROC GCHART Step;
%STPEND;
```

Stored Process Program

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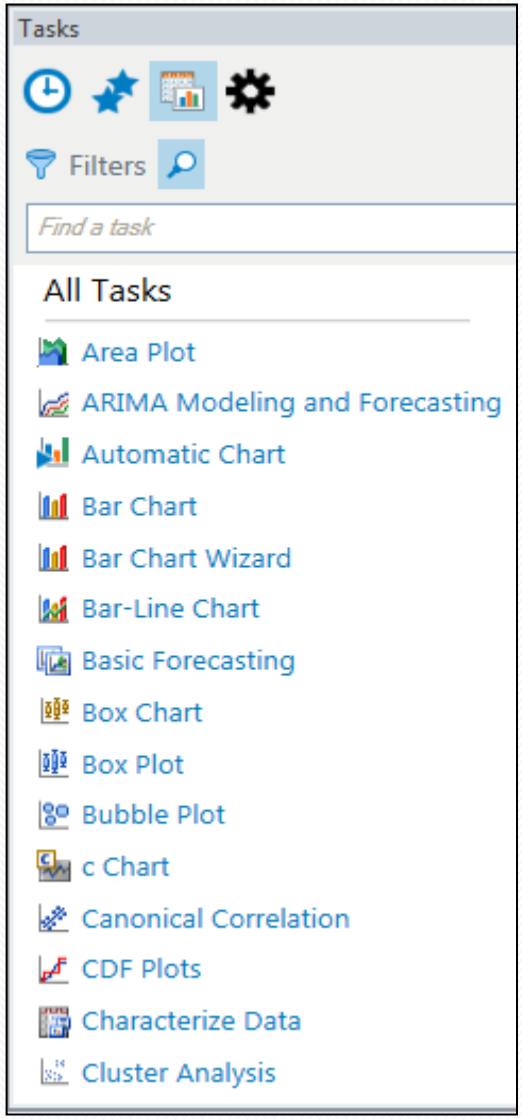
What is Microsoft Add-In (AMO)?



- Execute a Stored process
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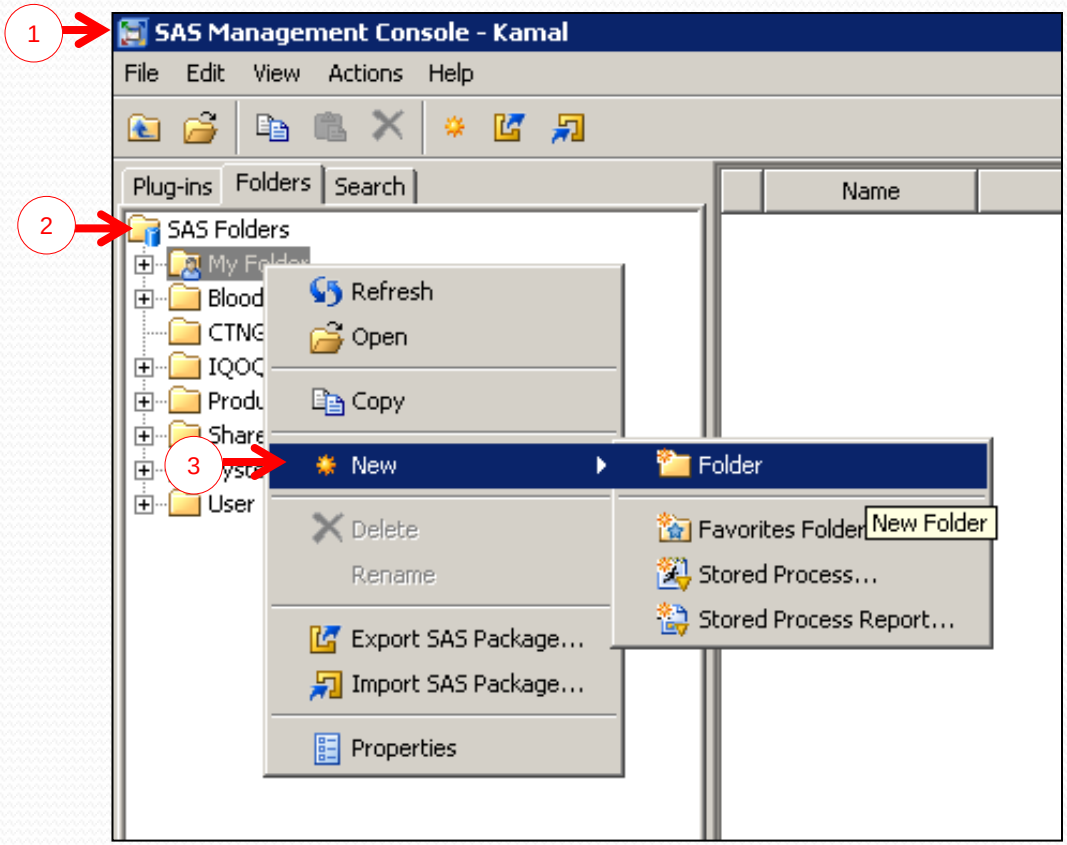
How To Create Stored Process?

- Step 1: Create folders on Metadata server
- Step 2: Register the SAS code as stored process
- Step 3: Access reports in Microsoft Office

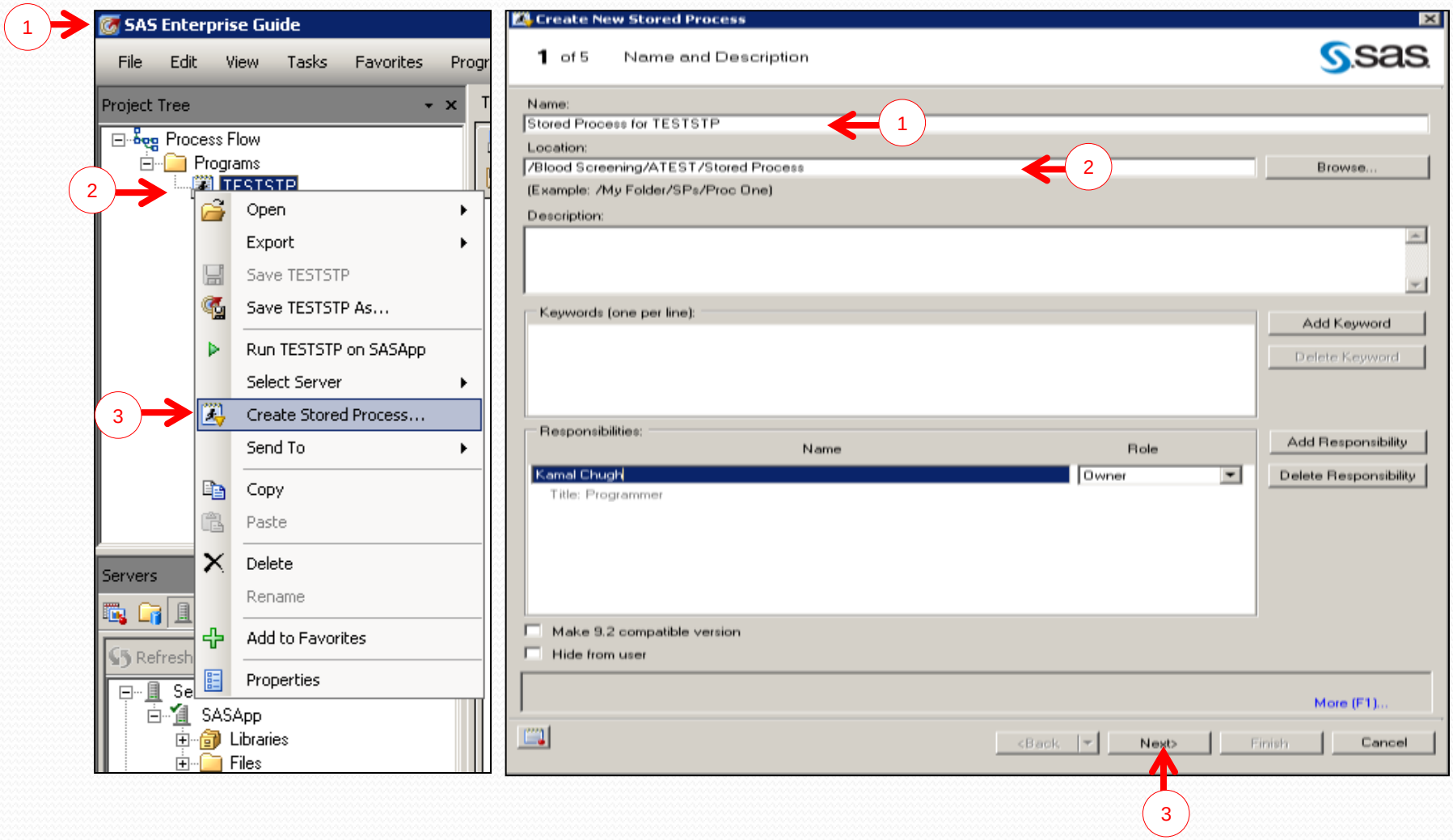
Step 1: Create Folders on Metadata Server



- Metadata Server
  - Maps
  - Libraries
  - Tables
  - System Resources
  - User Access Data

- Management Console (Administrative Interface)
  - Metadata Repositories
  - Servers
  - Users
  - Accounts

Step 2: Register SAS Code as Stored Process



Step 2: Register SAS Code as Stored Process

Create New Stored Process

2 of 5 SAS Code

```
proc sql noprint;
    select count(sex) into :totf
    from atest.heart
    where sex ^='' and weight_status ^='' and chol_status ^='' and s

    select count(sex) into :totm
    from atest.heart
    where sex ^='' and weight_status ^='' and chol_status ^='' and s
quit;

proc sql;
create table weight_status as
    select sex,chol_status, count(*) as counts,calculated counts/&to
    from atest.heart
    where sex ^='' and weight_status ^='' and chol_status ^='' and s
    group by sex,chol_status
    outer union corr
    select sex,chol_status, count(*) as counts,calculated counts/&to
    from atest.heart
    where sex ^='' and weight_status ^='' and chol_status ^='' and s
    group by sex,chol_status;
quit;

proc print data=weight_status;
TITLE "Percentage of Different Weight Groups Within Each Gender";
run;

TITLE1 "Bar Chart";
```

1 Replace with code from | Include code for | Clear code | Reset code

Specify the location where you want to save the stored process on the metadata server.

