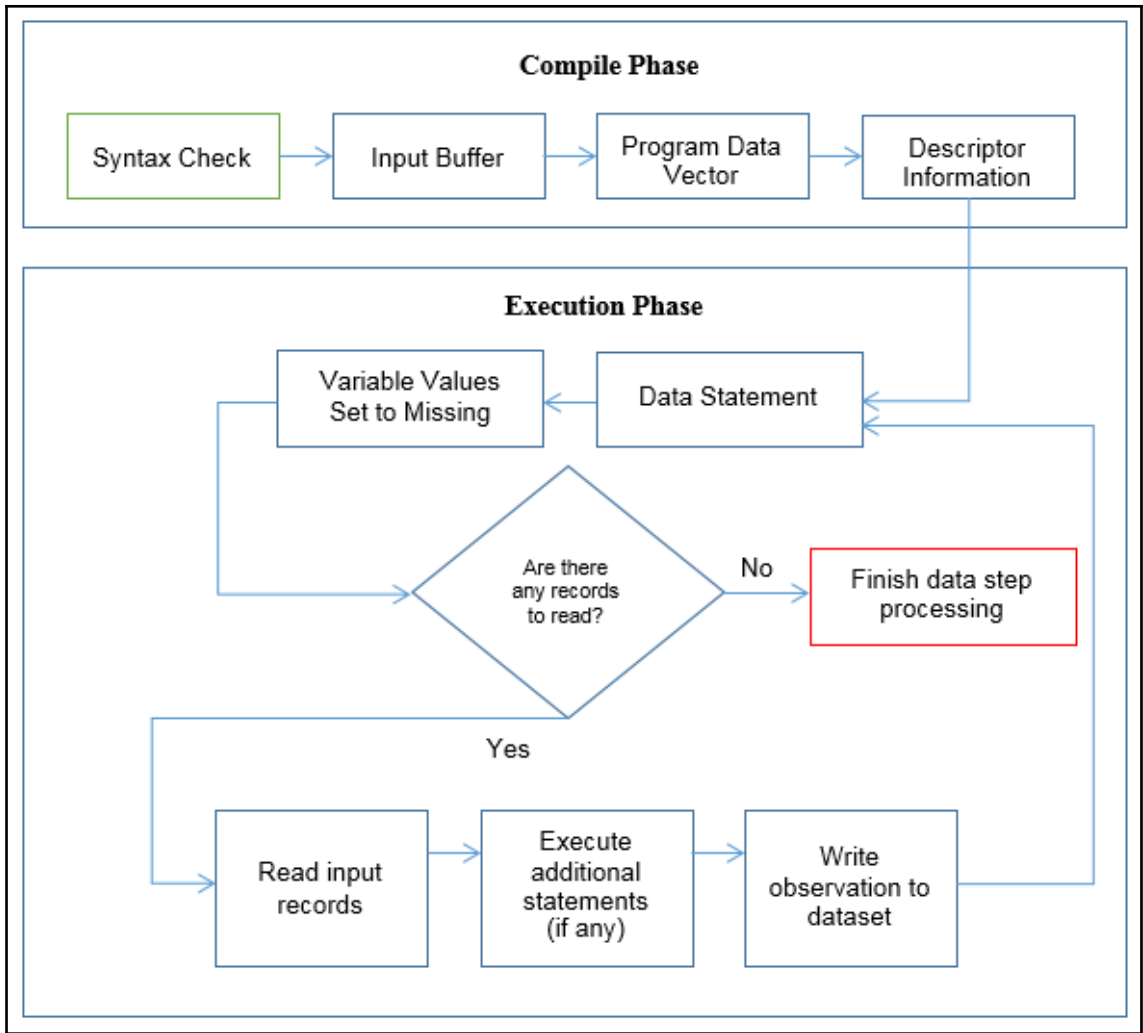


# Chapter 1: Introduction to SAS Programming

Cost of Living in Major Cities

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other
1	Adelaide	85	83	35	10	10	9	14	10	12
2	Beijing	90	92	40	10	15	10	18	5	2
3	Copenhagen	65	64	25	15	10	10	12	12	16
4	Doha	56	50	30	15	5	10	10	20	10
5	Dubai	75	76	30	16	14	10	20	8	2
6	Dublin	45	43	30	10	8	12	10	15	15
7	Hong Kong	83	88	45	5	10	15	15	9	1
8	Johannesburg	35	40	45	5	5	15	15	10	5
9	Manila	41	42	25	10	15	15	20	10	5
10	Moscow	48	53	40	20	5	5	10	10	10
11	Mumbai	83	85	40	10	15	15	10	9	1
12	Munich	65	64	35	10	10	10	10	10	15
13	New York	89	85	40	10	15	10	20	5	5
14	Oslo	60	58	25	15	5	5	15	20	15
15	Paris	70	70	30	10	5	10	10	20	15



```
1      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
72
73      DATA COST_LIVING;
74      Input City $12. Index Prev_yr_index Housing Food Travel Utility Education Leisure
75      Datalines
76      Adelaide      85 83 35 10 10 9 14 10 12
```

```
-----
22
76
```

ERROR 22-322: Syntax error, expecting one of the following: ;, CANCEL, PGM.

ERROR 76-322: Syntax error, statement will be ignored.

```
1      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
72
73      data;
74      input id;
75      datalines;
```

NOTE: The data set WORK.DATA1 has 2 observations and 1 variables.

NOTE: DATA statement used (Total process time):

```
real time      0.00 seconds
cpu time       0.00 seconds
```

```
1      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
72
73      DATA WORK.Air;
74      SET SASHELP.Air;
75      RUN;
```

NOTE: There were 144 observations read from the data set SASHELP.AIR.

NOTE: The data set WORK.AIR has 144 observations and 2 variables.

NOTE: DATA statement used (Total process time):

```
real time      0.00 seconds
cpu time       0.00 seconds
```

```
76
77
78
91
```

```
OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
```

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other	Updated
1	Adelaide	85	83	35	10	10	9	14	10	12	21185
2	Beijing	90	92	40	10	15	10	18	5	2	21185
3	Copenhagen	65	64	25	15	10	10	12	12	16	21216
4	Doha	56	50	30	15	5	10	10	20	10	21244
5	Dubai	75	76	30	16	14	10	20	8	2	21275

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other	Updated
1	Adelaide	85	83	35	10	10	9	14	10	12	01JAN2018
2	Beijing	90	92	40	10	15	10	18	5	2	01JAN2018
3	Copenhagen	65	64	25	15	10	10	12	12	16	01FEB2018
4	Doha	56	50	30	15	5	10	10	20	10	01MAR2018
5	Dubai	75	76	30	16	14	10	20	8	2	01APR2018

Obs	Index	City	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other	Updated
1	\$85.00	Adelaide	83	35	10	10	9	14	10	12	01JAN2018
2	\$90.00	Beijing	92	40	10	15	10	18	5	2	01JAN2018
3	\$65.00	Copenhagen	64	25	15	10	10	12	12	16	01FEB2018
4	\$56.00	Doha	50	30	15	5	10	10	20	10	01MAR2018
5	\$75.00	Dubai	76	30	16	14	10	20	8	2	01APR2018

Obs	Id_Char	Turnover	Turnover_w_Currency	Source_Mixed
1	0001	20,000	\$20,000	A1
2	0002	10,000	\$10,000	2

Obs	Id	Date_Time
1	1	1880269805.2
2	2	1911928810.4

Obs	Id	Date_Time	Orig_Date	Orig_Date_1	Orig_Date_2
1	1	1880269805.2	01AUG19:09:10:05	01AUG19	01AUG19:09
2	2	1911928810.4	01AUG20:19:20:10	01AUG20	01AUG20:19

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other	Updated
1	Manila	41	42	25	10	15	15	20	10	5	01JAN2019
2	Moscow	48	53	40	20	5	5	10	10	10	01JAN2019
3	Mumbai	83	85	40	10	15	15	10	9	1	01JAN2019
4	Munich	65	64	35	10	10	10	10	10	15	01JAN2019
5	New York	89	85	40	10	15	10	20	5	5	01JAN2019
6	Oslo	60	58	25	15	5	5	15	20	15	01JAN2019
7	Paris	70	70	30	10	5	10	10	20	15	01JAN2019
8	Seoul	73	75	30	10	10	10	15	15	10	01JAN2019
9	Singapore	75	74	35	15	10	10	20	5	5	01JAN2019
10	Tokyo	87	85	40	15	10	5	15	14	1	01JAN2019
11	Zurich	63	61	30	10	10	15	10	10	15	01JAN2019

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other	Updated
1	Mumbai	83	85	40	10	15	15	10	9	1	01JAN2019
2	New York	89	85	40	10	15	10	20	5	5	01JAN2019
3	Tokyo	87	85	40	15	10	5	15	14	1	01JAN2019

---

```
1      OPTIONS NONOTES NOSTIMER NOSOURCE NOSYNTAXCHECK;
72
73      Data Known_Components;
74      Set Cost_Living;
75      Known_Component_Index = Index-Other;
76      WHERE Known_Component_Index >= 80;
ERROR: Variable Known_Component_Index is not on file WORK.COST_LIVING.
77      Run;
```

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other	Updated
4	Doha	56	50	30	15	5	10	10	20	10	01MAR2018
5	Dubai	75	76	30	16	14	10	20	8	2	01APR2018

---

<b>Obs</b>	<b>City</b>	<b>Index</b>
<b>1</b>	Beijing	90
<b>2</b>	Dubai	75
<b>3</b>	Hong Kong	83
<b>4</b>	Johannesburg	35
<b>5</b>	Manila	41
<b>6</b>	Moscow	48
<b>7</b>	Mumbai	83
<b>8</b>	Seoul	73

Directory	
<b>Libref</b>	WORK
<b>Engine</b>	V9
<b>Physical Name</b>	/tmp/SAS_workB9470000093A_10.0.2.15/SAS_work421F0000093A_10.0.2.15
<b>Filename</b>	/tmp/SAS_workB9470000093A_10.0.2.15/SAS_work421F0000093A_10.0.2.15
<b>Inode Number</b>	671604
<b>Access Permission</b>	rwX-----
<b>Owner Name</b>	sasdemo
<b>File Size</b>	4KB
<b>File Size (bytes)</b>	4096

#	Name	Member Type	File Size	Last Modified
1	CONVERT	DATA	128KB	09/01/2019 07:55:54
2	CONVERT_DATETIME	DATA	128KB	09/01/2019 07:57:53
3	COST_LIVING	DATA	128KB	09/01/2019 08:08:23
4	DATETIME	DATA	128KB	09/01/2019 07:57:18
5	FORMAT	DATA	128KB	09/01/2019 07:52:33
6	KEEP_AND_DROP	DATA	128KB	09/01/2019 08:12:17
7	REGSTRY	ITEMSTOR	32KB	09/01/2019 07:41:34
8	SASGOPT	CATALOG	12KB	09/01/2019 07:41:35
9	SASMAC1	CATALOG	208KB	09/01/2019 07:41:34
10	SASMAC2	CATALOG	20KB	09/01/2019 07:41:34
11	SASMAC3	CATALOG	20KB	09/01/2019 07:41:34
12	SASMAC4	CATALOG	20KB	09/01/2019 08:13:31
13	SASMAC5	CATALOG	20KB	09/01/2019 07:41:34
14	SASMAC6	CATALOG	20KB	09/01/2019 07:41:34
15	SASMAC7	CATALOG	20KB	09/01/2019 07:41:34
16	SASMAC8	CATALOG	20KB	09/01/2019 07:41:34
17	SASMAC9	CATALOG	20KB	09/01/2019 07:41:34
18	SASMACR	CATALOG	20KB	09/01/2019 08:12:17
19	UPDATED_2019	DATA	128KB	09/01/2019 08:09:31



**The DATASETS Procedure**

<b>Data Set Name</b>	WORK.COST_LIVING	<b>Observations</b>	19
<b>Member Type</b>	DATA	<b>Variables</b>	11
<b>Engine</b>	V9	<b>Indexes</b>	0
<b>Created</b>	09/01/2019 09:08:23	<b>Observation Length</b>	96
<b>Last Modified</b>	09/01/2019 09:08:23	<b>Deleted Observations</b>	0
<b>Protection</b>		<b>Compressed</b>	NO
<b>Data Set Type</b>		<b>Sorted</b>	NO
<b>Label</b>			
<b>Data Representation</b>	SOLARIS_X86_64, LINUX_X86_64, ALPHA_TRU64, LINUX_IA64		
<b>Encoding</b>	utf-8 Unicode (UTF-8)		

**Engine/Host Dependent Information**

<b>Data Set Page Size</b>	65536
<b>Number of Data Set Pages</b>	1
<b>First Data Page</b>	1
<b>Max Obs per Page</b>	681
<b>Obs in First Data Page</b>	19
<b>Number of Data Set Repairs</b>	0
<b>Filename</b>	/tmp/SAS_workB9470000093A_10.0.2.15/SAS_work421F0000093A_10.0.2.15/cost_living.sas7bdat
<b>Release Created</b>	9.0401M6
<b>Host Created</b>	Linux
<b>Inode Number</b>	671650
<b>Access Permission</b>	rw-rw-r--
<b>Owner Name</b>	sasdemo
<b>File Size</b>	128KB
<b>File Size (bytes)</b>	131072

---

### Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format
1	City	Char	12	
8	Education	Num	8	
5	Food	Num	8	
4	Housing	Num	8	
2	Index	Num	8	
9	Leisure	Num	8	
10	Other	Num	8	
3	Prev_yr_index	Num	8	
6	Travel	Num	8	
11	Updated	Num	8	DATE9.
7	Utility	Num	8	

Library Name	Member Name	Member Type	DBMS Member Type	Data Set Label	Data Set Type	Date Created	Date Modified	Number of Physical Observations
WORK	CONVERT	DATA			DATA	01SEP19:08:55:54	01SEP19:08:55:54	2
WORK	CONVERT_DATETIME	DATA			DATA	01SEP19:08:57:54	01SEP19:08:57:54	2
WORK	COST_LIVING	DATA			DATA	01SEP19:09:08:23	01SEP19:09:08:23	19
WORK	DATETIME	DATA			DATA	01SEP19:08:57:19	01SEP19:08:57:19	2
WORK	FORMAT	DATA			DATA	01SEP19:08:52:34	01SEP19:08:52:34	5
WORK	KEEP_AND_DROP	DATA			DATA	01SEP19:09:12:17	01SEP19:09:12:17	8
WORK	UPDATED_2019	DATA			DATA	01SEP19:09:09:32	01SEP19:09:09:32	3

Library Name	Member Name	Member Type	DBMS Member Type	Data Set Label	Data Set Type	Date Created	Date Modified	Number of Physical Observations
WORK	COST_LIVING	DATA			DATA	01SEP19:09:08:23	01SEP19:09:08:23	19

Library Name	Member Name	Member Type	Column Name	Column Type	Column Length	Column Position	Column Number in Table	Column Label	Column Format
WORK	COST_LIVING	DATA	City	char	12	80	1		
WORK	COST_LIVING	DATA	Index	num	8	0	2		
WORK	COST_LIVING	DATA	Prev_yr_index	num	8	8	3		
WORK	COST_LIVING	DATA	Housing	num	8	16	4		
WORK	COST_LIVING	DATA	Food	num	8	24	5		
WORK	COST_LIVING	DATA	Travel	num	8	32	6		
WORK	COST_LIVING	DATA	Utility	num	8	40	7		
WORK	COST_LIVING	DATA	Education	num	8	48	8		
WORK	COST_LIVING	DATA	Leisure	num	8	56	9		
WORK	COST_LIVING	DATA	Other	num	8	64	10		
WORK	COST_LIVING	DATA	Updated	num	8	72	11		DATE9.

