

Descriptive Statistics in SPSS: Graphical Exploration

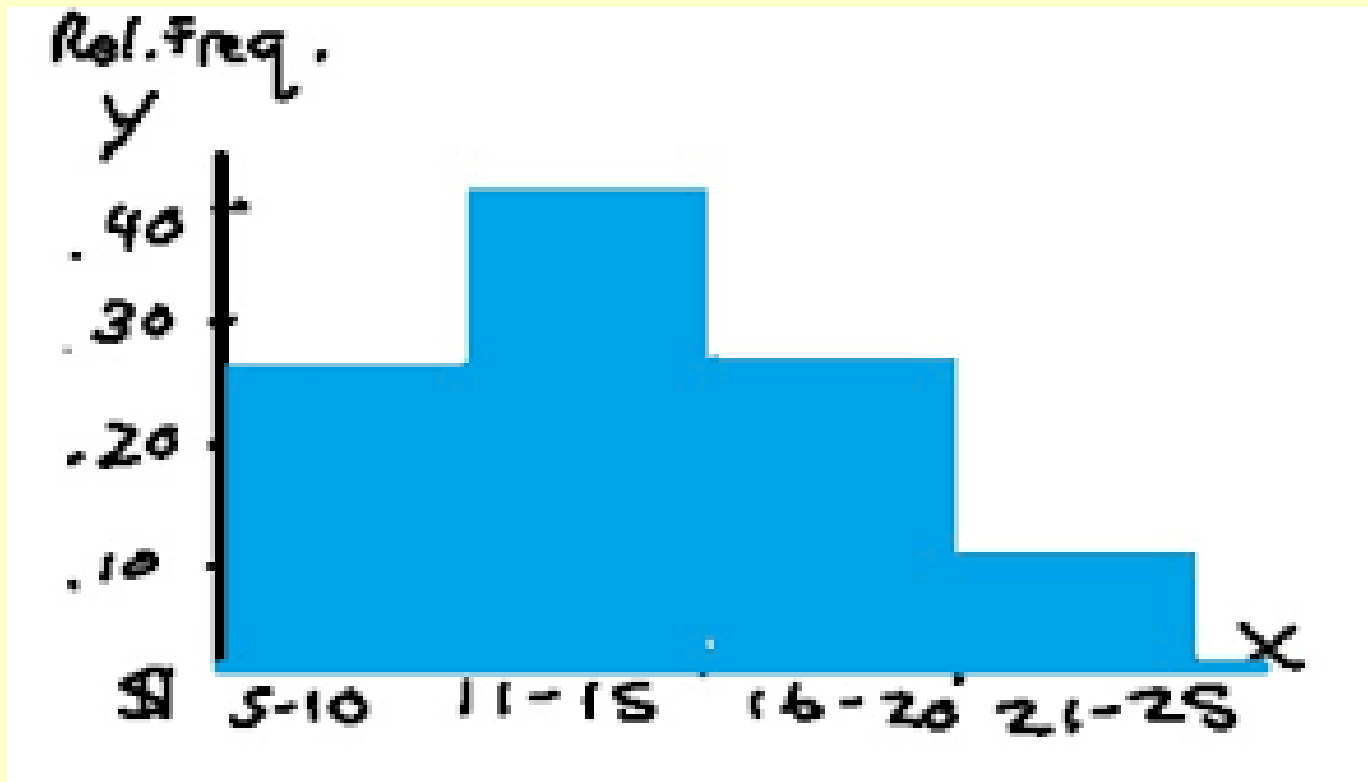


http://www.pelagicos.net/classes_biometry_fa16.htm

Features of the Histogram

- Metric of Abundance:
Count (Frequency)
Relative Frequency

- Bin Width / Location:
Count (Frequency)
Relative Frequency



Bin width:
Defines
the range
of values

Anchor:
Defines
start of
the range
of values

Making Graphs - Histogram

Calculate the frequency and cumulative frequency of this dataset, consisting of 25 observed values:

1,2,2,3,3,3,4,4,4,4,5,5,5,5,5,6,6,6,6,7,7,7,8,8,9

Value	Count	Relative Frequency	Cumulative Frequency
1	1		
2	2		
3	3		
4	4		
5	5		
6	4		
7	3		
8	2		
9	1		

Calculating Frequencies

Dataset: 1,2,2,3,3,3,4,4,4,4,5,5,5,5,5,6,6,6,6,7,7,7,8,8,9

Value	Count	Relative Frequency	Cumulative Frequency
1	1	$1 / 25 = 0.04$	0.04
2	2	$2 / 25 = 0.08$	0.12
3	3	$3 / 25 = 0.12$	0.24
4	4	$4 / 25 = 0.16$	0.40
5	5	$5 / 25 = 0.20$	0.60
6	4	$4 / 25 = 0.16$	0.76
7	3	$3 / 25 = 0.12$	0.88
8	2	$2 / 25 = 0.08$	0.96
9	1	$1 / 25 = 0.04$	1.00
10	0	$0 / 25 = 0.00$	0.00

SUM

1.00

5.00

What is the mode? **5**

What is the median? **5**

Making Histograms - 1

Create a histogram for this dataset, using a bin size of 2 and an anchor of 0. Report the bin midpoints and the frequencies for each bin on the table provided below. Draw the histogram in the space provided below

Midpoint	Count	Relative Frequency

Making Histograms

Create a histogram for this dataset, using a bin size of 2 and an anchor of 0. Report the bin midpoints and the frequencies for each bin on the table provided below.

