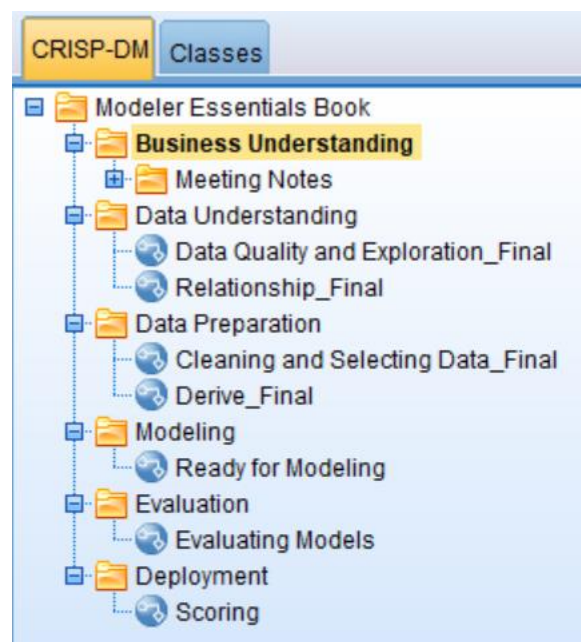
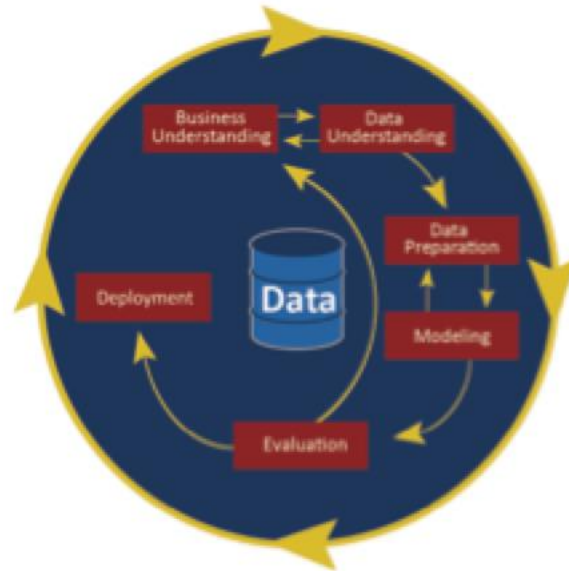
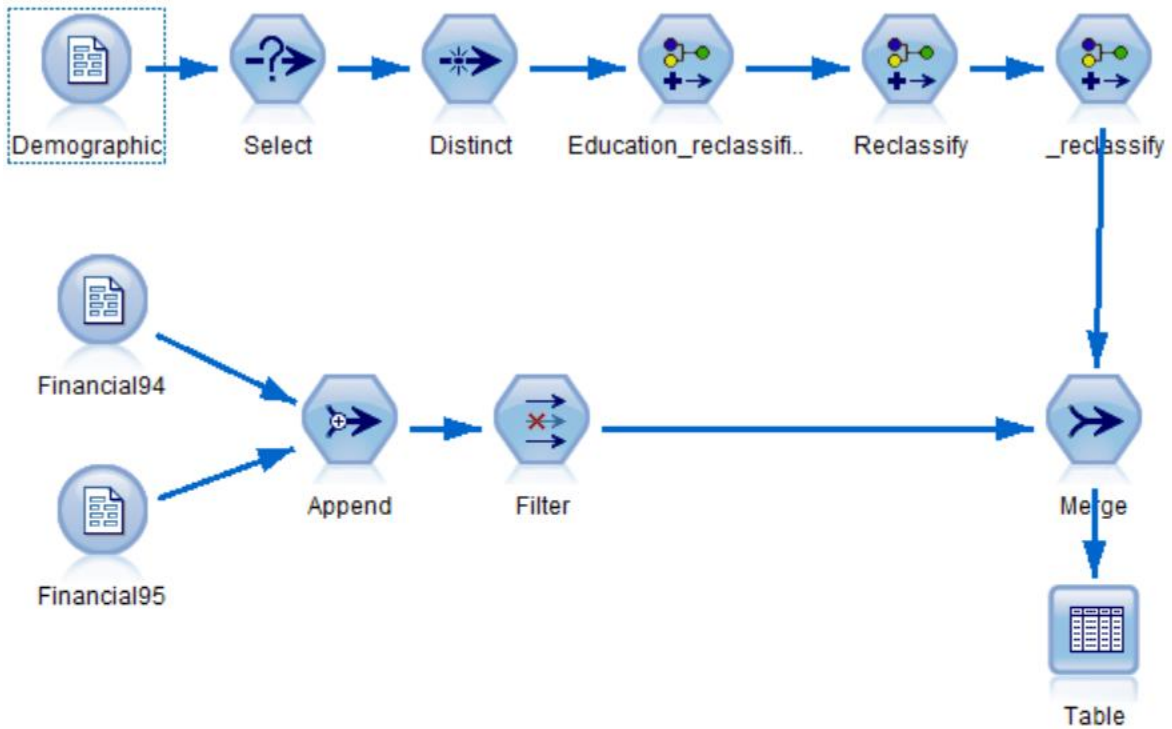
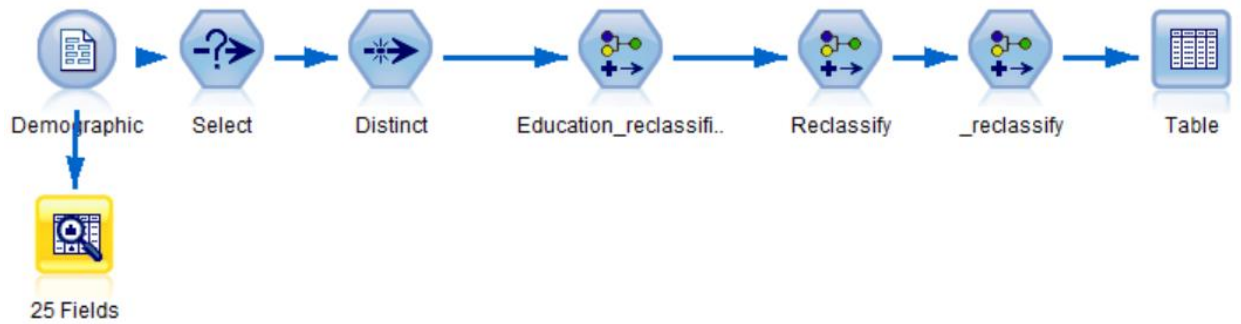
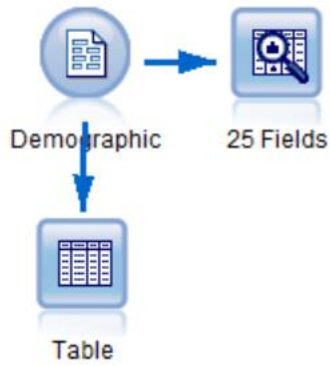
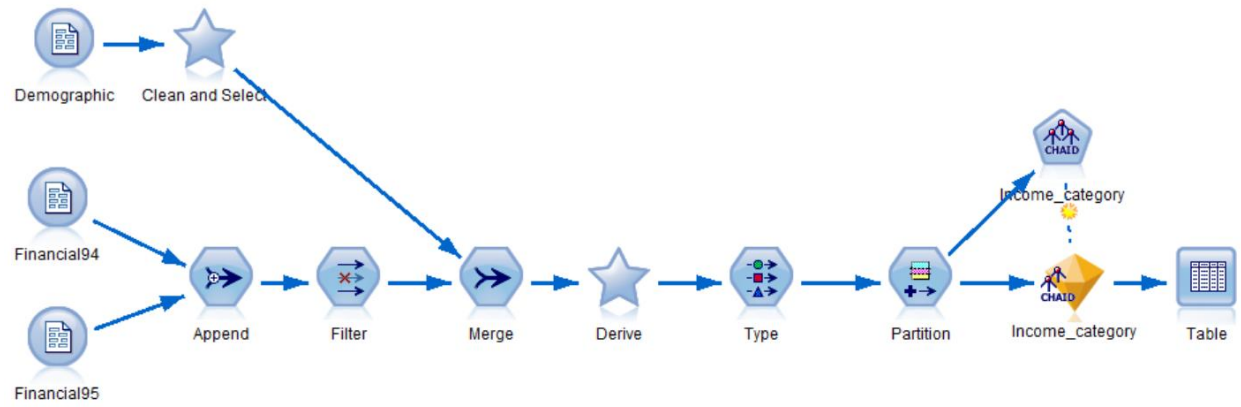
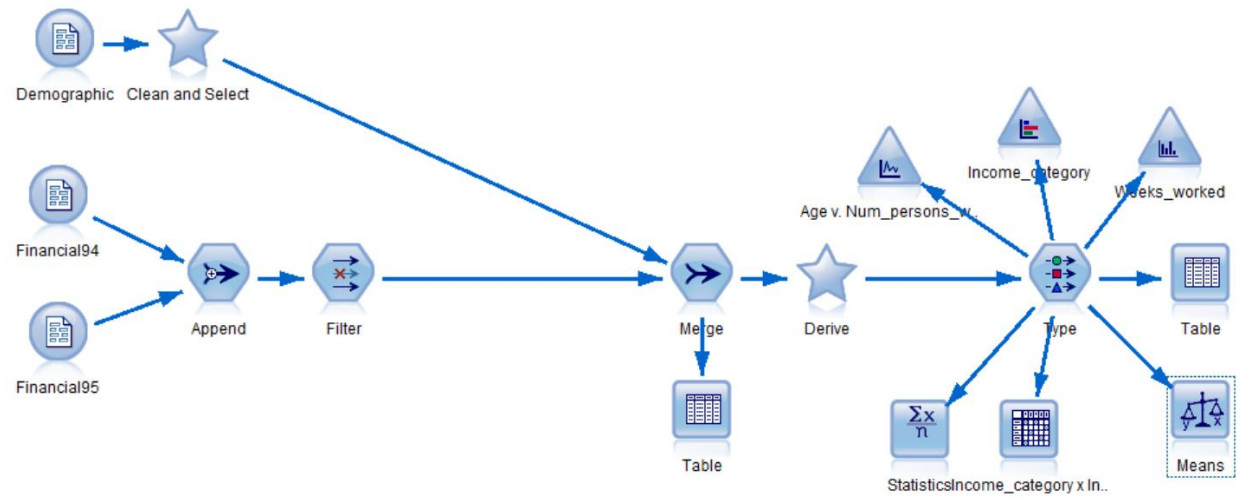
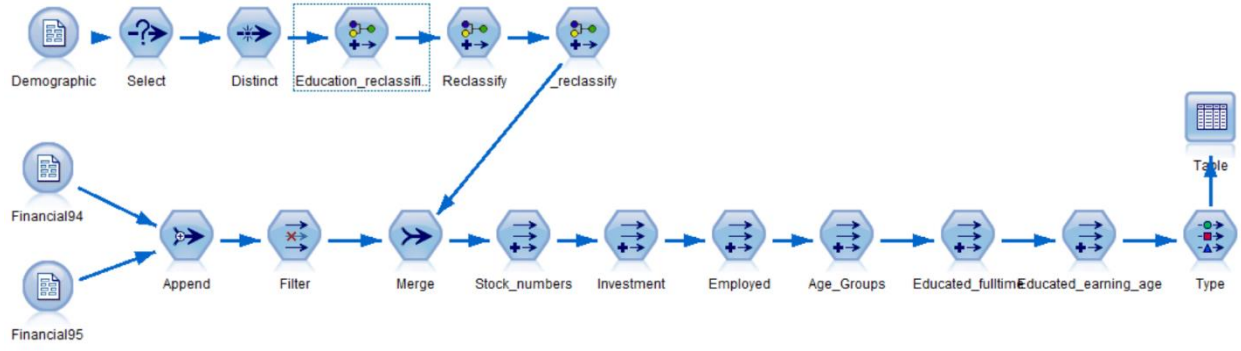
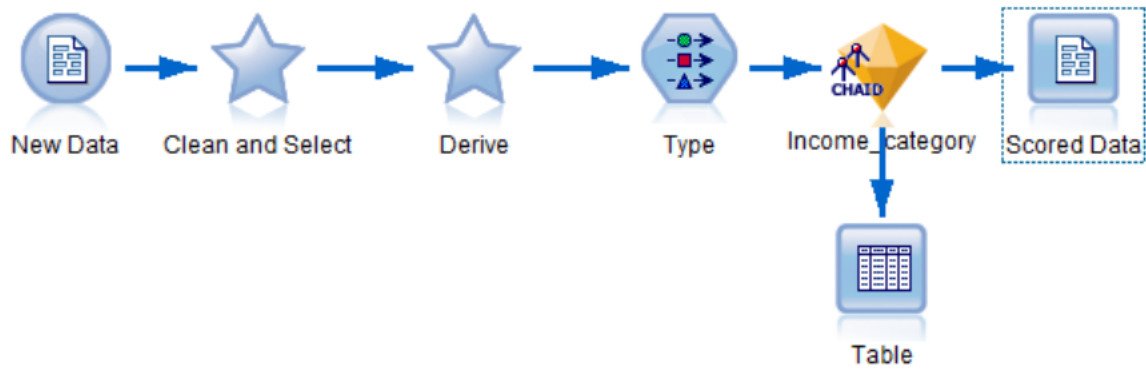
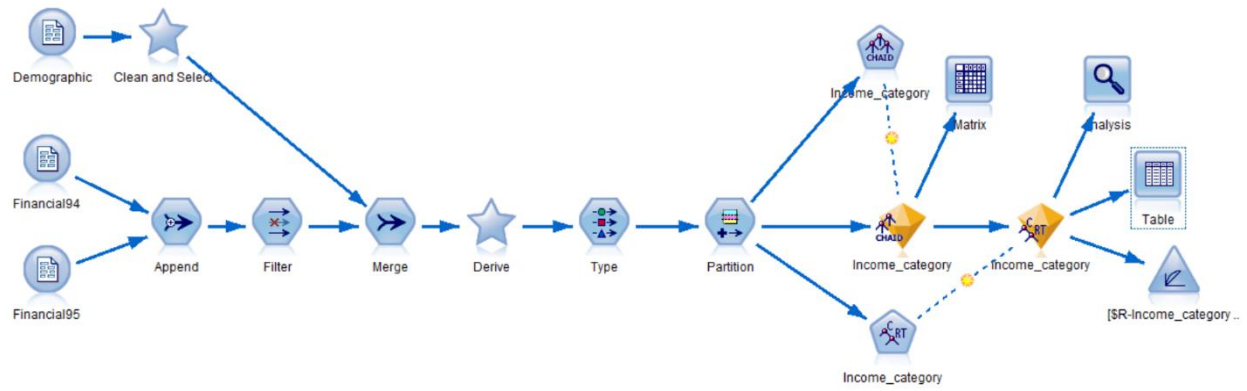


Chapter 01: Introduction to Data Mining and Predictive Analytics

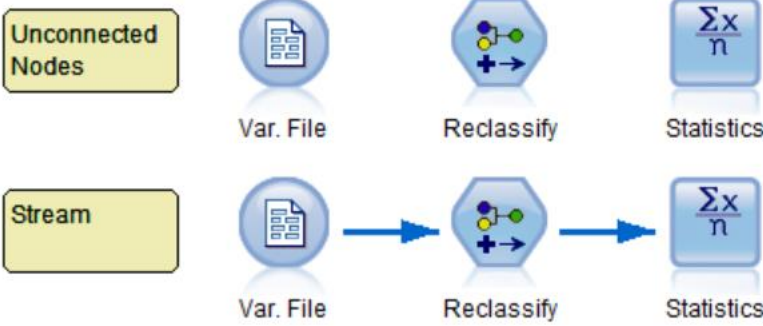
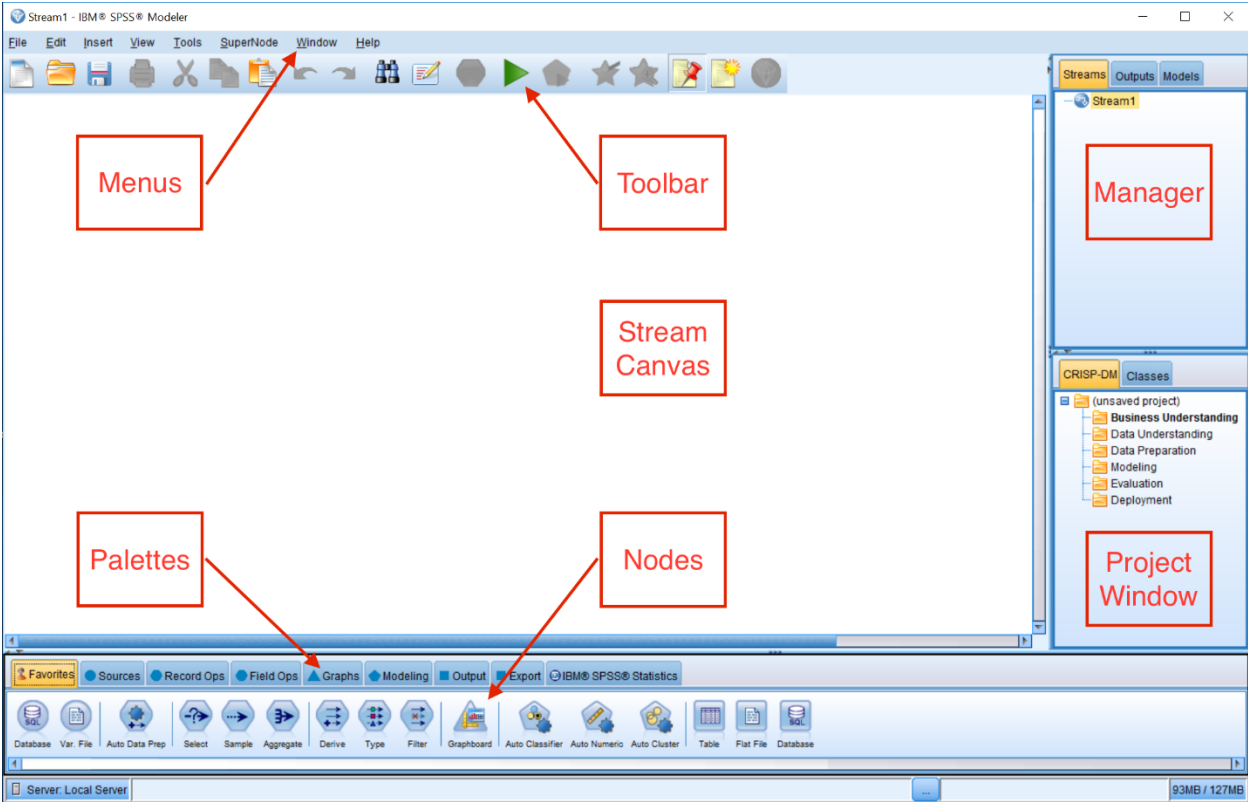













Chapter 2: The Basics of Using IBM SPSS Modeler



Edit...	
 Connect...	F2
Disconnect	F3
Rename and Annotate...	
 New Comment...	
 Cut	Ctrl+X
Copy Node	Ctrl+C
 Delete	Delete
Load Node...	
Save Node...	
Cache	▶
Data Mapping	▶
Create SuperNode	▶
Looping/Conditional Execution	▶
Generate User Input Node	
Preview...	
 Run From Here	



Var. File



Table



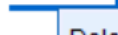
Var. File



Table



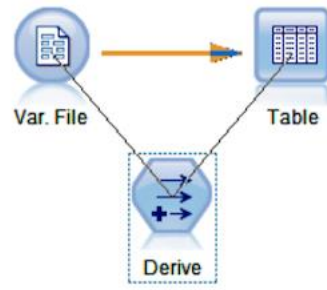
Var. File



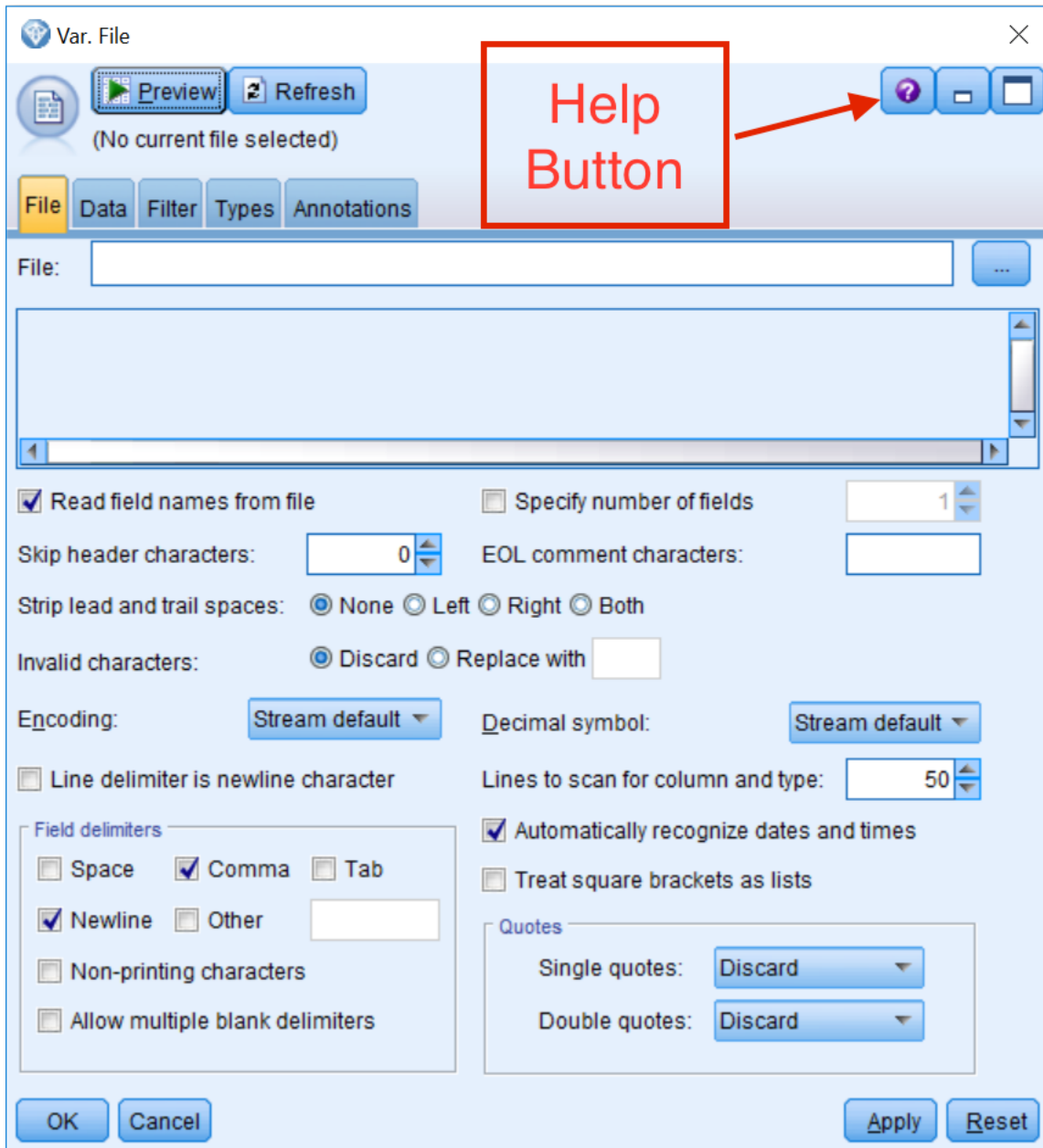
Delete Connection



Table



- Help**
- Help Topics
- CRISP-DM Help
- Application Examples
- Accessibility Help
- What's This
- About...