Obs	Updated
1	01JAN2019
2	01JAN2019
3	01JAN2019

**\_ALL\_ in a Data Step**

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other	Updated
1	Mumbai	83	85	40	10	15	15	10	9	1	01JAN2019
2	New York	89	85	40	10	15	10	20	5	5	01JAN2019
3	Tokyo	87	85	40	15	10	5	15	14	1	01JAN2019

---

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other	Updated
1	New York	89	85	40	10	15	10	20	5	5	01JAN2019
2	Tokyo	87	85	40	15	10	5	15	14	1	01JAN2019

## **\_N\_ automatic value**

<b>Obs</b>	<b>A</b>	<b>B</b>	<b>Counter</b>
<b>1</b>	X	1	1
<b>2</b>	Y	2	2
<b>3</b>	Z	3	3

## **\_N\_ automatic value overwritten**

<b>Obs</b>	<b>A</b>	<b>B</b>	<b>Counter</b>	<b>Test_N</b>
<b>1</b>	X	1	2	3
<b>2</b>	Y	2	2	3
<b>3</b>	Z	3	2	3

# Chapter 2: Data Manipulation and Transformation

The CONTENTS Procedure			
<b>Data Set Name</b>	WORK.CARS	<b>Observations</b>	3
<b>Member Type</b>	DATA	<b>Variables</b>	1
<b>Engine</b>	V9	<b>Indexes</b>	0
<b>Created</b>	09/01/2019 14:08:39	<b>Observation Length</b>	8
<b>Last Modified</b>	09/01/2019 14:08:39	<b>Deleted Observations</b>	0
<b>Protection</b>		<b>Compressed</b>	NO
<b>Data Set Type</b>		<b>Sorted</b>	NO
<b>Label</b>			
<b>Data Representation</b>	SOLARIS_X86_64, LINUX_X86_64, ALPHA_TRU64, LINUX_IA64		
<b>Encoding</b>	utf-8 Unicode (UTF-8)		

Alphabetic List of Variables and Attributes			
#	Variable	Type	Len
1	Make	Char	8

---

## Alphabetic List of Variables and Attributes

#	Variable	Type	Len
1	Make	Char	15
2	Year	Num	4

Obs	Make	Year
1	Porsche_Cayenne	2018
2	Audi	2016
3	BMW	2014



<b>Data Set Name</b>	WORK.LENGTH	<b>Observations</b>	1
<b>Member Type</b>	DATA	<b>Variables</b>	3
<b>Engine</b>	V9	<b>Indexes</b>	0
<b>Created</b>	09/01/2019 14:18:31	<b>Observation Length</b>	24
<b>Last Modified</b>	09/01/2019 14:18:31	<b>Deleted Observations</b>	0
<b>Protection</b>		<b>Compressed</b>	NO
<b>Data Set Type</b>		<b>Sorted</b>	NO
<b>Label</b>			
<b>Data Representation</b>	SOLARIS_X86_64, LINUX_X86_64, ALPHA_TRU64, LINUX_IA64		
<b>Encoding</b>	utf-8 Unicode (UTF-8)		

Alphabetic List of Variables and Attributes			
#	Variable	Type	Len
3	Length_Non_Trimmed	Num	8
2	Length_Trimmed	Num	8
1	Make	Char	5

Obs	Make	Length_Trimmed	Length_Non_Trimmed
1	Audi	4	5

Obs	Make	Year	Upper	Proper	Lower
1	Porsche_Cayenne	2018	PORSCHE_CAYENNE	Porsche_cayenne	porsche_cayenne
2	Audi	2016	AUDI	Audi	audi
3	BMW	2014	BMW	Bmw	bmw

Obs	Make	Year	Upper	Proper	Lower	Proper_second_argument
1	Porsche_Cayenne	2018	PORSCHE_CAYENNE	Porsche_cayenne	porsche_cayenne	Porsche_Cayenne
2	Audi	2016	AUDI	Audi	audi	Audi
3	BMW	2014	BMW	Bmw	bmw	Bmw

---

Obs	Make	Year	Upper_Pos	Lower_Pos	Tupper_Pos
1	Porsche_Cayenne	2018	1	2	2
2	Audi	2016	1	2	2
3	BMW	2014	1	0	4

Obs	Make	Year	Char_right	Num_left
1	Porsche_Cayenne	2018	Porsche_Cayenne	2018
2	Audi	2016	Audi	2016
3	BMW	2014	BMW	2014

Obs	City	First	Last	Fourth
1	Chicago Paris London Geneva Dublin	Chicago	Dublin	Geneva

---

<b>Obs</b>	<b>Initial</b>	<b>Balance</b>	<b>i</b>
<b>1</b>	26000	22000	1
<b>2</b>	26000	20000	2
<b>3</b>	26000	18000	3
<b>4</b>	26000	16000	4
<b>5</b>	26000	14000	5
<b>6</b>	26000	12000	6
<b>7</b>	26000	10000	7
<b>8</b>	26000	8000	8
<b>9</b>	26000	6000	9
<b>10</b>	26000	4000	10
<b>11</b>	26000	2000	11
<b>12</b>	26000	0	12

Obs	thedebate	delim	modif	nwords	count	words
1	Is Pluto a Planet, well yes, and no	,	oq	3	1	Is Pluto a Planet
2	Is Pluto a Planet, well yes, and no	,	oq	3	2	well yes
3	Is Pluto a Planet, well yes, and no	,	oq	3	3	and no

Obs	String_x	String_y	Not_Found	Found
1	Indexit(FINDIT)	findit	0	9

Obs	String	Answer_A	Answer_B	Answer_C
1	It's confusing	2	2	1

Obs	String	String_Length	Answer
1	We will explore the FIND function. Won't we?	44	42

Obs	String	String_Length	Answer
1	We will explore the FIND function. Won't we?	44	1

Obs	String	Startposvar	String_Length	Answer
1	We will explore the FIND function. Won't we?	2	44	42

Obs	String	Startposvar	String_Length	Answer
1	We will explore the FIND function. Won't we?	-41	44	1

Obs	String	Startposvar	String_Length	Answer	Answer_1	Answer_2
1	We will explore the FIND function. Won't we?	1	44	0	9	8

Obs	String	Compress	Trim	Strip
1	3 fn comparison	#3fncomparison#	# 3 fn comparison#	#3 fn comparison#

Obs	A	B	C	D	E	F	G
1	1	1	1	.	0	0	Choose me

Obs	Year	Month	Coal	Gas	Petrol	Diesel	Nuclear	Date_next	Date_current	Date_plus_one
1	2018	Jan	110	112	113	114	112	01FEB2018	01JAN2018	01MAR2018
2	2018	Feb	110	113	114	116	112	01MAR2018	01FEB2018	01APR2018
3	2018	Mar	112	114	114	116	110	01APR2018	01MAR2018	01MAY2018
4	2018	Apr	114	115	113	115	111	01MAY2018	01APR2018	01JUN2018
5	2018	May	116	114	112	114	110	01JUN2018	01MAY2018	01JUL2018

Obs	Year	Month	Coal	Gas	Petrol	Diesel	Nuclear	Date_current	Interval_Days	Interval_Days1	Interval_Days2	Interval_Days3
1	2018	Jan	110	112	113	114	112	01JAN2018	31	59	-31	90
2	2018	Feb	110	113	114	116	112	01FEB2018	28	59	-31	89
3	2018	Mar	112	114	114	116	110	01MAR2018	31	61	-28	92
4	2018	Apr	114	115	113	115	111	01APR2018	30	61	-31	91
5	2018	May	116	114	112	114	110	01MAY2018	31	61	-30	92

Obs	Year	Month	Coal	Gas	Petrol	Diesel	Nuclear	Date_current	OldYear	NewYear	CurrentYear
1	2018	Jan	110	112	113	114	112	01JAN2018	2017	2019	2018
2	2018	Feb	110	113	114	116	112	01FEB2018	2017	2019	2018
3	2018	Mar	112	114	114	116	110	01MAR2018	2017	2019	2018
4	2018	Apr	114	115	113	115	111	01APR2018	2017	2019	2018
5	2018	May	116	114	112	114	110	01MAY2018	2017	2019	2018

Obs	Beginning	Middle	End_	SameDay
1	01AUG2019	16AUG2019	31AUG2019	31AUG2019

Obs	Type	Production	Jul	Aug	Month_D	Month_C
1	W/e	131	07JUL2019	06OCT2019	3	2
2	W/e	234	14JUL2019	13OCT2019	3	2
3	W/e	232	21JUL2019	20OCT2019	3	2
4	W/e	212	28JUL2019	27OCT2019	3	2
5	M/e	203	31JUL2019	31OCT2019	3	3

Out_Symbol	Out_CAT	Out_CATS	Out_CATT	Out_CATX
ThisisatestofCAT	ThisisatestofCAT	Thisisa testof CAT	This is a test of CAT	This\$is\$a test\$of CAT

Obs	UK	US	China	SP	Delimiter	Delimiter_Space	No_Delimiter
1		Coal		"	Coal	Coal	Coal
2	Gas	Nuclear	Petrol	"	Gas"Nuclear"Petrol	Gas Nuclear Petrol	GasNuclearPetrol
3	Coal	Gas		"	Coal"Gas	Coal Gas	CoalGas
4			Petrol	"	Petrol	Petrol	Petrol

---

<b>Obs</b>	<b>Round</b>	<b>Lag1</b>	<b>Lag2</b>
<b>1</b>	67	.	.
<b>2</b>	53	67	.
<b>3</b>	45	53	67
<b>4</b>	61	45	53
<b>5</b>	80	61	45
<b>6</b>	69	80	61
<b>7</b>	69	69	80

Obs	Class	Score	Lag1
1	A	21	.
2	A	23	21
3	A	25	23
4	A	27	25
5	B	15	.
6	B	20	15
7	B	25	20
8	B	30	25

Obs	A	B	C	X	Y	Z	Char	Num	IFC	IFN	IFN_alt
1	FromA	FromB	FromC	.	2	3	FromA	2	A	.	99



---

Char	Num	IFC	IFN	IFN_alt	LongWayC	LongWayN
FromA	2	A	.	99	A	99

Obs	Score	Ceil	Floor	Int	Round
1	67.454	68	67	67	67
2	53.340	54	53	53	53
3	45.230	46	45	45	45
4	60.800	61	60	60	61
5	80.400	81	80	80	80
6	68.500	69	68	68	69
7	68.900	69	68	68	69

<b>Obs</b>	<b>Ceil</b>	<b>Floor</b>	<b>Int</b>	<b>Round</b>	<b>ScoreNeg</b>
<b>1</b>	-67	-68	-67	-67	-67.454
<b>2</b>	-53	-54	-53	-53	-53.340
<b>3</b>	-45	-46	-45	-45	-45.230
<b>4</b>	-60	-61	-60	-61	-60.800
<b>5</b>	-80	-81	-80	-80	-80.400
<b>6</b>	-68	-69	-68	-69	-68.500
<b>7</b>	-68	-69	-68	-69	-68.900

<b>Obs</b>	<b>Thousand</b>	<b>Hundreds</b>	<b>Tens</b>	<b>Unit</b>	<b>Tenth</b>	<b>Hundredth</b>
<b>1</b>	2000	1600	1560	1564	1564.5	1564.46

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## Chapter 3: Combining, Indexing, Encryption, and Compression Techniques Simplified

City	Index	City	Index
Adelaide	85	Hong Kong	83
Beijing	90	Johannesburg	35
Copenhagen	65	Manila	41
Doha	56	Moscow	48
Dubai	75	Mumbai	83
Dublin	45	Munich	65

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<b>City</b>	<b>Index</b>
Adelaide	85
Beijing	90
Copenhagen	65
Doha	56
Dubai	75
Dublin	45
Hong Kong	83
Johannesburg	35
Manila	41
Moscow	48
Mumbai	83
Munich	65

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Index	Index
45	35
56	41
65	48
75	65
85	83
90	83

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Index
35
41
45
48
56
65
65
75
83
83
85
90

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<b>IndexA</b>	<b>Index</b>
45	35
56	41
65	48
75	65
85	83
90	83

		City	Index	City	Index
City	Index	Adelaide	85	Adelaide	85
Adelaide	85	Beijing	90	Beijing	90
Beijing	90	Copenhagen	.	Copenhagen	65
Copenhagen	65	Copenhagen	65	Doha	56
Doha	56	Dubai	75	Dubai	75
Dubai	75	Dublin	95	Dublin	95
Dublin	45	Hong Kong	83	Hong Kong	83

			Obs	City	Index	Obs	City	Index
Obs	City	Index	1	Adelaide	65	1	Adelaide	65
1	Adelaide	85	2	Beijing	98	2	Beijing	98
2	Beijing	90	3	Copenhagen	.	3	Copenhagen	.
3	Copenhagen	65	4	Copenhagen	65	4	Copenhagen	65
4	Doha	56	5	Dubai	75	5	Dubai	75
5	Dubai	75	6	Dublin	95	6	Dublin	95
6	Dublin	45	7	Hong Kong	83	7	Hong Kong	83