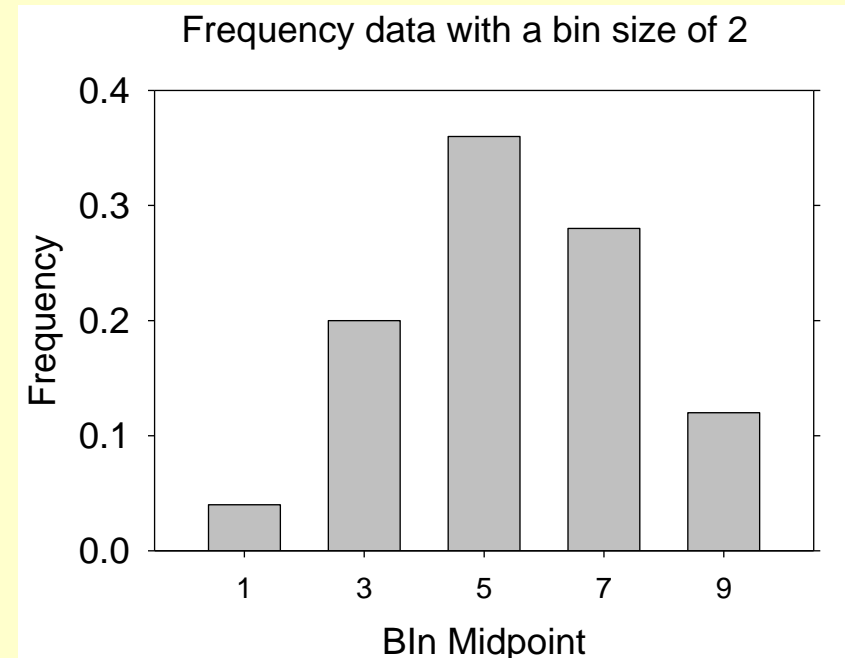
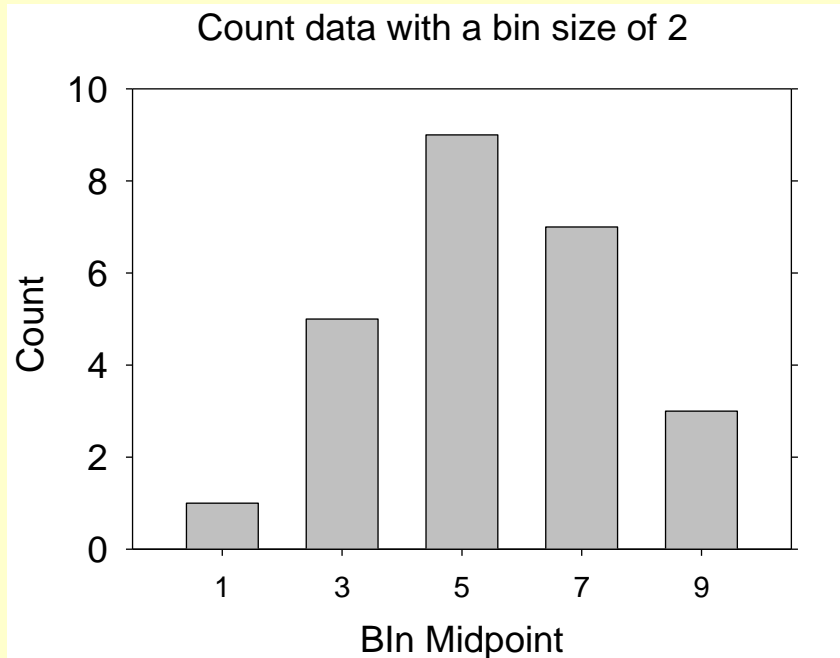
Midpoint	Count	Relative Frequency
1 (0 to 2)	1	0.04
3 (2 to 4)	5	0.20
5 (4 to 6)	9	0.36
7 (6 to 8)	7	0.28
9 (8 to 10)	3	0.12

What is the mode? **5**

What is the median? **5**

Making Histograms

Draw the histogram in the space provided below:



What is the mode? **5**

What is the median? **5**

Making Histograms - 2

Create a histogram for this dataset, using a bin size of 5 and an anchor of 0. Report the bin midpoints and the frequencies for each bin on the table provided below.

Midpoint	Count	Relative Frequency

Making Histograms

Create a histogram for this dataset, using a bin size of 5 and an anchor of 0. Report the bin midpoints and the frequencies for each bin on the table provided below.