Help - Help System

127.0.0.1:51689/help/index.jsp?topic=/com.ibm.spss.modeler.help/clementine/varfile_file.htm

Search: Go Scope: All topics

Contents

- View information in the help
- IBM SPSS Modeler CRISP-DM
- IBM SPSS Modeler Help
 - User's Guide
 - Source, Process, and Output Nodes
 - Source Nodes
 - Overview
 - Setting Field Storage
 - Unsupported controls
 - Analytic Server Source Node
 - Database Source Node
 - Variable File Node
 - Setting options for the Variable File Node**
 - Importing geospatial data
 - Fixed File Node
 - Data Collection Node
 - IBM Cognos BI Source Node
 - IBM Cognos TM1 Source Node
 - SAS Source Node
 - Excel Source Node
 - XML Source Node
 - User Input Node
 - Simulation Generator

IBM SPSS Modeler Help > Source, Process, and Output Nodes > Source Nodes > Variable File Node

Setting options for the Variable File Node

You set the options on the File tab of the Variable File node dialog box.

File Specify the name of the file. You can enter a filename or click the ellipsis button (...) to select a file. The file path is shown once you select a file, and its contents are displayed with delimiters in the panel below it.

The sample text that is displayed from your data source can be copied and pasted into the following controls: EOL comment characters and user-specified delimiters. Use Ctrl-C and Ctrl-V to copy and paste.

Read field names from file Selected by default, this option treats the first row in the data file as labels for the column. If your first row is not a header, deselect to automatically give each field a generic name, such as *Field1*, *Field2*, for the number of fields in the dataset.

Specify number of fields. Specify the number of fields in each record. The number of fields can be detected automatically as long as the records are new-line terminated. You can also set a number manually.

Skip header characters. Specify how many characters you want to ignore at the beginning of the first record.

EOL comment characters. Specify characters, such as # or !, to indicate annotations in the data. Wherever one of these characters appears in the data file, everything up to but not including the next new-line character will be ignored.

Strip lead and trail spaces. Select options for discarding leading and trailing spaces in strings on import.

Note. Comparisons between strings that do and do not use SQL pushback may generate different results where trailing spaces exist.

Invalid characters. Select **Discard** to remove invalid characters from the data source. Select **Replace with** to replace invalid characters with the specified symbol (one character only). Invalid characters are

Chapter 3: Importing Data into Modeler

	ID	Age	Education	Enrolled_school	Marital_status	Race	Hispanic_origin	Sex
1	1001	73	High school graduate	Not applicable	Widowed	White	All other	Female
2	1002	58	Some college but no degree	Not applicable	Divorced	White	All other	Male
3	1003	18	10th grade	High school	Never married	Asian or Pacific Islander	All other	Female
4	1004	9	Children	Not applicable	Never married	White	All other	Female
5	1005	10	Children	Not applicable	Never married	White	All other	Female
6	1006	48	Some college but no degree	Not applicable	Married-civilian spouse present	Amer Indian Aleut or Eskimo	All other	Female
7	1007	42	Bachelors degree(BA AB BS)	Not applicable	Married-civilian spouse present	White	All other	Male
8	1008	28	High school graduate	Not applicable	Never married	White	All other	Female
9	1009	47	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Female
10	1010	34	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male

Demographic

Preview Refresh

\\MacHome\Desktop\Modeler Book\Demographic

File Data Filter Types Annotations

File: \\MacHome\Desktop\Modeler Book\Demographic

```
ID, Age, Education, Enrolled_school, Marital_status, Race, Hispanic_origin, Sex, Regi
1001, 73, " High school graduate", "Not applicable", "Widowed", "White", "All other
1002, 58, " Some college but no degree", "Not applicable", "Divorced", "White", "Al
1003, 18, " 10th grade", "High school", "Never married", "Asian or Pacific Islande
```

Read field names from file Specify number of fields

Skip header characters: EOL comment characters:

Strip lead and trail spaces: None Left Right Both

Invalid characters: Discard Replace with

Encoding: Decimal symbol:

Line delimiter is newline character Lines to scan for column and type:

Field delimiters: Space Comma Tab Newline Other

Non-printing characters Allow multiple blank delimiters

Automatically recognize dates and times Treat square brackets as lists

Quotes: Single quotes: Double quotes:

OK Cancel Apply Reset

Demographic

Preview Refresh

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File Data Filter Types Annotations

Field	Override	Storage	Input Format
ID	<input type="checkbox"/>	Integer	
Age	<input type="checkbox"/>	Integer	
Education	<input type="checkbox"/>	String	
Enrolled_school	<input type="checkbox"/>	String	
Marital_status	<input type="checkbox"/>	String	
Race	<input type="checkbox"/>	String	
Hispanic_origin	<input type="checkbox"/>	String	
Sex	<input type="checkbox"/>	String	
Region	<input type="checkbox"/>	String	
State	<input type="checkbox"/>	String	
Household_status	<input type="checkbox"/>	String	
Household_summary	<input type="checkbox"/>	String	
Change_msa	<input type="checkbox"/>	String	
Change_region	<input type="checkbox"/>	String	
Move_within_reg	<input type="checkbox"/>	String	
Moved_last_year	<input type="checkbox"/>	String	
Move_sunbelt	<input type="checkbox"/>	String	
Num_persons_worked	<input type="checkbox"/>	Integer	
Family_members_under18	<input type="checkbox"/>	String	
Birth_country_father	<input type="checkbox"/>	String	
Birth_country_mother	<input type="checkbox"/>	String	
Birth_country_self	<input type="checkbox"/>	String	
Citizenship	<input type="checkbox"/>	String	
Fill_vet_survey	<input type="checkbox"/>	String	
Vet_benefits	<input type="checkbox"/>	Integer	

View current fields View unused field settings

OK Cancel Apply Reset

Demographic

Preview Refresh

\\MacHome\Desktop\Modeler Book\Demographic

File Data Filter Types Annotations

Fields: 26 in, 0 filtered, 0 renamed, 26 out

Field	Filter	Field
ID	→	ID
Age	→	Age
Education	→	Education
Enrolled_school	→	Enrolled_school
Marital_status	→	Marital_status
Race	→	Race
Hispanic_origin	→	Hispanic_origin
Sex	→	Sex
Region	→	Region
State	→	State
Household_status	→	Household_status
Household_summary	→	Household_summary
Change_msa	→	Change_msa
Change_region	→	Change_region
Move_within_reg	→	Move_within_reg
Moved_last_year	→	Moved_last_year
Move_sunbelt	→	Move_sunbelt
Num_persons_worked	→	Num_persons_worked
Family_members_under18	→	Family_members_under18
Birth_country_father	→	Birth_country_father
Birth_country_mother	→	Birth_country_mother
Birth_country_self	→	Birth_country_self
Citizenship	→	Citizenship

View current fields
 View unused field settings

OK Cancel Apply Reset

Demographic

Preview Refresh

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File Data Filter Types Annotations






Fields: 26 in, 1 filtered, 1 renamed, 25 out

Field	Filter	Field
ID	→	ID_Number
Age	→ X	Age
Education	→	Education
Enrolled_school	→	Enrolled_school
Marital_status	→	Marital_status
Race	→	Race
Hispanic_origin	→	Hispanic_origin
Sex	→	Sex
Region	→	Region
State	→	State
Household_status	→	Household_status
Household_summary	→	Household_summary
Change_msa	→	Change_msa
Change_region	→	Change_region
Move_within_reg	→	Move_within_reg
Moved_last_year	→	Moved_last_year
Move_sunbelt	→	Move_sunbelt
Num_persons_worked	→	Num_persons_worked
Family_members_under18	→	Family_members_under18
Birth_country_father	→	Birth_country_father
Birth_country_mother	→	Birth_country_mother
Birth_country_self	→	Birth_country_self
Citizenship	→	Citizenship

View current fields
 View unused field settings

OK Cancel Apply Reset

Demographic ×

 Preview  Refresh   


\\MacHome\Desktop\Modeler Book\Demographic

File **Data** **Filter** **Types** **Annotations**

Name: Auto Custom

Tooltip text:

Keywords:

Created on June 14, 2017 6:27 AM by jesussalcedo. ID: 

This object has not been saved.

Table (26 fields, 199,526 records)

File Edit Generate

Table Annotations

	ID	Age	Education	Enrolled_school	Marital_status	Race	Hispanic_origin	Sex
1	1001	73	High school graduate	Not applicable	Widowed	White	All other	Female
2	1002	58	Some college but no degree	Not applicable	Divorced	White	All other	Male
3	1003	18	10th grade	High school	Never married	Asian or Pacific Islander	All other	Female
4	1004	9	Children	Not applicable	Never married	White	All other	Female
5	1005	10	Children	Not applicable	Never married	White	All other	Female
6	1006	48	Some college but no degree	Not applicable	Married-civilian spouse present	Amer Indian Aleut or Eskimo	All other	Female
7	1007	42	Bachelors degree(BA AB BS)	Not applicable	Married-civilian spouse present	White	All other	Male
8	1008	28	High school graduate	Not applicable	Never married	White	All other	Female
9	1009	47	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Female
10	1010	34	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male
11	1011	8	Children	Not applicable	Never married	White	All other	Female
12	1012	32	High school graduate	Not applicable	Never married	Black	All other	Female
13	1013	51	Some college but no degree	Not applicable	Married-civilian spouse present	White	Do not know	Male
14	1014	46	High school graduate	Not applicable	Divorced	White	Central or Sout...	Female
15	1015	26	Bachelors degree(BA AB BS)	Not applicable	Never married	White	All other	Female
16	1016	13	Children	Not applicable	Never married	Black	All other	Female
17	1017	47	Bachelors degree(BA AB BS)	Not applicable	Never married	White	All other	Female
18	1018	39	10th grade	Not applicable	Married-civilian spouse present	White	Mexican (Mexic...	Female
19	1019	16	10th grade	High school	Never married	White	Mexican-Ameri...	Female
20	1020	35	High school graduate	Not applicable	Married-civilian spouse present	White	All other	Male

OK

Streams Outputs Models

Table (26 fields, 199,526 record...)

Excel

Preview Refresh

(No current file selected)

Data Filter Types Annotations

File type: Excel 2007-2013 (*.xlsx)

Import file: ...

Use named range

...

Choose worksheet:

By index ...

By name ...

Range on worksheet:

Range starts on first non-blank row


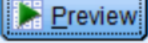
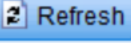



Explicit range of cells

On blank rows:

First row has column names

OK Cancel Apply Reset

Database ×


     

(No current data source)

Data Filter Types Annotations





Mode: Table SQL Query

Data source:

Table name: 

Quote table and column names: As needed Always Never

Strip lead and trail spaces: None Left Right Both

Demographic

Preview Refresh

\\MacHome\Desktop\Modeller Book\Demographic

File Data Filter **Types** Annotations

Read Values Clear Values Clear All Values

Field	Measurement	Values	Missing	Check	Role
ID	Continuous			None	Input
Age	Continuous			None	Input
Education	Categorical			None	Input
Enrolled_sc...	Categorical			None	Input
Marital_status	Categorical			None	Input
Race	Categorical			None	Input
Hispanic_ori...	Categorical			None	Input
Sex	Categorical			None	Input
Region	Categorical			None	Input
State	Categorical			None	Input
Household_...	Categorical			None	Input
Household_...	Categorical			None	Input
Change_msa	Categorical			None	Input
Change_reg...	Categorical			None	Input
Move_within...	Categorical			None	Input
Moved_last_...	Categorical			None	Input
Move_sunbelt	Categorical			None	Input
Num_perso...	Continuous			None	Input
Family_me...	Categorical			None	Input
Birth_country...	Categorical			None	Input
Birth_country...	Categorical			None	Input
Birth_country...	Categorical			None	Input
Citizenship	Categorical			None	Input

View current fields
 View unused field settings

OK Cancel Apply Reset

Demographic

Preview Refresh

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File Data Filter **Types** Annotations

Read Values Clear Values Clear All Values

Field	Measurement	Values	Missing	Check	Role
ID	Continuous	[1001,200...		None	Input
Age	Continuous	[0,90]		None	Input
Education	Nominal	"10th gra...		None	Input
Enrolled_sc...	Nominal	"College ...		None	Input
Marital_status	Nominal	"Divorced,"...		None	Input
Race	Nominal	"Amer Indi...		None	Input
Hispanic_ori...	Nominal	"All other"...		None	Input
Sex	Flag	Male/Fem...		None	Input
Region	Nominal	Abroad,Mi...		None	Input
State	Nominal	Abroad,Al...		None	Input
Household_...	Nominal	"Child 18...		None	Input
Household_...	Nominal	"Child 18 ...		None	Input
Change_msa	Nominal	"Abroad to...		None	Input
Change_reg...	Nominal	Abroad,"D...		None	Input
Move_within...	Nominal	Abroad,"D...		None	Input
Moved_last_...	Nominal	No,"Not a...		None	Input
Move_sunbelt	Nominal	No,"Not a...		None	Input
Num_perso...	Continuous	[0,6]		None	Input
Family_me...	Nominal	"Both par...		None	Input
Birth_country...	Nominal	Cambodi...		None	Input
Birth_country...	Nominal	Cambodi...		None	Input
Birth_country...	Nominal	Cambodi...		None	Input
Citizenship	Nominal	"Foreign b...		None	Input

View current fields View unused field settings

OK Cancel Apply Reset

Demographic

Preview Refresh

\\MacHome\Desktop\Modeller Book\Demographic

File Data Filter **Types** Annotations

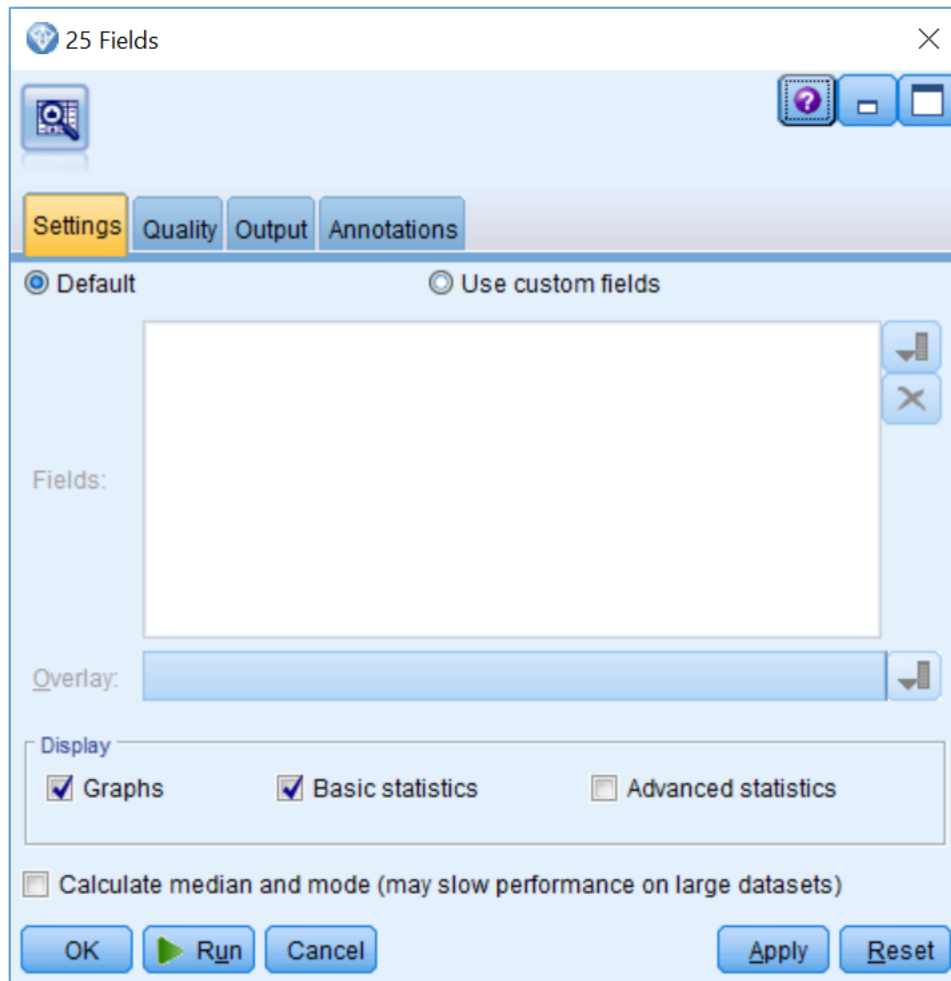
Read Values **Clear Values** Clear All Values

Field	Measurement	Values	Missing	Check	Role
ID	Typeless			None	None
Age	Continuous	[0,90]		None	Input
Education	Nominal	"10th gra...		None	Input
Enrolled_sc...	Nominal	"College ...		None	Input
Marital_status	Nominal	"Divorced,"...		None	Input
Race	Nominal	"Amer Indi...		None	Input
Hispanic_ori...	Nominal	"All other"...		None	Input
Sex	Flag	Male/Fem...		None	Input
Region	Nominal	Abroad,Mi...		None	Input
State	Nominal	Abroad,Al...		None	Input
Household_...	Nominal	"Child 18...		None	Input
Household_...	Nominal	"Child 18 ...		None	Input
Change_msa	Nominal	"Abroad to...		None	Input
Change_reg...	Nominal	Abroad,"D...		None	Input
Move_within...	Nominal	Abroad,"D...		None	Input
Moved_last_...	Nominal	No,"Not a...		None	Input
Move_sunbelt	Nominal	No,"Not a...		None	Input
Num_perso...	Continuous	[0,6]		None	Input
Family_me...	Nominal	"Both par...		None	Input
Birth_country...	Nominal	Cambodi...		None	Input
Birth_country...	Nominal	Cambodi...		None	Input
Birth_country...	Nominal	Cambodi...		None	Input
Citizenship	Nominal	"Foreign b...		None	Input

View current fields View unused field settings

OK Cancel Apply Reset

Chapter 4: Data Quality and Exploration



25 Fields

Settings Quality Output Annotations

Missing Values

Calculate:

- Count of records with valid values
- Breakdown counts of records with invalid values

Outliers & Extreme Values

Detection Method:

- Standard deviation from mean
 - Outliers: 3.0 Extremes: 5.0
- Interquartile ranges from upper/lower quartiles
 - Outliers: 1.5 Extremes: 3.0

Note: Selecting Interquartile range may slow performance on large data sets

OK Run Cancel Apply Reset

Data Audit of [25 fields]

File Edit Generate

Audit Quality Annotations

Field	Sample Graph	Measurement	Min	Max	Mean	Std. Dev	Skewness	Unique	Valid
Age		Continuous	0	90	34.494	22.311	0.373	--	199526
Education		Nominal	--	--	--	--	--	17	199526
Enrolled_school		Nominal	--	--	--	--	--	3	199526
Marital_status		Nominal	--	--	--	--	--	7	199526
Race		Nominal	--	--	--	--	--	5	199526
Hispanic_origin		Nominal	--	--	--	--	--	10	199526
Sex		Flag	--	--	--	--	--	2	199526
Region		Nominal	--	--	--	--	--	6	199526