Obs	City	Index
1	Adelaide	65
2	Beijing	98
3	Copenhagen	65
4	Copenhagen	65
5	Dubai	75
6	Dublin	95
7	Hong Kong	83

Obs	ID	Gender	Age	Region	Obs	ID	Gender	Age	Region	Dependents
1	10004523	F	34	Portsmouth	1	10005296	F	24	Sheffield	1
2	10002342	F	45	Southampton	2	10001002	F	65	Liverpool	0
3	10002462	M	36	Leeds	3	10003407	F	43	Cardiff	0
4	10002328	M	65	Durham	4	10009832	M	76	Bath	0
5	10006345	M	56	Bristol	5	10000086	F	21	Sunderland	0
6	10005234	M	19	Newcastle	6	10002349	M	27	London	2
7	10005325	F	23	London	7	10008740	M	40	Birmingham	3

Obs	ID	Gender	Age	Region	Dependents
1	10004523	F	34	Portsmouth	.
2	10002342	F	45	Southampton	.
3	10002462	M	36	Leeds	.
4	10002328	M	65	Durham	.
5	10006345	M	56	Bristol	.
6	10005234	M	19	Newcastle	.
7	10005325	F	23	London	.
8	10005296	F	24	Sheffield	1
9	10001002	F	65	Liverpool	0
10	10003407	F	43	Cardiff	0
11	10009832	M	76	Bath	0
12	10000086	F	21	Sunderland	0
13	10002349	M	27	London	2
14	10008740	M	40	Birmingham	3

Obs	ID	Region	Obs	ID	Region	Obs	ID	Region
1	10004523	Bath	1	100296	Newcastle	1	10004523	Bath
2	10002342	Leed	2	101002	Birmingham	2	10002342	Leed
						3	100296	Newca
						4	101002	Birmi

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<b>Obs</b>	<b>ID</b>	<b>Region</b>
<b>1</b>	100296	Newcastle
<b>2</b>	101002	Birmingham
<b>3</b>	10004523	Bath
<b>4</b>	10002342	Leed

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Property	Value	Property	Value
Label	ID	Label	Region
Name	ID	Name	Region
Length	8	Length	10
Type	Numeric	Type	Char
Format		Format	

Obs	ID	Gender	Age	Region	Dependents	Source
1	10004523	F	34	Portsmouth	.	X
2	10002342	F	45	Southampton	.	X
3	10002462	M	36	Leeds	.	X
4	10002328	M	65	Durham	.	X
5	10006345	M	56	Bristol	.	X
6	10005234	M	19	Newcastle	.	X
7	10005325	F	23	London	.	X
8	10005296	F	24	Sheffield	1	Y
9	10001002	F	65	Liverpool	0	Y
10	10003407	F	43	Cardiff	0	Y
11	10009832	M	76	Bath	0	Y
12	10000086	F	21	Sunderland	0	Y
13	10002349	M	27	London	2	Y
14	10008740	M	40	Birmingham	3	Y

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<b>Obs</b>	<b>City</b>	<b>Index</b>
<b>1</b>	Adelaide	85
<b>2</b>	Beijing	90
<b>3</b>	Copenhagen	65
<b>4</b>	Doha	56
<b>5</b>	Dubai	75
<b>6</b>	Dublin	45
<b>7</b>	Hong Kong	83
<b>8</b>	Johannesburg	35
<b>9</b>	Manila	41
<b>10</b>	Moscow	48
<b>11</b>	Mumbai	83
<b>12</b>	Munich	65

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<b>Obs</b>	<b>ID</b>	<b>Gender</b>	<b>Age</b>	<b>Region</b>
<b>1</b>	10004523	F	34	Portsmouth
<b>2</b>	10002342	F	45	Southampton
<b>3</b>	10002462	M	36	Leeds
<b>4</b>	10002328	M	65	Durham
<b>5</b>	10006345	M	56	Bristol
<b>6</b>	10005234	M	19	Newcastle
<b>7</b>	10005325	F	23	London
<b>8</b>	.	F	24	Sheffield
<b>9</b>	.	F	65	Liverpool
<b>10</b>	.	F	43	Cardiff
<b>11</b>	.	M	76	Bath
<b>12</b>	.	F	21	Sunderland
<b>13</b>	.	M	27	London
<b>14</b>	.	M	40	Birmingham

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Index	City	Sample	Past	Index	City	Sample
45	A	500	43	35	AA	600
56	B	500	50	41	BB	500
65	C	600	58	48	CC	500
75	D	600	68	65	DD	600
85	E	600	82	83	EE	600
90	F	500	94	83	FF	600



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<b>Index</b>	<b>City</b>	<b>Sample</b>	<b>Past</b>
35	A	600	.
41	B	500	.
45	A	500	43
48	C	500	.
56	B	500	50
65	C	600	58
65	D	600	.
75	D	600	68
83	E	600	.
83	F	600	.
85	E	600	82
90	F	500	94

City	Index	Prev_yr_index	Housing	Food	Travel	City	Utility	Education	Leisure	Other
Adelaide	85	83	35	10	10	Adelaide	9	14	10	12
Beijing	90	92	40	10	15	Beijing	10	18	5	2
Copenhagen	65	64	25	15	10	Copenhagen	10	12	12	16
Doha	56	50	30	15	5	Doha	10	10	20	10
Dubai	75	76	30	16	14	Dubai	10	20	8	2
Dublin	45	43	30	10	8	Dublin	12	10	15	15
Hong Kong	83	88	45	5	10	Hong Kong	15	15	9	1
Johannesburg	35	40	45	5	5	Johannesburg	15	15	10	5
Manila	41	42	25	10	15	Manila	15	20	10	5
Moscow	48	53	40	20	5	Moscow	5	10	10	10

City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other
Adelaide	85	83	35	10	10	9	14	10	12
Beijing	90	92	40	10	15	10	18	5	2
Copenhagen	65	64	25	15	10	10	12	12	16
Doha	56	50	30	15	5	10	10	20	10
Dubai	75	76	30	16	14	10	20	8	2
Dublin	45	43	30	10	8	12	10	15	15
Hong Kong	83	88	45	5	10	15	15	9	1
Johannesburg	35	40	45	5	5	15	15	10	5
Manila	41	42	25	10	15	15	20	10	5
Moscow	48	53	40	20	5	5	10	10	10

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other
1	Adelaide	85	83	35	10	10	9	14	10	12
2	Beijing	90	92	40	10	15	10	18	5	2
3	Copenhagen	65	64	25	15	10	10	12	12	16
4	Dublin	56	50	30	15	5	12	10	15	15
5	Hong Kong	75	76	30	16	14	15	15	9	1
6	Johannesburg	45	43	30	10	8	15	15	10	5
7	Manila	83	88	45	5	10	15	20	10	5
8	Moscow	35	40	45	5	5	5	10	10	10
9	Manila	41	42	25	10	15	.	.	.	.
10	Moscow	48	53	40	20	5	.	.	.	.

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other
1	Adelaide	85	83	35	10	10	9	14	10	12
2	Beijing	90	92	40	10	15	10	18	5	2
3	Copenhagen	65	64	25	15	10	10	12	12	16
4	Doha	56	50	30	15	5	.	.	.	.
5	Dubai	75	76	30	16	14	.	.	.	.
6	Dublin	45	43	30	10	8	12	10	15	15
7	Hong Kong	83	88	45	5	10	15	15	9	1
8	Johannesburg	35	40	45	5	5	15	15	10	5
9	Manila	41	42	25	10	15	15	20	10	5
10	Moscow	48	53	40	20	5	5	10	10	10

Obs	City	Utility	Education	Leisure	Other	Travel
1	Adelaide	9	14	10	12	.
2	Beijing	10	18	5	2	.
3	Copenhagen	10	12	12	16	99
4	Dublin	12	10	15	15	99
5	Hong Kong	15	15	9	1	8
6	Johannesburg	15	15	10	5	7
7	Manila	15	20	10	5	5
8	Moscow	5	10	10	10	8

Obs	City	Index	Prev_yr_index	Housing	Food	Travel	Utility	Education	Leisure	Other
1	Adelaide	85	83	35	10	.	9	14	10	12
2	Beijing	90	92	40	10	.	10	18	5	2
3	Copenhagen	65	64	25	15	99	10	12	12	16
4	Doha	56	50	30	15	5	.	.	.	.
5	Dubai	75	76	30	16	14	.	.	.	.
6	Dublin	45	43	30	10	99	12	10	15	15
7	Hong Kong	83	88	45	5	8	15	15	9	1
8	Johannesburg	35	40	45	5	7	15	15	10	5
9	Manila	41	42	25	10	5	15	20	10	5
10	Moscow	48	53	40	20	8	5	10	10	10

Obs	City	Index	Housing	Food	Obs	City	Utility	Education	Obs	Index_Date	City	Index
1	Adelaide	85	83	35	1	Adelaide	9	14	1	01JAN2019	Adelaide	85
2	Beijing	90	92	40	2	Beijing	10	18	2	01JAN2019	Beijing	90
3	Copenhagen	65	64	25	3	Copenhagen	10	12	3	01JAN2018	Beijing	89
4	Dublin	45	43	30	4	Dublin	12	10	4	01JAN2019	Copenhagen	65
5	Hong Kong	83	88	45	5	Hong Kong	15	15	5	01JAN2019	Dublin	45
									6	01JAN2019	Hong Kong	83
									7	01JAN2018	Hong Kong	81
									8	01JAN2017	Hong Kong	76

Obs	City	Index	Housing	Food	Utility	Education	Index_Date
1	Adelaide	85	83	35	9	14	01JAN2019
2	Beijing	90	92	40	10	18	01JAN2019
3	Beijing	89	92	40	10	18	01JAN2018
4	Copenhagen	65	64	25	10	12	01JAN2019
5	Dublin	45	43	30	12	10	01JAN2019
6	Hong Kong	83	88	45	15	15	01JAN2019
7	Hong Kong	81	88	45	15	15	01JAN2018
8	Hong Kong	76	88	45	15	15	01JAN2017

Obs	Index_Date	City	Index	Housing
1	01JAN2019	Adelaide	85	83
2	01JAN2019	Beijing	90	92
3	01JAN2018	Beijing	90	90
4	01JAN2019	Copenhagen	65	64
5	01JAN2019	Dublin	45	43
6	01JAN2019	Hong Kong	83	88
7	01JAN2018	Hong Kong	83	88
8	01JAN2017	Hong Kong	82	88
9	01JAN2016	Hong Kong	82	87

Obs	Index_Date	City	Index	Food
1	01JAN2019	Adelaide	85	35
2	01JAN2019	Beijing	90	45
3	01JAN2018	Beijing	89	42
4	01JAN2019	Copenhagen	65	30
5	01JAN2019	Dublin	45	34
6	01JAN2019	Hong Kong	83	40
7	01JAN2018	Hong Kong	81	39
8	01JAN2017	Hong Kong	76	36

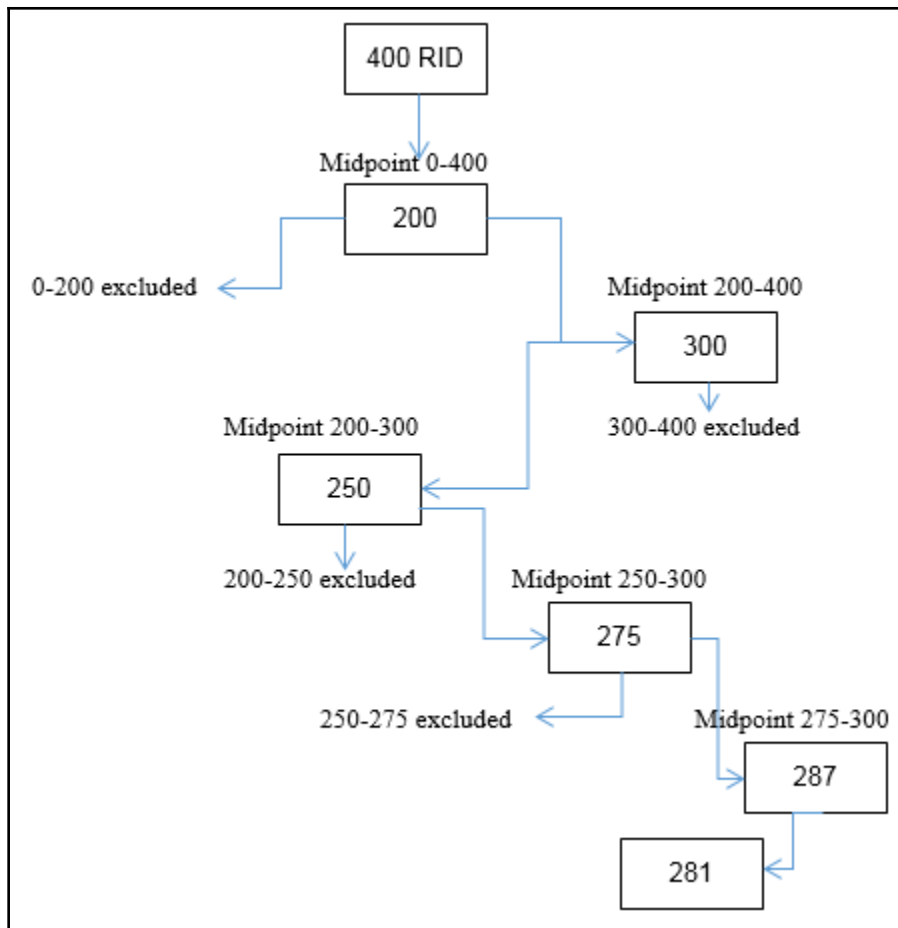
  

Obs	City	Utility	Education
1	Adelaide	9	14
2	Beijing	10	18
3	Copenhagen	10	12
4	Dublin	12	10
5	Hong Kong	15	15

Obs	Index_Date	City	Index	Housing	Utility	Education	Food
1	01JAN2019	Adelaide	85	83	9	14	35
2	01JAN2019	Beijing	90	92	10	18	45
3	01JAN2018	Beijing	89	90	10	18	42
4	01JAN2019	Copenhagen	65	64	10	12	30
5	01JAN2019	Dublin	45	43	12	10	34
6	01JAN2019	Hong Kong	83	88	15	15	40
7	01JAN2018	Hong Kong	81	88	15	15	39
8	01JAN2017	Hong Kong	76	88	15	15	36
9	01JAN2016	Hong Kong	82	87	15	15	36