More (F1)...

2 <Back | Next> | Finish | Cancel

Create New Stored Process

3 of 5 Execution Options

Application server:

SASApp 1

Server type: 2

- Default server
  Select this option to allow the client application to specify the server.
- Stored process server only
  Select this option if the stored process uses sessions or if it uses replay (for example, to produce graphics in streaming output).
- Workspace server only
  Select this option if the stored process must be run under the client identity.

Source code location and execution:

- Allow execution on other application servers (store source code in metadata) 3
- Allow execution on selected application server only
  - Store source code in metadata
  - Store source code on application server

Source code repository:

*** Select a repository *** | Manage...

Source file:

Stored Process for TESTSTP.sas

Overwrite existing file

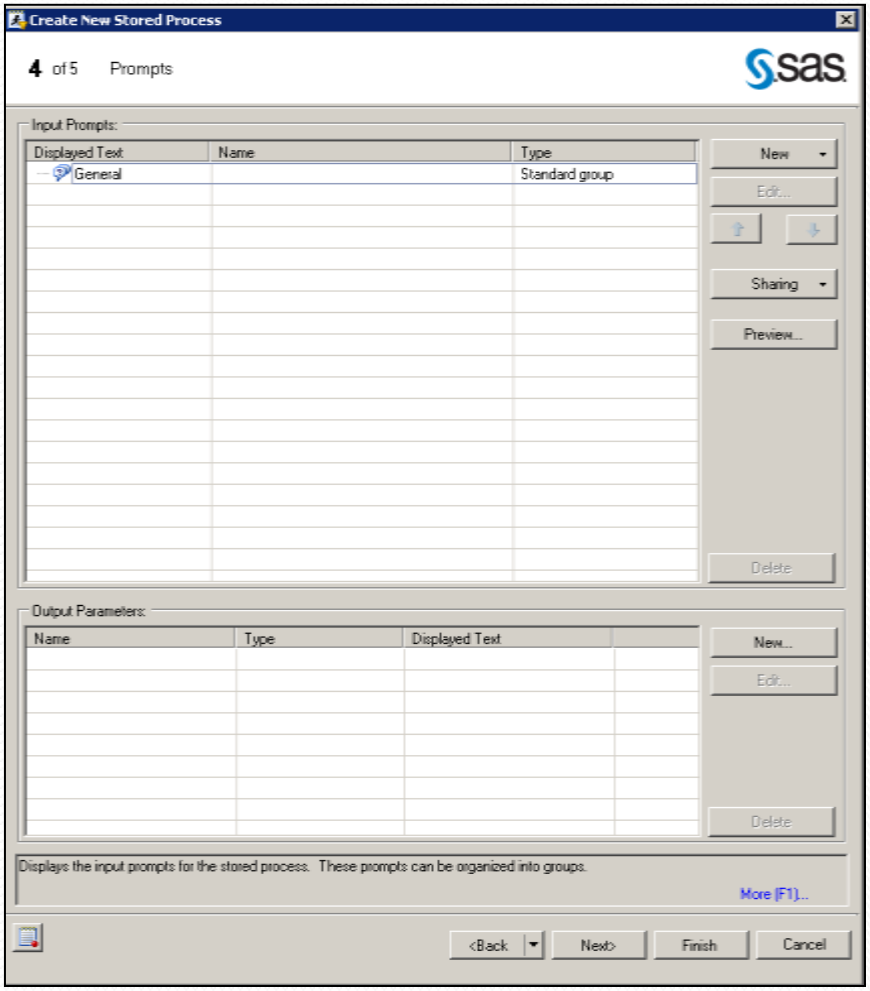
Result capabilities: Stream Package

More (F1)...

<Back | Next> | Finish | Cancel

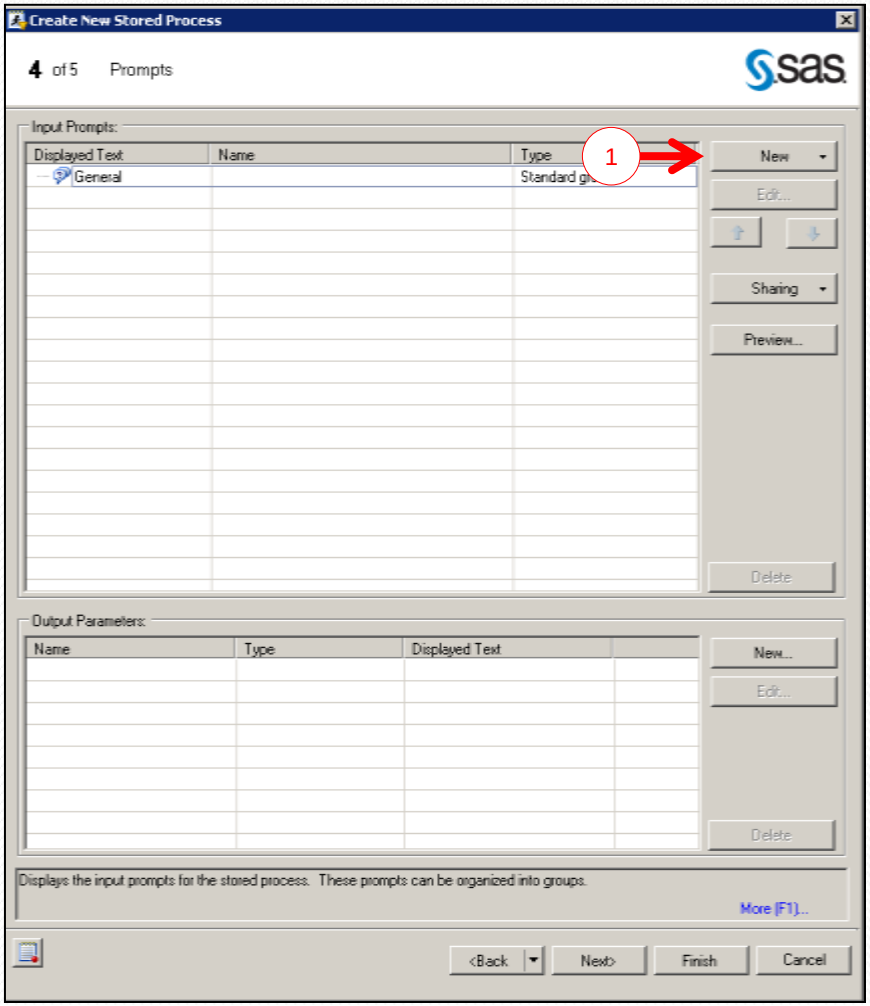
4

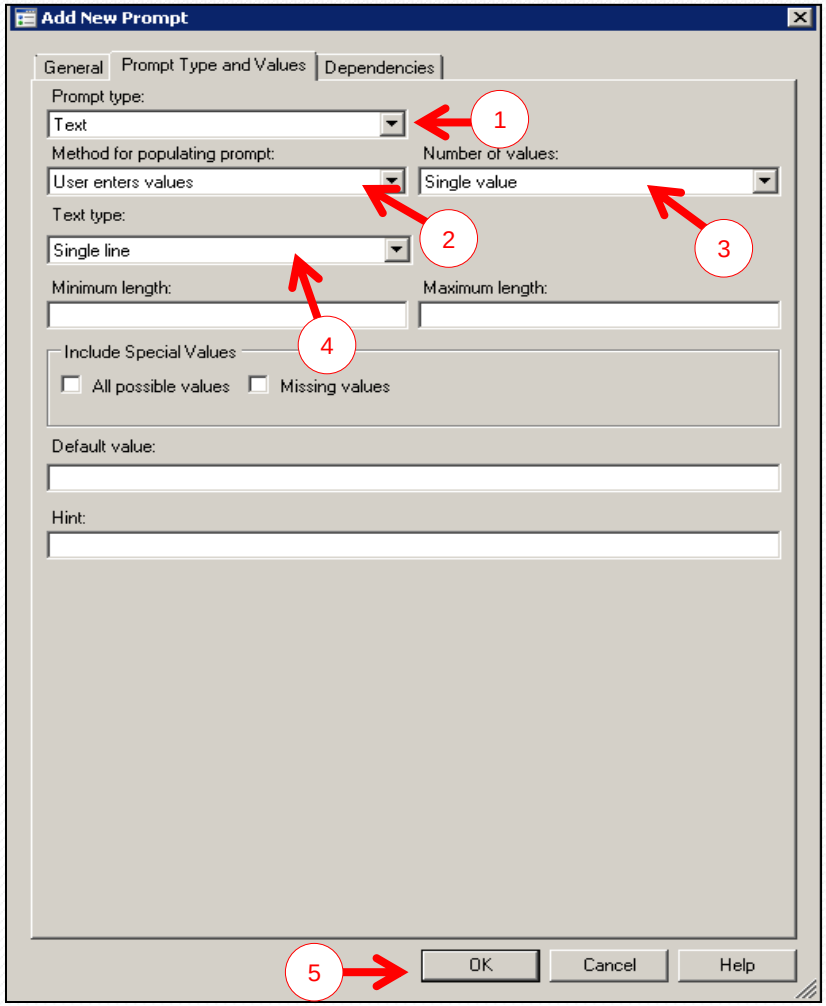
Step 2: Register SAS Code as Stored Process



- Why Prompts?
  - Subset
  - Query
- Ways to Prompts?