* Indicates a multimode result * Indicates a sampled result

OK

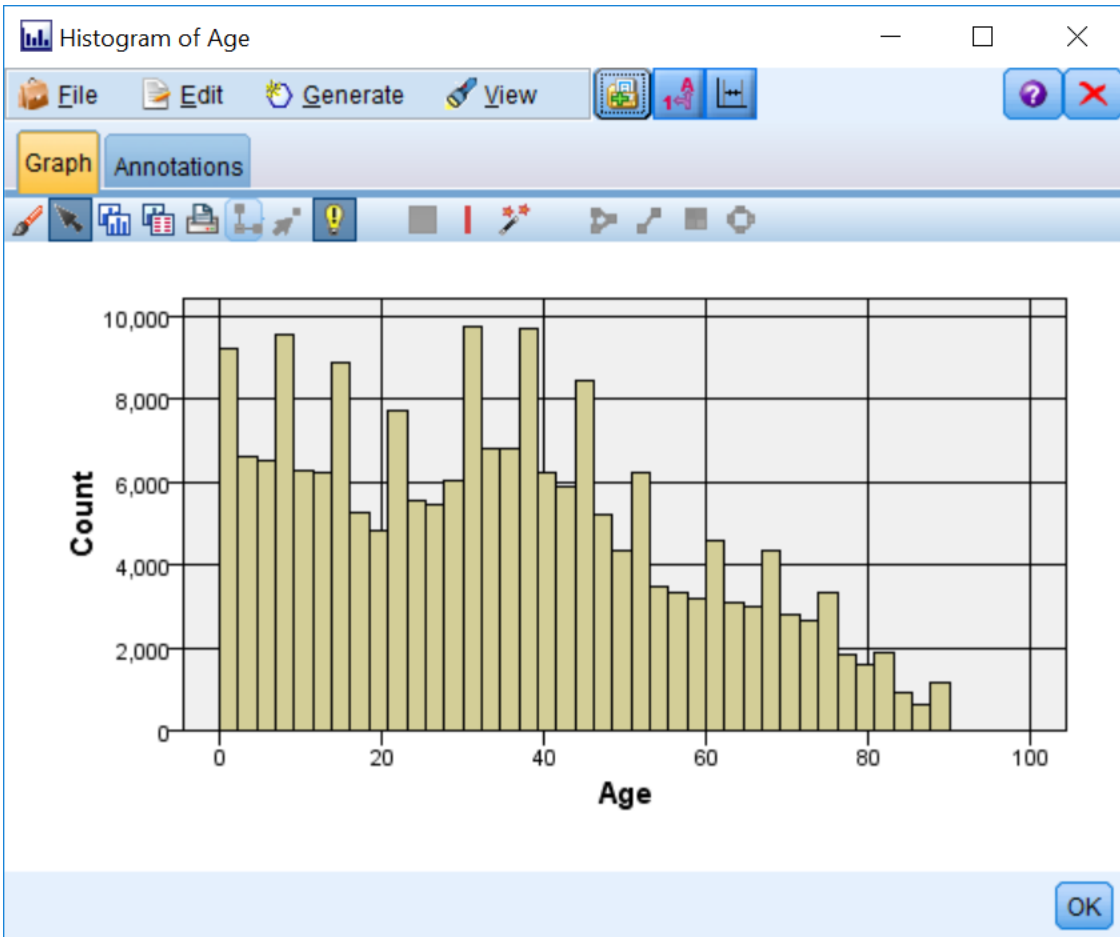
Distribution of Education

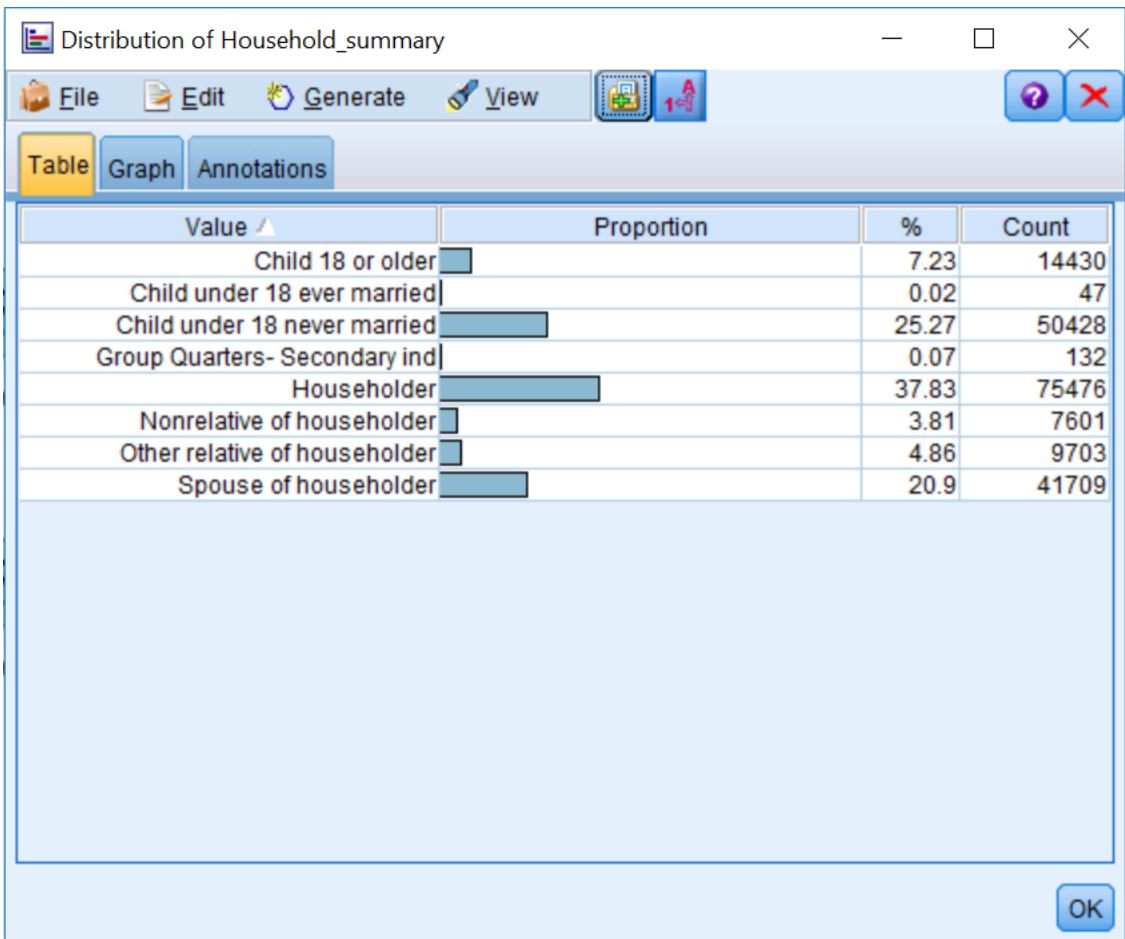
File Edit Generate View

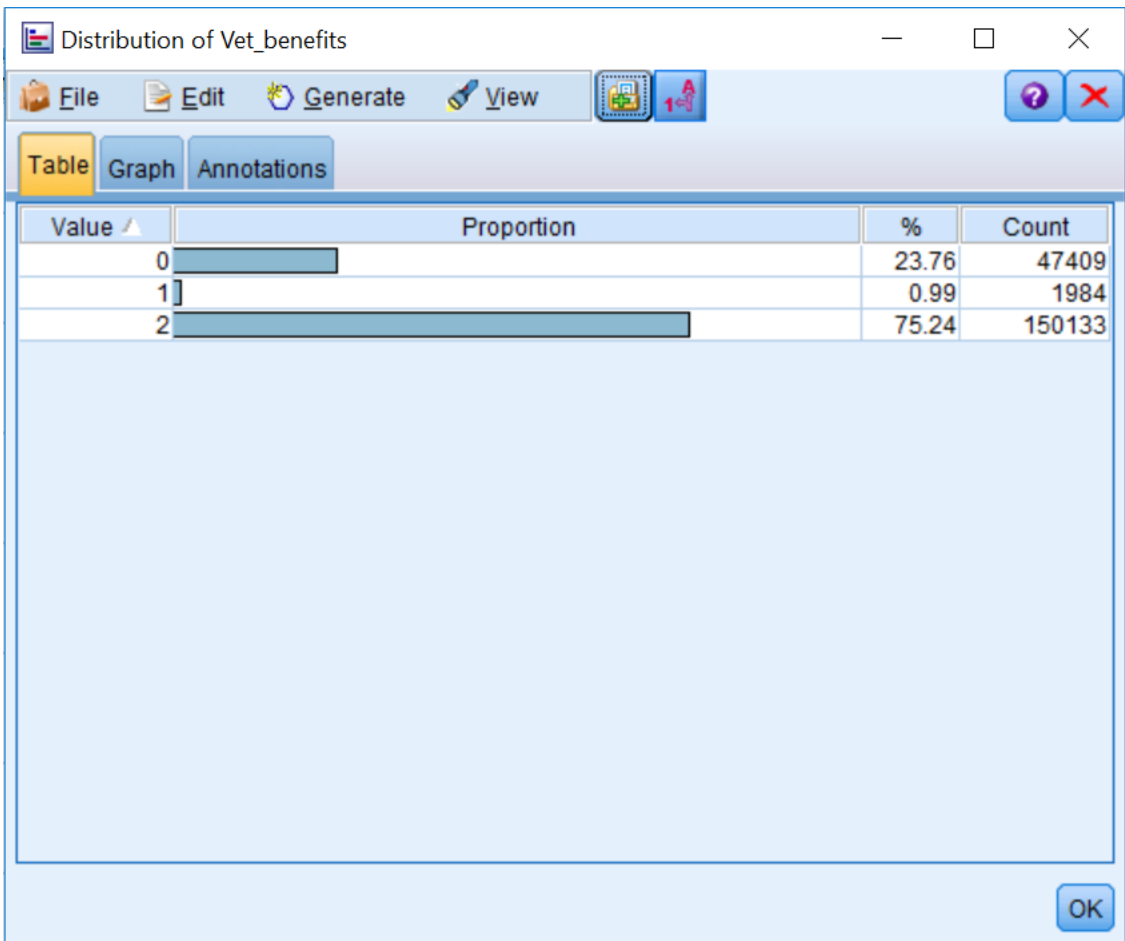
Table Graph Annotations

Value ▲	Proportion	%	Count
10th grade		3.79	7558
11th grade		3.45	6877
12th grade no diploma		1.07	2126
1st 2nd 3rd or 4th grade		0.9	1799
5th or 6th grade		1.64	3277
7th and 8th grade		4.01	8007
9th grade		3.12	6230
Associates degree-academic program		2.19	4363
Associates degree-occupational		2.69	5358
Bachelors degree(BA AB BS)		9.96	19865
Children		23.77	47422
Doctorate degree(PhD EdD)		0.63	1263
High school graduate		24.26	48407
Less than 1st grade		0.41	819
Masters degree(MA MS MEng MEd MSW MBA)		3.28	6541
Prof school degree (MD DDS DVM LLB JD)		0.9	1793
Some college but no degree		13.94	27821

OK







Distribution of Region

File Edit Generate View

Table Graph Annotations

Value ▲	Proportion	%	Count
Abroad]		0.27	530
Midwest]		1.79	3575
Northeast]		1.36	2705
Not applicable		92.09	183752
South]		2.45	4889
West]		2.04	4075

OK

Data Audit of [25 fields]

File Edit Generate

Audit Quality Annotations

Complete fields (%): 100% Complete records (%): 100%

Field	Measurement	Outliers	Extremes	Action	Impute Missing	Method	% Complete	Valid
Age	Continuous	0	0	None	Never	Fixed	100	
Education	Nominal	--	--		Never	Fixed	100	
Enrolled_sch...	Nominal	--	--		Never	Fixed	100	
Marital_status	Nominal	--	--		Never	Fixed	100	
Race	Nominal	--	--		Never	Fixed	100	
Hispanic_ori...	Nominal	--	--		Never	Fixed	100	
Sex	Flag	--	--		Never	Fixed	100	
Region	Nominal	--	--		Never	Fixed	100	
State	Nominal	--	--		Never	Fixed	100	
Household_...	Nominal	--	--		Never	Fixed	100	
Household_...	Nominal	--	--		Never	Fixed	100	
Change_msa	Nominal	--	--		Never	Fixed	100	
Change_regi...	Nominal	--	--		Never	Fixed	100	
Move_within...	Nominal	--	--		Never	Fixed	100	
Moved_last_...	Nominal	--	--		Never	Fixed	100	
Move_sunbelt	Nominal	--	--		Never	Fixed	100	
Num_person...	Continuous	0	0	None	Never	Fixed	100	
Family_mem...	Nominal	--	--		Never	Fixed	100	
Birth_country...	Nominal	--	--		Never	Fixed	100	
Birth_country...	Nominal	--	--		Never	Fixed	100	
Birth_country...	Nominal	--	--		Never	Fixed	100	
Citizenship	Nominal	--	--		Never	Fixed	100	
Fill_vet_survey	Nominal	--	--		Never	Fixed	100	
Vet_benefits	Nominal	--	--		Never	Fixed	100	
Year	Flag	--	--		Never	Fixed	100	

OK

Region Values



Measurement:

Nominal

Storage:

String

Depth: 0

Model Field...

Values:

- Read from data
- Pass
- Specify values and labels

Values	Labels
Abroad	
Midwest	
Northeast	
South	
West	



Extend values from data

Max string length:

9

Check values:

None

Define blanks

Missing values
"Not applicable"



Range

to:

Null

White space

Description:

OK

Cancel

Help

Demographic

Preview Refresh

\\MacHome\Desktop\Modeler Book\Demographic

File Data Filter **Types** Annotations

Read Values **Clear Values** Clear All Values

Field	Measurement	Values	Missing	Check	Role
ID	Continuous	[1001,200...		None	Input
Age	Continuous	[0,90]		None	Input
Education	Nominal	"10th gra...		None	Input
Enrolled_sc...	Nominal	"College ...		None	Input
Marital_status	Nominal	Divorced,"...		None	Input
Race	Nominal	"Amer Indi...		None	Input
Hispanic_ori...	Nominal	"All other",...		None	Input
Sex	Flag	Male/Fem...		None	Input
Region	Nominal	Abroad,Mi...	*	None	Input
State	Nominal	Abroad,Al...		None	Input
Household_...	Nominal	"Child 18...		None	Input
Household_...	Nominal	"Child 18 ...		None	Input
Change_msa	Nominal	"Abroad to...		None	Input
Change_reg...	Nominal	Abroad,"D...		None	Input
Move_within...	Nominal	Abroad,"D...		None	Input
Moved_last_...	Nominal	No,"Not a...		None	Input
Moved_sunbelt	Nominal	No,"Not a...		None	Input
Num_perso...	Continuous	[0,6]		None	Input
Family_me...	Nominal	"Both par...		None	Input
Birth_country...	Nominal	Cambodi...		None	Input
Birth_country...	Nominal	Cambodi...		None	Input
Birth_country...	Nominal	Cambodi...		None	Input
Citizenship	Nominal	"Foreign b...		None	Input

View current fields
 View unused field settings

OK Cancel Apply Reset

Imputation Settings [Close]

Field: **Region** Storage: **String**

Impute when: **Blank & Null Values**

Condition: [Condition]

Impute Method: **Fixed**

Impute Fixed Values

Fixed as: **Mode**

Value: **Not applicable**

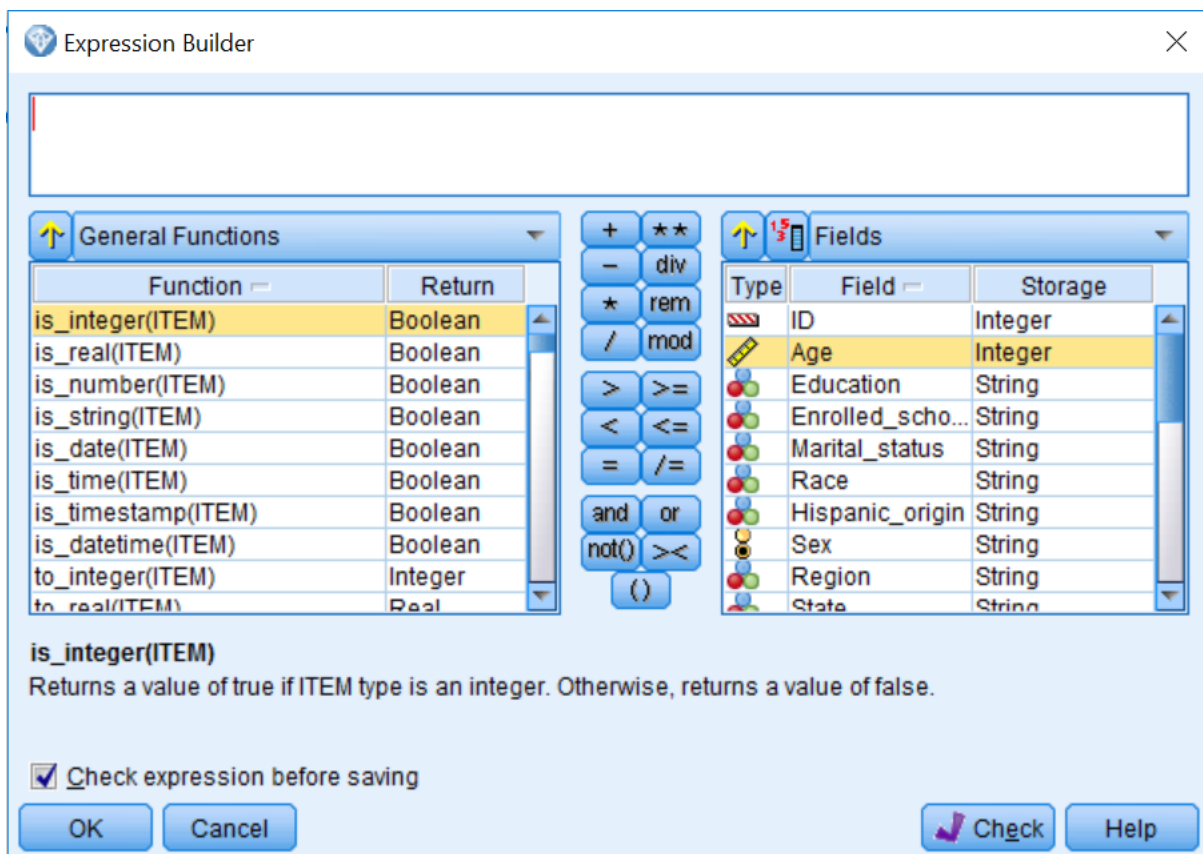
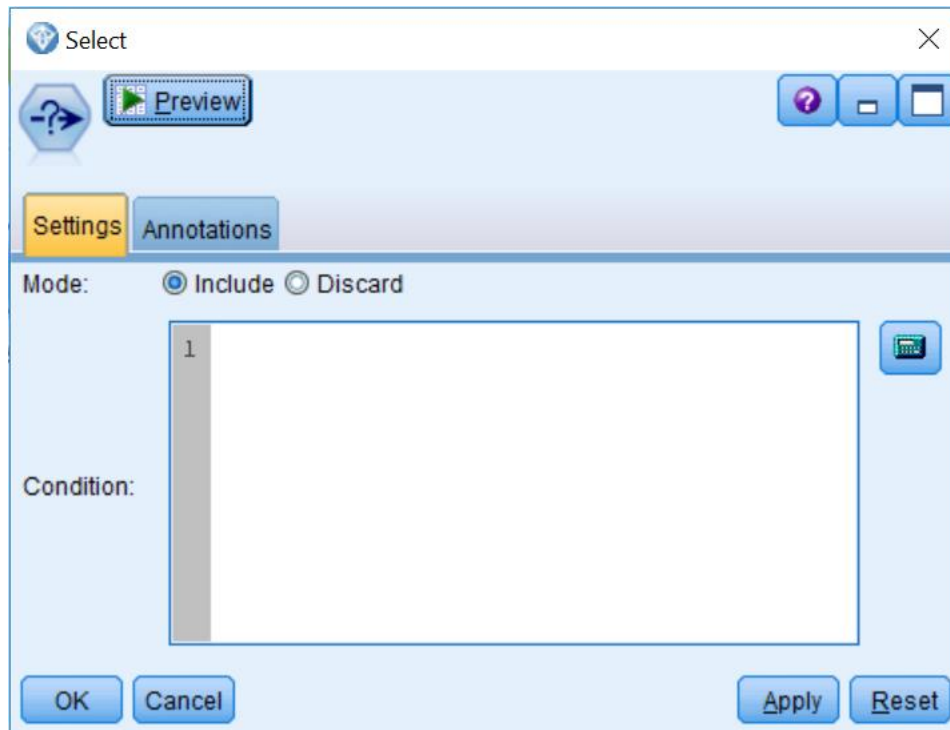
[OK] [Cancel] [Help]

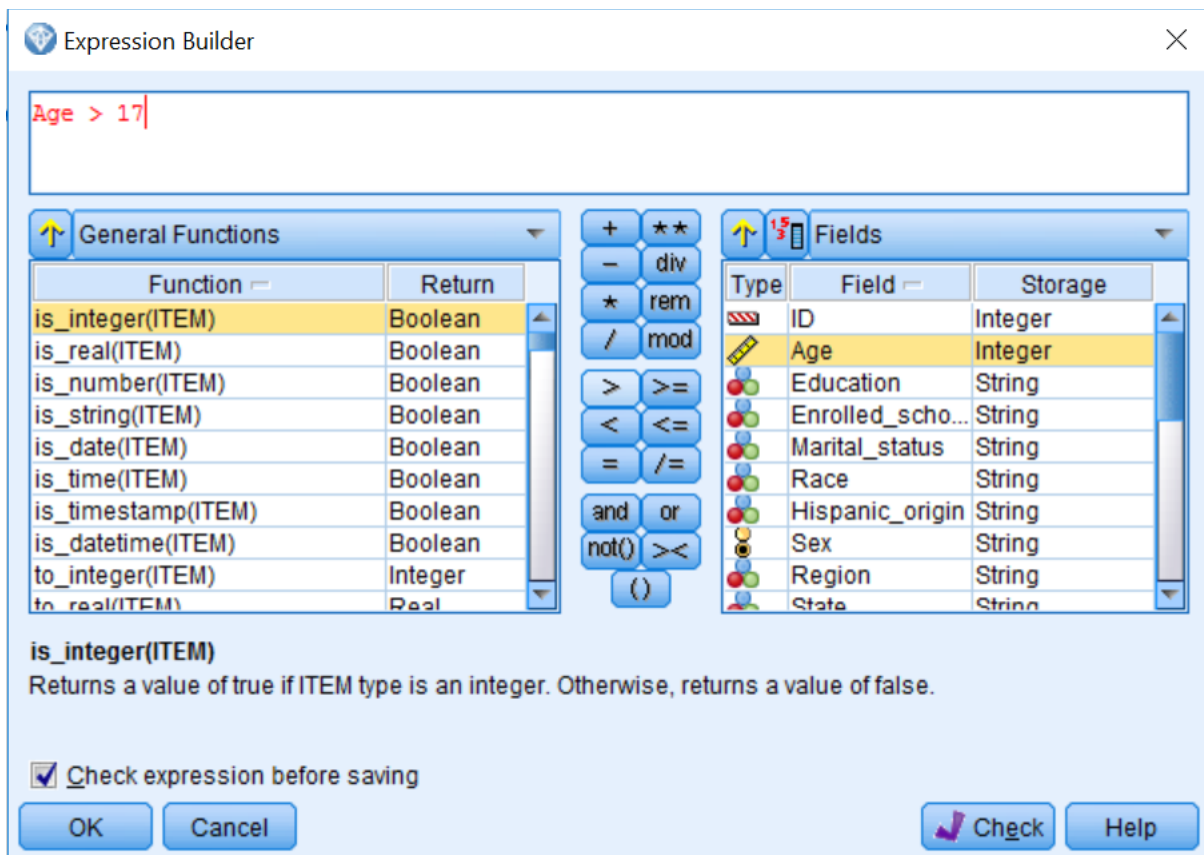
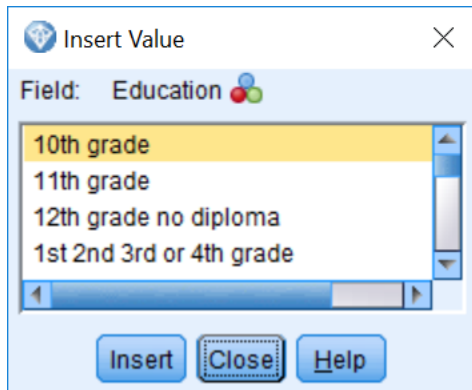
- Generate** [Icons]
- Missing Values SuperNode**
 - Outlier & Extreme SuperNode
 - Missing Values Filter Node
 - Missing Values Select Node

 - Reclassify Node
 - Binning Node
 - Derive Node

 - Graph Output
 - Graph Node

Chapter 5: Cleaning and Selecting Data





Select

Preview

Settings Annotations

Mode: Include Discard

Condition:

1 Age > 17

OK Cancel Apply Reset

Table (26 fields, 143,532 records)