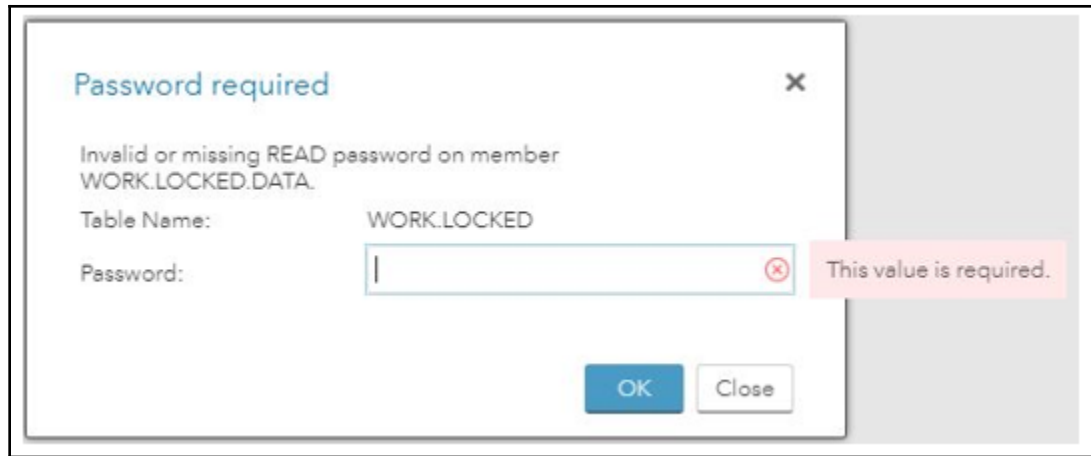
Obs	Index_Date	City	Index	Housing	Food
1	01JAN2019	Adelaide	85	83	35
2	01JAN2018	Beijing	89	90	42
3	01JAN2019	Beijing	90	92	45
4	01JAN2019	Copenhagen	65	64	30
5	01JAN2019	Dublin	45	43	34
6	01JAN2016	Hong Kong	82	87	.
7	01JAN2017	Hong Kong	76	88	36
8	01JAN2018	Hong Kong	81	88	39
9	01JAN2019	Hong Kong	83	88	40

Obs	Index_Date	City	Index	Housing	Food
1	01JAN2019	Adelaide	85	83	35
2	01JAN2019	Copenhagen	65	64	30
3	01JAN2016	Hong Kong	82	87	.
4	01JAN2017	Hong Kong	82	88	.
5	01JAN2018	Hong Kong	83	88	.
6	01JAN2019	Hong Kong	83	88	.
7	01JAN2017	hong Kong	76	.	36
8	01JAN2018	hong Kong	81	.	39
9	01JAN2019	hong Kong	83	.	40



Alphabetic List of Indexes and Attributes					
#	Index	Update Centiles	Current Update Percent	# of Unique Values	Variables
1	City	5	0	4	
					Adelaide
					Adelaide
					Adelaide
					Copenhagen
					Copenhagen
					Hong Kong
					Hong Kong
					Hong Kong
					Hong Kong
					Hong Kong
					Hong Kong
					Hong Kong
					Hong Kong
					hong Kong
					hong Kong
					hong Kong
					hong Kong
					hong Kong
					hong Kong
					hong Kong
					hong Kong
					hong Kong





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## Chapter 4: Power of Statistics, Reporting, Transforming Procedures, and Functions

**The FREQ Procedure**

ID	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	1	16.67	1	16.67
2	1	16.67	2	33.33
3	1	16.67	3	50.00
4	1	16.67	4	66.67
5	1	16.67	5	83.33
6	1	16.67	6	100.00

Class	Frequency	Percent	Cumulative Frequency	Cumulative Percent
A	4	66.67	4	66.67
B	2	33.33	6	100.00

Height	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Over5.7	5	83.33	5	83.33
Under5.7	1	16.67	6	100.00

Weight	Frequency	Percent	Cumulative Frequency	Cumulative Percent
Above50	3	50.00	3	50.00
Below50	3	50.00	6	100.00

The FREQ Procedure

Frequency Percent Row Pct Col Pct	Table of Class by Height			
	Class	Height		Total
		Over5.7	Under5.7	
A	4	0	4	
	66.67	0.00	66.67	
	100.00	0.00		
	80.00	0.00		
B	1	1	2	
	16.67	16.67	33.33	
	50.00	50.00		
Total	20.00	100.00		
	5	1	6	
	83.33	16.67	100.00	

The FREQ Procedure

Percent	Table of Class by Height			
	Class	Height		Total
		Over5.7	Under5.7	
A	66.67	0.00	66.67	
B	16.67	16.67	33.33	
Total	5	1	6	
	83.33	16.67	100.00	

The FREQ Procedure

Percent

Table 1 of Weight by Height			
Controlling for Class=A			
Weight	Height		
	Over5.7	Under5.7	Total
Above50	75.00	0.00	75.00
Below50	25.00	0.00	25.00
Total	4 100.00	0 0.00	4 100.00

Percent

Table 2 of Weight by Height			
Controlling for Class=B			
Weight	Height		
	Over5.7	Under5.7	Total
Above50	0.00	0.00	0.00
Below50	50.00	50.00	100.00
Total	1 50.00	1 50.00	2 100.00

The FREQ Procedure

Class	Frequency	Percent
A	4	66.67
B	2	33.33

Percent

Table of Weight by Height			
Weight	Height		
	Over5.7	Under5.7	Total
Above50	50.00	0.00	50.00
Below50	33.33	16.67	50.00
Total	5 83.33	1 16.67	6 100.00

Warmup	Injury	Cases
0	0	10
0	1	31
1	0	35
1	1	20

Frequency Percent Row Pct Col Pct	Table of Warmup by Injury			
	Warmup	Injury		Total
		0	1	
	0	10	31	41
		10.42	32.29	42.71
		24.39	75.61	
		22.22	60.78	
	1	35	20	55
		36.46	20.83	57.29
		63.64	36.36	
		77.78	39.22	
	Total	45	51	96
		46.88	53.13	100.00

Statistics for Table of Warmup by Injury			
Statistic	DF	Value	Prob
Chi-Square	1	14.5288	0.0001
Likelihood Ratio Chi-Square	1	15.0520	0.0001
Continuity Adj. Chi-Square	1	12.9955	0.0003
Mantel-Haenszel Chi-Square	1	14.3774	0.0001
Phi Coefficient		-0.3890	
Contingency Coefficient		0.3626	
Cramer's V		-0.3890	

Fisher's Exact Test	
Cell (1,1) Frequency (F)	10
Left-sided Pr <= F	0.0001
Right-sided Pr >= F	1.0000
Table Probability (P)	0.0001
Two-sided Pr <= P	0.0002

Frequency Percent Row Pct Col Pct	Table of Warmup by Injury		
	Warmup	Injury	
		1	0
0	31	10	41
	32.29	10.42	42.71
	75.61	24.39	
	60.78	22.22	
1	20	35	55
	20.83	36.46	57.29
	36.36	63.64	
	39.22	77.78	
Total	51	45	96
	53.13	46.88	100.00

Fisher's Exact Test	
Cell (1,1) Frequency (F)	31
Left-sided Pr <= F	1.0000
Right-sided Pr >= F	0.0001
Table Probability (P)	0.0001
Two-sided Pr <= P	0.0002

Odds Ratio and Relative Risks			
Statistic	Value	95% Confidence Limits	
Odds Ratio	5.4250	2.2058	13.3426
Relative Risk (Column 1)	2.0793	1.4071	3.0724
Relative Risk (Column 2)	0.3833	0.2157	0.6810
Sample Size = 96			

The UNIVARIATE Procedure  
Variable: Warmup

Frequency Counts			
Value	Count	Percents	
		Cell	Cum
0	2	50.0	50.0
1	2	50.0	100.0

The UNIVARIATE Procedure  
Variable: Injury

Frequency Counts			
Value	Count	Percents	
		Cell	Cum
0	2	50.0	50.0
1	2	50.0	100.0

The UNIVARIATE Procedure  
Variable: Cases

Frequency Counts			
Value	Count	Percents	
		Cell	Cum
10	1	25.0	25.0
20	1	25.0	50.0
31	1	25.0	75.0
35	1	25.0	100.0



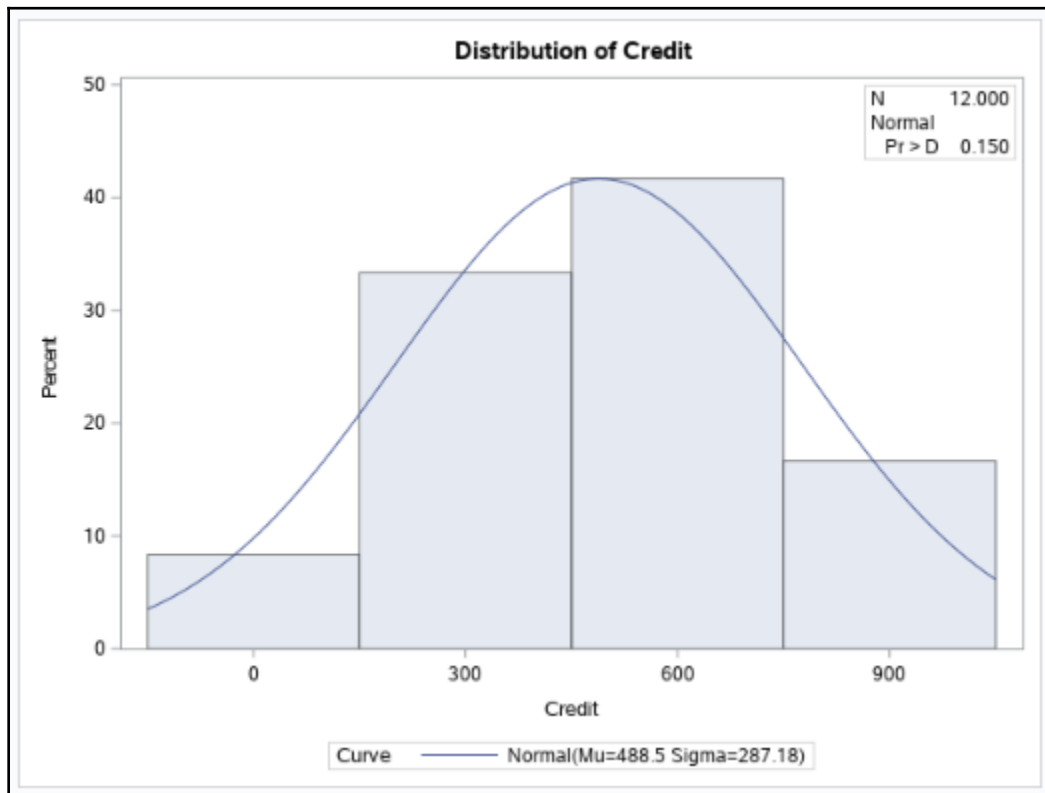
**The UNIVARIATE Procedure**  
**Variable: Credit**

<b>Basic Statistical Measures</b>			
<b>Location</b>		<b>Variability</b>	
<b>Mean</b>	488.5000	<b>Std Deviation</b>	287.17733
<b>Median</b>	494.0000	<b>Variance</b>	82471
<b>Mode</b>	234.0000	<b>Range</b>	990.00000
		<b>Interquartile Range</b>	458.00000

<b>Extreme Observations</b>			
<b>Lowest</b>		<b>Highest</b>	
<b>Value</b>	<b>Obs</b>	<b>Value</b>	<b>Obs</b>
9	12	645	9
234	5	675	7
234	4	709	10
234	1	790	8
345	3	999	11

The UNIVARIATE Procedure  
Variable: Credit

Moments			
N	12	Sum Weights	12
Mean	488.5	Sum Observations	5862
Std Deviation	287.177329	Variance	82470.8182
Skewness	0.0869798	Kurtosis	-0.6454251
Uncorrected SS	3770766	Corrected SS	907179
Coeff Variation	58.7875801	Std Error Mean	82.900954



Tests for Location: $\mu_0=0$				
Test	Statistic		p Value	
Student's t	t	5.892574	Pr >  t	0.0001
Sign	M	6	Pr >=  M	0.0005
Signed Rank	S	39	Pr >=  S	0.0005

Goodness-of-Fit Tests for Normal Distribution				
Test	Statistic		p Value	
Kolmogorov-Smirnov	D	0.14558169	Pr > D	>0.150
Cramer-von Mises	W-Sq	0.03543167	Pr > W-Sq	>0.250
Anderson-Darling	A-Sq	0.22494717	Pr > A-Sq	>0.250

The UNIVARIATE Procedure Variable: Credit				
Tests for Location: $\mu_0=200$				
Test	Statistic		p Value	
Student's t	t	3.480056	Pr >  t	0.0051
Sign	M	5	Pr >=  M	0.0063
Signed Rank	S	34	Pr >=  S	0.0044

Location Counts: $\mu_0=200.00$	
Count	Value
Num Obs > $\mu_0$	11
Num Obs = $\mu_0$	12
Num Obs < $\mu_0$	1

---

**The MEANS Procedure**

**Analysis Variable : Credit**

<b>N</b>	<b>Mean</b>	<b>Std Dev</b>	<b>Minimum</b>	<b>Maximum</b>
12	488.5000000	287.1773288	9.0000000	999.0000000

**The MEANS Procedure**

**Analysis Variable : Count**

<b>Warmup</b>	<b>Injury</b>	<b>N Obs</b>	<b>N</b>	<b>Mean</b>	<b>Std Dev</b>	<b>Minimum</b>	<b>Maximum</b>
0	0	1	1	10.0000000	.	10.0000000	10.0000000
	1	3	3	10.3333333	4.5092498	6.0000000	15.0000000
1	0	4	4	8.7500000	6.3966137	2.0000000	16.0000000
	1	5	5	4.0000000	3.6742346	0	10.0000000

**The MEANS Procedure**

**Class=A**

**Analysis Variable : Basketball**

<b>Height</b>	<b>N Obs</b>	<b>N</b>	<b>Mean</b>	<b>Std Dev</b>	<b>Minimum</b>	<b>Maximum</b>
Over5.7	4	3	0.6666667	0.5773503	0	1.0000000