  - Macro Variable
  - Dataset
- Types of Prompts
  - Static
  - Dynamic
  - User Enters Value

Step 2: Register SAS Code as Stored Process





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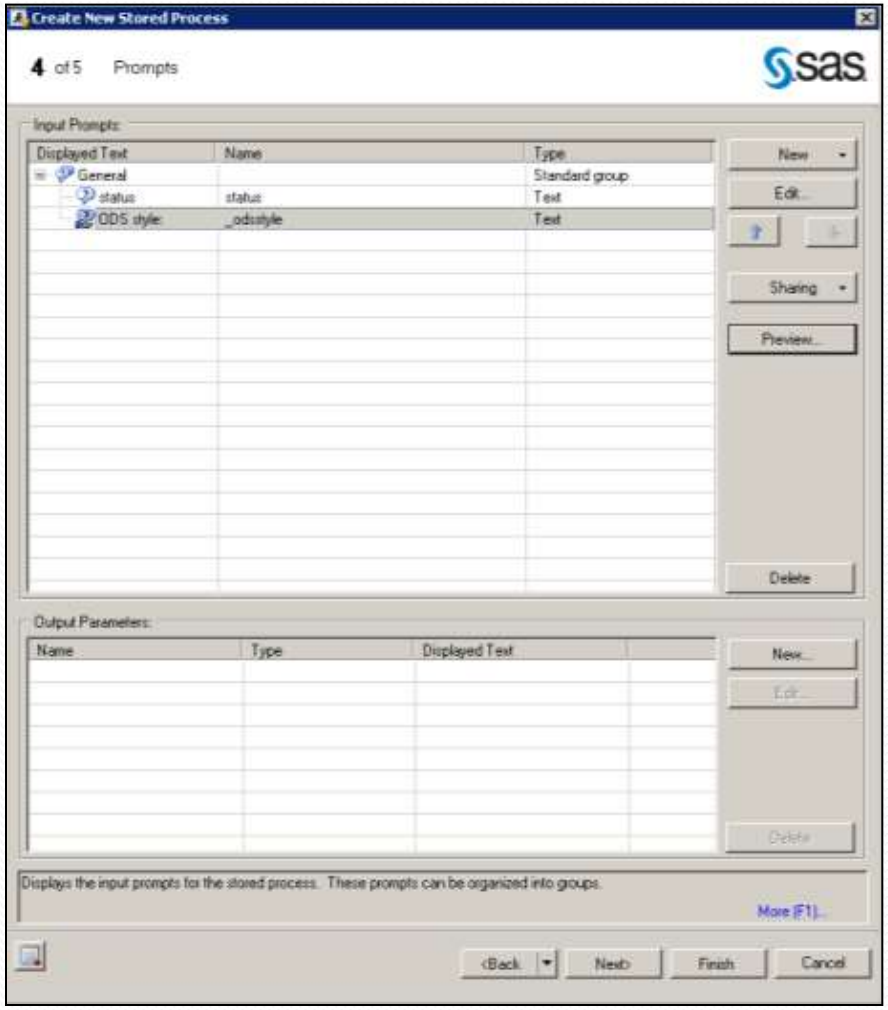
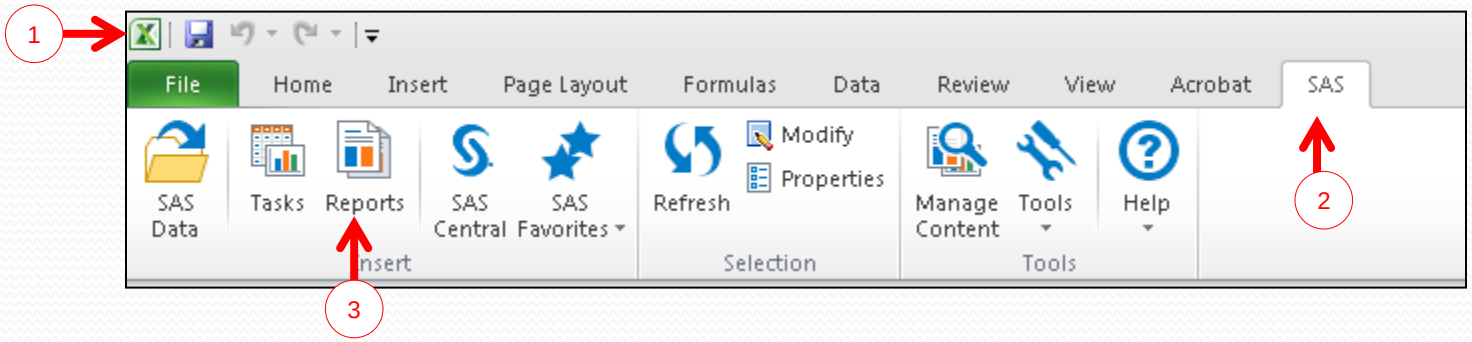


Step 3: Access Reports in Microsoft Office



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    - Excel
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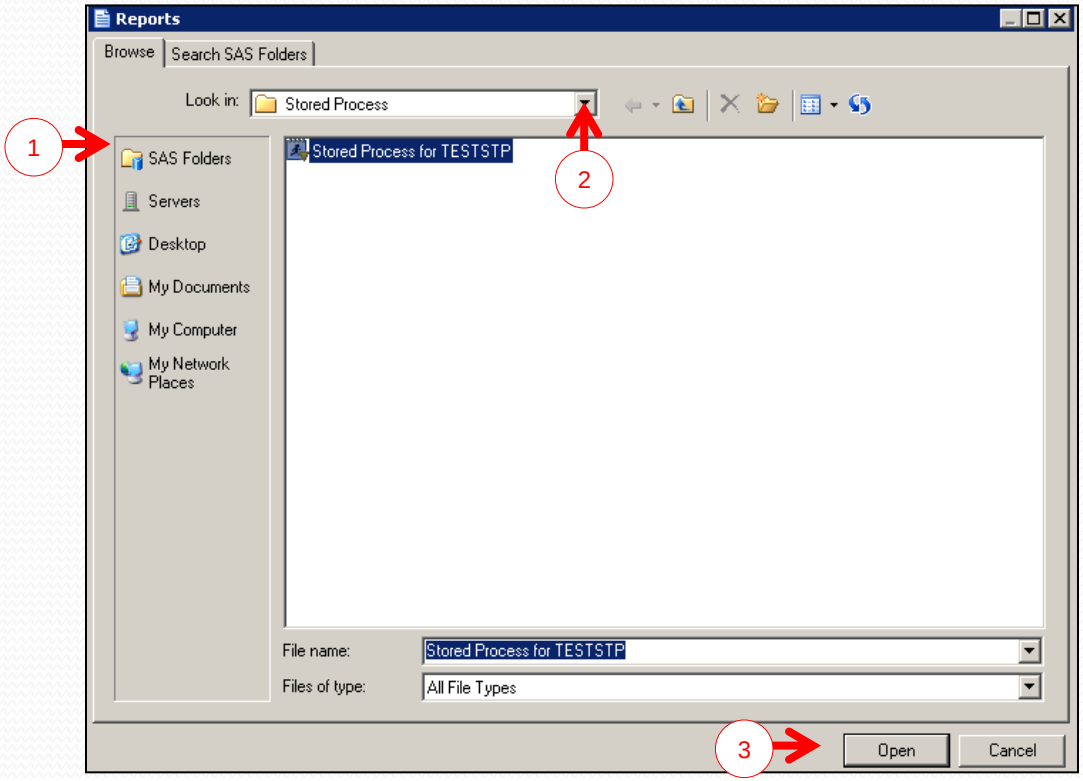
    - Power Point
    - Outlook



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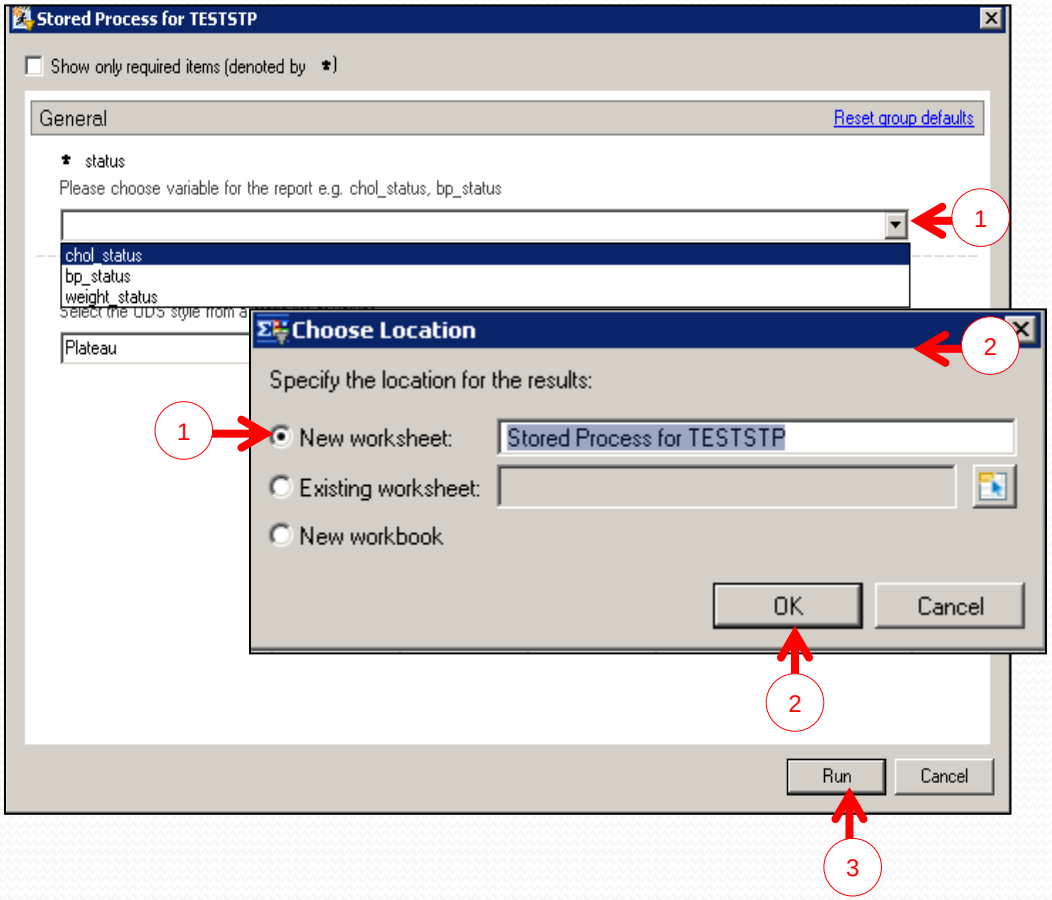

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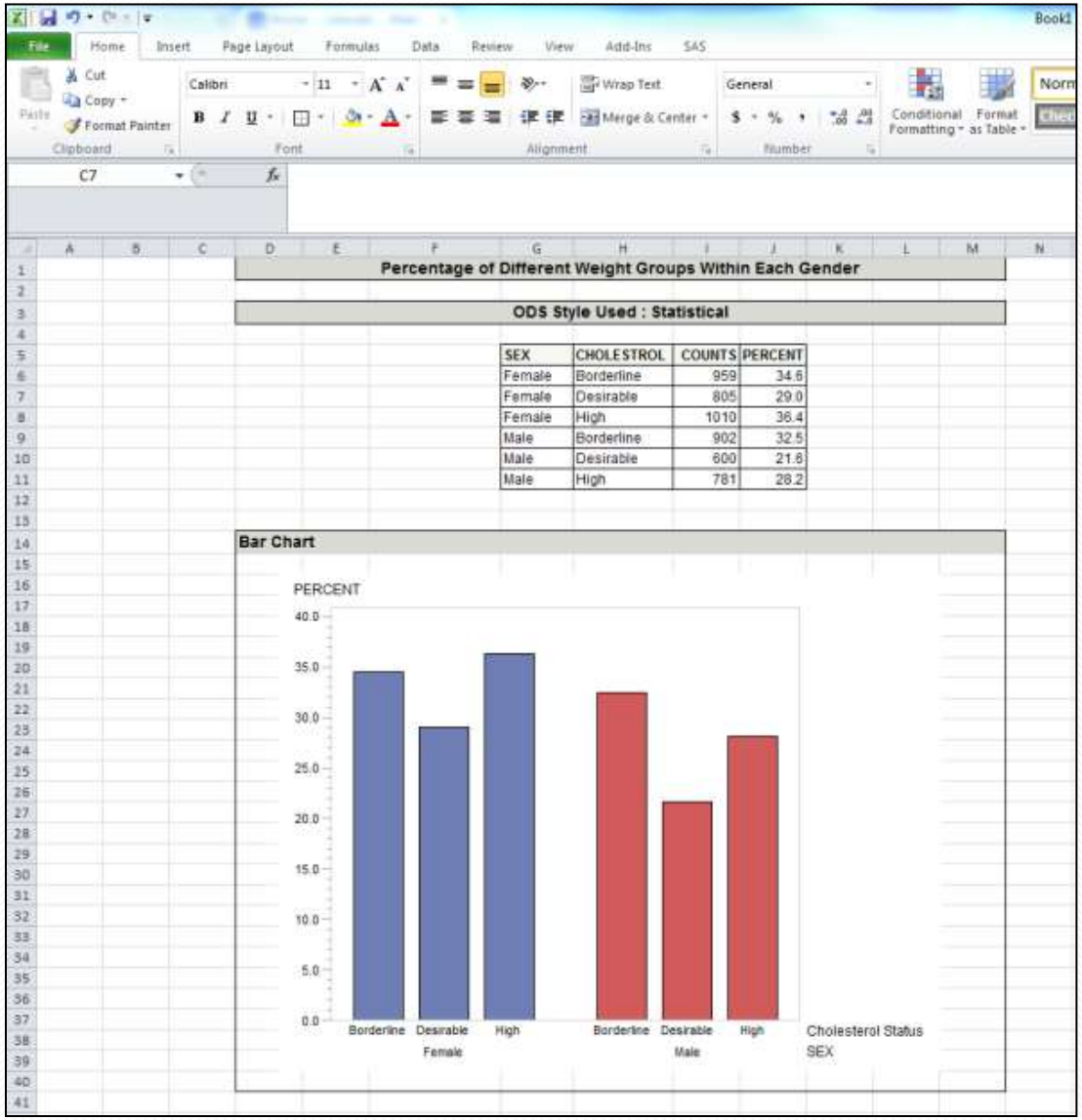

Percentage of Different Weight Groups Within Each Gender

ODS Style Used : Statistical

SEX	CHOLESTROL	COUNTS	PERCENT
Female	Borderline	959	34.6
Female	Desirable	805	29.0
Female	High	1010	36.4
Male	Borderline	902	32.5
Male	Desirable	600	21.6
Male	High	781	28.2

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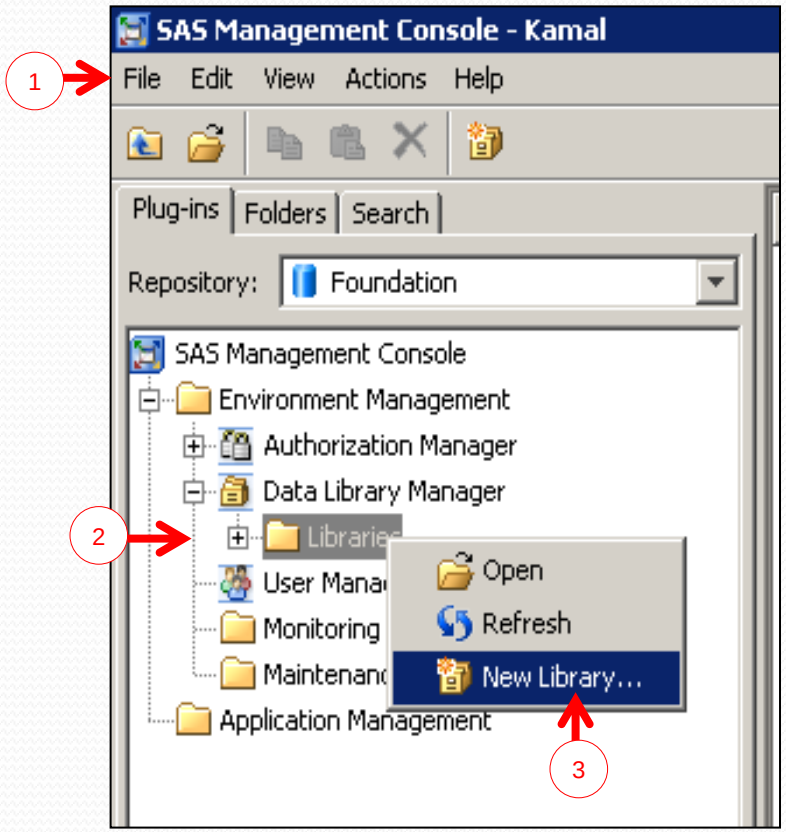