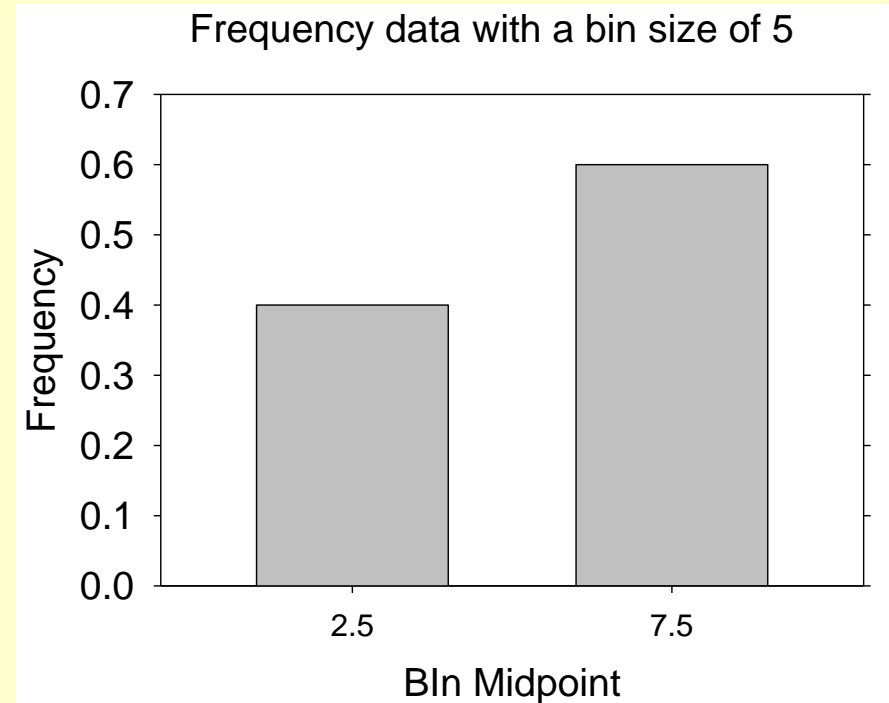
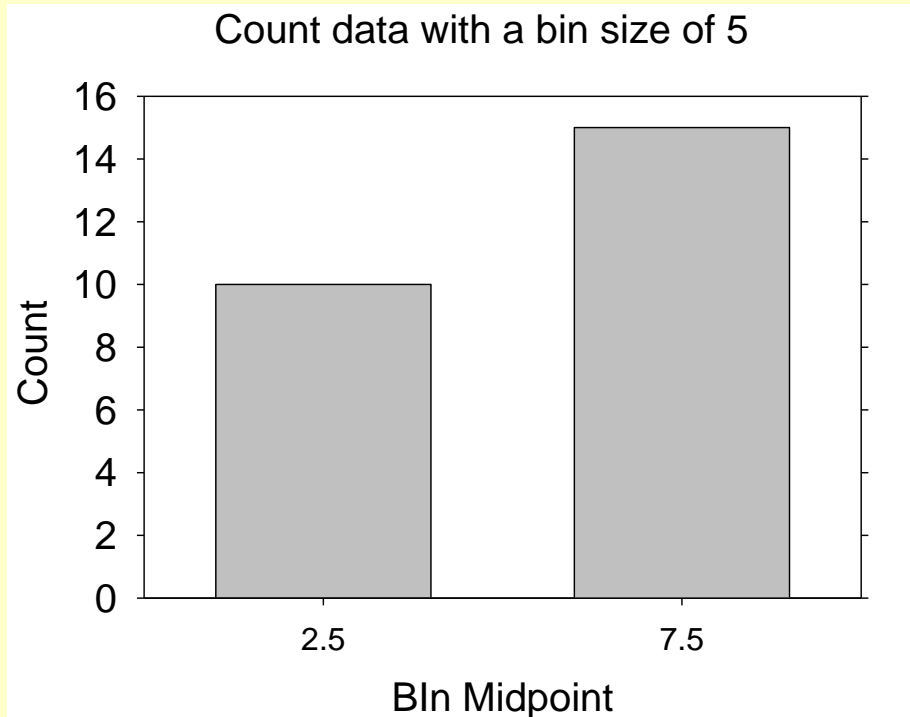
Midpoint	Count	Relative Frequency
2.5 (0 to 5)	10	0.4
7.5 (5 to 10)	15	0.6

What is the mode? **7.5**

What is the median? **7.5**

Making Histograms

Draw the histogram in the space provided below:



What is the mode? **7.5**

What is the median? **7.5**

Making Histograms - 3

Create a histogram for this dataset, using a bin size of 2 and an anchor of 1. Report the bin midpoints and the frequencies for each bin on the table provided below.

Midpoint	Count	Relative Frequency

Making Histograms

Create a histogram for this dataset, using a bin size of 2 and an anchor of 0. Report the bin midpoints and the frequencies for each bin on the table provided below.

Midpoint	Count	Relative Frequency
2 (1 to 3)	3	0.12
4 (3 to 5)	7	0.28
6 (5 to 7)	9	0.36
8 (7 to 9)	5	0.20
10 (9 to 11)	1	0.04

What is the mode? 6

What is the median? 6

Making Histograms - 4

Create a histogram for this dataset, using a bin size of 5 and an anchor of 1. Report the bin midpoints and the frequencies for each bin on the table provided below.

Midpoint	Count	Relative Frequency

Making Histograms

Create a histogram for this dataset, using a bin size of 2 and an anchor of 0. Report the bin midpoints and the frequencies for each bin on the table provided below.