**Class=B**

**Analysis Variable : Basketball**

<b>Height</b>	<b>N Obs</b>	<b>N</b>	<b>Mean</b>	<b>Std Dev</b>	<b>Minimum</b>	<b>Maximum</b>
Over5.7	1	1	1.0000000	.	1.0000000	1.0000000
Under5.7	1	1	1.0000000	.	1.0000000	1.0000000

Class	Height	Nobs	n	mean	stdev	min	max
A	Over5.7	4	3	0.66667	0.57735	0	1
B	Over5.7	1	1	1.00000	.	1	1
B	Under5.7	1	1	1.00000	.	1	1

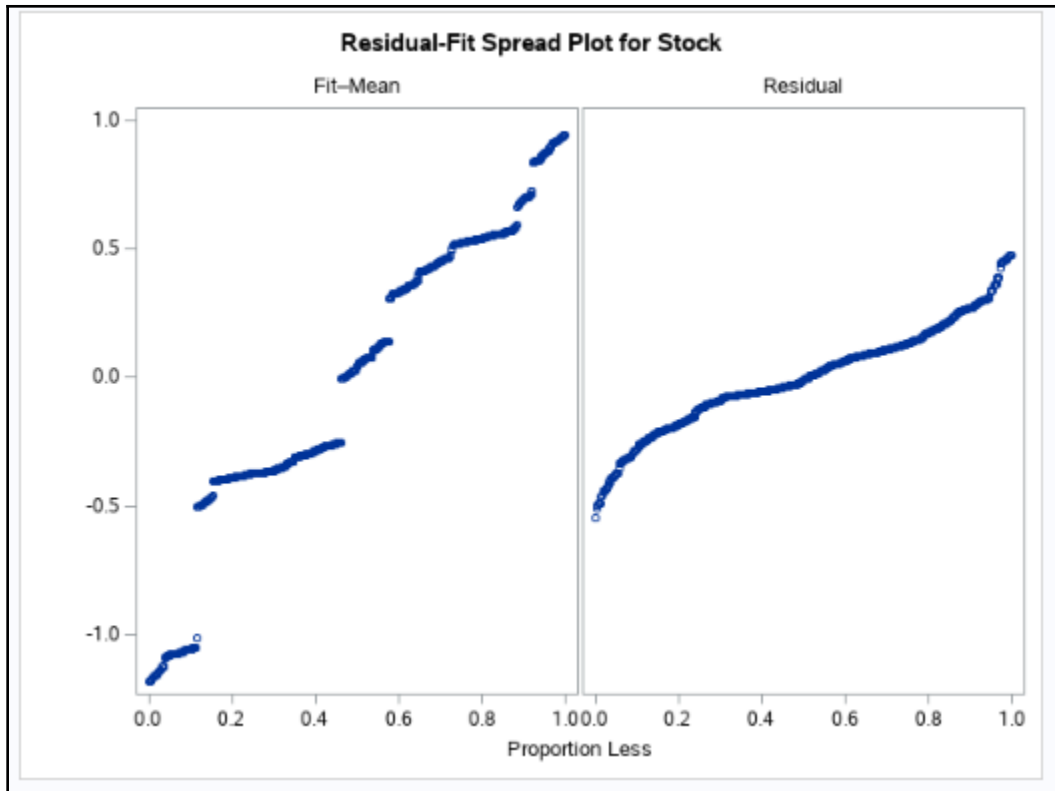
Simple Statistics							
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum	Label
Stock	594	4.89662	0.64370	2909	3.43000	5.96000	Stock
Basket_index	594	152.26094	7.26174	90443	139.00000	169.00000	Basket_index
EPS	594	3.75315	0.17546	2229	3.45000	3.97000	EPS
Top_10_GDP	594	2.82684	0.36737	1679	2.10000	3.23000	Top_10_GDP
Global_mkt_share	594	0.19217	0.00136	114.14990	0.18850	0.19330	Global_mkt_share
P_E_ratio	594	18.09549	1.45594	10749	15.23000	20.24000	P_E_ratio
Media_analytics_index	594	196.52357	5.82027	116735	185.00000	209.00000	Media_analytics_index
Top_10_Economy_inflation	594	2.54293	0.21919	1511	2.25000	2.86000	Top_10_Economy_inflation
M1_money_supply_index	594	119.51347	4.47221	70991	112.00000	125.00000	M1_money_supply_index

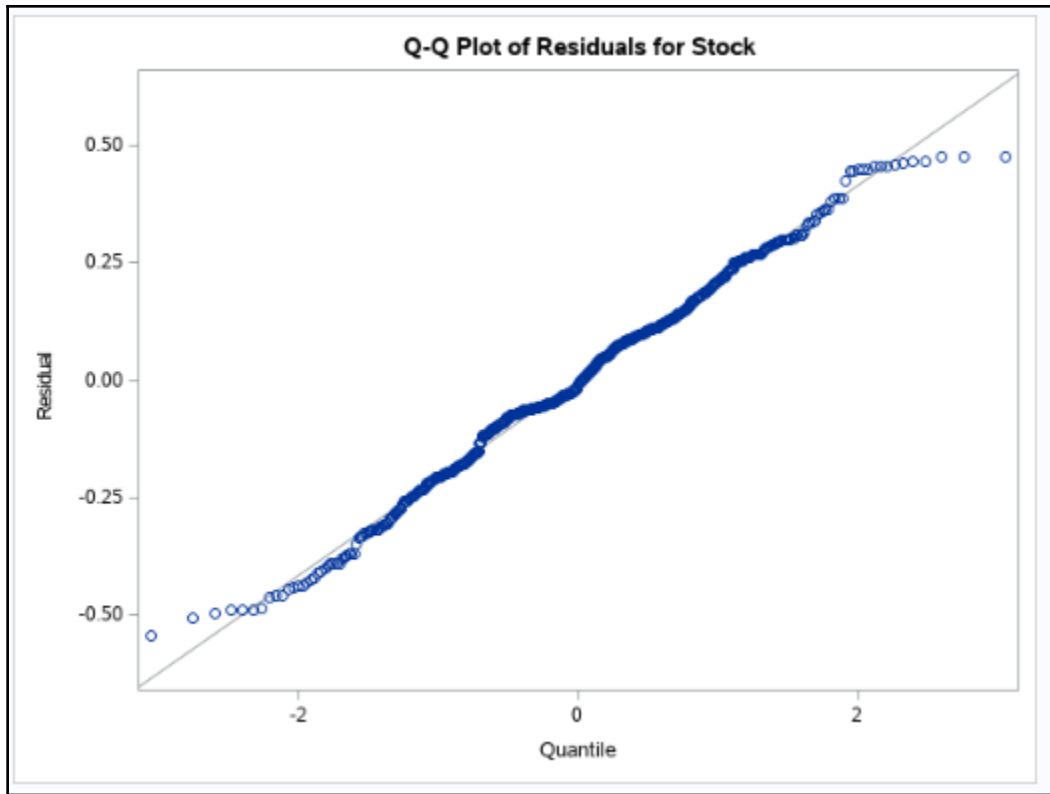
Pearson Correlation Coefficients, N = 594 Prob >  r  under H0: Rho=0									
	Basket_index	EPS	Top_10_GDP	Global_mkt_share	P_E_ratio	Media_analytics_index	Top_10_Economy_inflation	M1_money_supply_index	
Stock	0.73477	0.84048	0.74627	0.66585	0.58033	0.48898	0.87827	-0.84928	
Stock	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001

The REG Procedure					
Model: MODEL1					
Dependent Variable: Stock Stock					
Number of Observations Read					564
Number of Observations Used					564
Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	188.76933	23.59617	540.40	<.0001
Error	555	24.23354	0.04366		
Corrected Total	563	213.00287			

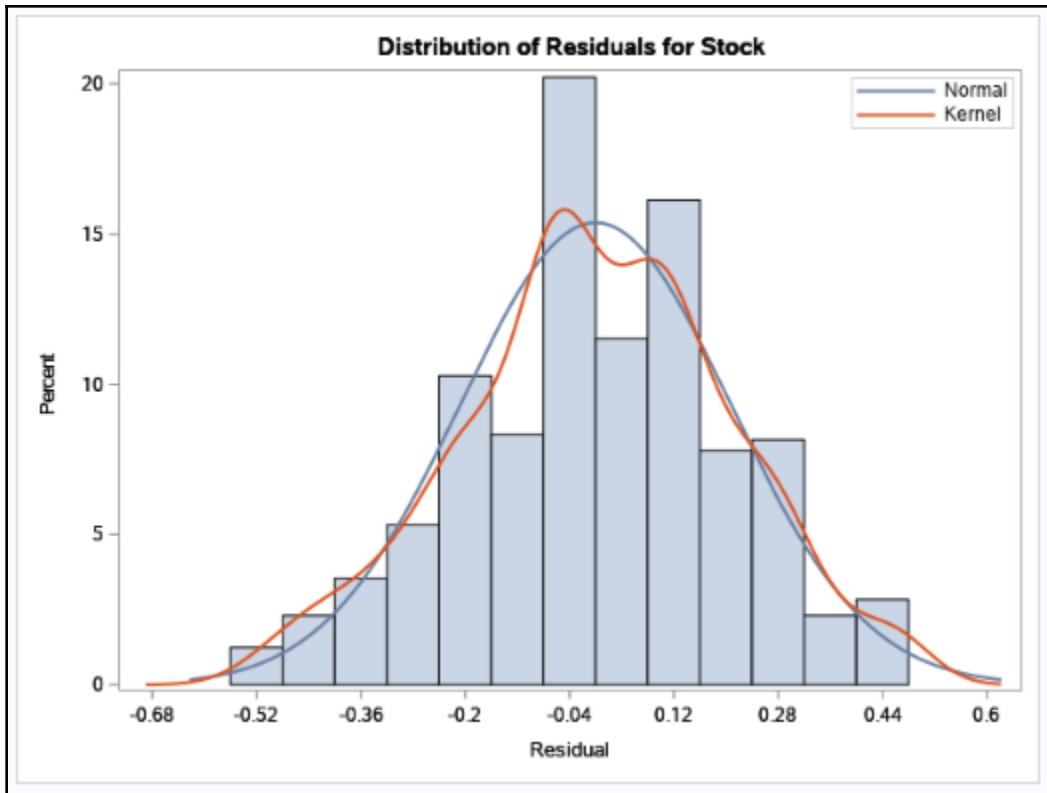
Root MSE	0.20896	R-Square	0.8862
Dependent Mean	4.84254	Adj R-Sq	0.8846
Coeff Var	4.31508		

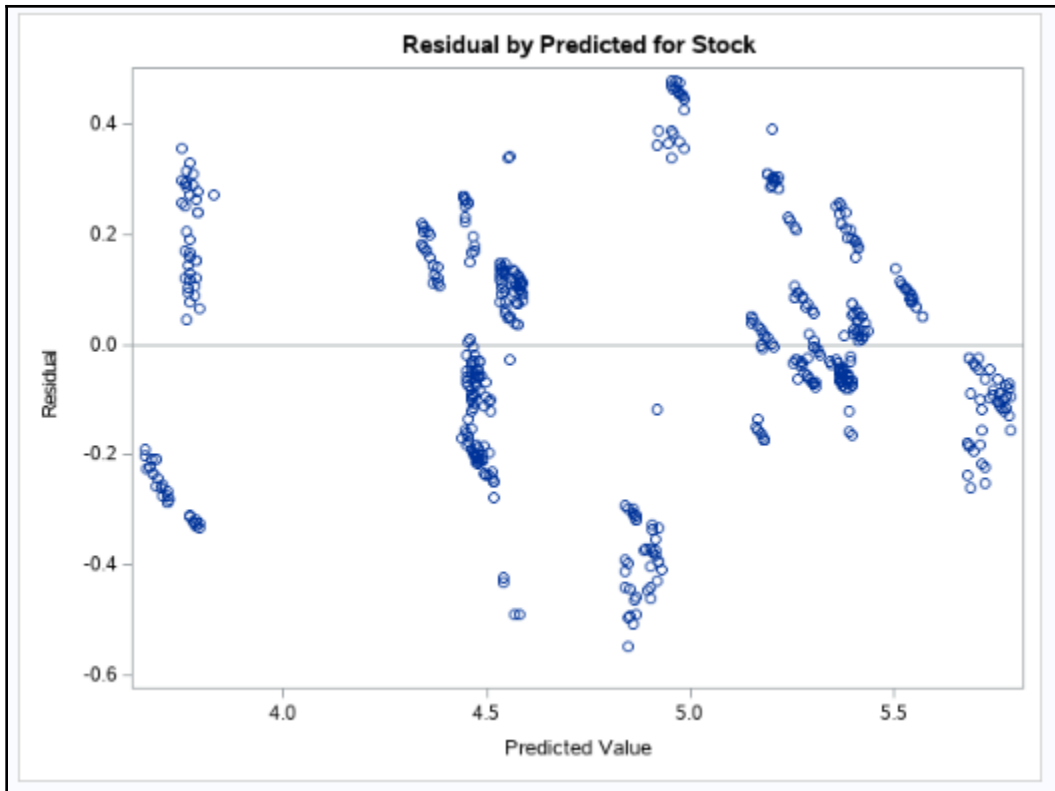
Parameter Estimates						
Variable	Label	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	Intercept	1	-3.02887	4.47183	-0.68	0.4985
Basket_index	Basket_index	1	-0.00550	0.00237	-2.32	0.0206
EPS	EPS	1	1.62607	0.16143	10.07	<.0001
Top_10_GDP	Top_10_GDP	1	0.30274	0.11734	2.58	0.0101
Global_mkt_share	Global_mkt_share	1	102.74845	23.89044	4.30	<.0001
P_E_ratio	P_E_ratio	1	-0.12198	0.01065	-11.46	<.0001
Media_analytics_index	Media_analytics_index	1	0.01452	0.00223	6.51	<.0001
Top_10_Economy_inflation	Top_10_Economy_inflation	1	-1.26989	0.29079	-4.37	<.0001
M1_money_supply_index	M1_money_supply_index	1	-0.12856	0.00805	-15.96	<.0001