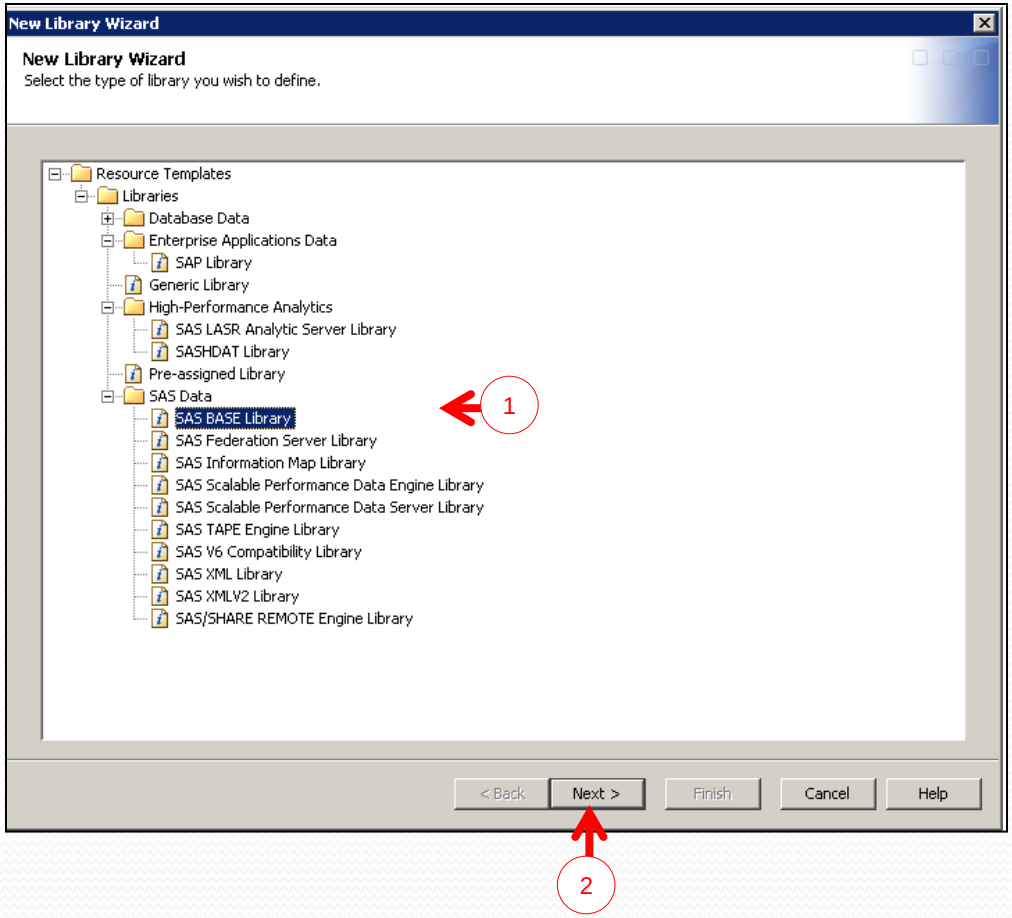
Grant and Access Data Tables

- Step 1: Create Metadata library and register to Metadata folder
- Step 2: Register tables/SAS datasets
- Step 3: Access data in Microsoft Excel

Step 1: Create Metadata Library & Register to Metadata Folder





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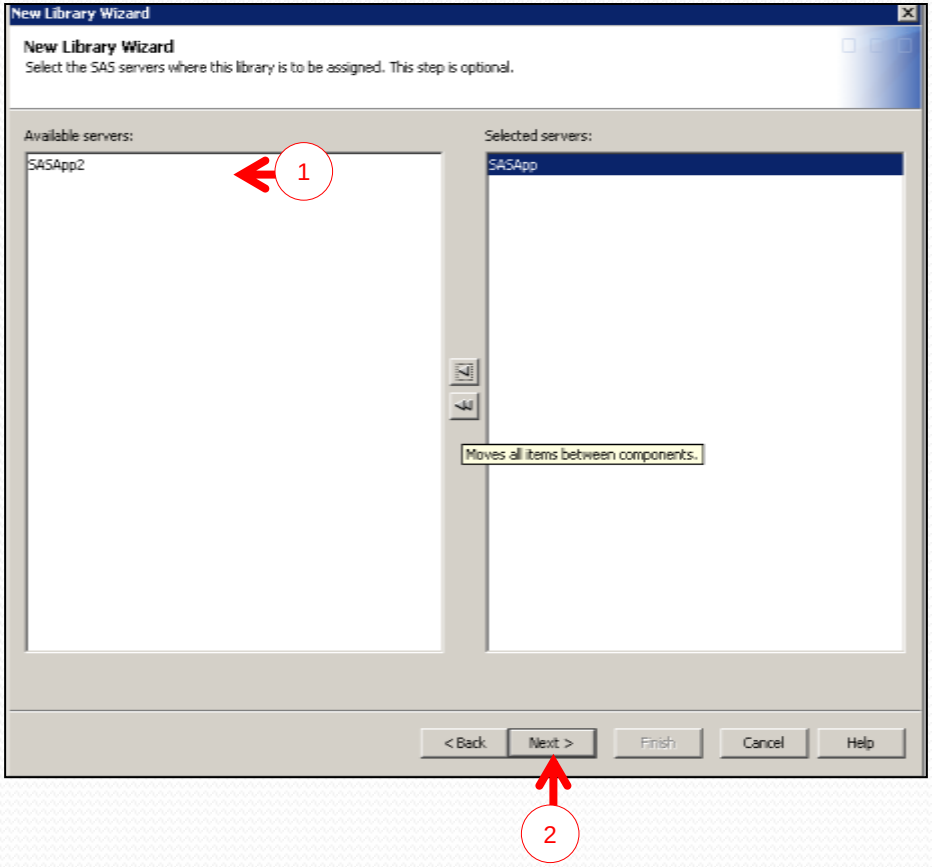

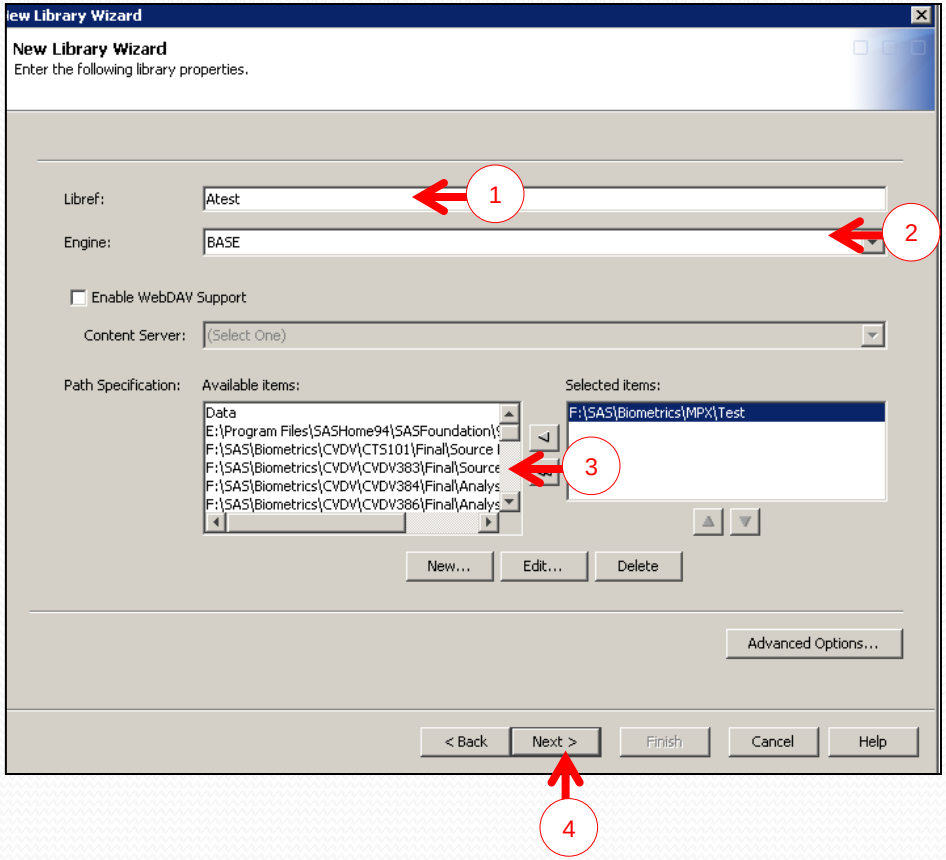

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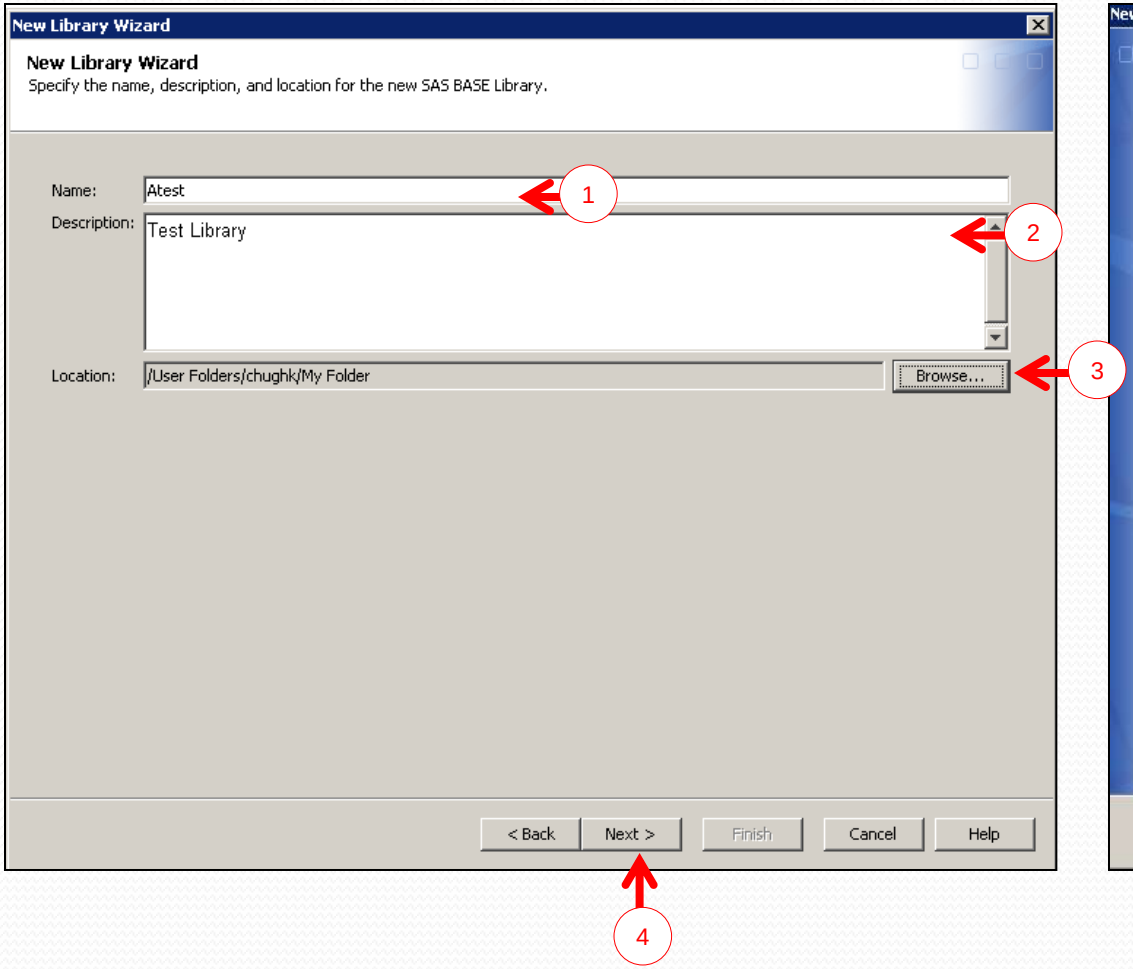
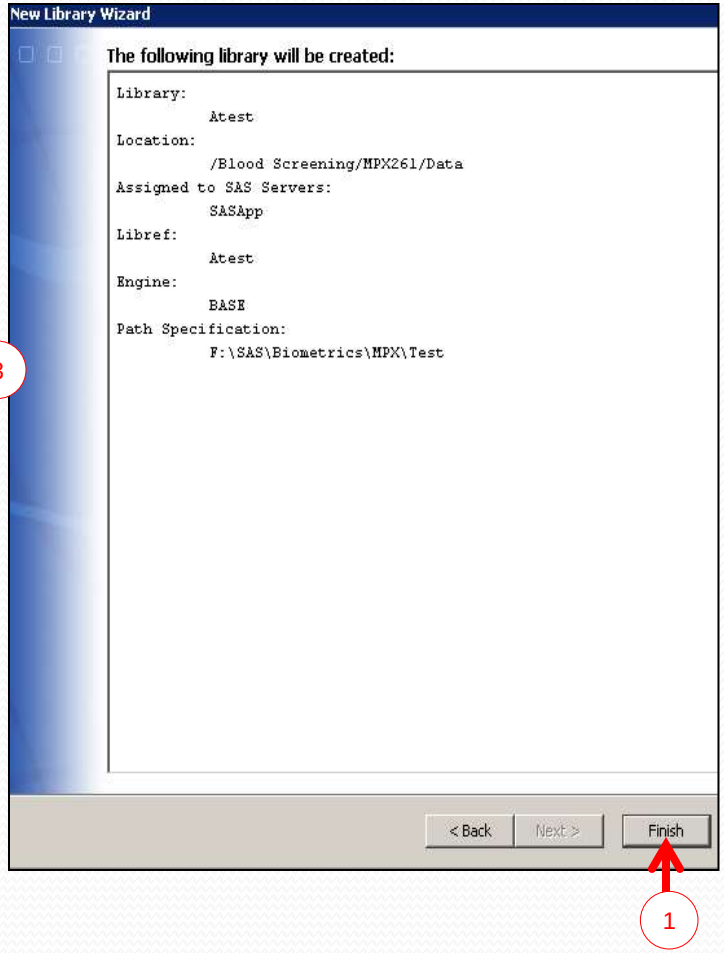
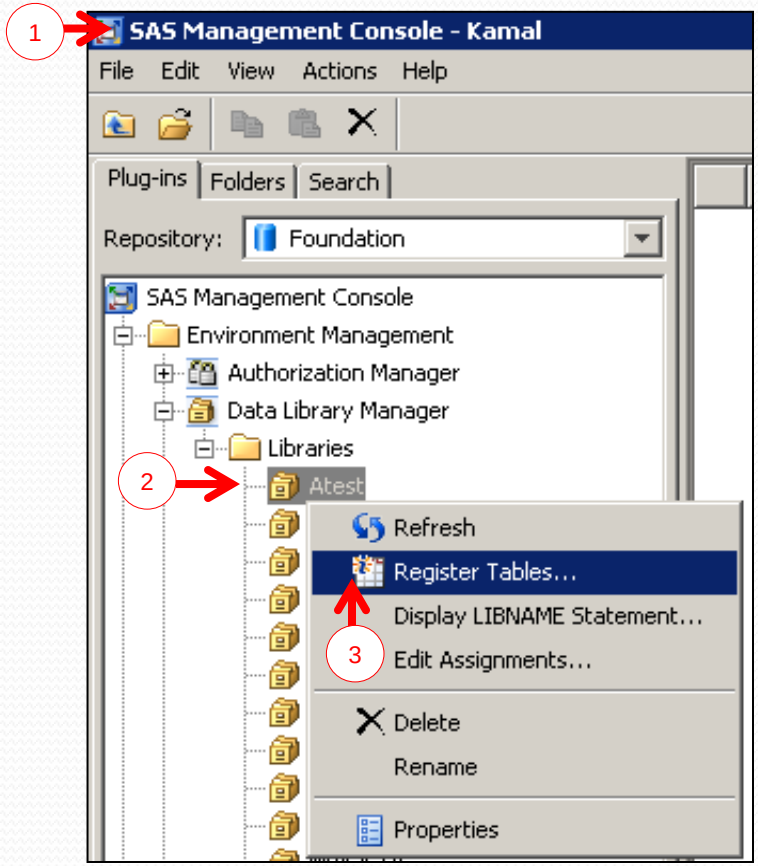
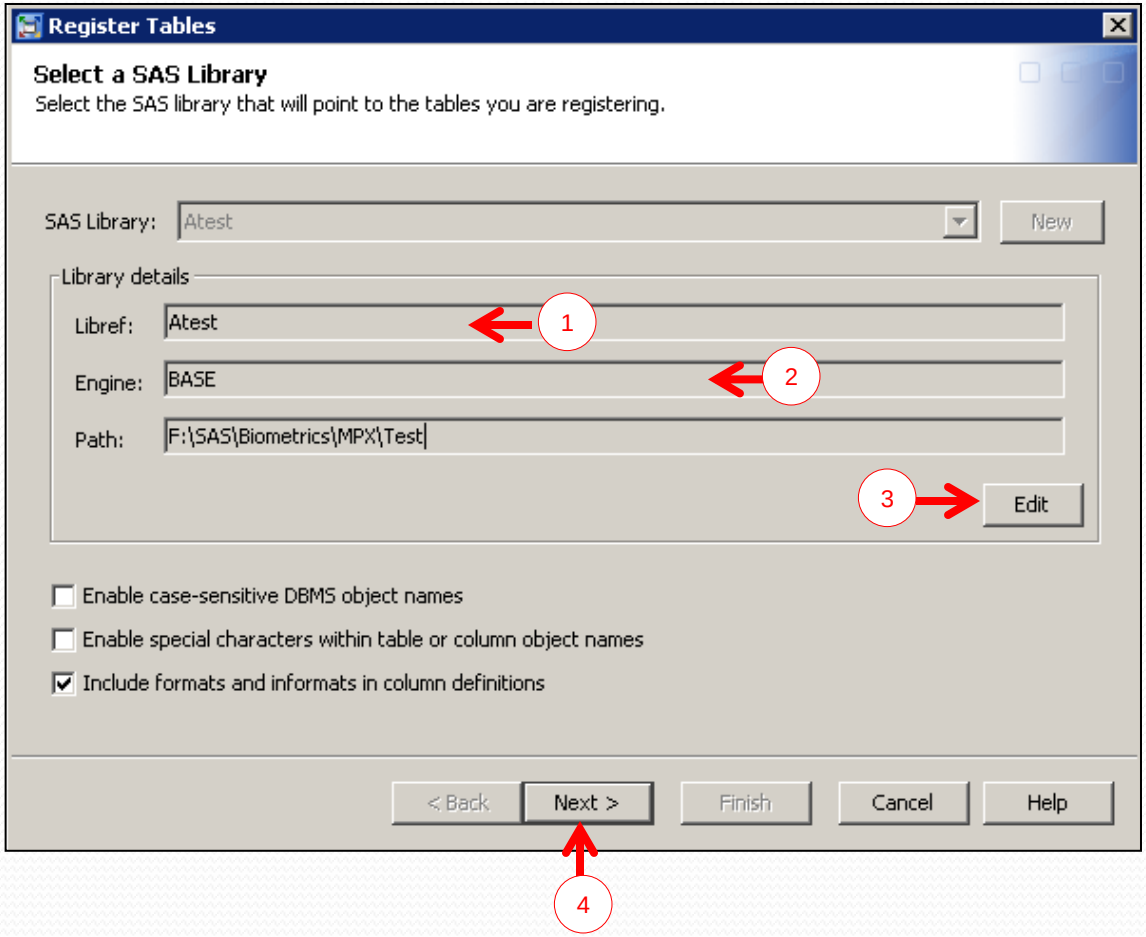




Step 2: Register Tables/SAS Datasets





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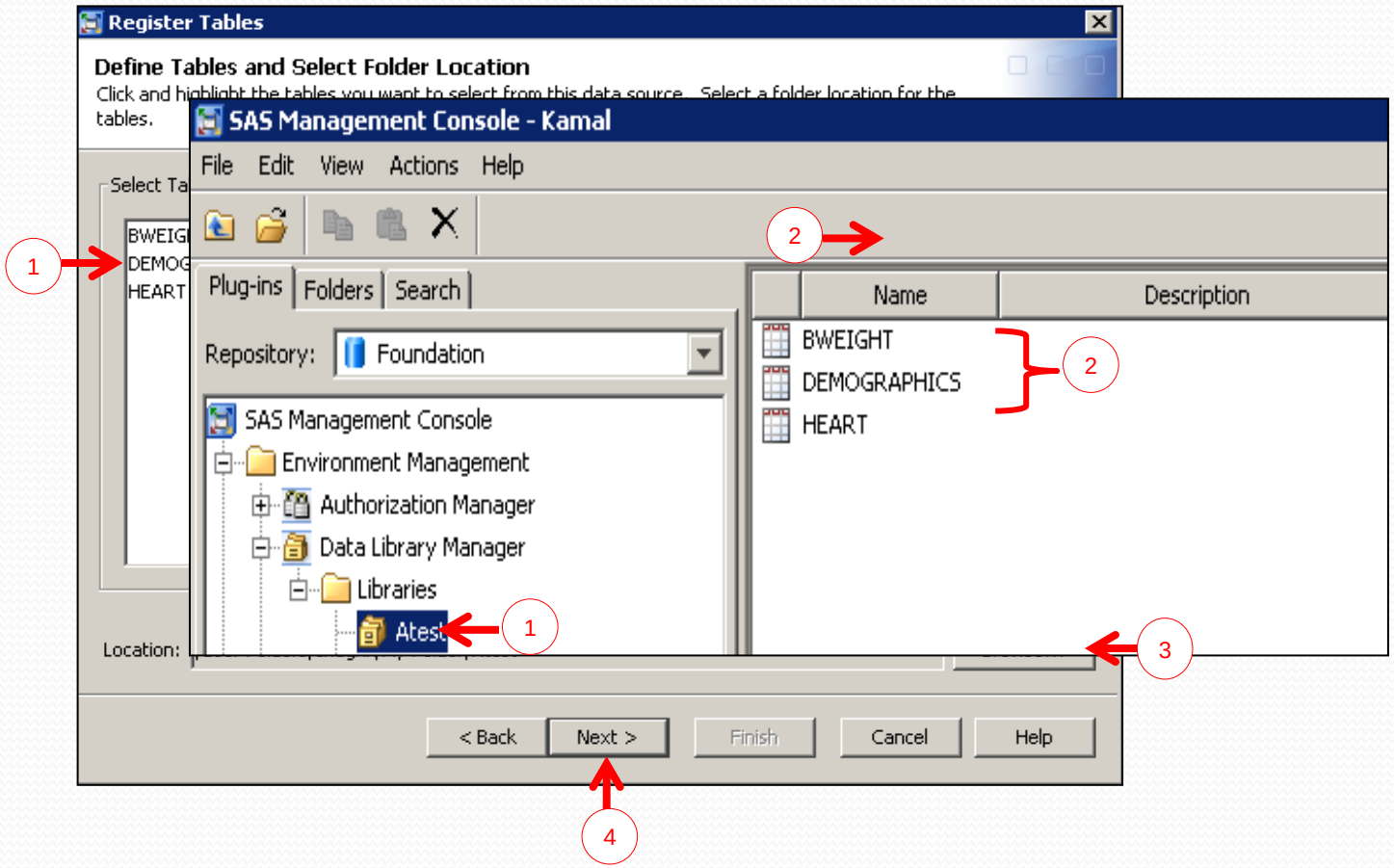
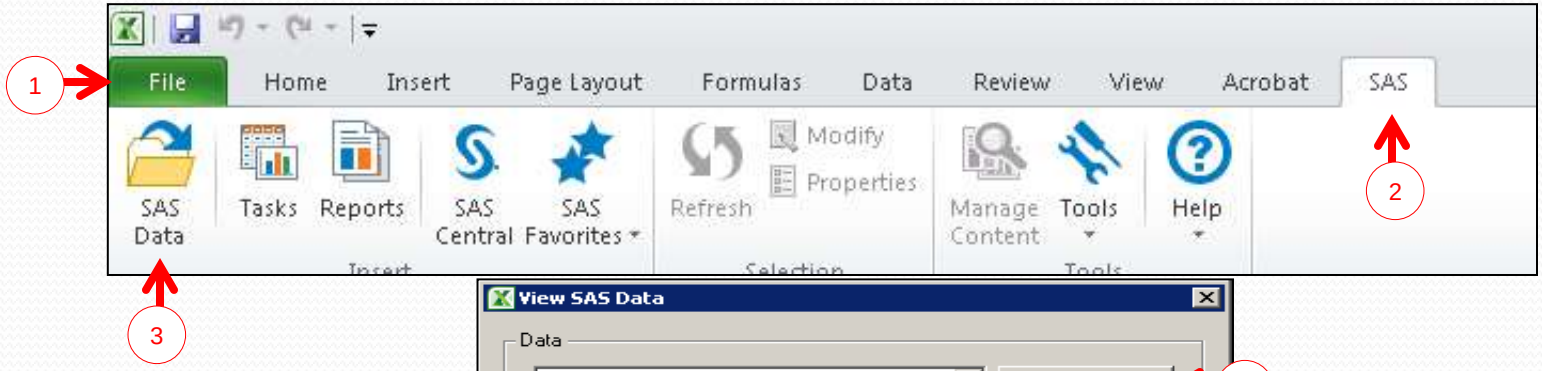
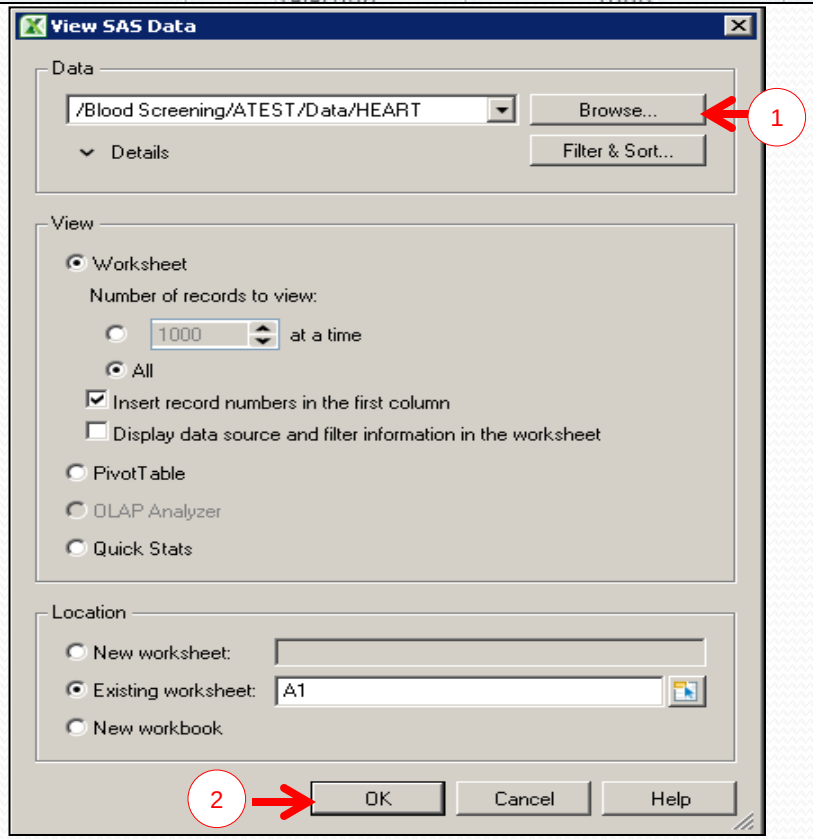


Step 3: Access Data in Microsoft Excel





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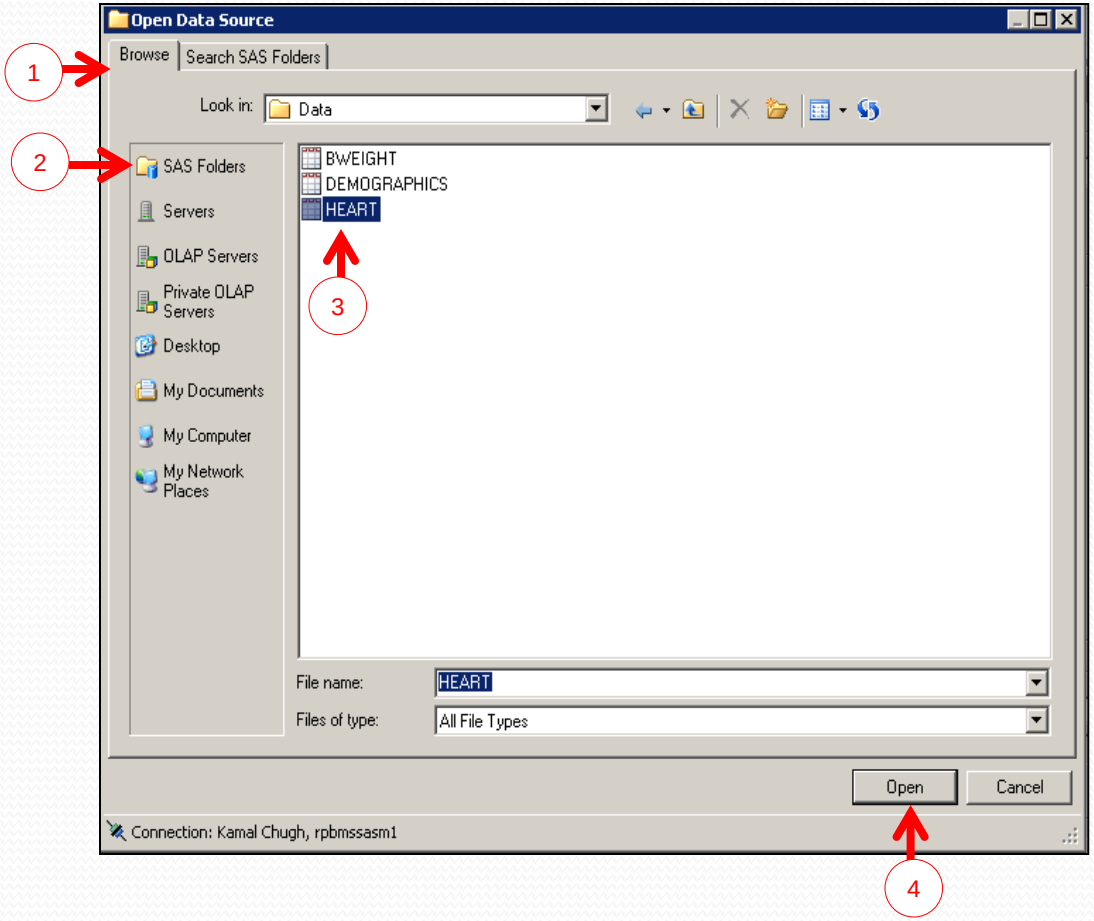