File Edit Generate

Table Annotations

	ID	Age	Education	Enrolled_school	Marital_status	Race	Hispanic_origin	Sex
1	1001	73	High school graduate	Not applicable	Widowed	White	All other	Female
2	1002	58	Some college but no degree	Not applicable	Divorced	White	All other	Male
3	1003	18	10th grade	High school	Never married	Asian or Pacific Islander	All other	Female
4	1006	48	Some college but no degree	Not applicable	Married-civilian spouse present	Amer Indian Aleut or Eskimo	All other	Female
5	1007	42	Bachelors degree(BA AB BS)	Not applicable	Married-civilian spouse present	White	All other	Male
6	1008	28	High school graduate	Not applicable	Never married	White	All other	Female
7	1009	47	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Female
8	1010	34	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male
9	1012	32	High school graduate	Not applicable	Never married	Black	All other	Female
10	1013	51	Some college but no degree	Not applicable	Married-civilian spouse present	White	Do not know	Male
11	1014	46	High school graduate	Not applicable	Divorced	White	Central or Sout...	Female
12	1015	26	Bachelors degree(BA AB BS)	Not applicable	Never married	White	All other	Female
13	1017	47	Bachelors degree(BA AB BS)	Not applicable	Never married	White	All other	Female
14	1018	39	10th grade	Not applicable	Married-civilian spouse present	White	Mexican (Mexic...	Female
15	1020	35	High school graduate	Not applicable	Married-civilian spouse present	White	All other	Male
16	1022	27	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male
17	1023	56	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Female
18	1024	46	Masters degree(MA MS ME...)	Not applicable	Married-civilian spouse present	White	All other	Male
19	1025	55	Some college but no degree	Not applicable	Married-civilian spouse present	Asian or Pacific Islander	All other	Female
20	1028	37	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male

OK

Sort

Preview

Settings Optimization Annotations

Sort by:

Field	Order
Age	▲ Ascending

Default sort order: Ascending Descending

OK Cancel Apply Reset

Table (26 fields, 143,532 records) #1

File Edit Generate

Table Annotations

	ID	Age	Education	Enrolled_school	Marital_status	Race	Hispanic_origin	Sex
1	137342	18	High school graduate	Not applicable	Never married	Black	All other	Female
2	115970	18	11th grade	High school	Never married	White	All other	Female
3	141313	18	10th grade	High school	Never married	White	All other	Male
4	1742	18	Some college but no degree	College or university	Never married	White	Other Spanish	Female
5	162874	18	11th grade	High school	Never married	White	All other	Female
6	77458	18	High school graduate	College or university	Never married	White	Mexican-American	Female
7	27785	18	Some college but no degree	College or university	Never married	White	Other Spanish	Female
8	141311	18	11th grade	High school	Never married	White	All other	Male
9	27789	18	11th grade	High school	Never married	White	All other	Female
10	40002	18	High school graduate	Not applicable	Never married	White	All other	Female
11	139143	18	10th grade	Not applicable	Never married	Black	All other	Male
12	27817	18	11th grade	High school	Never married	White	All other	Female
13	10870	18	Some college but no degree	College or university	Never married	White	All other	Female
14	49155	18	11th grade	High school	Never married	Black	All other	Male
15	148763	18	11th grade	High school	Never married	White	All other	Male
16	7352	18	11th grade	High school	Never married	Black	All other	Female
17	125977	18	Some college but no degree	College or university	Never married	White	All other	Female
18	141247	18	Some college but no degree	College or university	Never married	White	All other	Male
19	141244	18	11th grade	Not applicable	Never married	Black	All other	Male
20	82902	18	High school graduate	Not applicable	Never married	White	Mexican-American	Female

OK

Distinct

Preview

Settings Composite Optimization Annotations

Mode: Discard only the first record in each group

Key fields for grouping:

- ID
- Age
- Education
- Enrolled_school

Sort Order

Within groups, sort records by:

Field	Order

Default sort order: Ascending Descending

If no sort fields are selected then the order of records within each group is undefined

OK Cancel Apply Reset

Table (26 fields, 1 records)


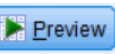



File Edit Generate

Table Annotations

	ID	Age	Education	Enrolled_school	Marital_status	Race	Hispanic_origin	Sex
1	177622	23	Some college but no degree	Not applicable	Never married	Amer Indian Aleut or Eskimo	All other	Female

OK





Distinct ×

Settings Composite Optimization Annotations

Mode: **include only the first record in each group** ▼

Key fields for grouping:


-  ID
-  Age
-  Education
-  Enrolled_school

Sort Order

Within groups, sort records by:

Field	Order
-------	-------

Default sort order: Ascending Descending

 If no sort fields are selected then the order of records within each group is undefined

OK Cancel Apply Reset

Table (26 fields, 143,531 records)


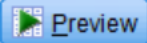

File Edit Generate

Table Annotations

	ID	Age	Education	Enrolled_school	Marital_status	Race	Hispanic_origin	Sex
1	1001	73	High school graduate	Not applicable	Widowed	White	All other	Female
2	1002	58	Some college but no degree	Not applicable	Divorced	White	All other	Male
3	1003	18	10th grade	High school	Never married	Asian or Pacific Islander	All other	Female
4	1006	48	Some college but no degree	Not applicable	Married-civilian spouse present	Amer Indian Aleut or Eskimo	All other	Female
5	1007	42	Bachelors degree(BA AB BS)	Not applicable	Married-civilian spouse present	White	All other	Male
6	1008	28	High school graduate	Not applicable	Never married	White	All other	Female
7	1009	47	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Female
8	1010	34	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male
9	1012	32	High school graduate	Not applicable	Never married	Black	All other	Female
10	1013	51	Some college but no degree	Not applicable	Married-civilian spouse present	White	Do not know	Male
11	1014	46	High school graduate	Not applicable	Divorced	White	Central or Sout...	Female
12	1015	26	Bachelors degree(BA AB BS)	Not applicable	Never married	White	All other	Female
13	1017	47	Bachelors degree(BA AB BS)	Not applicable	Never married	White	All other	Female
14	1018	39	10th grade	Not applicable	Married-civilian spouse present	White	Mexican (Mexic...	Female
15	1020	35	High school graduate	Not applicable	Married-civilian spouse present	White	All other	Male
16	1022	27	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male
17	1023	56	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Female
18	1024	46	Masters degree(MA MS ME...)	Not applicable	Married-civilian spouse present	White	All other	Male
19	1025	55	Some college but no degree	Not applicable	Married-civilian spouse present	Asian or Pacific Islander	All other	Female
20	1028	37	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male

OK

Reclassify ×



  

Settings Annotations

Mode: Single Multiple

Reclassify into: New field Existing field


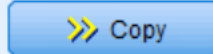
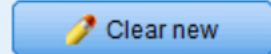

Reclassify field:

 Education 





New field name:

Education_reclassified

Reclassify values:


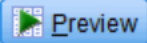



Original value	New value
10th grade	No high school degree
11th grade	No high school degree
12th grade no diploma	No high school degree
1st 2nd 3rd or 4th grade	No high school degree
5th or 6th grade	No high school degree

For unspecified values use: Original value Default value

OK Cancel Apply Reset

Reclassify ×



    

Settings Annotations

Mode: Single Multiple

Reclassify into: New field Existing field


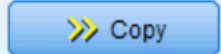
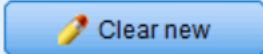

Reclassify field:

 Vet_benefits 





New field name:

Reclassify11

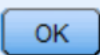
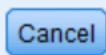
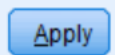
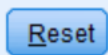
Reclassify values:





Original value	New value
0	No
1	Yes
2	Not applicable

For unspecified values use: Original value Default value

_reclassify ×



    Preview



Settings Annotations



Mode: Single Multiple

Reclassify into: New field Existing field

Reclassify fields:





 Birth_country_father 

 Birth_country_mother 





 Birth_country_self 

Field name extension: Add as: Suffix Prefix

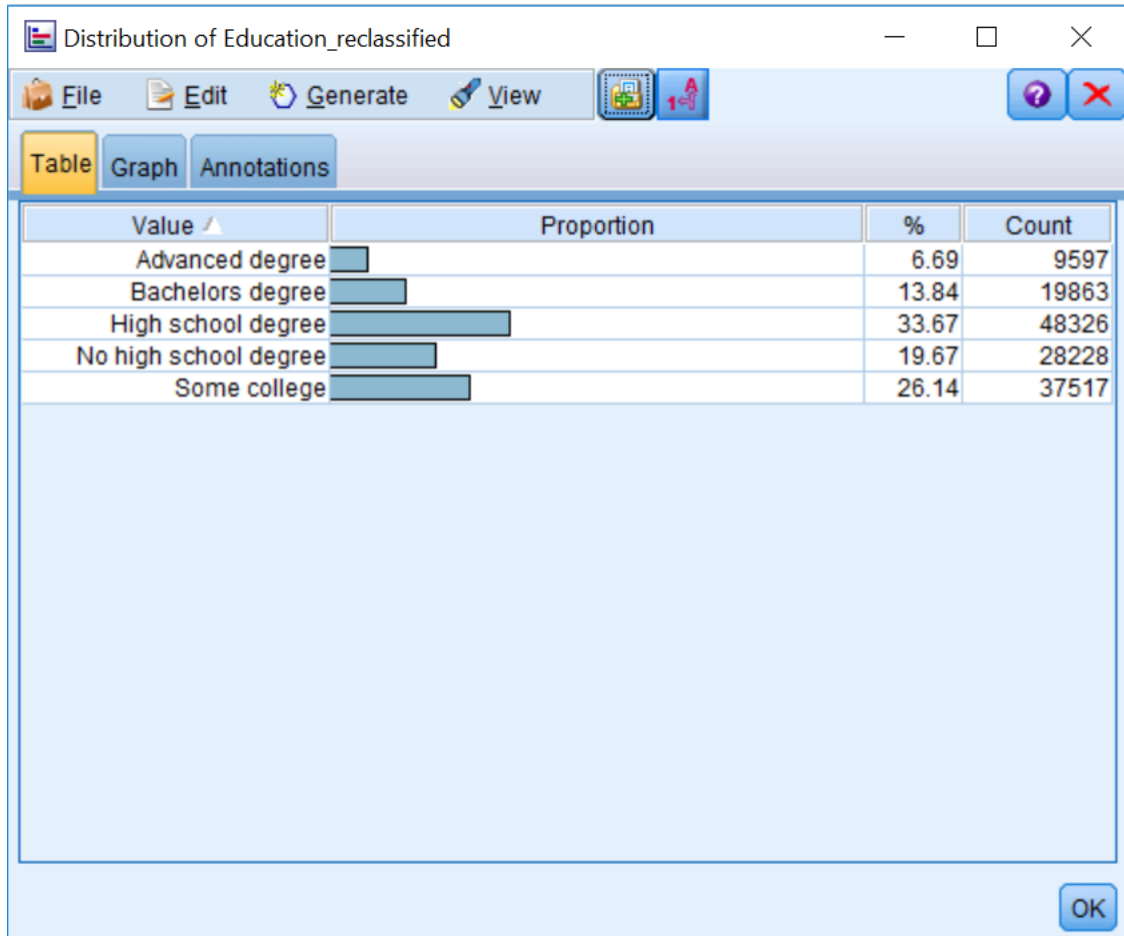
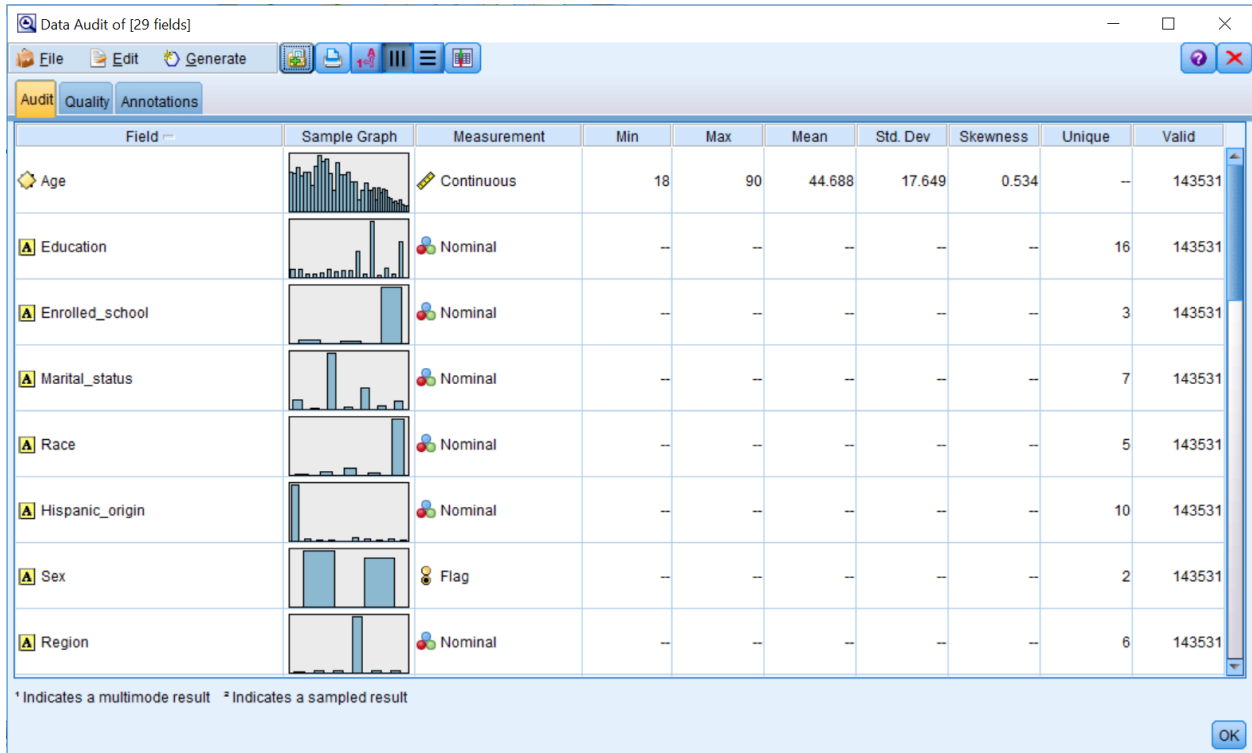
Reclassify values:

 Get  Copy  Clear new  Auto...

Original value	New value
Thailand	Other
Columbia	Other
United-States	United States
Ireland	Other
England	Other

For unspecified values use: Original value Default value



Chapter 6: Combining Data Files

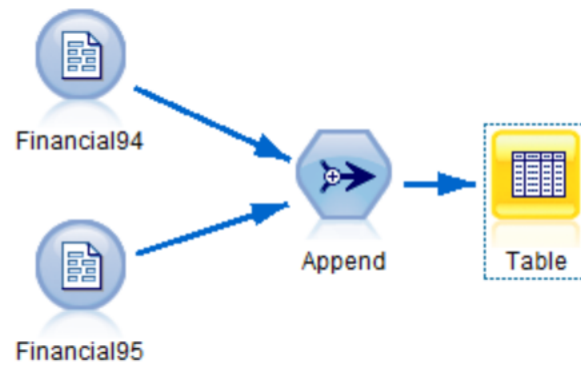
ID	Location	Age	Gender
1	CA	42	Male
2	CA	44	Female
3	CA	63	Female

+

ID	Location	Age
101	NH	46
102	NH	22
103	NH	43

=

ID	Location	Age	Gender
1	CA	42	Male
2	CA	44	Female
3	CA	63	Female
101	NH	46	
102	NH	22	
103	NH	43	



Append

Append 2 datasets

Inputs Append Annotations

Match fields by: Position Name Match case

Preview of field matches and structure

Output Field	1[Financial94:Financial94]	2[Financial95:Financial95]
ID	ID	ID
Hour_wage	Hour_wage	Hour_wage
Capital_gains	Capital_gains	Capital_gains
Capital_losses	Capital_losses	Capital_losses
Dividends	Dividends	Dividends
Weeks_worked	Weeks_worked	Weeks_worked
Year	Year	Year
Type_worker	Type_worker	Type_worker

Include fields from: Main dataset only All datasets

Tag records by including source dataset in field Input

OK Cancel Apply Reset

Append

Append 2 datasets

Inputs Append Annotations

Tags and order of input datasets:

Tag	Source Node	Connected Node	Fields
1	Financial94	Financial94	16
2	Financial95	Financial95	18

Main dataset: 1[Financial94:Financial94]

View current tags View unused tag settings

OK Cancel Apply Reset

Table (18 fields, 143,531 records)

File Edit Generate

Table Annotations

	h_unemployed	Employment_status	Tax_status	Own_business	Income_category	DI_code	DO_code
71708	licable	Children or Armed Forces	Nonfiler	No	- 50000.	\$null\$	\$null\$
71709	licable	Children or Armed Forces	Single	Not applicable	- 50000.	\$null\$	\$null\$
71710	licable	Children or Armed Forces	Joint both under 65	No	- 50000.	\$null\$	\$null\$
71711	licable	Children or Armed Forces	Nonfiler	No	- 50000.	\$null\$	\$null\$
71712	licable	Children or Armed Forces	Joint both under 65	No	- 50000.	\$null\$	\$null\$
71713	licable	Children or Armed Forces	Joint both under 65	No	- 50000.	\$null\$	\$null\$
71714	licable	Children or Armed Forces	Single	No	- 50000.	\$null\$	\$null\$
71715	licable	Children or Armed Forces	Single	No	- 50000.	\$null\$	\$null\$
71716	licable	Children or Armed Forces	Joint both under 65	Not applicable	50000+.	\$null\$	\$null\$
71717	ver	Children or Armed Forces	Single	No	- 50000.	\$null\$	\$null\$
71718	licable	Children or Armed Forces	Single	No	- 50000.	\$null\$	\$null\$
71719	licable	Children or Armed Forces	Joint one under 6...	No	- 50000.	\$null\$	\$null\$
71720	licable	Children or Armed Forces	Single	No	- 50000.	\$null\$	\$null\$
71721	licable	Not in labor force	Nonfiler	No	- 50000.	0	0
71722	licable	Not in labor force	Nonfiler	No	- 50000.	0	0
71723	licable	Full-time schedules	Joint both under 65	Not applicable	- 50000.	40	10
71724	er - on layoff	Unemployed full-time	Single	No	- 50000.	4	40
71725	licable	Full-time schedules	Joint both under 65	No	- 50000.	43	26
71726	licable	Not in labor force	Nonfiler	No	- 50000.	0	0
71727	licable	Full-time schedules	Single	No	- 50000.	24	12

OK

Filter

Preview

Filter Annotations

Fields: 18 in, 2 filtered, 0 renamed, 16 out

Field	Filter	Field
Industry_code	→	Industry_code
Occupation_code	→	Occupation_code
Union_member	→	Union_member
Reason_unemployed	→	Reason_unemployed
Employment_status	→	Employment_status
Tax_status	→	Tax_status
Own_business	→	Own_business
Income_category	→	Income_category
DI_code	→ X	DI_code
DO_code	→ X	DO_code

View current fields
 View unused field settings

OK Cancel Apply Reset

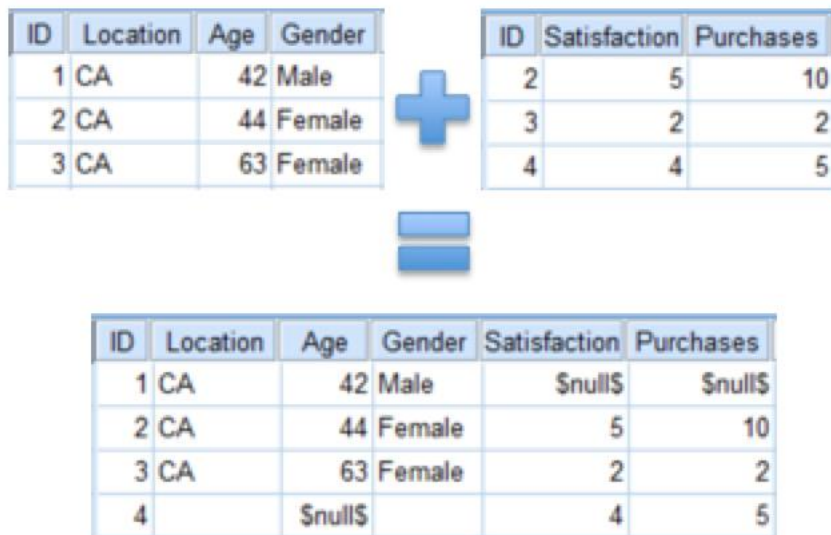
Table (16 fields, 143,531 records)

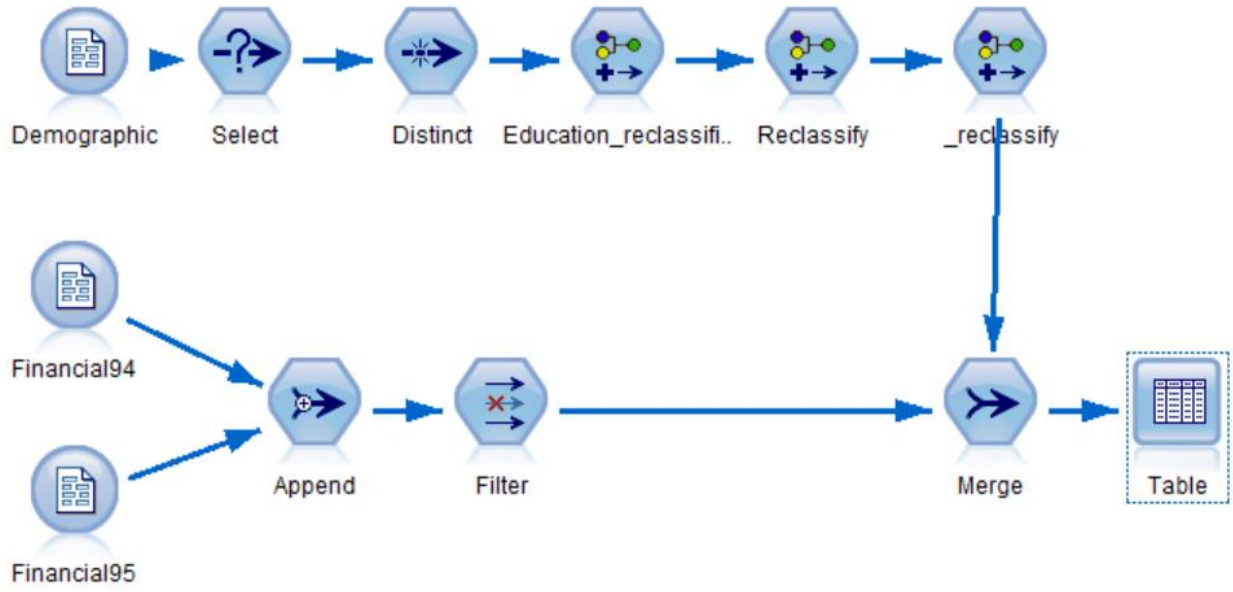
File Edit Generate

Table Annotations

	ID	Hour_wage	Capital_gains	Capital_losses	Dividends	Weeks_worked	Year	Type_worker
1	1002	0	0	0	0	52	94	Self-employed-not incorporated
2	1007	0	5178	0	0	52	94	Private
3	1010	0	0	0	0	52	94	Private
4	1013	0	0	0	0	52	94	Private
5	1014	0	0	1590	0	52	94	Private
6	1018	0	0	0	0	0	94	Not applicable
7	1022	0	0	0	0	52	94	Self-employed-not incorporated
8	1024	0	0	1977	100	52	94	Private
9	1025	0	0	0	0	0	94	Not applicable
10	1030	0	0	1669	700	52	94	Private
11	1033	0	0	0	0	52	94	Self-employed-not incorporated
12	1034	0	0	0	0	52	94	Private
13	1035	0	991	0	0	0	94	Not applicable
14	1036	0	0	0	0	52	94	Private
15	1037	0	0	0	1000	52	94	Private
16	1041	0	0	0	0	0	94	Not applicable
17	1043	0	0	0	0	38	94	Self-employed-not incorporated
18	1044	0	0	0	0	0	94	Not applicable
19	1047	0	0	0	0	0	94	Not applicable
20	1049	0	0	0	0	0	94	Not applicable

OK





Merge

Preview

Merge 2 datasets. Merge method: Keys

Inputs Merge Filter Optimization Annotations

Merge Method: Keys

Possible keys:

Year

Keys for merge:

ID

→

←

Combine duplicate key fields

Include only matching records (inner join)

Include matching and non-matching records (full outer join)

Include matching and selected non-matching records (partial outer join)

Select...