Obs	Date	Stock	Predicted_Stock_Value
1	12/01/2017	5.85	5.82231
2	12/02/2017	5.85	5.78811
3	12/03/2017	5.85	5.78811
4	12/04/2017	5.86	5.80179
5	12/05/2017	5.87	5.83599
6	12/06/2017	5.87	5.80179
7	12/07/2017	5.87	5.80179
8	12/08/2017	5.87	5.77443
9	12/09/2017	5.87	5.81547
10	12/10/2017	5.88	5.79495

Obs	CustID	Year
1	1010	16
2	1010	17
3	1010	18
4	1010	19

Obs	_NAME_	COL1	COL2	COL3	COL4
1	CustID	1010	1010	1010	1010
2	Year	16	17	18	19

CustID	Year	Avg_Credit
1010	16	235
1010	17	230
1010	18	235
1010	19	254
1011	16	653
1011	17	650
1011	18	640
1011	19	650
1012	16	569
1012	17	560
1012	18	550
1012	19	450

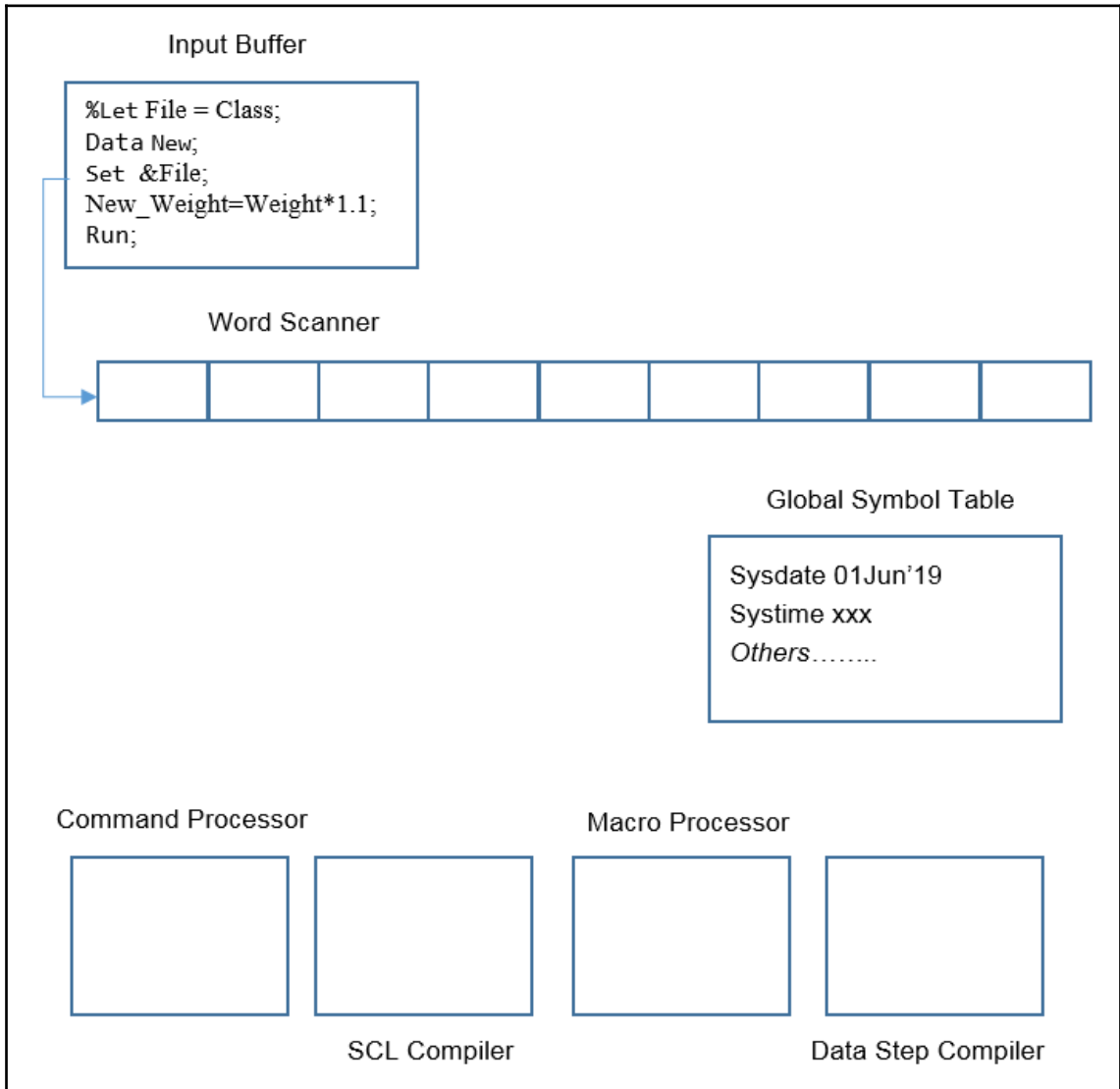
CustID	_NAME_	_16	_17	_18	_19
1010	Avg_Credit	235	230	235	254
1011	Avg_Credit	653	650	640	650
1012	Avg_Credit	569	560	550	450

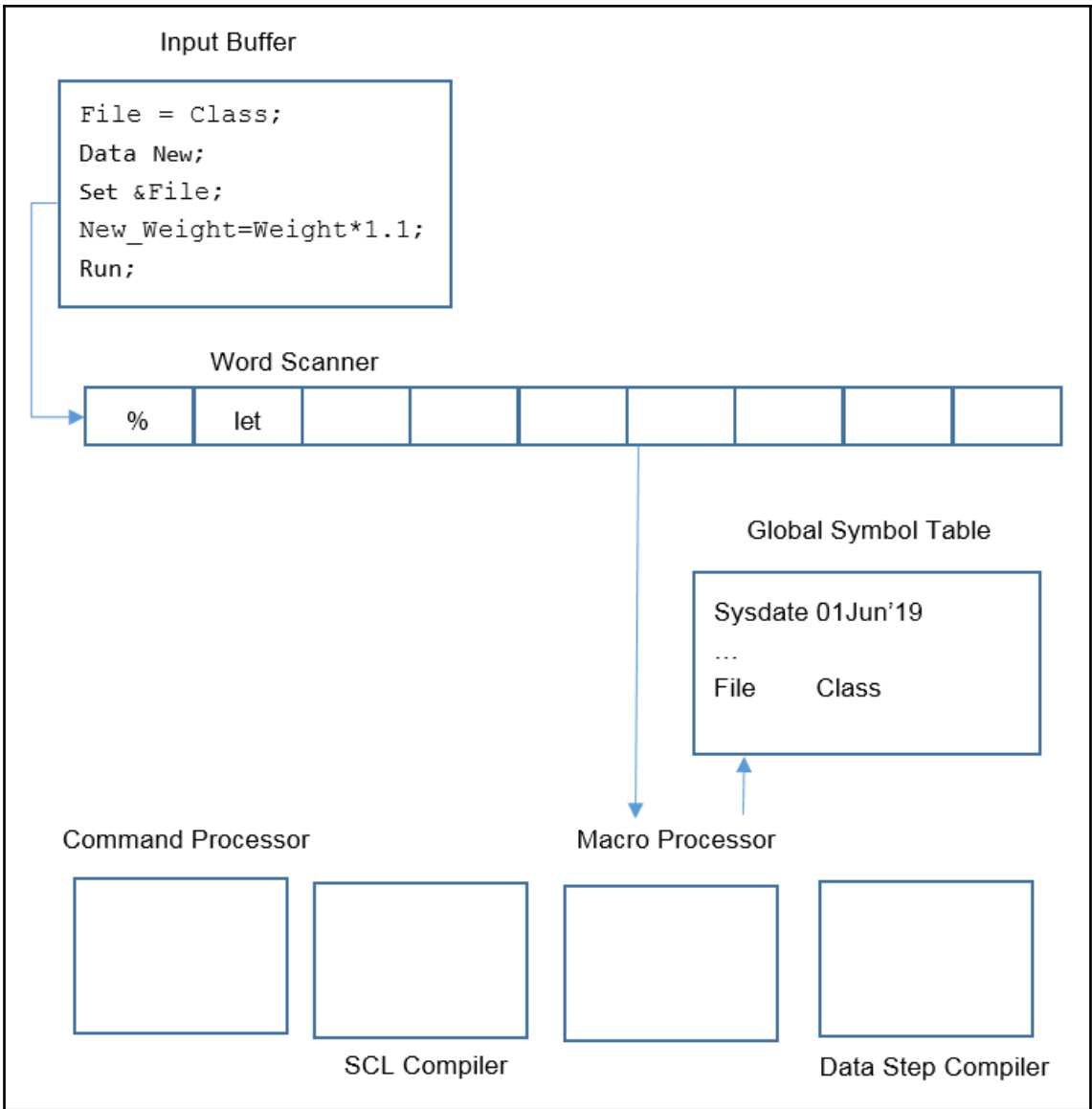
### Average Credit of Customers Across Years

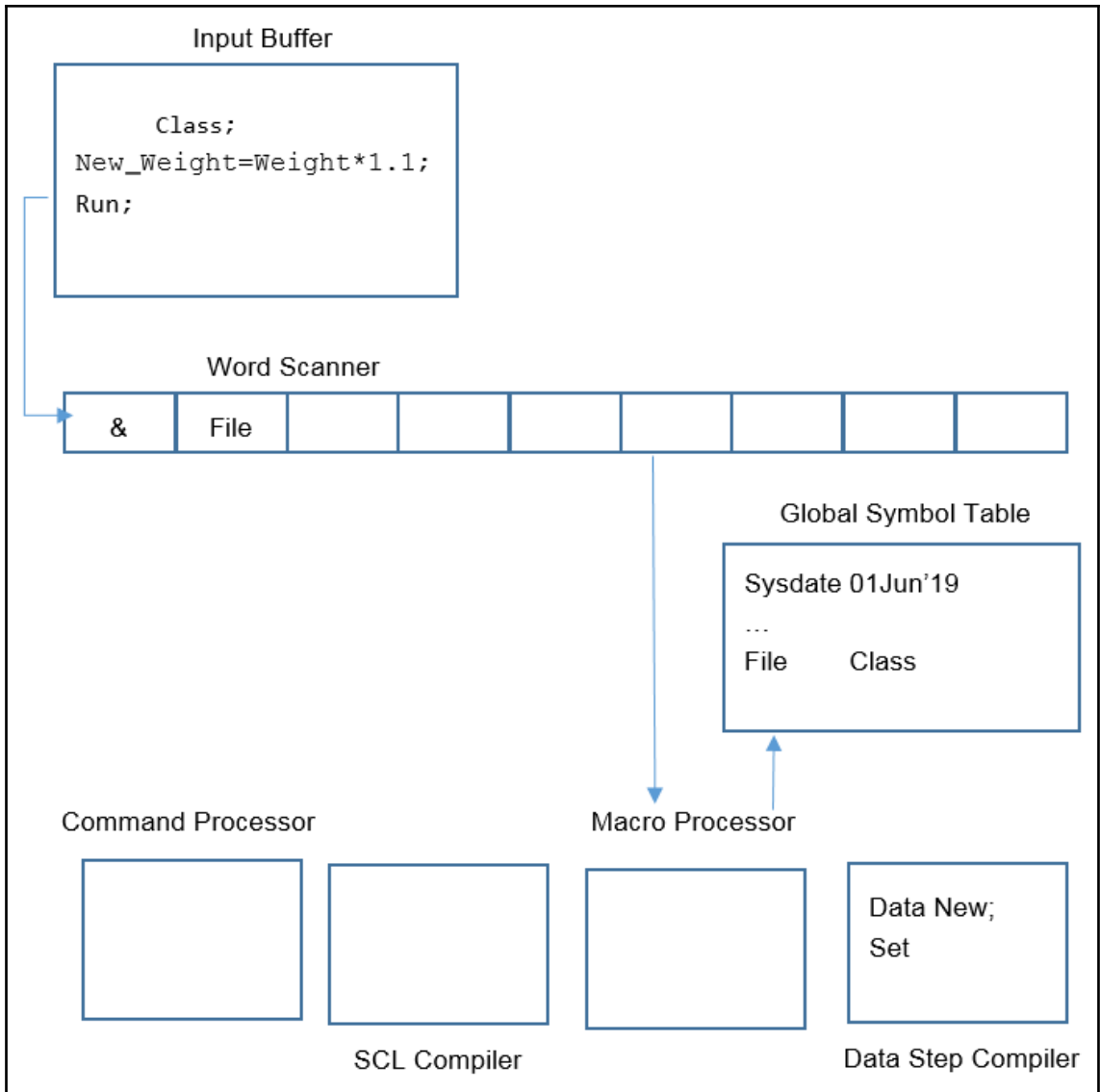
CustID	Year16	Year17	Year18	Year19
1010	235	230	235	254
1011	653	650	640	650
1012	569	560	550	450