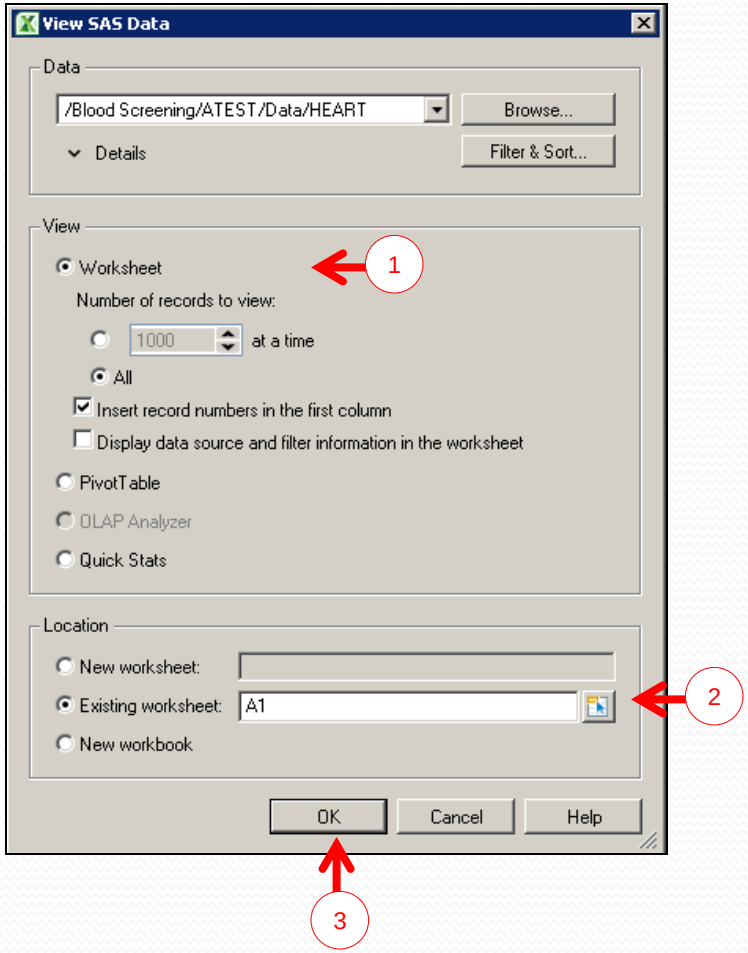

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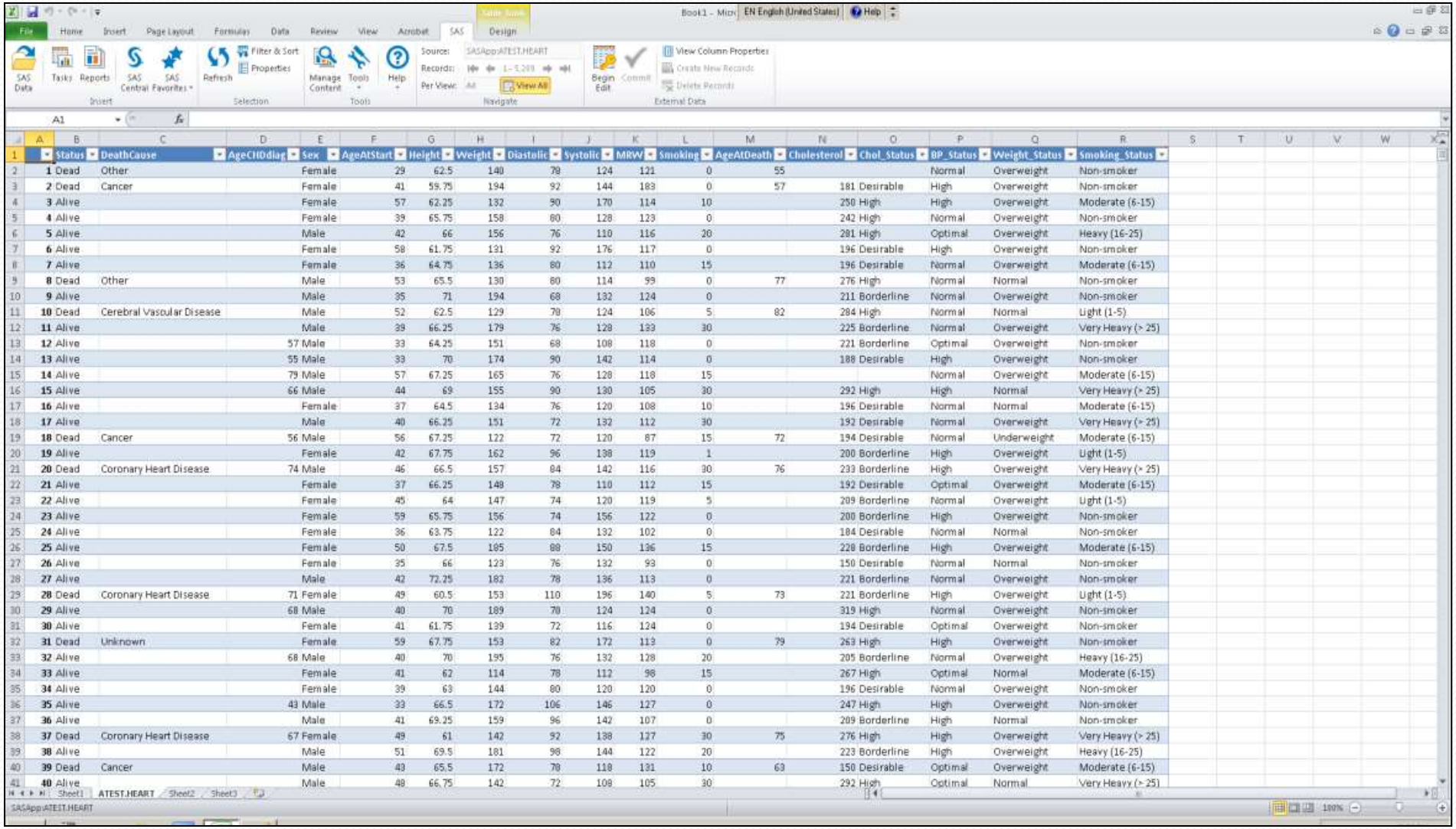

	Status	DeathCause	AgeCHDdiag	Sex	AgeAtStart	Height	Weight	Diastolic	Systolic	MRW	Smoking	AgeAtDeath	Cholesterol	Chol_Status	BP_Status	Weight_Status	Smoking_Status
1	Dead	Other		Female	29	62.5	140	78	124	121	0	55			Normal	Overweight	Non-smoker
2	Dead	Cancer		Female	41	59.75	194	92	144	183	0	57	181	Desirable	High	Overweight	Non-smoker
3	Alive			Female	57	62.25	132	90	170	114	10		250	High	High	Overweight	Moderate (6-15)
4	Alive			Female	39	65.75	158	80	128	123	0		242	High	Normal	Overweight	Non-smoker
5	Alive			Male	42	66	156	76	110	116	20		281	High	Optimal	Overweight	Heavy (16-25)
6	Alive			Female	58	61.75	131	92	176	117	0		196	Desirable	High	Overweight	Non-smoker
7	Alive			Female	36	64.75	136	80	112	110	15		196	Desirable	Normal	Overweight	Moderate (6-15)
8	Dead	Other		Male	53	65.5	130	80	114	99	0	77	276	High	Normal	Normal	Non-smoker
9	Alive			Male	35	71	194	68	132	124	0		211	Borderline	Normal	Overweight	Non-smoker