Include records in first dataset not matching any others (anti-join)

OK Cancel Apply Reset

Merge X

Preview

Merge 2 datasets. Merge method: Keys

Inputs Merge **Filter** Optimization Annotations

Fields: 45 in, 1 filtered, 0 renamed, 44 out

Field	Tag	Source Node	Connected N...	Filter	Field
Move_within_reg	1	Demographic	_reclassify	→	Move_within_reg
Moved_last_year	1	Demographic	_reclassify	→	Moved_last_year
Move_sunbelt	1	Demographic	_reclassify	→	Move_sunbelt
Num_persons_worked	1	Demographic	_reclassify	→	Num_persons_worked
Family_members_under18	1	Demographic	_reclassify	→	Family_members_under18
Birth_country_father	1	Demographic	_reclassify	→	Birth_country_father
Birth_country_mother	1	Demographic	_reclassify	→	Birth_country_mother
Birth_country_self	1	Demographic	_reclassify	→	Birth_country_self
Citizenship	1	Demographic	_reclassify	→	Citizenship
Fill_vet_survey	1	Demographic	_reclassify	→	Fill_vet_survey
Vet_benefits	1	Demographic	_reclassify	→	Vet_benefits
Year	1	Demographic	_reclassify	→	Year
Education_reclassified	1	Demographic	_reclassify	→	Education_reclassified
Birth_country_father_recla...	1	Demographic	_reclassify	→	Birth_country_father_recl...
Birth_country_mother_rec...	1	Demographic	_reclassify	→	Birth_country_mother_rec...
Birth_country_self_reclas...	1	Demographic	_reclassify	→	Birth_country_self_reclas...
Hour_wage	2	Append	Filter	→	Hour_wage
Capital_gains	2	Append	Filter	→	Capital_gains
Capital_losses	2	Append	Filter	→	Capital_losses
Dividends	2	Append	Filter	→	Dividends
Weeks_worked	2	Append	Filter	→	Weeks_worked
Year	2	Append	Filter	→ X	Year
Type_worker	2	Append	Filter	→	Type_worker
Industry_code	2	Append	Filter	→	Industry_code
Occupation_code	2	Append	Filter	→	Occupation_code

View current fields View unused field settings

OK Cancel Apply Reset

Table (44 fields, 143,531 records)

File Edit Generate


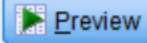



Table Annotations

	ID	Age	Education	Enrolled_school	Marital_status	Race	Hispanic_origin	Sex
1	1001	73	High school graduate	Not applicable	Widowed	White	All other	Female
2	1002	58	Some college but no degree	Not applicable	Divorced	White	All other	Male
3	1003	18	10th grade	High school	Never married	Asian or Pacific Islander	All other	Female
4	1006	48	Some college but no degree	Not applicable	Married-civilian spouse present	Amer Indian Aleut or Eskimo	All other	Female
5	1007	42	Bachelors degree(BA AB BS)	Not applicable	Married-civilian spouse present	White	All other	Male
6	1008	28	High school graduate	Not applicable	Never married	White	All other	Female
7	1009	47	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Female
8	1010	34	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male
9	1012	32	High school graduate	Not applicable	Never married	Black	All other	Female
10	1013	51	Some college but no degree	Not applicable	Married-civilian spouse present	White	Do not know	Male
11	1014	46	High school graduate	Not applicable	Divorced	White	Central or Sout...	Female
12	1015	26	Bachelors degree(BA AB BS)	Not applicable	Never married	White	All other	Female
13	1017	47	Bachelors degree(BA AB BS)	Not applicable	Never married	White	All other	Female
14	1018	39	10th grade	Not applicable	Married-civilian spouse present	White	Mexican (Mexic...	Female
15	1020	35	High school graduate	Not applicable	Married-civilian spouse present	White	All other	Male
16	1022	27	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male
17	1023	56	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Female
18	1024	46	Masters degree(MA MS ME...)	Not applicable	Married-civilian spouse present	White	All other	Male
19	1025	55	Some college but no degree	Not applicable	Married-civilian spouse present	Asian or Pacific Islander	All other	Female
20	1028	37	Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male

OK

Chapter 7: Deriving New Fields

Derive ×

Derive as: Formula

Settings Annotations

Mode: Single Multiple


Derive field:

Derive1

Derive as: Formula

Field type: ⚡ <Default>

Formula:

1 

OK Cancel Apply Reset

Capital_gains + Capital_losses + Dividends

General Functions

Function	Return
is_integer(ITEM)	Boolean
is_real(ITEM)	Boolean
is_number(ITEM)	Boolean
is_string(ITEM)	Boolean
is_date(ITEM)	Boolean
is_time(ITEM)	Boolean
is_timestamp(ITEM)	Boolean
is_datetime(ITEM)	Boolean
to_integer(ITEM)	Integer
to_real(ITEM)	Real

Arithmetic and Logical Operators:

- + **
- div
- * rem
- / mod
- > >=
- < <=
- = /=
- and or
- not() >>
- ()

Fields

Type	Field	Storage
Integer	ID	Integer
Integer	Age	Integer
String	Education	String
String	Enrolled_scho...	String
String	Marital_status	String
String	Race	String
String	Hispanic_origin	String
String	Sex	String
String	Region	String
String	State	String


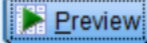



is_integer(ITEM)
Returns a value of true if ITEM type is an integer. Otherwise, returns a value of false.

Check expression before saving

OK Cancel

Check Help

Stock_numbers ×

Derive as: Formula

Settings Annotations

Mode: Single Multiple

Derive field:


Stock_numbers

Derive as: Formula

Field type: ⚡ <Default>


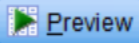



Formula:

```
1 Capital_gains + Capital_losses + Dividends
```



OK Cancel Apply Reset

Investment ×

Derive as: Flag


Settings Annotations

Mode: Single Multiple

Derive field:

Investment


Derive as: Flag

Field type:  Flag

True value: T False value: F


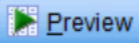



True when:

```
1 Stock_numbers > 0
```



OK Cancel Apply Reset

Employed ×

Derive as: Flag


Settings Annotations

Mode: Single Multiple

Derive field:

Employed


Derive as: Flag ▾

Field type:  Flag ▾


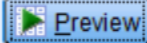



True value: False value:

True when:

```
1 Weeks_worked > 0
```



Age_Groups ×

Derive as: Nominal


Settings Annotations

Mode: Single Multiple






Derive field:

Age_Groups

Derive as: Nominal


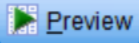



Field type:  Nominal Default value: default

Set field to	If this condition is true
Young	Age <= 29
Thirties	Age >= 30 and Age <= 39
Forties	Age >= 40 and Age <= 49
Fifties	Age >= 50 and Age <= 59
Sixties	Age >= 60 and Age <= 69
Retired	Age >= 70

OK Cancel Apply Reset

Educated_fulltime ×


  Derive as: Conditional   


Settings Annotations


Mode: Single Multiple


Derive field:

Derive as:


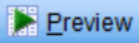



Field type: 

If:
 

Then:
 

Else:
 

Educated_earning_age ×

Derive as: Conditional


Settings Annotations

Mode: Single Multiple


Derive field:

Educated_earning_age


Derive as: Conditional

Field type:  <Default>


If:

`Education_reclassified = "Bachelors degree" or Educa` 

Then:

1 'Yes' 

Else:

1 'No' 

OK Cancel Apply Reset

Type

Preview

Types Format Annotations

Read Values Clear Values Clear All Values

Field	Measurement	Values	Missing	Check	Role
IdA_Status	Nominal	Head of ...		None	Input
Own_busine...	Nominal	No,"Not a...		None	Input
Income_cate...	Flag	" 50000+..."		None	Target
Stock_numb...	Continuous	[0,199998]		None	None
Investment	Flag	T/F		None	Input
Employed	Flag	T/F		None	Input
Age_Groups	Nominal	Young,Thi...		None	Input
Educated_fu...	Flag	Yes/No		None	Input
Educated_e...	Flag	Yes/No		None	Input

View current fields
 View unused field settings

OK Cancel Apply Reset

Table (50 fields, 143,531 records)

File Edit Generate

Table Annotations

	status	Own_busine...	Income_category	Stock_numbers	Investment	Employed	Age_Groups	Educated_fulltime	Educated_earning_age
1	er	No	- 50000.		0 F	F	Retired	No	No
2	of household	No	- 50000.		0 F	T	Fifties	No	No
3	er	No	- 50000.		0 F	F	Young	No	No
4	both under 65	Not applicable	- 50000.		0 F	T	Forties	No	No
5	both under 65	No	- 50000.	5178	T	T	Forties	Yes	Yes
6	e	No	- 50000.		0 F	T	Young	No	No
7	both under 65	No	- 50000.		0 F	T	Forties	No	No
8	both under 65	No	- 50000.		0 F	T	Thirties	No	No
9	er	No	- 50000.		0 F	F	Thirties	No	No
10	both under 65	No	- 50000.		0 F	T	Fifties	No	No
11	e	No	- 50000.	1590	T	T	Forties	No	No
12	e	No	- 50000.		0 F	T	Young	Yes	No
13	e	No	- 50000.		0 F	T	Forties	Yes	Yes
14	both under 65	No	- 50000.		0 F	F	Thirties	No	No
15	both under 65	No	- 50000.	6000	T	T	Thirties	No	No
16	both under 65	Yes	- 50000.		0 F	T	Young	No	No
17	both under 65	Not applicable	- 50000.		0 F	T	Fifties	No	No
18	both under 65	No	- 50000.	2077	T	T	Forties	Yes	Yes
19	both under 65	No	- 50000.		0 F	F	Fifties	No	No
20	both under 65	No	- 50000.		0 F	T	Thirties	No	No

OK

Chapter 8: Looking for Relationships Between Fields

Field: Income_category

Plot Appearance Output Annotations

Plot: Selected fields All flags (true values)

Field:

Overlay

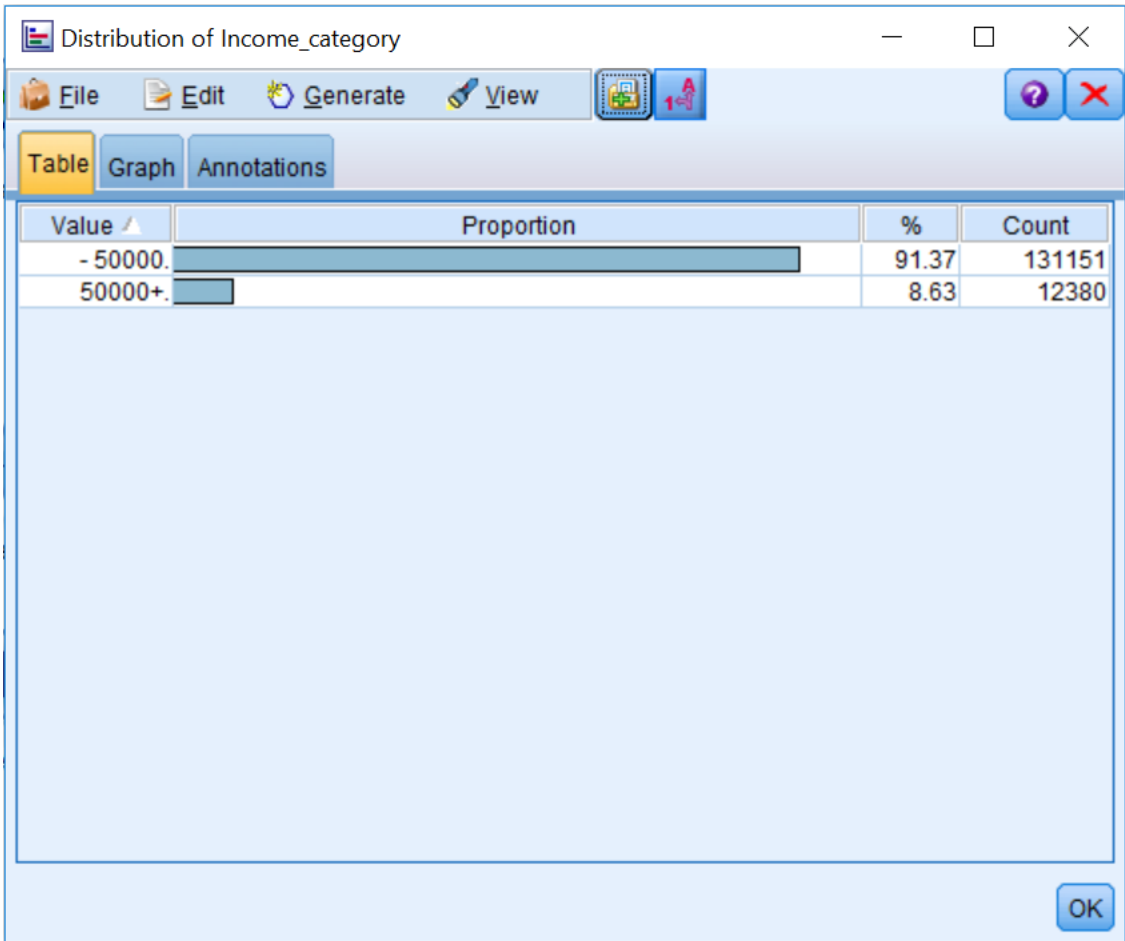
Color:

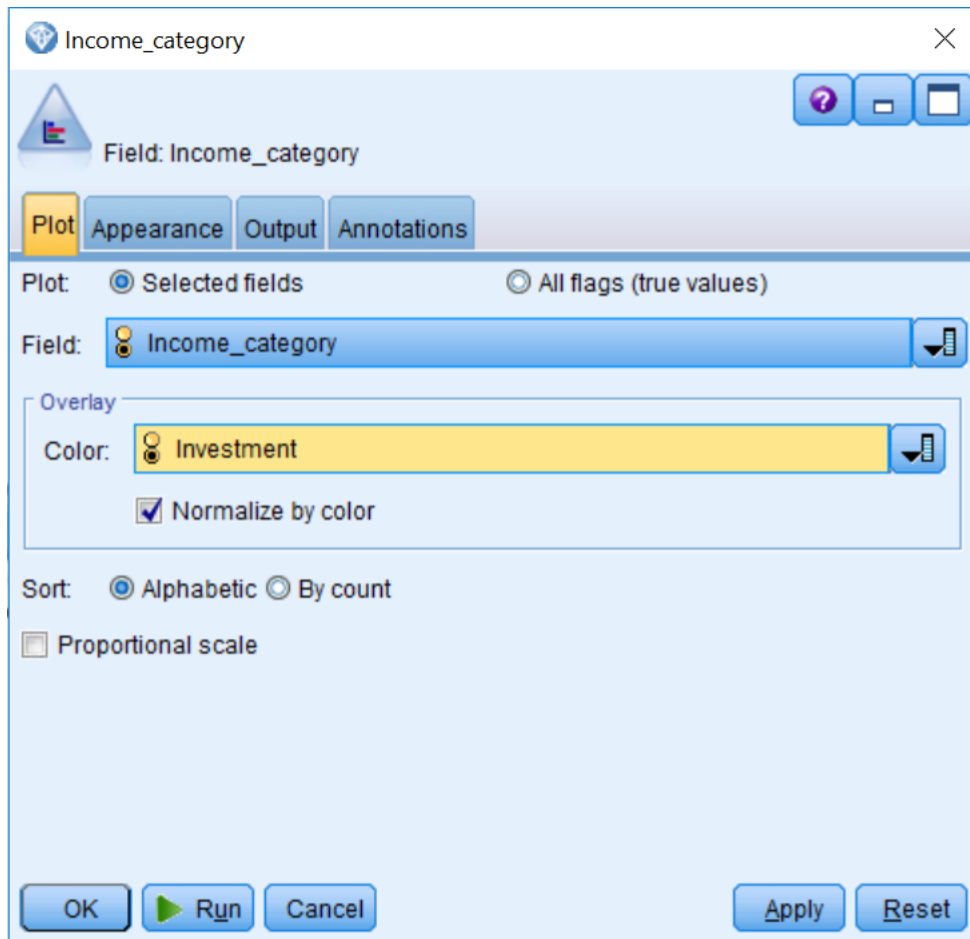
Normalize by color

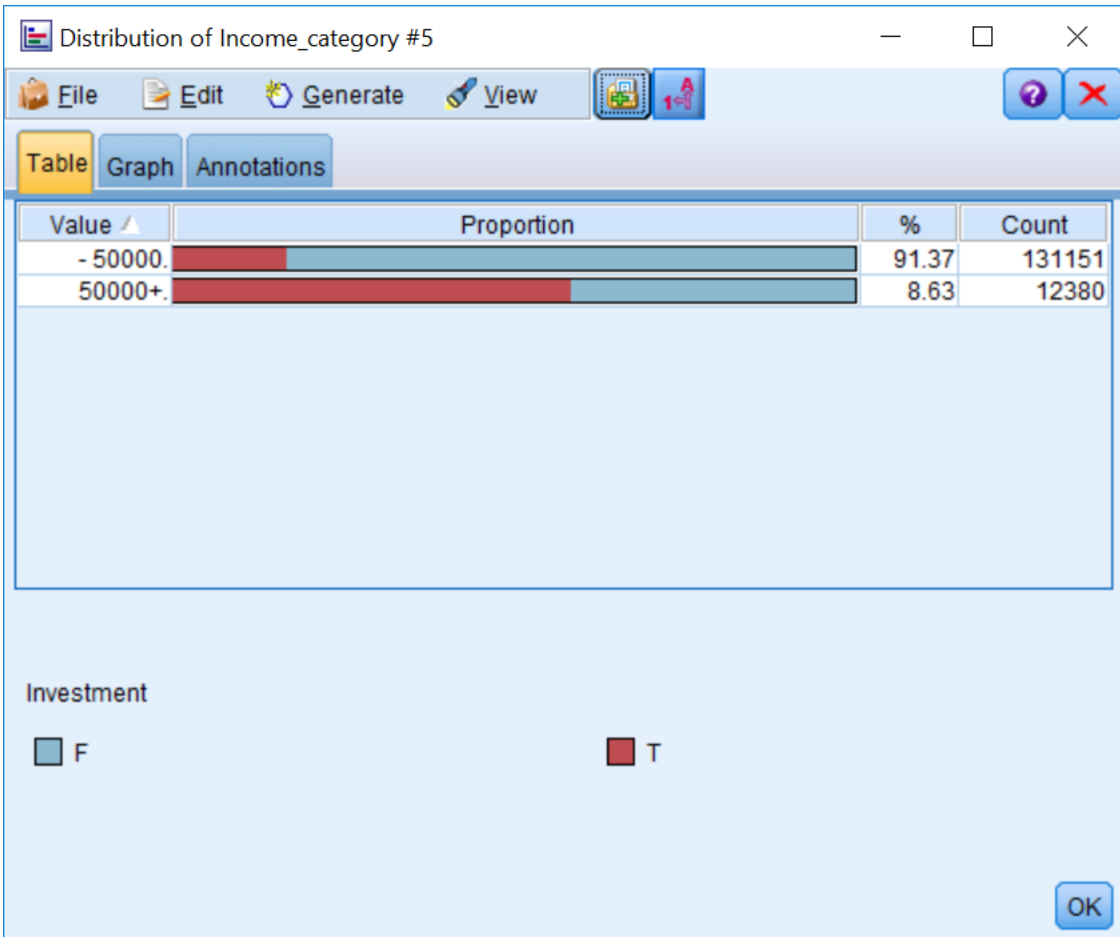
Sort: Alphabetic By count

Proportional scale





OK Run Cancel Apply Reset









Matrix ×

Settings Appearance Output Annotations


Fields: Selected All flags (true values) All Numerics

Rows: 

Columns: 

Include missing values

Cell contents: Cross-tabulations Function

Field: 

Function: Mean Sum SDev
 Max Min

Matrix of Income_category by Investment

File Edit Generate

Matrix Appearance Annotations

Investment

Income_category		F	T
- 50000.	Count	109319	21832
	Column %	95.493	75.148
50000+.	Count	5160	7220
	Column %	4.507	24.852

Cells contain: cross-tabulation of fields (including missing values)

Chi-square = 12,168.98, df = 1, probability = 0

OK

Num_persons_worked

X: Num_persons_worked

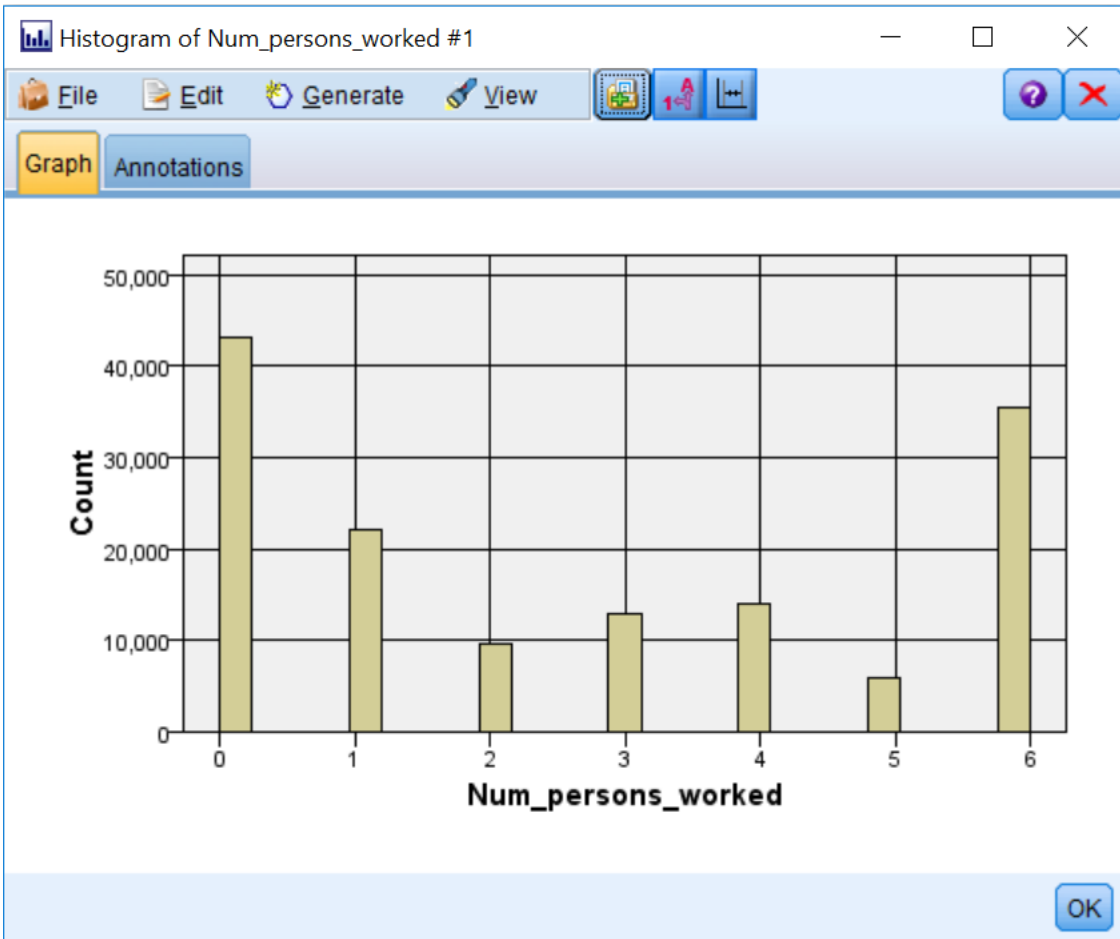
Plot Options Appearance Output Annotations