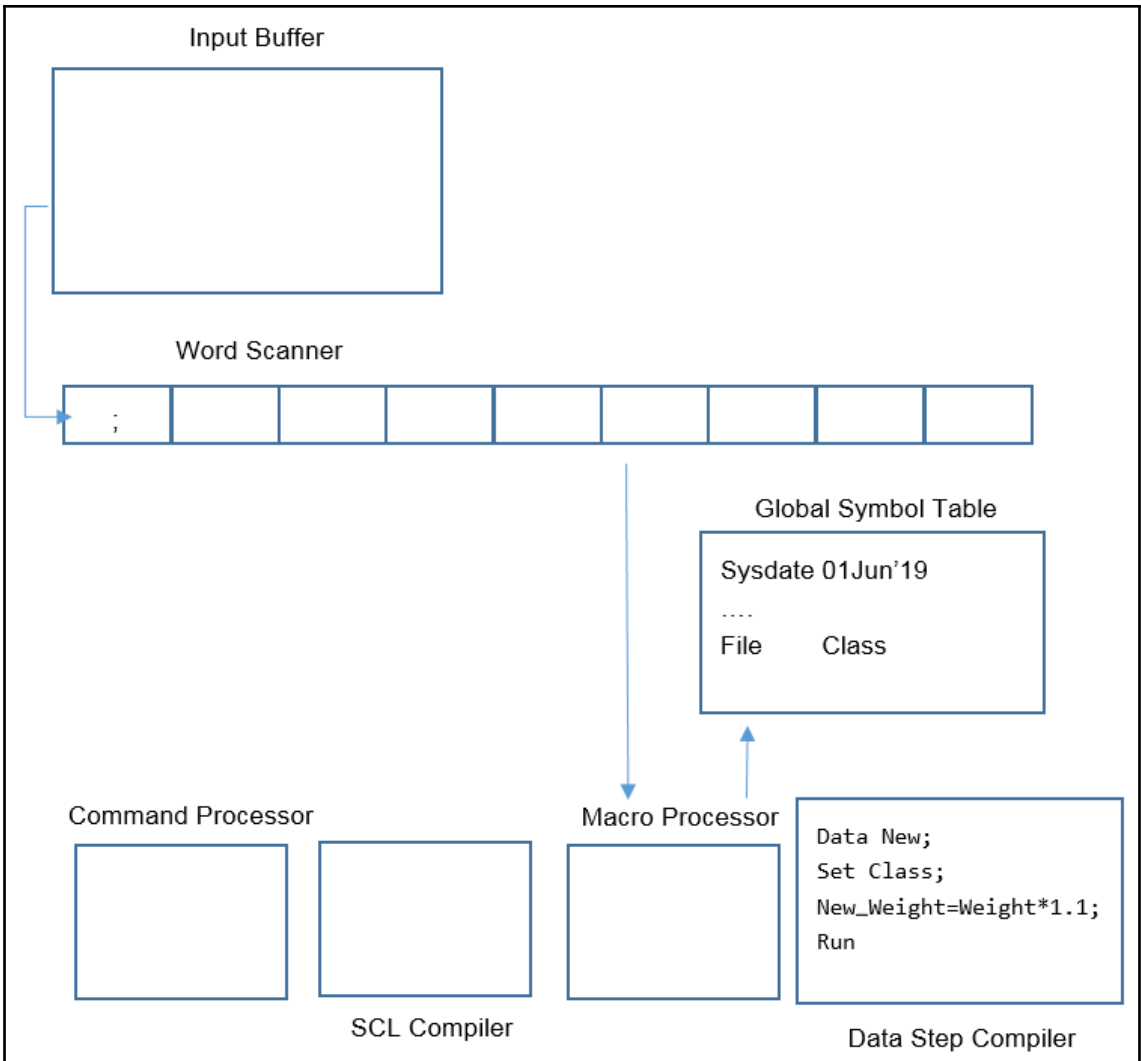
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# Chapter 5: Advanced Programming Techniques - SAS Macros

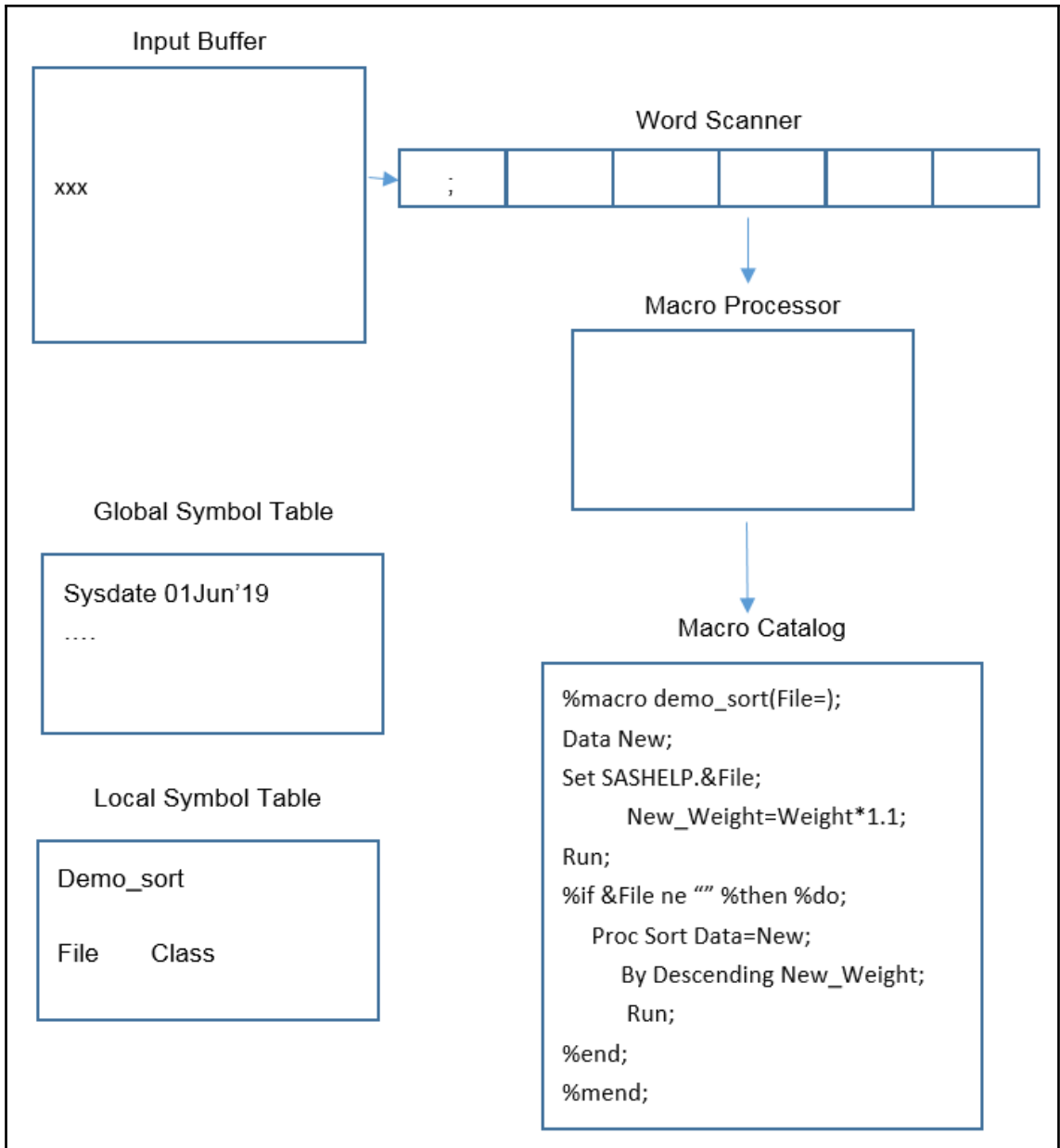












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**Youngest and Tallest Child in Current Year who weighs the least**

<b>ClassID</b>	<b>Year</b>	<b>Age</b>	<b>Height</b>	<b>Weight</b>
D3242	2019	14	112	70

---

## Mid Week Detailed Sales Report

### Week=30

Obs	SaleDate	Product	Sales
1	01AUG2019	Med1	56
2	02AUG2019	Med2	45
3	02AUG2019	Med3	48

### Week=31

Obs	SaleDate	Product	Sales
4	05AUG2019	Med2	56
5	05AUG2019	Med3	55
6	06AUG2019	Med1	67
7	07AUG2019	NA	0
8	08AUG2019	Med1	54
9	09AUG2019	Med1	45

### Week=32

Obs	SaleDate	Product	Sales
10	12AUG2019	Med2	50
11	13AUG2019	Med1	45
12	13AUG2019	Med3	53
13	14AUG2019	Med2	67
14	15AUG2019	NA	0
15	16AUG2019	Med2	45

---

## End of Week Sales Report Summary

### Product Med1

	Sales
	Sum
Week	
30	56.00
31	166.00
32	45.00

## End of Week Sales Report Summary

### Product Med2

	Sales
	Sum
Week	
30	45.00
31	56.00
32	162.00

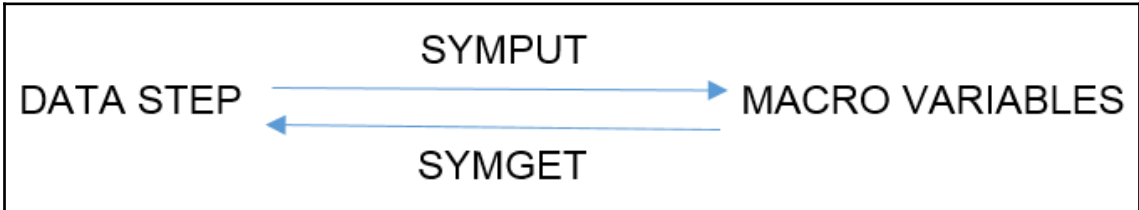
## End of Week Sales Report Summary

### Product Med3

	Sales
	Sum
Week	
30	48.00
31	55.00
32	53.00

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## Chapter 6: Powerful Functions, Options, and Automatic Variables Simplified



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<b>ClassID</b>	<b>Year</b>	<b>Age</b>	<b>Height</b>	<b>Weight</b>	<b>Grade</b>
A1234	2013	8	85	34	Poor
A2323	2013	9	81	36	
B3423	2013	8	80	31	Fair
B5324	2013	9	70	35	
C2342	2013	9	80	31	Good
D3242	2013	9	85	30	Excellent
A1234	2019	14	105	64	Poor
A2323	2019	15	101	66	
B3423	2019	14	100	61	Fair
B5324	2019	15	90	55	
C2342	2019	15	112	70	Good
D3242	2019	14	112	70	Excellent

---

Obs	Age	Height
1	8	85
2	9	81
3	8	80
4	9	70
5	9	80
6	9	85
7	14	105
8	15	101
9	14	100
10	15	90
11	15	112
12	14	112

---

Obs	ClassID	Year	Age	Height	Weight
1	A1234	2013	8	85	34
2	A2323	2013	9	81	36
3	B3423	2013	8	80	31
4	B5324	2013	9	70	35
5	C2342	2013	9	80	31
6	D3242	2013	9	85	30
7	A1234	2019	14	105	64
8	A2323	2019	15	101	66
9	B3423	2019	14	100	61
10	B5324	2019	15	90	55
11	C2342	2019	15	112	70
12	D3242	2019	14	112	70

Obs	ClassID	Year	Age	Height	Weight
1	A1234	2013	8	85	34
2	A2323	2013	9	81	36
3	B3423	2013	8	80	31
4	B5324	2013	9	70	35
5	C2342	2013	9	80	31
6	D3242	2013	9	85	30



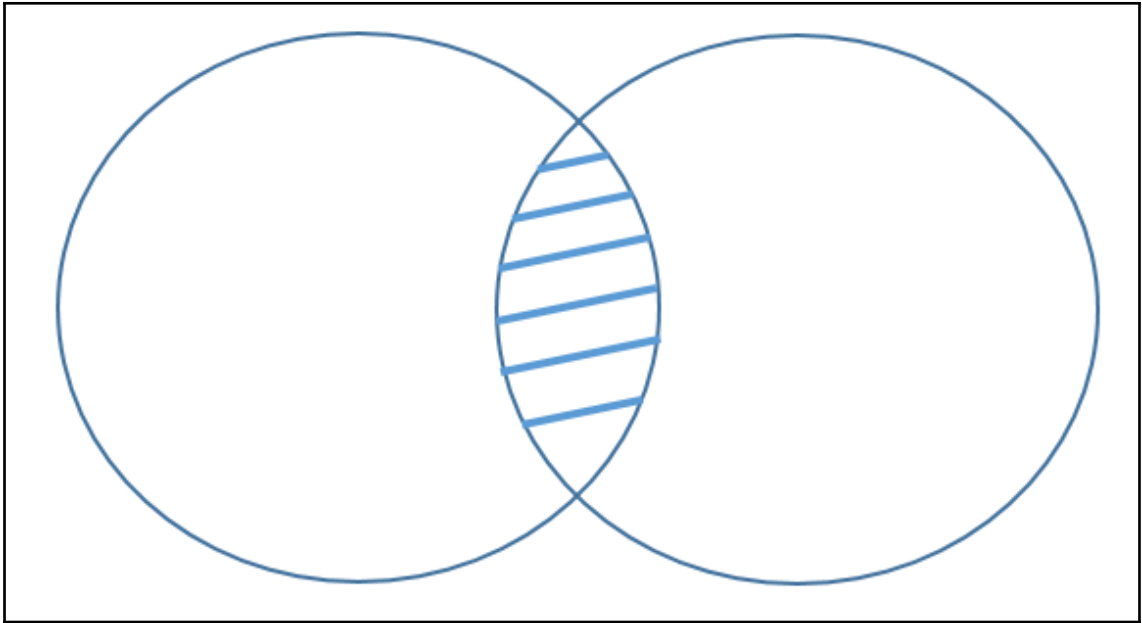
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Obs	ClassID	Year	Age	Height	Weight
1	A1234	2019	14	105	64
2	A2323	2019	15	101	66
3	B3423	2019	14	100	61
4	B5324	2019	15	90	55
5	C2342	2019	15	112	70
6	D3242	2019	14	112	70

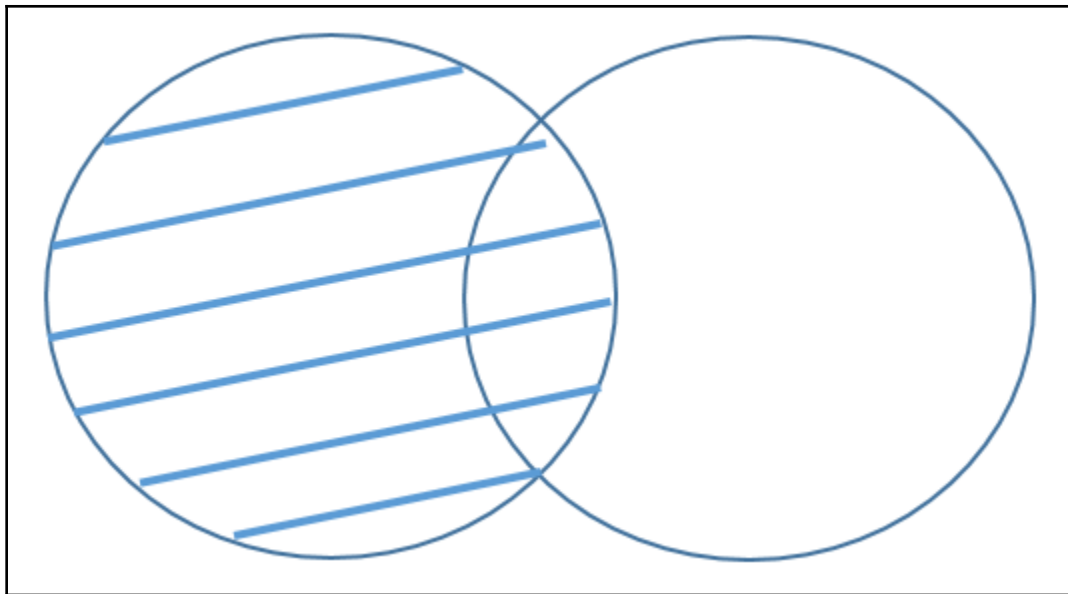
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## Chapter 7: Advanced Programming Techniques Using PROC SQL