10	Dead	Cerebral Vascular Disease		Male	52	62.5	129	78	124	106	5	82	284	High	Normal	Normal	Light (1-5)
11	Alive			Male	39	66.25	179	76	128	133	30		225	Borderline	Normal	Overweight	Very Heavy (> 25)
12	Alive		57	Male	33	64.25	151	68	108	118	0		221	Borderline	Optimal	Overweight	Non-smoker
13	Alive		55	Male	33	70	174	90	142	114	0		188	Desirable	High	Overweight	Non-smoker
14	Alive		79	Male	57	67.25	165	76	128	118	15				Normal	Overweight	Moderate (6-15)
15	Alive		66	Male	44	69	155	90	130	105	30		292	High	High	Normal	Very Heavy (> 25)
16	Alive			Female	37	64.5	134	76	120	108	10		196	Desirable	Normal	Normal	Moderate (6-15)
17	Alive			Male	40	66.25	151	72	132	112	30		192	Desirable	Normal	Overweight	Very Heavy (> 25)
18	Dead	Cancer	56	Male	56	67.25	122	72	120	87	15	72	194	Desirable	Normal	Underweight	Moderate (6-15)
19	Alive			Female	42	67.75	162	96	138	119	1		200	Borderline	High	Overweight	Light (1-5)
20	Dead	Coronary Heart Disease	74	Male	46	66.5	157	84	142	116	30	76	233	Borderline	High	Overweight	Very Heavy (> 25)