Midpoint	Count	Relative Frequency
3.5 (1 to 6)	15	0.6
8.5 (6 to 11)	10	0.4

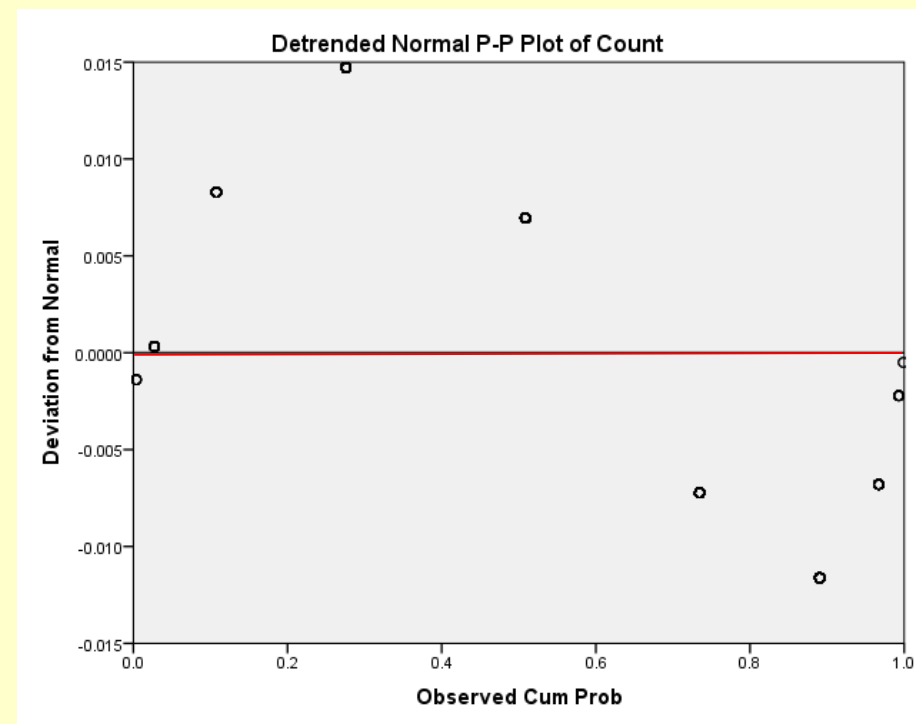
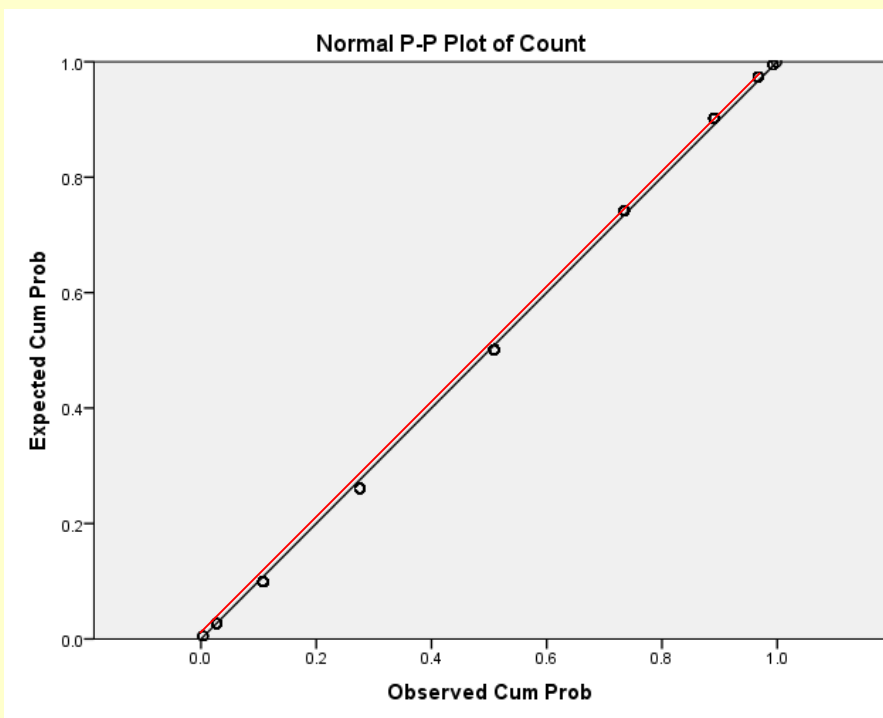
What is the mode? **3.5**

What is the median? **3.5**

Features of the P-P Plot

- Observed Data:
Cumulative
Relative Frequency

- Expected Distribution:
Cumulative
Relative Frequency



Observed Dataset

Dataset: 1,2,2,3,3,3,4,4,4,4,5,5,5,5,5,6,6,6,6,7,7,7,8,8,9

Value	Count	Relative Frequency	Cumulative Frequency
1	1	$1 / 25 = 0.04$	0.04
2	2	$2 / 25 = 0.08$	0.12
3	3	$3 / 25 = 0.12$	0.24
4	4	$4 / 25 = 0.16$	0.40
5	5	$5 / 25 = 0.20$	0.60
6	4	$4 / 25 = 0.16$	0.76
7	3	$3 / 25 = 0.12$	0.88
8	2	$2 / 25 = 0.08$	0.96
9	1	$1 / 25 = 0.04$	1.00
10	0	$0 / 25 = 0.00$	1.00

Expected Dataset

Uniform Distribution:

Range = [1, 10] (10 values) Frequency = $1.00 / 10 = 0.1$

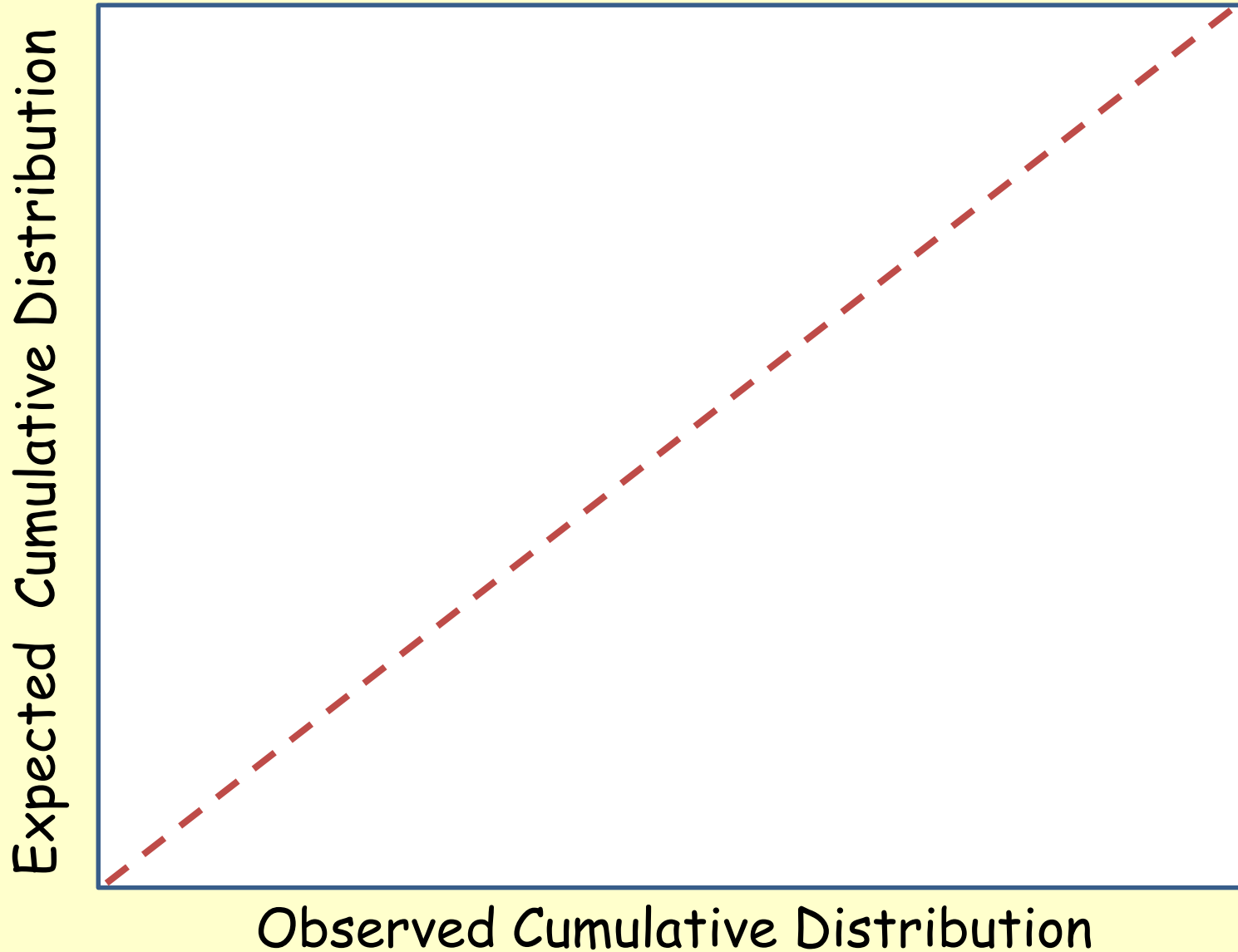
Value	Relative Frequency	Cumulative Frequency
1	0.10	0.10
2	0.10	0.20
3	0.10	0.30
4	0.10	0.40
5	0.10	0.50
6	0.10	0.60
7	0.10	0.70
8	0.10	0.80
9	0.10	0.90
10	0.10	1.00

Expected Dataset

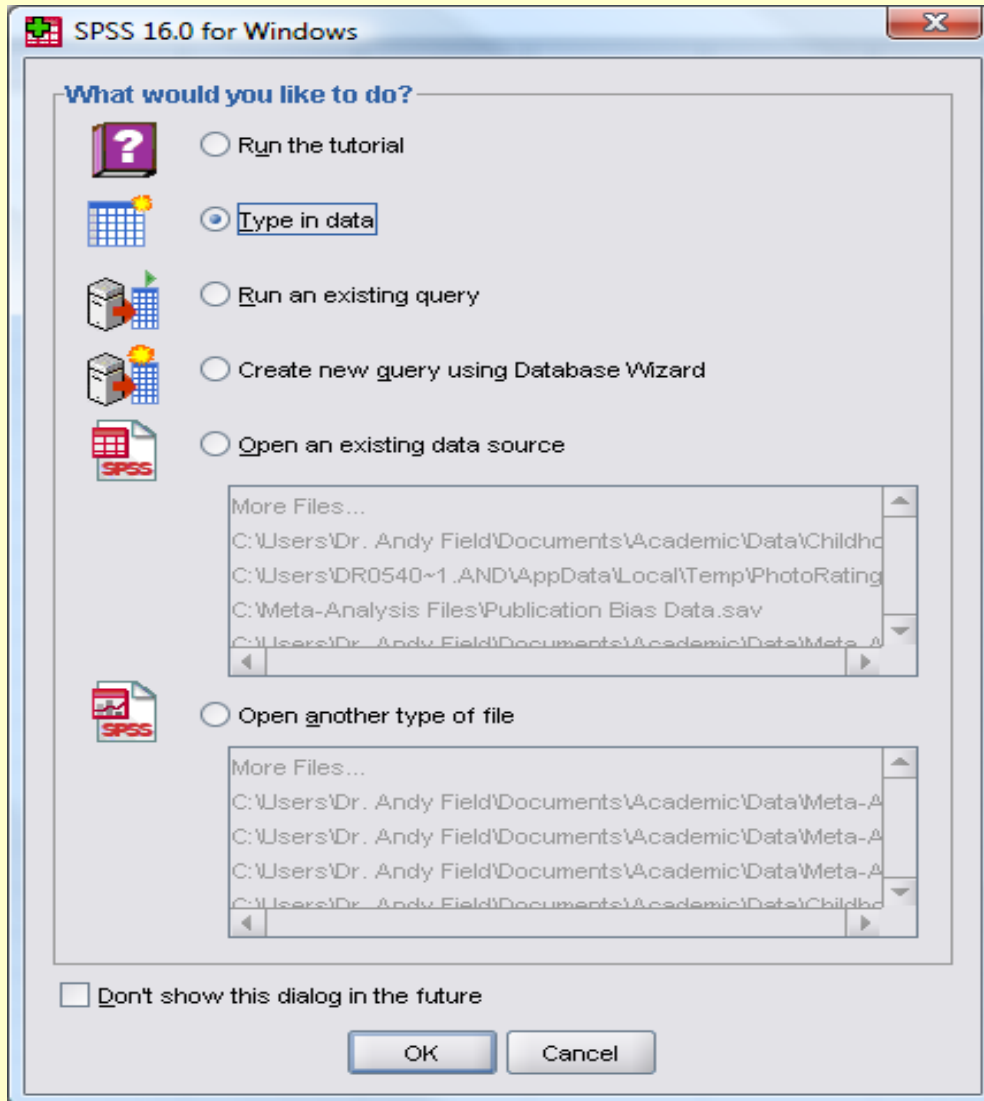
Comparing Observed Dataset to a Uniform Distribution:

Value	Observed Cumulative Frequency	Expected Cumulative Frequency
1	0.04	0.10
2	0.12	0.20
3	0.24	0.30
4	0.40	0.40
5	0.60	0.50
6	0.76	0.60
7	0.88	0.70
8	0.96	0.80
9	1.00	0.90
10	1.00	1.00

Making a P - P Plot



Starting SPSS



Tutorial

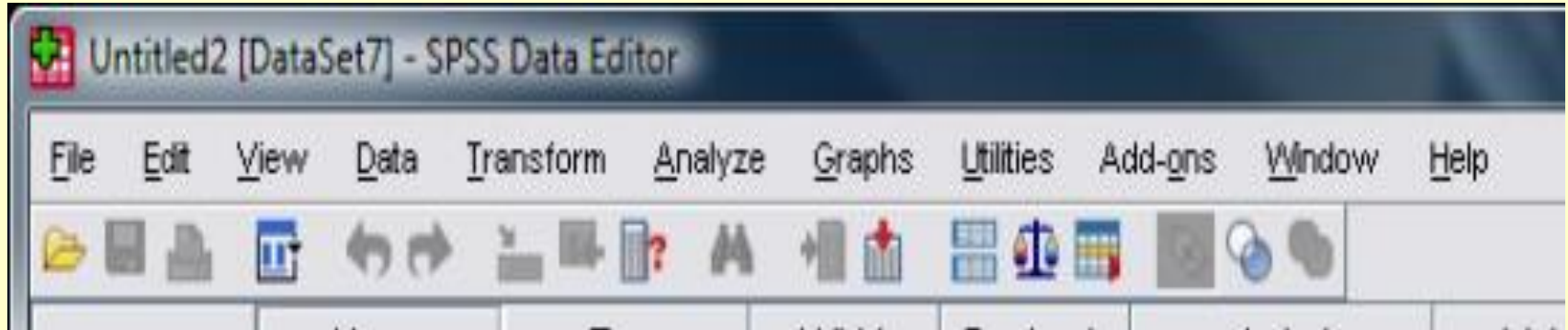
Type in the data

Create Queries

Open existing
SPSS file

Open existing
SPSS file

Starting SPSS - Top Menu



File: Input / Output

Edit: Find, Copy / Paste, Undo

View: Customize View

Data: Define, Sort, Split

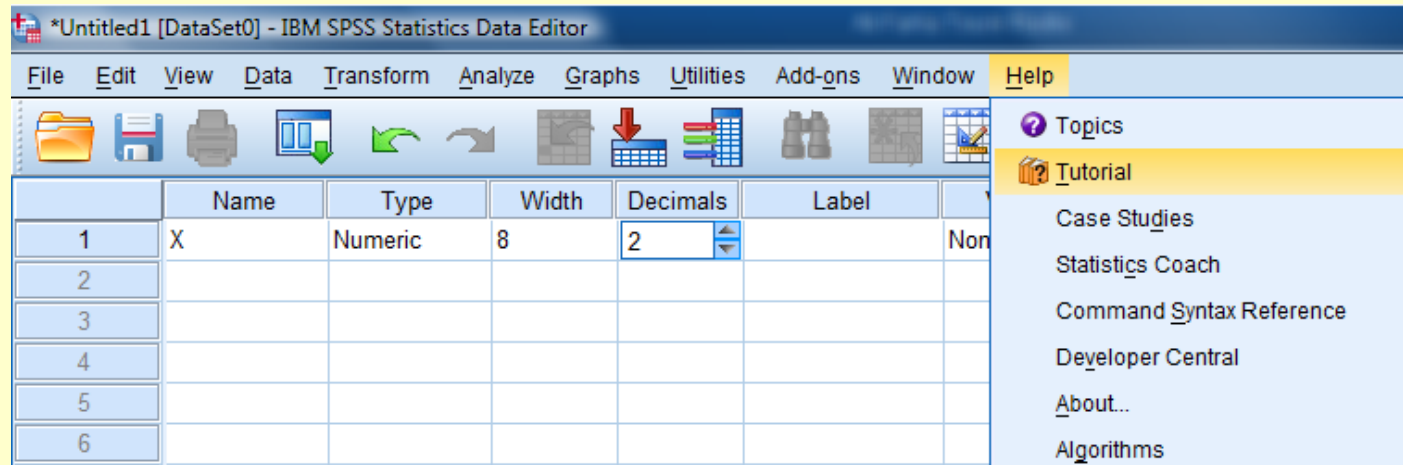
Graphs: Create figures

Utilities: Sets / Scripts

Transform + Analyze:

Manipulate / Analyze Data

Getting Help in SPSS



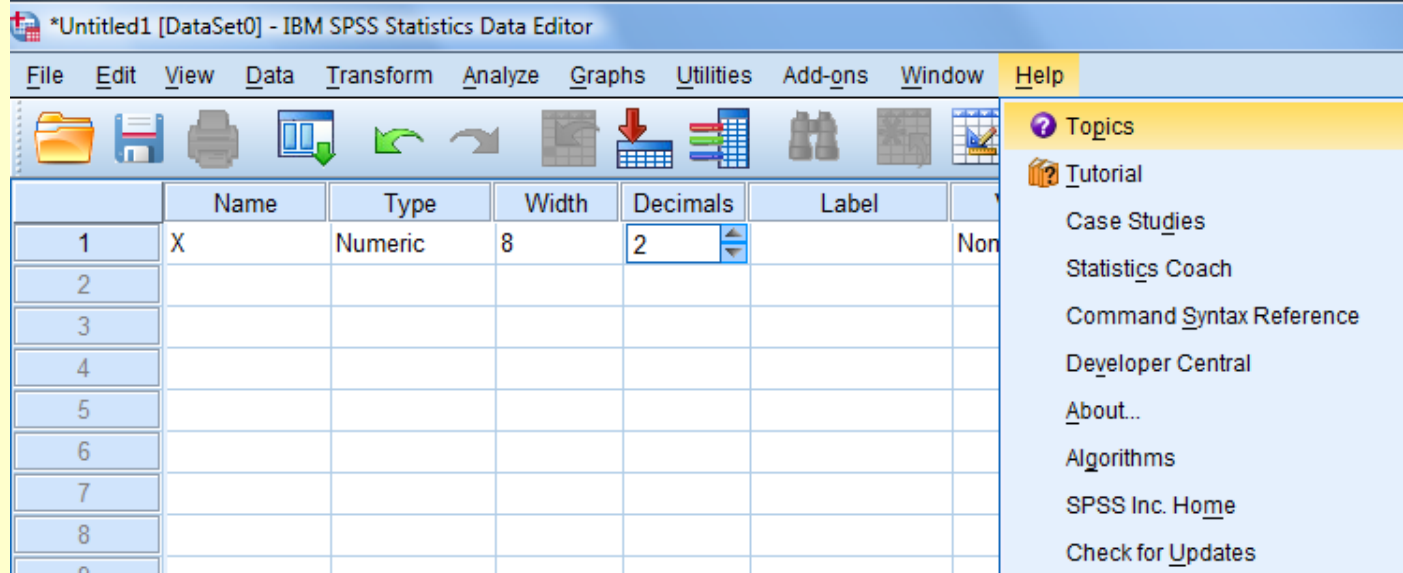
*Untitled1 [DataSet0] - IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

Topics
Tutorial
Case Studies
Statistics Coach
Command Syntax Reference
Developer Central
About...
Algorithms

	Name	Type	Width	Decimals	Label
1	X	Numeric	8	2	Non
2					
3					
4					
5					
6					

Tutorial



*Untitled1 [DataSet0] - IBM SPSS Statistics Data Editor

File Edit View Data Transform Analyze Graphs Utilities Add-ons Window Help

Topics
Tutorial
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Command Syntax Reference
Developer Central
About...
Algorithms
SPSS Inc. Home
Check for Updates

	Name	Type	Width	Decimals	Label
1	X	Numeric	8	2	Non
2					
3					
4					
5					
6					
7					
8					
9					

Help Topics

Getting Help in SPSS

Help - IBM SPSS Statistics - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://127.0.0.1:54423/help/index.jsp?topic=/com.ibm.spss.statistics.help/overvw_auto_0.htm

AVG Search Page Status News E-mail Weather PC Support

Search: Search scope: All topics

Contents

- Help
 - Core System
 - Overview
 - Getting Help
 - Data Files
 - Distributed Analysis Mode
 - Data Editor
 - Working with Multiple Data Sources
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 - Creating and Editing Graphboard Visualizations
 - Scoring data with predictive models
 - Utilities
 - Options
 - Customizing Menus and Toolbars
 - Creating and Managing Custom Dialogs
 - Production jobs
 - Output Management System
 - Scripting Facility
 - Using Output as Input with OMS
 - Transforming OXML with XSLT
 - Frequently Asked Questions
 - Sample Files
 - TABLES and IGRAPH Command Syntax Converter
 - Notices
 - Accessibility
 - Statistics Base Option
 - Advanced Statistics Option
 - Bootstrapping Option
 - Categories Option
 - Complex Samples Option
 - Conjoint Option
 - Data Preparation Option
 - Decision Tree Option

Help > Core System

Getting Help

Previous Next

Help is provided in many different forms:

Help menu. The Help menu in most windows provides access to the main Help system, plus tutorials and technical reference material.

- Topics.** Provides access to the Contents, Index, and Search tabs, which you can use to find specific Help topics.
- Tutorial.** Illustrated, step-by-step instructions on how to use many of the basic features. You don't have to view the whole tutorial from start to finish. You can choose the topics you want to view, skip around and view topics in any order, and use the index or table of contents to find specific topics. You can also [click here](#) to start the tutorial.
- Case Studies.** Hands-on examples of how to create various types of statistical analyses and how to interpret the results. The sample data files used in the examples are also provided so that you can work through the examples to see exactly how the results were produced. You can choose the specific procedure(s) that you want to learn about from the table of contents or search for relevant topics in the index. You can also [click here](#) to open the Case Studies.
- Statistics Coach.** A wizard-like approach to guide you through the process of finding the procedure that you want to use. After you make a series of selections, the Statistics Coach opens the dialog box for the statistical, reporting, or charting procedure that meets your selected criteria. You can also [click here](#) to open the Statistics Coach.
- Command Syntax Reference.** Detailed command syntax reference information is available in two forms: integrated into the overall Help system and as a separate document in PDF form in the *Command Syntax Reference*, available from the Help menu.
- Statistical Algorithms.** The algorithms used for most statistical procedures are available in two forms: integrated into the overall Help system and as a separate document in PDF form available on the manuals CD. For links to specific algorithms in the Help system, choose [Algorithms](#) from the Help menu.