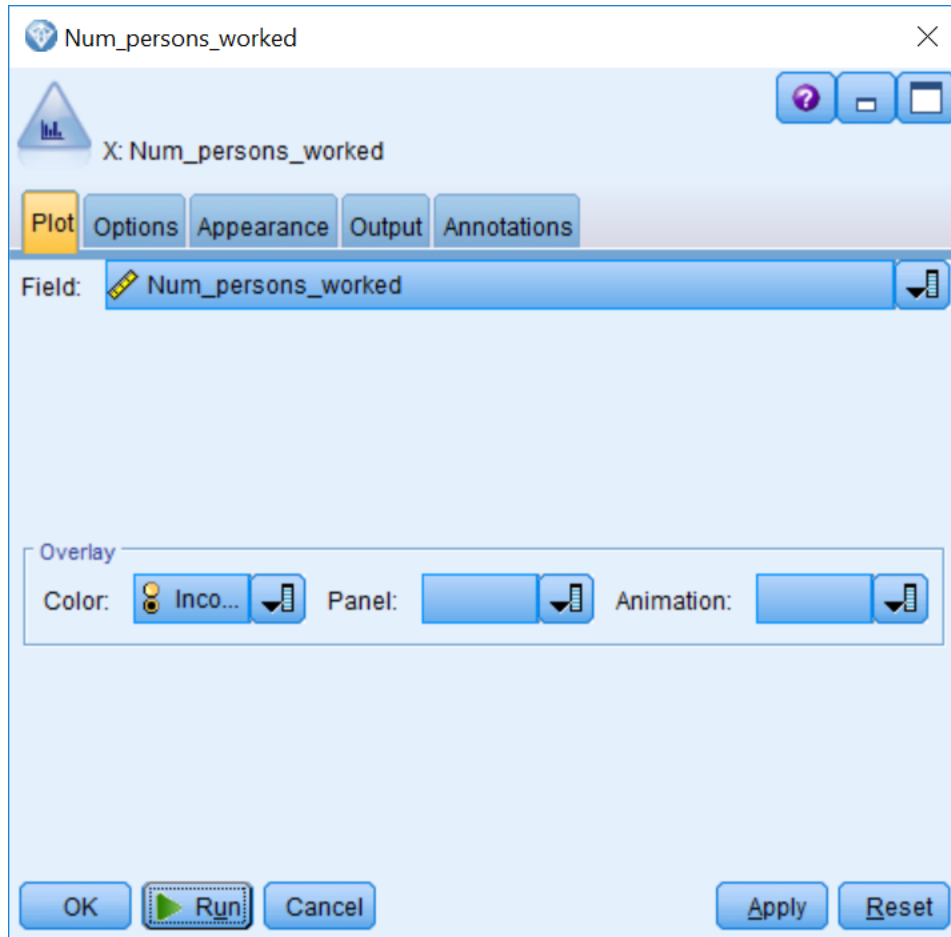
Field: Num_persons_worked

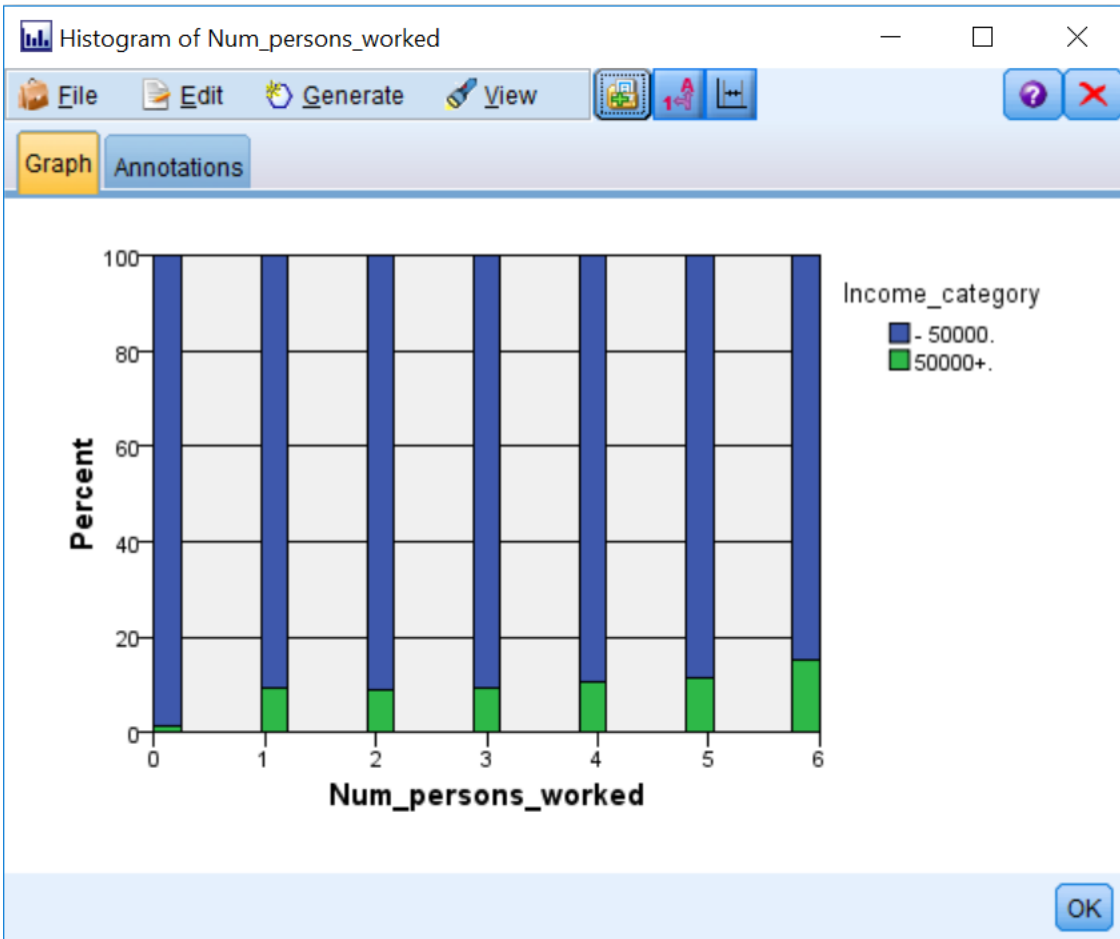
Overlay

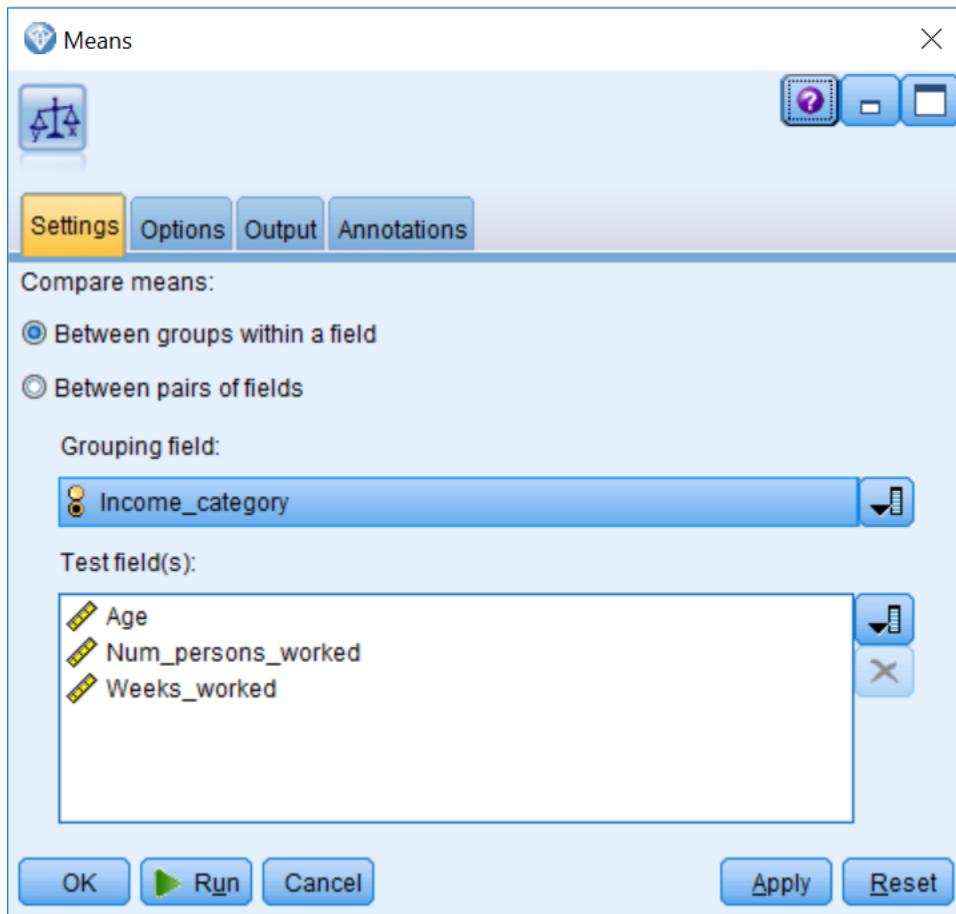
Color: Panel: Animation:

OK Run Cancel Apply Reset









Means of [Income_category][Age Num_persons_worked Weeks...]

File Edit

Means Annotations

Sort by: Field View: Simple

Grouping field: Income_category

*Cells contain: Mean

Field	- 50000.*	50000+.*	Importance
Age	44.539	46.271	1.000 ★ Important
Num_persons_worked	2.521	4.004	1.000 ★ Important
Weeks_worked	30.197	48.071	1.000 ★ Important

OK

Means of [Income_category][Age Num_persons_worked Weeks...]

File Edit

Means Annotations

Sort by: Field View: Advanc...

Grouping field: Income_category

*Cells contain: Mean, Standard Deviation, Standard Error, Count

Field	- 50000.*	50000+.*	F-Test	df	Importance
Age	44.539	46.271	109.045	1, 143529	1.000
	18.095	11.826			★ Important
	0.050	0.106			
	131151	12380			
Num_persons_worked	2.521	4.004	4457.148	1, 143529	1.000
	2.385	2.118			★ Important
	0.007	0.019			
	131151	12380			
Weeks_worked	30.197	48.071	6875.814	1, 143529	1.000
	23.686	12.258			★ Important
	0.065	0.110			
	131151	12380			

OK

Age v. Num_persons_worked

X: Age Y: Num_persons_worked

Plot Options Appearance Output Annotations

X field: Age Y field: Num_persons_w...

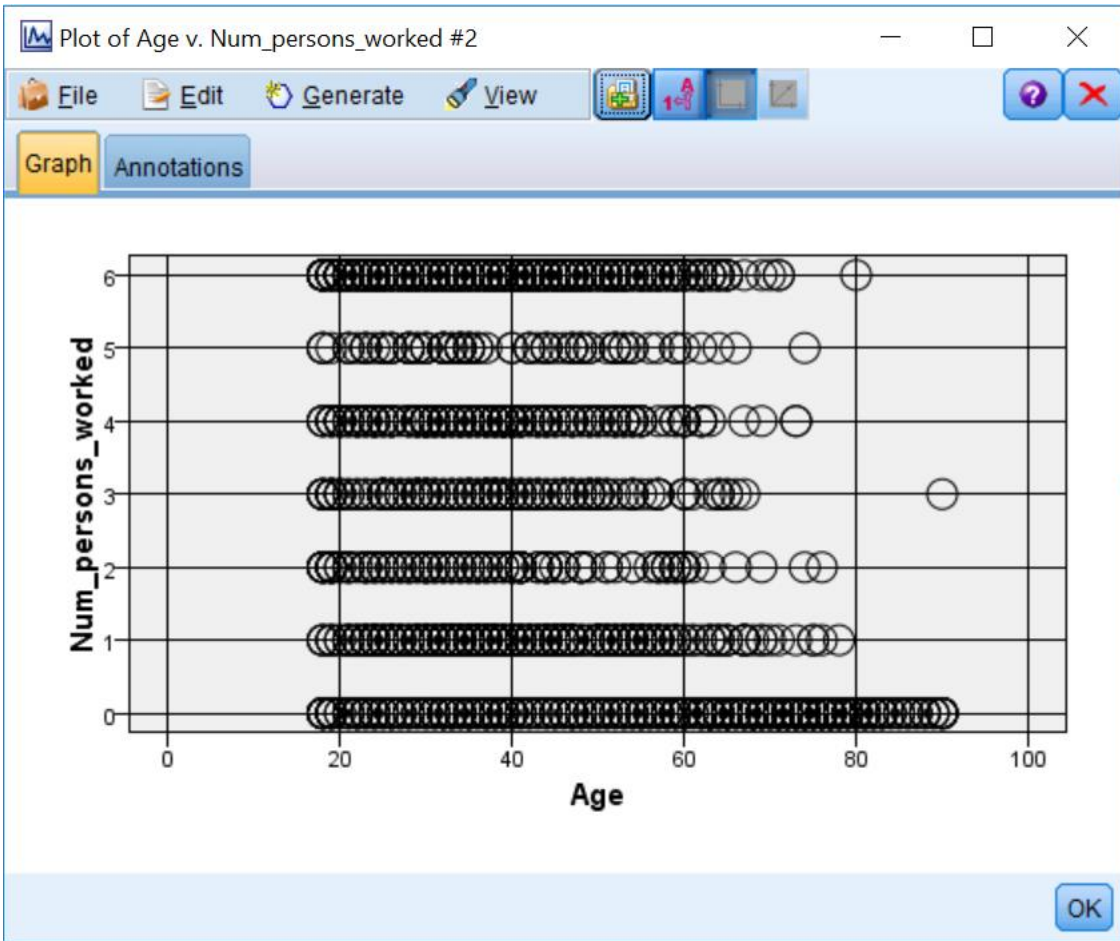
Overlay

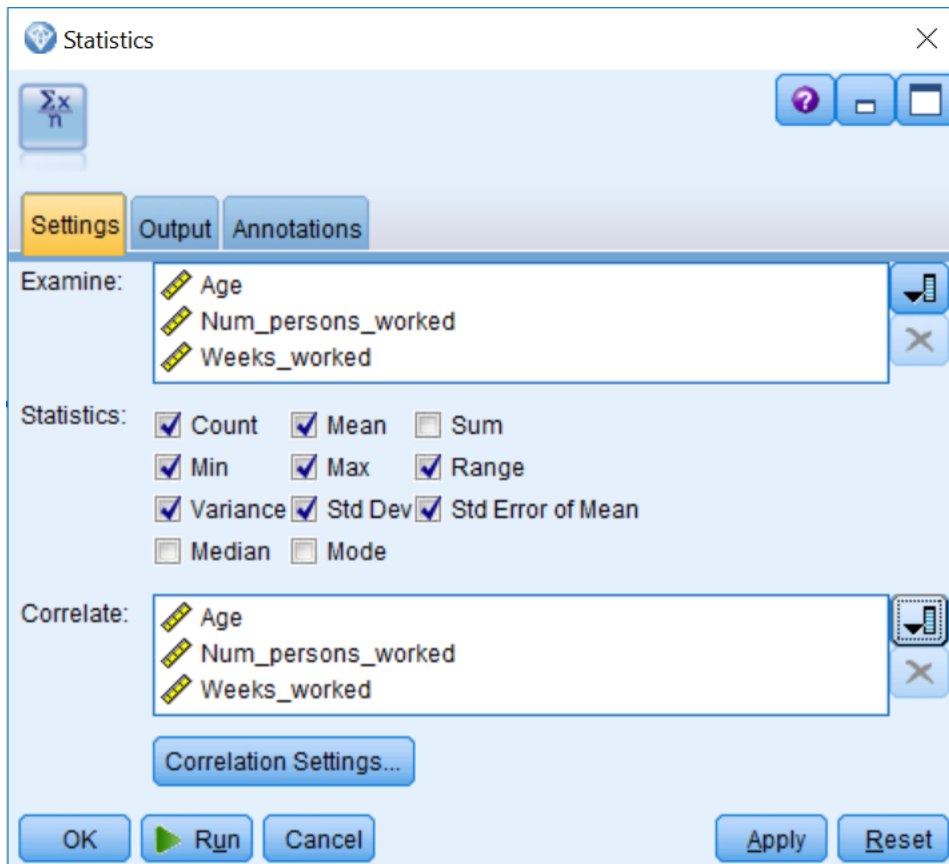
Color: Size: Shape:

Panel: Animation: Transparency:

Overlay type: None Smoother Function y =

OK Run Cancel Apply Reset





Statistics of [Age Num_persons_worked Weeks_worked]...

File Edit Generate

Statistics Annotations

Collapse All Expand All

- Age
 - Statistics

Count	143531
Mean	44.688
Min	18
Max	90
Range	72
Variance	311.487
Standard Deviation	17.649
Standard Error of Mean	0.047
 - Pearson Correlations

Num_persons_worked	-0.363	Strong
Weeks_worked	-0.383	Strong
- Num_persons_worked
 - Statistics

Count	143531
Mean	2.648
Min	0
Max	6
Range	6
Variance	5.757
Standard Deviation	2.399
Standard Error of Mean	0.006
 - Pearson Correlations

Age	-0.363	Strong
Weeks_worked	0.664	Strong

OK

Chapter 9: Introduction to Modeling Options in IBM SPSS Modeler





No Targets



No Targets



C5.0



No Targets



Decision List



Discriminant



No Targets



Random Trees



No Targets



SVM















KNN

Auto Numeric

Estimated number of models to be executed: 10

Fields Model **Expert** Settings Annotations

Select models: All models

Use?	Model type	Model parameters	No of models
<input checked="" type="checkbox"/>	 Regression	Default	1
<input checked="" type="checkbox"/>	 Generalize...	Default	1
<input type="checkbox"/>	 KNN Algor...	Default	1
<input checked="" type="checkbox"/>	 Linear-AS	Default	1
<input checked="" type="checkbox"/>	 LSVM	Default	1
<input checked="" type="checkbox"/>	 Random Tr...	Default	1
<input type="checkbox"/>	 SVM	Default	1
<input checked="" type="checkbox"/>	 Tree-AS	Default	1
<input checked="" type="checkbox"/>	 Linear	Default	1
<input checked="" type="checkbox"/>	 CHAID	Default	1
<input checked="" type="checkbox"/>	 C&R Tree	Default	1
<input checked="" type="checkbox"/>	 Neural Net	Default	1

Restrict maximum time spent build... 15 minutes

Stopping rules...