21	Alive			Female	37	66.25	148	78	110	112	15		192	Desirable	Optimal	Overweight	Moderate (6-15)
22	Alive			Female	45	64	147	74	120	119	5		209	Borderline	Normal	Overweight	Light (1-5)
23	Alive			Female	59	65.75	156	74	156	122	0		200	Borderline	High	Overweight	Non-smoker
24	Alive			Female	36	63.75	122	84	132	102	0		184	Desirable	Normal	Normal	Non-smoker
25	Alive			Female	50	67.5	185	88	150	136	15		228	Borderline	High	Overweight	Moderate (6-15)
26	Alive			Female	35	66	123	76	132	93	0		150	Desirable	Normal	Normal	Non-smoker
27	Alive			Male	42	72.25	182	78	136	113	0		221	Borderline	Normal	Overweight	Non-smoker
28	Dead	Coronary Heart Disease	71	Female	49	60.5	153	110	196	140	5	73	221	Borderline	High	Overweight	Light (1-5)
29	Alive		68	Male	40	70	189	70	124	124	0		319	High	Normal	Overweight	Non-smoker
30	Alive			Female	41	61.75	139	72	116	124	0		194	Desirable	Optimal	Overweight	Non-smoker
31	Dead	Unknown		Female	59	67.75	153	82	172	113	0	79	263	High	High	Overweight	Non-smoker
32	Alive		68	Male	40	70	195	76	132	128	20		205	Borderline	Normal	Overweight	Heavy (16-25)