Context-sensitive Help. In many places in the user interface, you can get context-sensitive Help.

- Dialog box Help buttons.** Most dialog boxes have a Help button that takes you directly to a Help topic for that dialog box. The Help topic provides general information and links to related topics.
- Pivot table context menu Help.** Right-click on terms in an activated pivot table in the Viewer and choose *What's This?* from the context menu to display definitions of the terms.
- Command syntax.** In a command syntax window, position the cursor anywhere within a syntax block for a command and press F1 on the keyboard. A complete command syntax chart for that command will be displayed. Complete command syntax documentation is available from the links in the list of related topics and from the Help Contents tab.

Other Resources

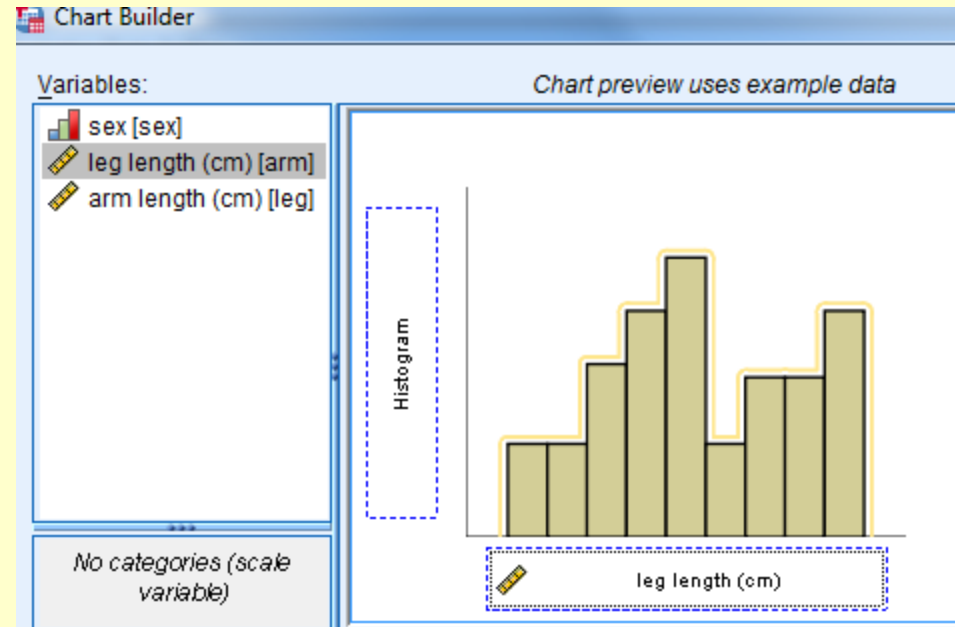
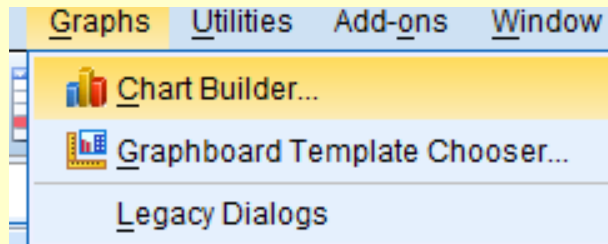
Technical Support Web site. Answers to many common problems can be found at <http://support.spss.com>. (The Technical Support Web site requires a login ID and password. Information on how to obtain an ID and password is provided at the URL listed above.)

Developer Central. Developer Central has resources for all levels of users and application developers. Download utilities, graphics examples, new statistical modules, and articles. Visit Developer Central at <http://www.spss.com/devcentral>.

Related Topics

[Getting Help on Output Terms](#)

Making Graphs with SPSS

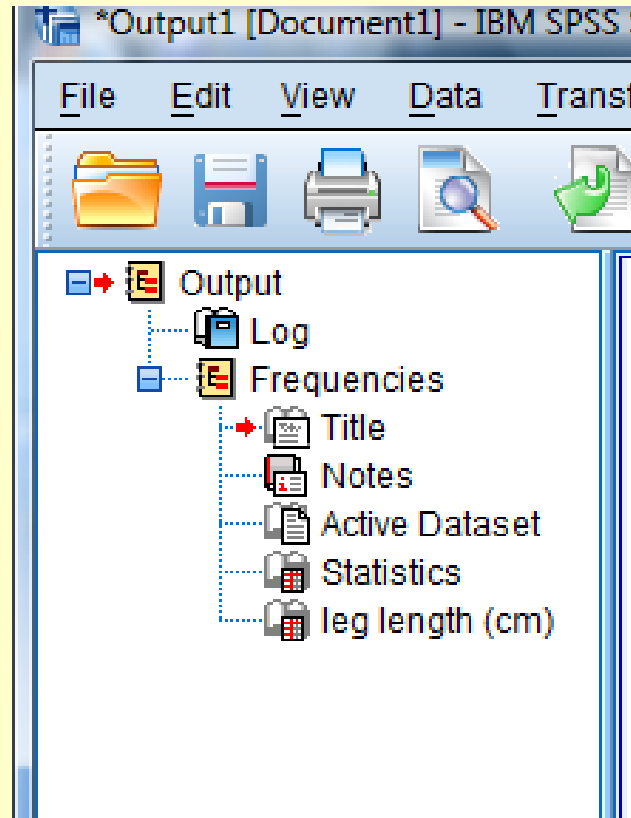


Select a histogram

- Drag variable
- Select features

Exporting Graphs from SPSS

Export using
Copy / paste



HINTS:

Locate figure
in output log

Click icon to
go to figure

Copy / paste

Assessing Normality - Graphically

Making a P-P Plot

Test Distribution (df)
Select Parameters
(determined or estimated)