OK Run Cancel Apply Reset

Navigation tabs: Favorites, Sources, Record Ops, Field Ops

Category list: All, Analytic Server, Classification, Association, Segmentation

Selected category: Association

Algorithms: Apriori, Carma, Sequence, Association Rules

Server: Local Server

Navigation tabs: Favorites, Sources, Record Ops, Field Ops

Category list: All, Analytic Server, Classification, Association, Segmentation

Selected category: Segmentation

Algorithms: K-Means, Kohonen, TwoStep, TwoStep-AS, Anomaly

Server: Local Server

Chapter 10: Decision Tree Models

Income_category

Node 0		
Category	%	n
- 50000.	91.394	45865
50000+.	8.606	4319
Total	100.000	50184

Root

Educated_fulltime

Adj. P-value=0.000, Chi-square=6439.579, df=1

No

Yes

Node 1		
Category	%	n
- 50000.	95.298	41549
50000+.	4.702	2050
Total	86.878	43599

Node 2		
Category	%	n
- 50000.	65.543	4316
50000+.	34.457	2269
Total	13.122	6585

Terminal

Investment

Adj. P-value=0.000, Chi-square=598.639, df=1

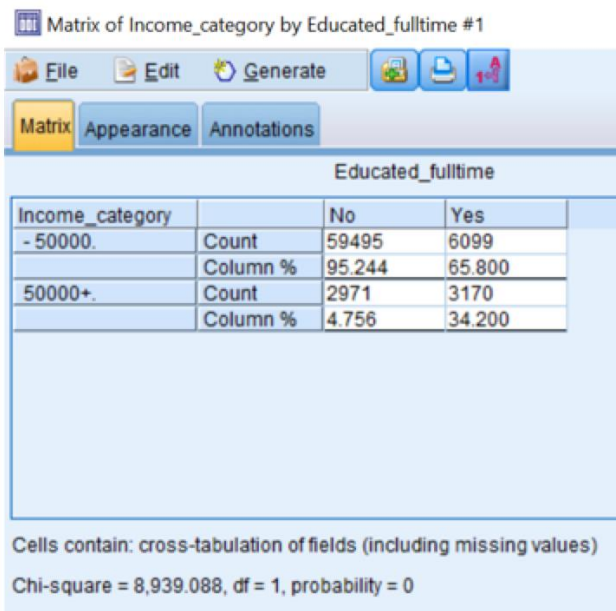
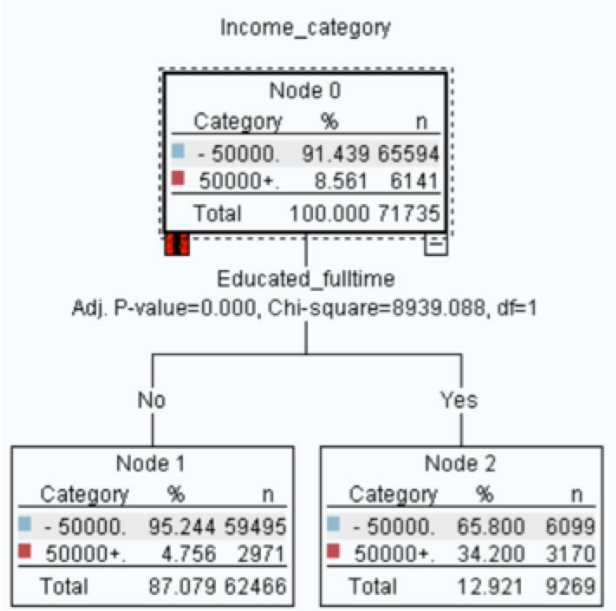
F

Terminal

T

Node 11		
Category	%	n
- 50000.	77.688	2977
50000+.	22.312	855
Total	7.636	3832

Node 12		
Category	%	n
- 50000.	48.638	1339
50000+.	51.362	1414
Total	5.486	2753



Partition

Generate Preview

Settings Annotations

Partition field: Partition

Partitions: Train and test Train, test and validation

Training partition size:	50	Label: Training	Value = "1_Training"
Testing partition size:	50	Label: Testing	Value = "2_Testing"
Validation partition size:	0	Label: Validation	Value = "3_Validation"

Total size: 100%

Values: Use system-defined values ("1", "2" and "3")
 Append labels to system-defined values
 Use labels as values

Repeatable partition assignment

Seed: 1234567 Generate

Use unique field to assign partitions:

OK Cancel Apply Reset



Objective: Standard model

- Fields
- Build Options
- Model Options
- Annotations

- Use predefined roles
- Use custom field assignments

Fields:

Sort: None

- Education
- Year
- Hour_wage
- Capital_gains
- Capital_losses
- Dividends
- Industry_code
- Occupation_code
- Stock_numbers

Buttons: All, [icon], [icon], [icon]



Targets*:

Income_category

Predictors (Inputs)*:

- Age
- Enrolled_school
- Marital_status
- Race
- Hispanic_origin
- Sex
- Region
- State
- Household_status
- Household_summary



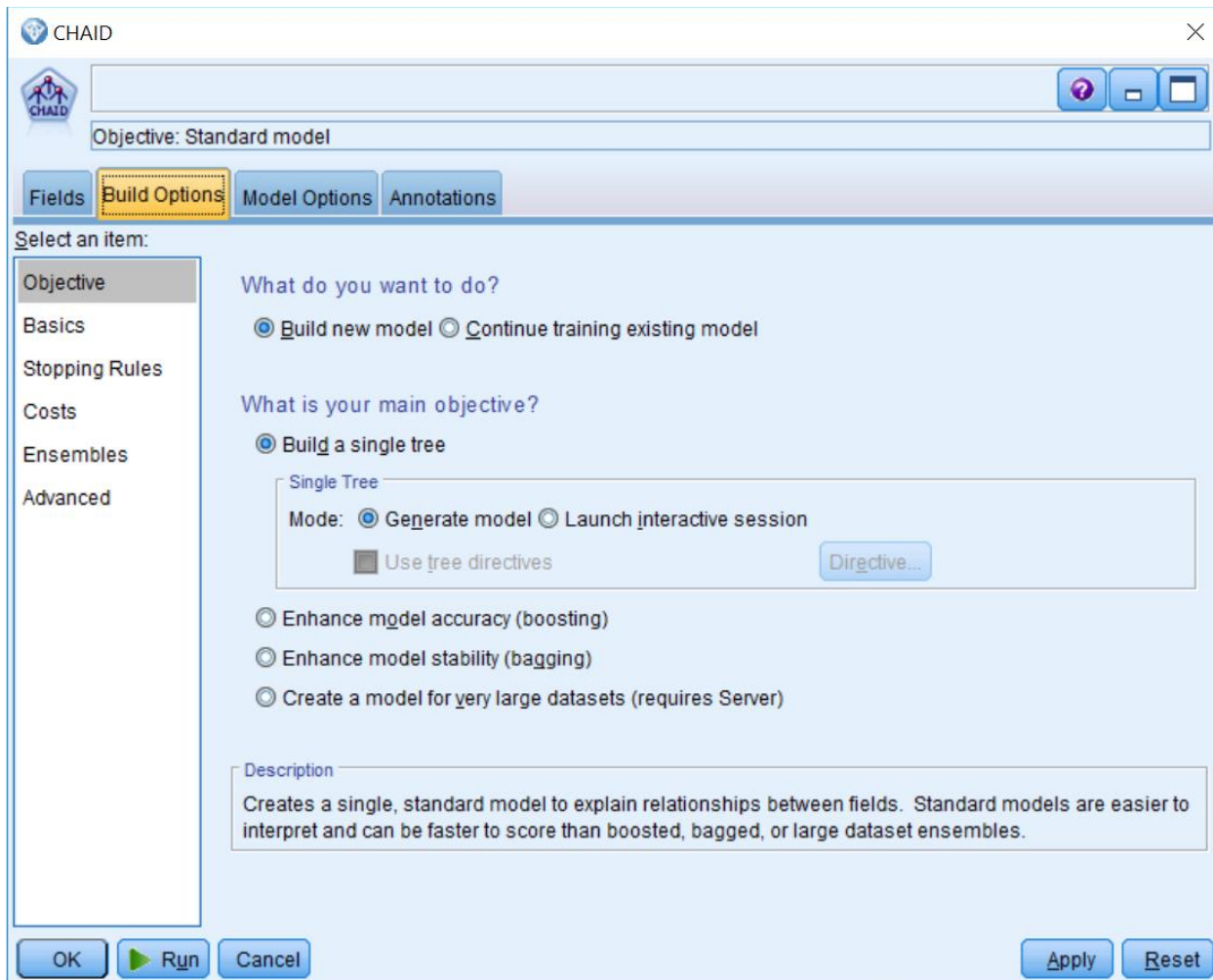
Analysis Weight:

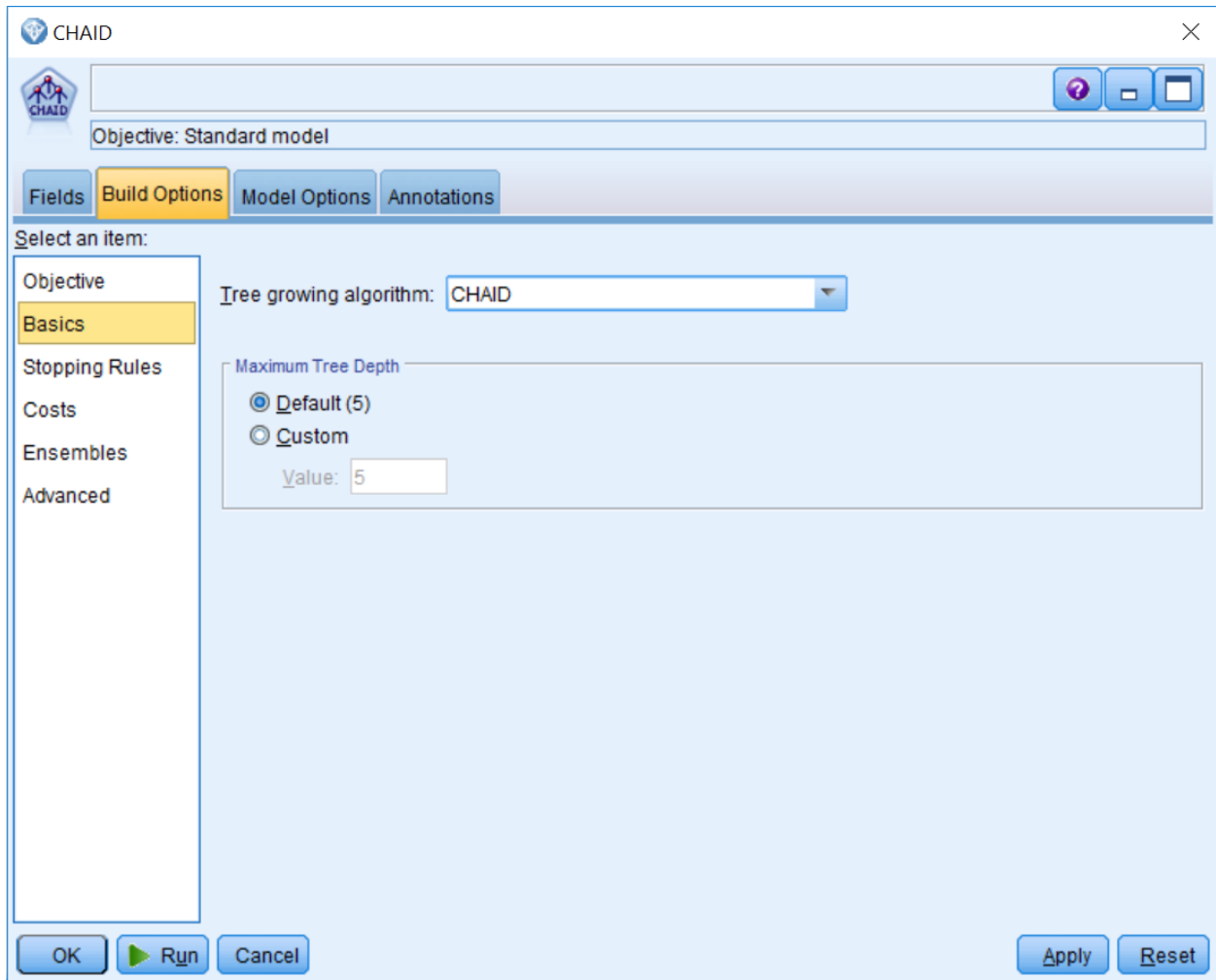
[input field] [icon] [icon] [icon] [icon] [icon]



- OK
- Run
- Cancel

- Apply
- Reset





CHAID

Objective: Standard model

Fields Build Options Model Options Annotations

Select an item:

- Objective
- Basics
- Stopping Rules
- Costs
- Ensembles
- Advanced

Use percentage

Minimum records in parent branch(%):

Minimum records in child branch(%):

Use absolute value

Minimum records in parent branch:

Minimum records in child branch:

OK Run Cancel Apply Reset

Income_category

Objective: Standard model

Fields Build Options Model Options Annotations

Select an item:

- Objective
- Basics
- Stopping Rules
- Costs
- Ensembles
- Advanced

Misclassification Costs

Use misclassification costs

Predicted

	- 50000.	50000+.	
Actual	- 50000.	50000+.	
	0.0	1.0	
	1.0	0.0	

OK Run Cancel Apply Reset

CHAID

Objective: Standard model

Fields Build Options Model Options Annotations

Select an item:

- Objective
- Basics
- Stopping Rules
- Costs
- Ensembles**
- Advanced

i These settings determine the behavior ensembling that occurs when bagging, boosting, or very large datasets are requested in Objectives. Options that do not apply are ignored.

Bagging and Very Large Datasets

Default combining rule for categorical targets: Voting

Default combining rule for continuous targets: Mean

Boosting and Bagging

Number of component models for boosting or bagging: 10

OK Run Cancel Apply Reset

CHAID

Objective: Standard model

Fields Build Options Model Options Annotations

Select an item:

- Objective
- Basics
- Stopping Rules
- Costs
- Ensembles
- Advanced

Splitting and Merging

Significance level for splitting: 0.05

Significance level for merging: 0.05

Adjust significance values using Bonferroni method

Allow resplitting of merged categories within a node

Chi-Square for categorical targets: Pearson Likelihood ratio

Minimum change in expected cell frequencies: 0.001

Maximum iterations for convergence: 100

Overfit prevention set(%): 30.0

Replicate results

Generate

Random seed: 701499504

OK Run Cancel Apply Reset

CHAID

Objective: Standard model

Fields Build Options **Model Options** Annotations

Model name: Auto Custom

Model Evaluation

Calculate predictor importance

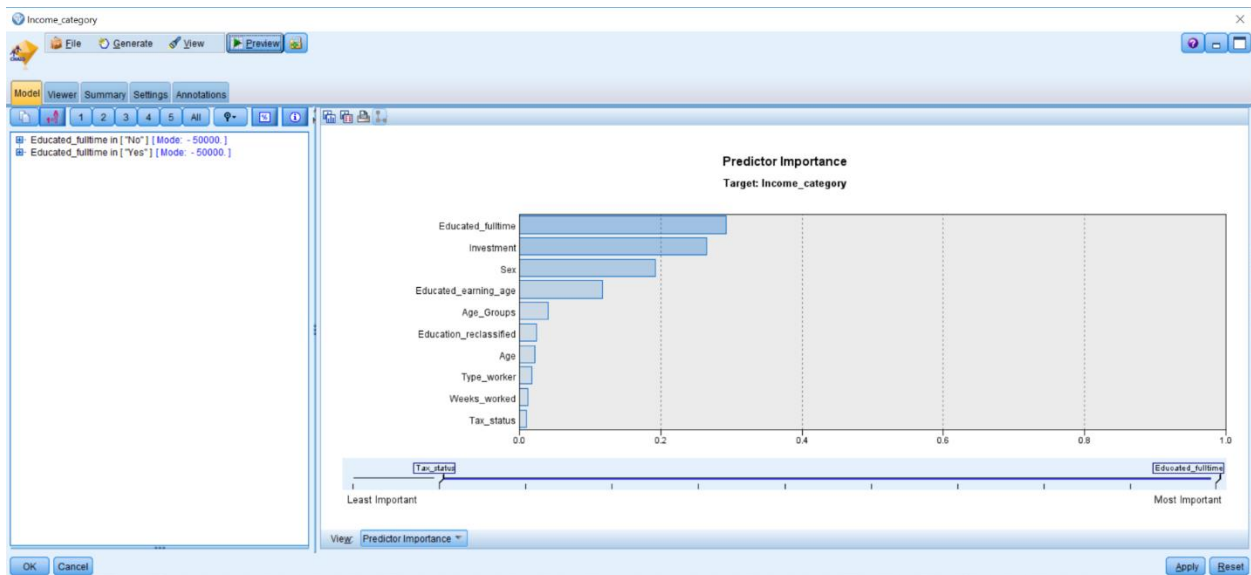
Propensity Scores (valid only for flag targets)

Calculate raw propensity scores

Calculate adjusted propensity scores

Based on: Testing partition Validation partition

OK Run Cancel Apply Reset



- [-] Educated_fulltime in ["No"] [Mode: - 50000.] (62,466)
- [-] Investment in ["F"] [Mode: - 50000.] (51,837)
 - [-] Type_worker in ["Federal government" "Self-employed-incorporated"] [Mode: - 50000.] (1,538)
 - Sex in ["Female"] [Mode: - 50000.] ⇒ - 50000. (723; 0.959)
 - Sex in ["Male"] [Mode: - 50000.] ⇒ - 50000. (815; 0.821)
 - [-] Type_worker in ["Local government" "Self-employed-not incorporated"] [Mode: - 50000.] (4,849)
 - Sex in ["Female"] [Mode: - 50000.] ⇒ - 50000. (2,426; 0.984)
 - [-] Sex in ["Male"] [Mode: - 50000.] (2,423)
 - Education_reclassified in ["No high school degree" "High school degree"] [Mode: - 50000.] ⇒ - 50000. (1,403; 0.943)
 - Education_reclassified in ["Some college" "Bachelors degree" "Advanced degree"] [Mode: - 50000.] ⇒ - 50000. (1,020; 0.888)
 - [-] Type_worker in ["Never worked" "Not applicable" "Without pay"] [Mode: - 50000.] (19,683)
 - [-] Education_reclassified in ["No high school degree"] [Mode: - 50000.] (7,559)
 - Tax_status in ["Head of household" "Joint both under 65" "Nonfiler"] [Mode: - 50000.] ⇒ - 50000. (5,766; 1.0)
 - Tax_status in ["Joint both 65+" "Joint one under 65 & one 65+" "Single"] [Mode: - 50000.] ⇒ - 50000. (1,793; 0.997)
 - [-] Education_reclassified in ["Some college" "High school degree"] [Mode: - 50000.] (10,590)
 - Sex in ["Female"] [Mode: - 50000.] ⇒ - 50000. (7,362; 0.997)
 - Sex in ["Male"] [Mode: - 50000.] ⇒ - 50000. (3,228; 0.983)
 - [-] Education_reclassified in ["Bachelors degree" "Advanced degree"] [Mode: - 50000.] (1,534)
 - Household_summary in ["Child 18 or older" "Group Quarters- Secondary ind" "Nonrelative of householder" "Other relative of householder"] [Mode: - 50000.] ⇒ - 50000. (741; 0.96)
 - Household_summary in ["Householder"] [Mode: - 50000.] ⇒ - 50000. (741; 0.96)
 - [-] Type_worker in ["Private" "State government"] [Mode: - 50000.] (25,767)
 - [-] Sex in ["Female"] [Mode: - 50000.] (12,960)
 - Education_reclassified in ["No high school degree" "High school degree"] [Mode: - 50000.] ⇒ - 50000. (7,486; 0.994)
 - Education_reclassified in ["Some college" "Bachelors degree" "Advanced degree"] [Mode: - 50000.] ⇒ - 50000. (5,474; 0.976)
 - [-] Sex in ["Male"] [Mode: - 50000.] (12,807)
 - Age <= 23 [Mode: - 50000.] ⇒ - 50000. (2,286; 0.994)
 - Age > 23 and Age <= 28 [Mode: - 50000.] ⇒ - 50000. (1,994; 0.983)
 - Age > 28 and Age <= 32 [Mode: - 50000.] ⇒ - 50000. (1,571; 0.961)
 - Age > 32 and Age <= 41 [Mode: - 50000.] ⇒ - 50000. (3,057; 0.935)

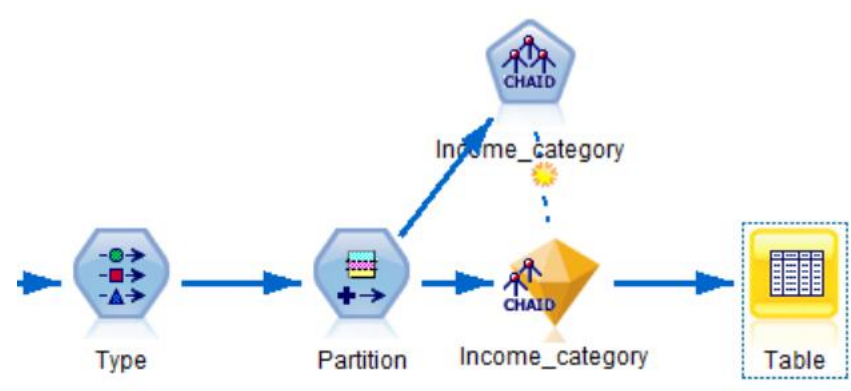
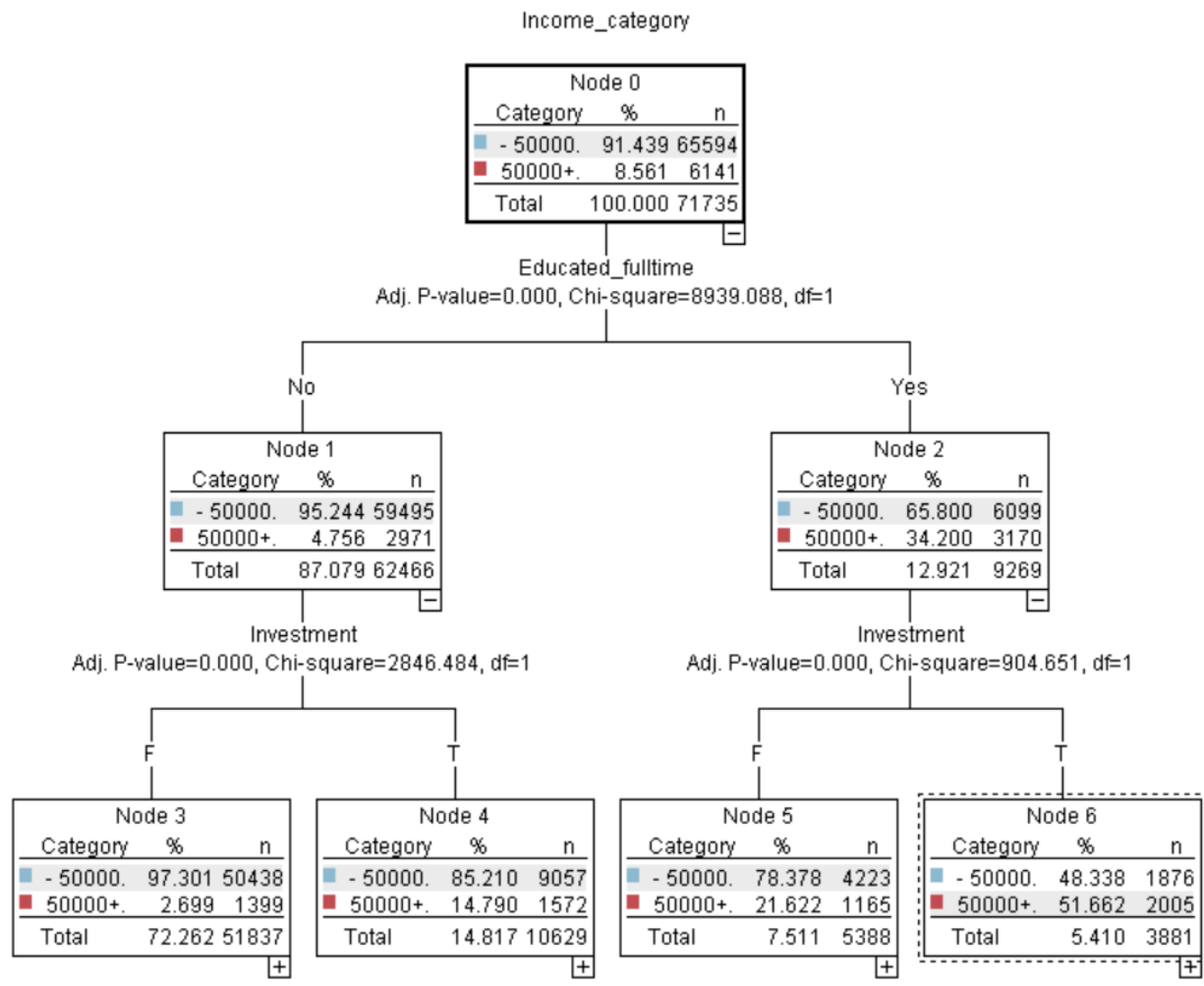


Table (53 fields, 143,531 records)

File Edit Generate





Table Annotations

	umbers	Investment	Employed	Age_Groups	Educated_fulltime	Educated_earning_age	Partition	\$R-Income_category	\$RC-Income_category
1		0 F	F	Retired	No	No	1_Training	-50000.	0.997
2		0 F	T	Fifties	No	No	1_Training	-50000.	0.887
3		0 F	F	Young	No	No	2_Testing	-50000.	1.000
4		0 F	T	Forties	No	No	2_Testing	-50000.	0.976
5	5178	T	T	Forties	Yes	Yes	1_Training	50000+.	0.621
6		0 F	T	Young	No	No	1_Training	-50000.	0.994
7		0 F	T	Forties	No	No	2_Testing	-50000.	0.984
8		0 F	T	Thirties	No	No	1_Training	-50000.	0.935
9		0 F	F	Thirties	No	No	1_Training	-50000.	0.997
10		0 F	T	Fifties	No	No	1_Training	-50000.	0.902
11	1590	T	T	Forties	No	No	2_Testing	-50000.	0.876
12		0 F	T	Young	Yes	No	2_Testing	-50000.	0.954
13		0 F	T	Forties	Yes	Yes	2_Testing	-50000.	0.669
14		0 F	F	Thirties	No	No	1_Training	-50000.	1.000
15	6000	T	T	Thirties	No	No	2_Testing	-50000.	0.782
16		0 F	T	Young	No	No	2_Testing	-50000.	0.887
17		0 F	T	Fifties	No	No	1_Training	-50000.	0.976
18	2077	T	T	Forties	Yes	Yes	1_Training	50000+.	0.767
19		0 F	F	Fifties	No	No	2_Testing	-50000.	0.997
20		0 F	T	Thirties	No	No	1_Training	-50000.	0.935

OK

Chapter 11: Model Assessment and Scoring

Analysis ×

 Analyze \$R-Income_category   

Analysis Output Annotations

Coincidence matrices (for symbolic targets)

Performance evaluation

Evaluation metric (AUC & Gini, binary classifiers only)

Confidence figures (if available)

Threshold for: % correct

Improve accuracy: fold

Find predicted/predictor fields using:



Model output field metadata


Field name format (for example, "\$<x>-<target field>")

Separate by partition

User defined analysis Define User Measure...