33	Alive			Female	41	62	114	78	112	98	15		267	High	Optimal	Normal	Moderate (6-15)
34	Alive			Female	39	63	144	80	120	120	0		196	Desirable	Normal	Overweight	Non-smoker
35	Alive		43	Male	33	66.5	172	106	146	127	0		247	High	High	Overweight	Non-smoker
36	Alive			Male	41	69.25	159	96	142	107	0		209	Borderline	High	Normal	Non-smoker
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- How to View Reports using AMO?
- **Tips**
- Limitations
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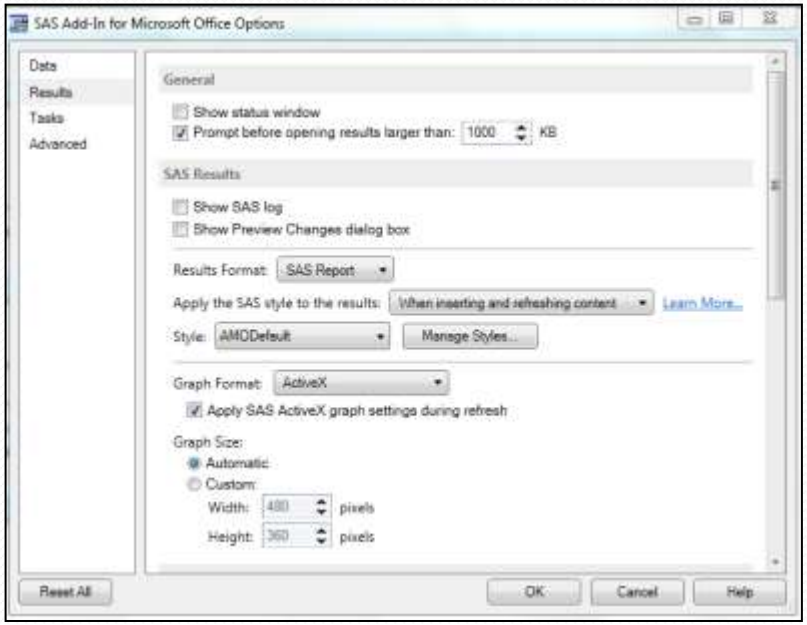
Tips

- View the most current data by using Refresh

- Preserve SAS user define fonts and formats



- Make use of Prompts for stored process

Limitations

- Upfront setup cost
  - Have to purchase SAS server license
  - Server setup costs
- Hard to implement the fonts and formats

Summary

- Powerful and convenient tool
- Easy and convenient for non SAS users to access
  - Ad-hoc reports in Microsoft Office
  - Data in Microsoft Excel
- Upfront server setup is required

Questions?