Break down analysis by fields:

OK  Run Cancel Apply Reset

Analysis of [Income_category]

File Edit ? X

Analysis Annotations

Collapse All Expand All

Results for output field Income_category

Comparing \$R-Income_category with Income_category

'Partition'	1_Training		2_Testing	
Correct	66,295	92.42%	66,248	92.27%
Wrong	5,440	7.58%	5,548	7.73%
Total	71,735		71,796	

Coincidence Matrix for \$R-Income_category (rows show actuals)

'Partition' = 1_Training		- 50000.	50000+.
- 50000.		65,014	580
50000+.		4,860	1,281
'Partition' = 2_Testing		- 50000.	50000+.
- 50000.		64,929	628
50000+.		4,920	1,319

OK

Income_category

File Generate View Preview

Model Viewer Summary Settings Annotations

1 2 3 4 5 6 7 8 All

Educated_fulltime in ["No"] [Mode: -50000 | (62,466)]

- Investment in ["F"] [Mode: -50000 | (51,837)]
 - Type_worker in ["Federal government"] [Mode: -50000 | (828)]
 - Sex in ["Female"] [Mode: -50000 | (458, 0, 953)]
 - Education_reclassified in ["No high school degree" "Bachelors"] [Mode: -50000 | (370)]
 - Education_reclassified in ["Some college"] [Mode: -50000 | (2,426)]
- Type_worker in ["Local government" "Self-employed-not incorporated"] [Mode: -50000 | (2,426)]
 - Sex in ["Female"] [Mode: -50000 | (2,426)]
 - Education_reclassified in ["No high school degree" "Some college"] [Mode: -50000 | (1,070)]
 - Educated_earning_age in ["No"] [Mode: -50000 | (1,235)]
 - Educated_earning_age in ["Yes"] [Mode: -50000 | (1,235)]
 - Weeks_worked > 51 [Mode: -50000 | (1,235)]
 - Education_reclassified in ["Advanced degree"] [Mode: -50000 | (2,423)]
- Sex in ["Male"] [Mode: -50000 | (2,423)]
 - Education_reclassified in ["No high school degree" "High school degree"] [Mode: -50000 | (183)]
 - Weeks_worked > 30 [Mode: -50000 | (1,221)]
 - Education_reclassified in ["Some college" "Bachelors degree"] [Mode: -50000 | (2,423)]
 - Tax_status in ["Head of household" "Joint both 65+" "Nonfile"] [Mode: -50000 | (442, 0, 887)]
 - Tax_status in ["Joint both under 65" "Joint one under 65" "None"] [Mode: -50000 | (442, 0, 887)]
 - Age > 45 [Mode: -50000 | (221, 0, 801)]
 - Type_worker in ["Never worked" "Not applicable" "Without pay"] [Mode: -50000 | (2,423)]
 - Education_reclassified in ["No high school degree"] [Mode: -50000 | (2,423)]
 - Tax_status in ["Head of household" "Joint both under 65" "None"] [Mode: -50000 | (442, 0, 887)]
 - Citizenship in ["Foreign born-Not a citizen of U.S" "Native-Born"] [Mode: -50000 | (442, 0, 887)]
 - Citizenship in ["Foreign born-U.S citizen by naturalization"] [Mode: -50000 | (442, 0, 887)]

Predictor Importance

Target: Income_category

Least Important Most Important

View: Predictor Importance

OK Cancel Apply Reset

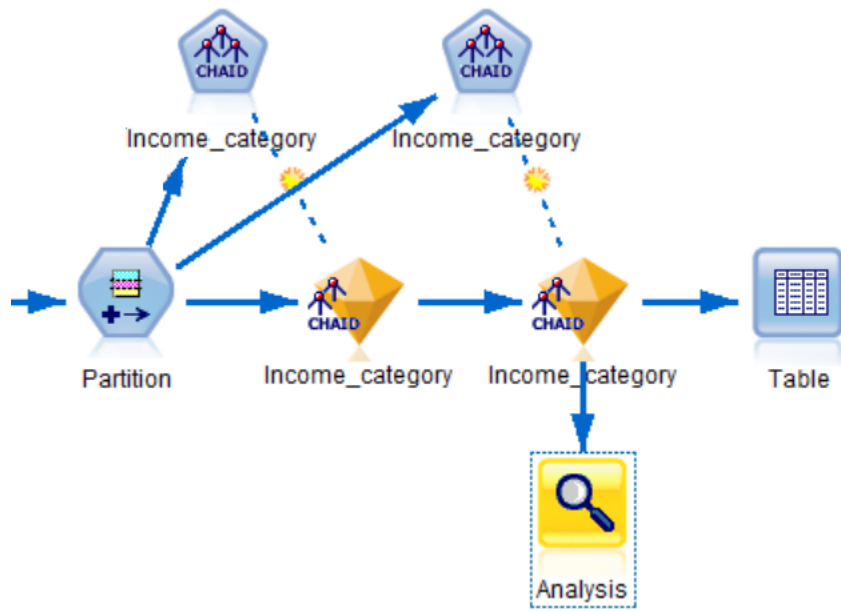


Table (55 fields, 143,531 records)

File Edit Generate

Table Annotations

	educated_fulltime	Educated_earning_age	Partition	\$R-Income_category	\$RC-Income_category	\$R1-Income_category	\$RC1-Income_category
1	o	No	1_Training	- 50000.	0.997	- 50000.	0.999
2	o	No	1_Training	- 50000.	0.887	- 50000.	0.942
3	o	No	2_Testing	- 50000.	1.000	- 50000.	1.000
4	o	No	2_Testing	- 50000.	0.976	- 50000.	0.961
5	s	Yes	1_Training	50000+.	0.621	50000+.	0.652
6	o	No	1_Training	- 50000.	0.994	- 50000.	0.994
7	o	No	2_Testing	- 50000.	0.984	- 50000.	0.980
8	o	No	1_Training	- 50000.	0.935	- 50000.	0.849
9	o	No	1_Training	- 50000.	0.997	- 50000.	0.999
10	o	No	1_Training	- 50000.	0.902	- 50000.	0.808
11	o	No	2_Testing	- 50000.	0.876	- 50000.	0.828
12	s	No	2_Testing	- 50000.	0.954	- 50000.	0.972
13	s	Yes	2_Testing	- 50000.	0.669	- 50000.	0.863
14	o	No	1_Training	- 50000.	1.000	- 50000.	1.000
15	o	No	2_Testing	- 50000.	0.782	- 50000.	0.864
16	o	No	2_Testing	- 50000.	0.887	- 50000.	0.885
17	o	No	1_Training	- 50000.	0.976	- 50000.	0.961
18	s	Yes	1_Training	50000+.	0.767	50000+.	0.725
19	o	No	2_Testing	- 50000.	0.997	- 50000.	0.999
20	o	No	1_Training	- 50000.	0.935	- 50000.	0.849

1

OK

Analysis of [Income_category] #1

File Edit

Analysis Annotations

Collapse All Expand All

Results for output field Income_category

- Individual Models
 - Comparing \$R-Income_category with Income_category

'Partition'	1_Training		2_Testing	
Correct	66,295	92.42%	66,248	92.27%
Wrong	5,440	7.58%	5,548	7.73%
Total	71,735		71,796	
 - Coincidence Matrix for \$R-Income_category (rows show actuals)

'Partition' = 1_Training	- 50000.	50000+.
- 50000.	65,014	580
50000+.	4,860	1,281
'Partition' = 2_Testing	- 50000.	50000+.
- 50000.	64,929	628
50000+.	4,920	1,319
 - Comparing \$R1-Income_category with Income_category

'Partition'	1_Training		2_Testing	
Correct	66,495	92.7%	66,368	92.44%
Wrong	5,240	7.3%	5,428	7.56%
Total	71,735		71,796	
 - Coincidence Matrix for \$R1-Income_category (rows show actuals)

'Partition' = 1_Training	- 50000.	50000+.
- 50000.	64,796	798
50000+.	4,442	1,699
'Partition' = 2_Testing	- 50000.	50000+.
- 50000.	64,691	866
50000+.	4,562	1,677

OK

Analysis of [Income_category] #1

File Edit

Analysis Annotations

Collapse All Expand All

Agreement between \$R-Income_category \$R1-Income_category

'Partition'	1_Training		2_Testing	
Agree	70,707	98.57%	70,816	98.64%
Disagree	1,028	1.43%	980	1.36%
Total	71,735		71,796	

Comparing Agreement with Income_category

'Partition'	1_Training		2_Testing	
Correct	65,881	93.17%	65,818	92.94%
Wrong	4,826	6.83%	4,998	7.06%
Total	70,707		70,816	

Coincidence Matrix for Agreement (rows show actuals)

'Partition' = 1_Training	- 50000.	50000+.
- 50000.	64,686	470
50000+.	4,356	1,195
'Partition' = 2_Testing	- 50000.	50000+.
- 50000.	64,584	521
50000+.	4,477	1,234

OK

[\$R-Income_category \$R1-Income_category] ×

Plot Options Appearance Output Annotations

Chart type: Gains

Cumulative plot Include baseline Include best line

Use profit criteria for all chart types

Models

Find predicted/predictor fields using:

Model output field metadata

Field name format (for example, '\$<x>-<target field>')

Other Score Fields

Plot score fields

Target:

Separate by partition

Plot: Percentiles

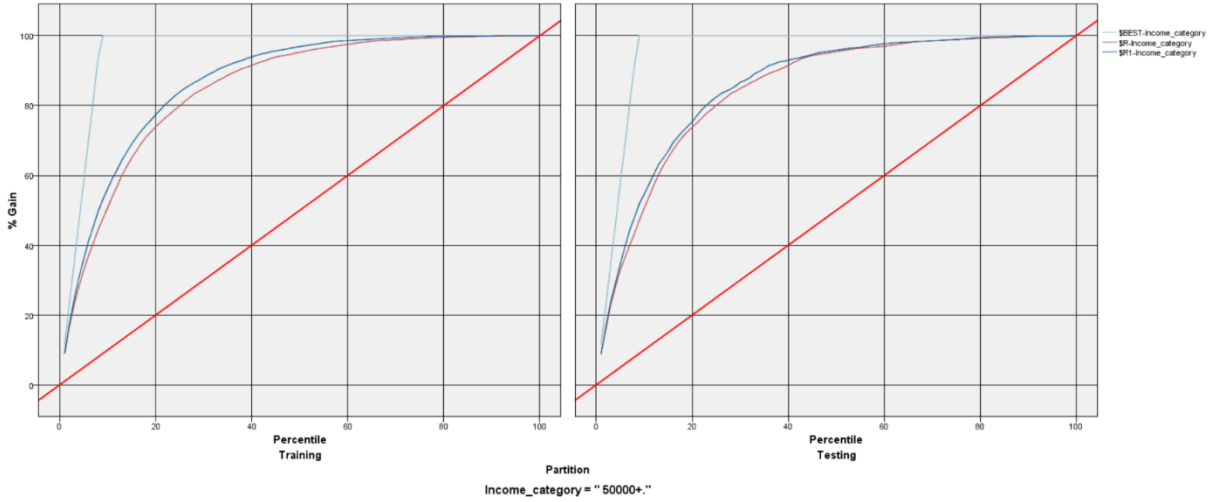
Style: Line Point

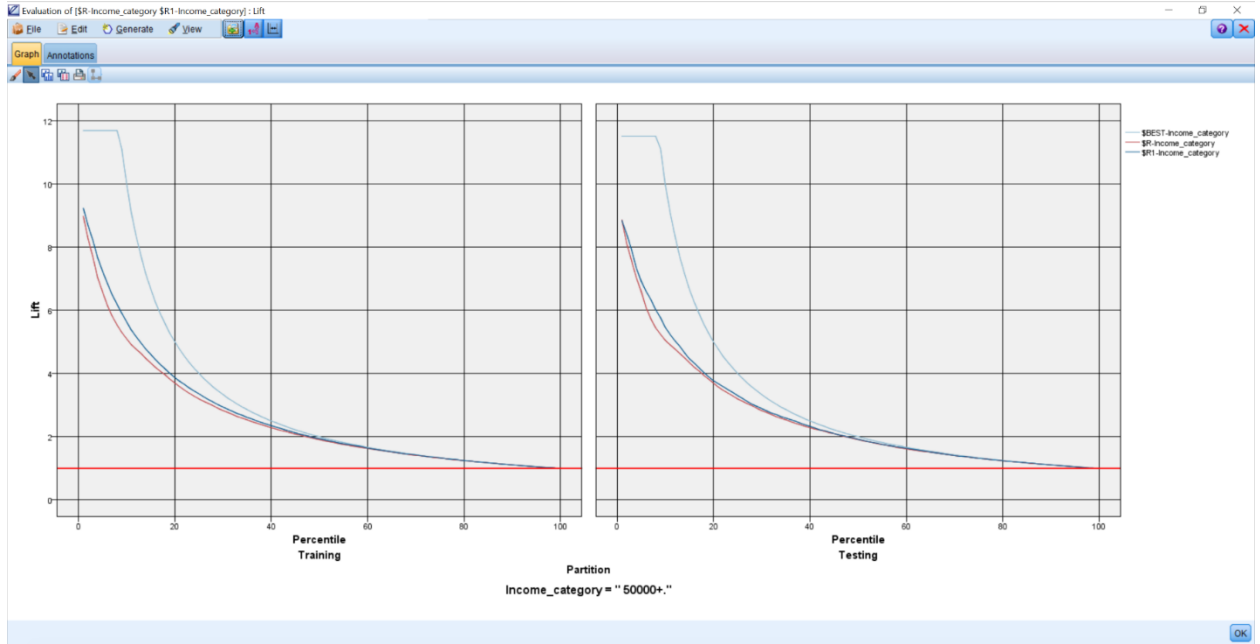
Costs: Fixed Variable

Revenue: Fixed Variable





Weight: Fixed Variable

OK Run Cancel Apply Reset






[SR-Income_category SR1-Income_category] ✕


   

Plot Options Appearance Output Annotations


User defined hit

Condition: 


User defined score


Expression: 

Include business rule


Condition: 

Export results to file

Filename: 

Delimiter: 

Include field names New line after each record



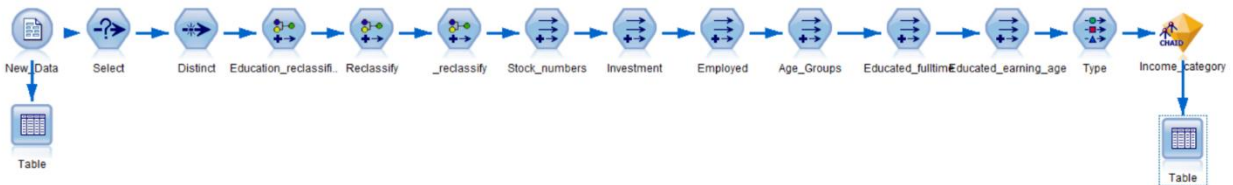
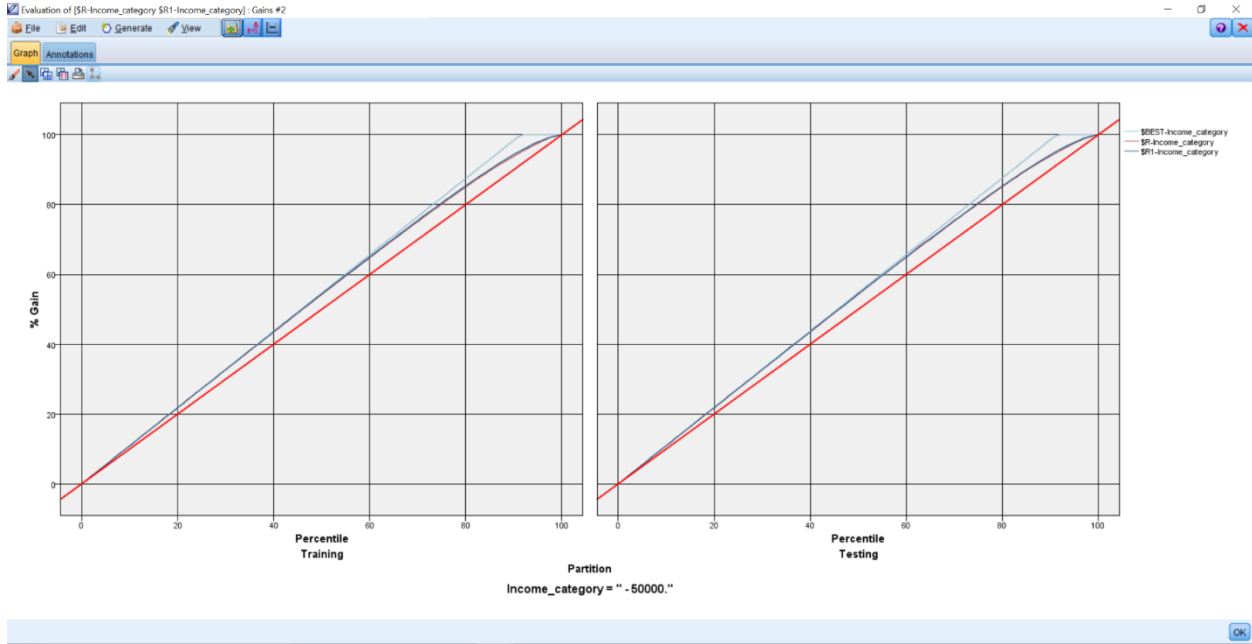


Table (39 fields, 1,535 records)

ID	Age	Education	Enrolled_school	Marital_status	Race	Hispanic_origin	Sex
1	1079	24 High school graduate	Not applicable	Married-civilian spouse present	Black	All other	Male
2	1093	85 High school graduate	Not applicable	Never married	White	All other	Female
3	1130	21 Some college but no degree	College or university	Never married	Asian or Pacific Islander	All other	Male
4	1357	46 High school graduate	Not applicable	Married-civilian spouse present	White	All other	Female
5	1847	57 Associates degree-academic program	Not applicable	Married-civilian spouse present	White	All other	Female
6	2194	33 Masters degree(MA MS MEng MEd MSW MBA)	Not applicable	Never married	White	All other	Female
7	2281	30 Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male
8	2300	83 Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male
9	2363	41 High school graduate	Not applicable	Divorced	White	All other	Male
10	2503	20 High school graduate	Not applicable	Married-A F spouse present	White	All other	Female
11	2678	41 High school graduate	Not applicable	Divorced	White	All other	Male
12	2869	29 Bachelors degree(BA AB BS)	Not applicable	Never married	White	All other	Male
13	2894	19 Some college but no degree	College or university	Never married	White	All other	Female
14	2933	38 Associates degree-occup Vocational	Not applicable	Married-civilian spouse present	White	All other	Male
15	2979	29 High school graduate	Not applicable	Married-civilian spouse present	White	All other	Female
16	3186	37 Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Male
17	3196	19 1st 2nd 3rd or 4th grade	High school	Never married	White	Central or Sout...	Female
18	3538	52 High school graduate	Not applicable	Divorced	White	All other	Female
19	3539	51 High school graduate	Not applicable	Married-spouse absent	Black	All other	Female
20	3591	68 Some college but no degree	Not applicable	Married-civilian spouse present	White	All other	Female

Table (51 fields, 1,535 records)

File Edit Generate

Table Annotations

	inty_self_reclassify	Stock_numbers	Investment	Employed	Age_Groups	Educated_fulltime	Educated_earning_age	\$R-Income_category	\$SRC-Income_category
1	ites		0 F	T	Young	No	No	- 50000.	0.999
2			0 F	F	Retired	No	No	- 50000.	0.979
3			0 F	F	Young	No	No	- 50000.	0.985
4	ites		0 F	T	Forties	No	No	- 50000.	0.948
5	ites		0 F	T	Fifties	No	No	- 50000.	0.961
6	ites		0 F	T	Thirties	Yes	No	- 50000.	0.794
7			0 F	T	Thirties	No	No	- 50000.	0.902
8	ites		0 F	F	Retired	No	No	- 50000.	0.981
9	ites		0 F	T	Forties	No	No	- 50000.	0.984
10	ites		0 F	T	Young	No	No	- 50000.	0.994
11	ites	1590	T	T	Forties	No	No	- 50000.	0.829
12	ites		0 F	T	Young	No	No	- 50000.	0.963
13			0 F	T	Young	No	No	- 50000.	0.999
14	ites		0 F	T	Thirties	No	No	- 50000.	0.849
15	ites		0 F	F	Young	No	No	- 50000.	0.999
16	ites		0 F	T	Thirties	No	No	- 50000.	0.849
17			0 F	F	Young	No	No	- 50000.	1.000
18	ites	2205	T	T	Fifties	No	No	- 50000.	0.982
19	ites		0 F	T	Fifties	No	No	- 50000.	0.994
20	ites		0 F	F	Sixties	No	No	- 50000.	0.999

OK

Flat File

Export Publish Annotations

Export file: X:\Modeler Book\Predictions

Write mode: Overwrite Include field names
 Append

New line after each record

Field separator: Comma Tab Space
 Other:

Symbol quotes: None Single (') Double (")
 Other:

Encoding: Stream default Decimal symbol: Stream default

Generate an import node for this data

OK Run Cancel Apply Reset