Obs	ClassID	Year	Age	Height	Weight	Grade
1	A1234	2013	8	85	34	A
2	A1234	2013	8	85	34	A
3	A1234	2013	8	85	34	B
4	A1234	2013	8	85	34	C
5	A1234	2013	8	85	34	C
6	A1234	2013	8	85	34	D
7	A1234	2013	8	85	34	B
8	A1234	2013	8	85	34	C
9	A1234	2013	8	85	34	D
10	A1234	2013	8	85	34	B
11	A1234	2013	8	85	34	C
12	A1234	2013	8	85	34	D
13	A1234	2019	14	105	64	A
14	A1234	2019	14	105	64	A
15	A1234	2019	14	105	64	B



Obs	ClassID	Year	Age	Height	Weight	Music	Sports	Drama	Photography
1	A1234	2013	8	85	34	1	1	1	0
2	A2323	2013	9	81	36	1	0	1	.
3	B3423	2013	8	80	31	1	1	1	0
4	D3242	2013	9	85	30	.	0	1	1
5	A1234	2019	14	105	64	1	1	1	0
6	A2323	2019	15	101	66	1	0	1	.
7	B3423	2019	14	100	61	1	1	1	0
8	D3242	2019	14	112	70	.	0	1	1

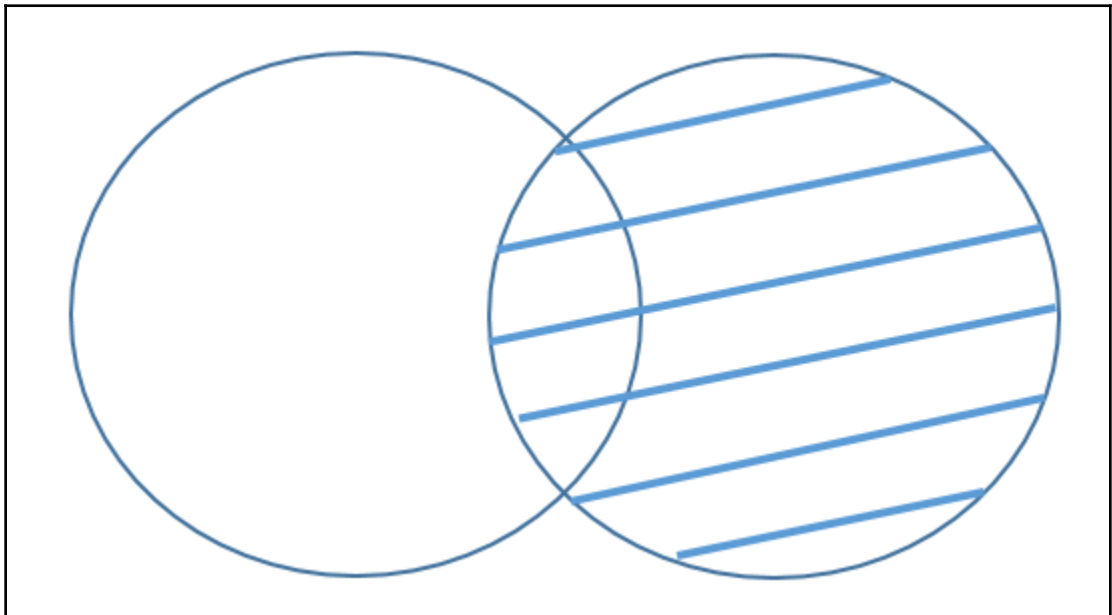


Obs	ClassID	Year	Age	Height	Weight	Music	Sports	Drama	Photography
1	A1234	2013	8	85	34	1	1	1	0
2	A1234	2019	14	105	64	1	1	1	0
3	A2323	2013	9	81	36	1	0	1	.
4	A2323	2019	15	101	66	1	0	1	.
5	B3423	2013	8	80	31	1	1	1	0
6	B3423	2019	14	100	61	1	1	1	0
7	B5324	2019	15	90	55	.	.	.	.
8	B5324	2013	9	70	35	.	.	.	.
9	C2342	2013	9	80	31	.	.	.	.
10	C2342	2019	15	112	70	.	.	.	.
11	D3242	2013	9	85	30	.	0	1	1
12	D3242	2019	14	112	70	.	0	1	1

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Obs	ClassID	Year	Age	Height	Weight	Photography
1	A1234	2013	8	85	34	0
2	A1234	2019	14	105	64	0
3	A2323	2013	9	81	36	.
4	A2323	2019	15	101	66	.
5	B3423	2013	8	80	31	0
6	B3423	2019	14	100	61	0
7	B5324	2019	15	90	55	.
8	B5324	2013	9	70	35	.
9	C2342	2013	9	80	31	.
10	C2342	2019	15	112	70	.
11	D3242	2013	9	85	30	1
12	D3242	2019	14	112	70	1

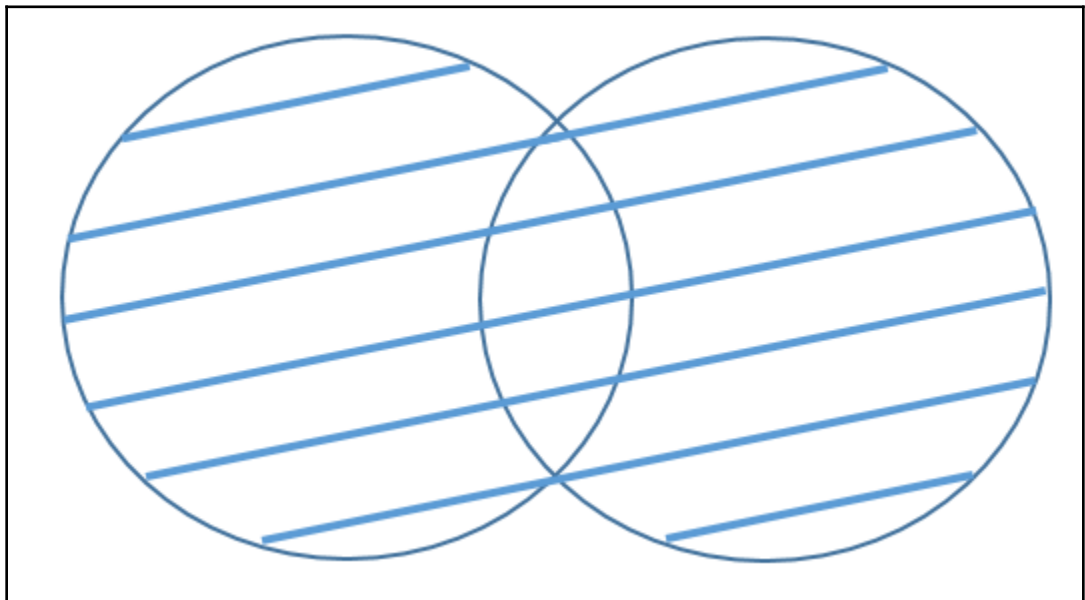
Obs	ClassID	Year	Age	Height	Weight	Music	Sports	Drama	Photography
1	A1234	2013	8	85	34	.	.	.	.
2	A1234	2019	14	105	64	.	.	.	.
3	A2323	2013	9	81	36	.	.	.	.
4	A2323	2019	15	101	66	.	.	.	.
5	B3423	2013	8	80	31	.	.	.	.
6	B3423	2019	14	100	61	.	.	.	.
7	B5324	2019	15	90	55	.	.	.	.
8	B5324	2013	9	70	35	.	.	.	.
9	C2342	2013	9	80	31	.	.	.	.
10	C2342	2019	15	112	70	.	.	.	.
11	D3242	2013	9	85	30	.	.	.	.
12	D3242	2019	14	112	70	.	.	.	.



---

Obs	ClassID	Year	Age	Height	Weight	Music	Sports	Drama	Photography
1	A1234	2013	8	85	34	1	1	1	0
2	A1234	2019	14	105	64	1	1	1	0
3	A2323	2013	9	81	36	1	0	1	.
4	A2323	2019	15	101	66	1	0	1	.
5	B3423	2013	8	80	31	1	1	1	0
6	B3423	2019	14	100	61	1	1	1	0
7	D3242	2013	9	85	30	.	0	1	1
8	D3242	2019	14	112	70	.	0	1	1
9		.	.	.	.	1	.	0	1
10		.	.	.	.	1	1	.	1
11		.	.	.	.	1	1	1	0
12		.	.	.	.	0	1	1	.
13		.	.	.	.	1	0	0	1

Obs	ClassID	Music	Sports	Drama	Photography	Year	Age	Height	Weight
1	A1234	1	1	1	0	2013	8	85	34
2	A1234	1	1	1	0	2019	14	105	64
3	A2323	1	0	1	.	2013	9	81	36
4	A2323	1	0	1	.	2019	15	101	66
5	B3423	1	1	1	0	2013	8	80	31
6	B3423	1	1	1	0	2019	14	100	61
7	D3242	.	0	1	1	2013	9	85	30
8	D3242	.	0	1	1	2019	14	112	70
9	D4234	1	.	0	1	.	.	.	.
10	E4234	1	1	.	1	.	.	.	.
11	F5642	1	1	1	0	.	.	.	.
12	G6534	0	1	1	.	.	.	.	.
13	S3576	1	0	0	1	.	.	.	.





Obs	_TEMA001	Year	Age	Height	Weight	Music	Sports	Drama	Photography
1	A1234	2013	8	85	34	1	1	1	0
2	A1234	2019	14	105	64	1	1	1	0
3	A2323	2013	9	81	36	1	0	1	.
4	A2323	2019	15	101	66	1	0	1	.
5	B3423	2013	8	80	31	1	1	1	0
6	B3423	2019	14	100	61	1	1	1	0
7	B5324	2019	15	90	55	.	.	.	.
8	B5324	2013	9	70	35	.	.	.	.
9	C2342	2013	9	80	31	.	.	.	.
10	C2342	2019	15	112	70	.	.	.	.
11	D3242	2013	9	85	30	.	0	1	1
12	D3242	2019	14	112	70	.	0	1	1
13	D4234	.	.	.	.	1	.	0	1
14	E4234	.	.	.	.	1	1	.	1
15	F5642	.	.	.	.	1	1	1	0
16	G6534	.	.	.	.	0	1	1	.
17	S3576	.	.	.	.	1	0	0	1

Obs	ID	VarTabA	VarTabB	Obs	ID	Category	VarTabC	VarTabD
1	1	66	77	1	1	A	60	70
2	2	55	66	2	1	B	50	60
3	3	77	55	3	2	A	50	60
				4	3	C	70	50

---

ID	VarTabA	VarTabB	VarTabC	VarTabD
1	66	77	60	70
1	66	77	50	60
2	55	66	50	60
3	77	55	70	50

ID	Category	VarTabE	VarTabF
1	A	10	70
1	B	20	60
2	A	30	40
2	D	40	50
3	C	70	50

---

<b>ID</b>	<b>VarTabE</b>	<b>VarTabF</b>	<b>VarTabC</b>	<b>VarTabD</b>
1	10	70	60	70
1	10	70	50	60
1	20	60	60	70
1	20	60	50	60
2	30	40	50	60
2	40	50	50	60
3	70	50	70	50

---

<b>Obs</b>	<b>Customer1</b>	<b>Customer2</b>	<b>Product</b>
<b>1</b>	RT0001	RT1101	CreditCard
<b>2</b>	RT1101	RT0001	CreditCard
<b>3</b>	RT1401	RT1200	Saving
<b>4</b>	RT1002	RT1405	Current
<b>5</b>	RQ1300	RO1400	Mortgage
<b>6</b>	RO1400	RQ1300	Mortgage
<b>7</b>	RX4599	RM1001	CurrentExtra
<b>8</b>	RM1001	RX4599	Current

<b>Obs</b>	<b>Customer1</b>	<b>Customer2</b>	<b>Product</b>
1	RT0001	RT1101	CreditCard
2	RT1101	RT0001	CreditCard
3	RQ1300	RO1400	Mortgage
4	RO1400	RQ1300	Mortgage

<b>Avg_Age</b>	<b>Missing_Age</b>	<b>Std_Age</b>
11.58333	0	3.088346

<b>Avg_Age</b>	<b>Missing_Age</b>	<b>Std_Age</b>
8.666667	0	0.516398
14.5	0	0.547723

---

<b>Obs</b>	<b>ClassID</b>	<b>Year</b>	<b>Age</b>	<b>Height</b>	<b>Weight</b>	<b>Avg_Height</b>
<b>1</b>	B3423	2013	8	80	31	79.200
<b>2</b>	C2342	2013	9	80	31	79.200
<b>3</b>	A2323	2013	9	81	36	79.200
<b>4</b>	A1234	2013	8	85	34	79.200
<b>5</b>	A1234	2019	14	105	64	103.333
<b>6</b>	D3242	2019	14	112	70	103.333
<b>7</b>	C2342	2019	15	112	70	103.333

---

## Chapter 8: Deep Dive into PROC SQL

Date	Day	Car	Units	Team	Avg_Price
27JUL2019	Sat	Alpha	25	A1	39450
27JUL2019	Sat	Alpha	23	A2	39850
27JUL2019	Sat	Omega	29	A3	67600
27JUL2019	Sat	Omega	20	A4	68100
28JUL2019	Sun	Alpha	15	A1	39050
28JUL2019	Sun	Alpha	18	A2	39550
28JUL2019	Sun	Omega	19	A3	67900
28JUL2019	Sun	Omega	16	A4	68300

Date	Day	Car	Units_Sold	Revenue
20JUL2019	Sat	Alpha	40	1562000
20JUL2019	Sat	Omega	47	3171000
21JUL2019	Sun	Alpha	26	1020600
21JUL2019	Sun	Omega	27	1820300
22JUL2019	Mon	Alpha	25	984700
22JUL2019	Mon	Omega	19	1287600
23JUL2019	Tue	Alpha	28	1100300
23JUL2019	Tue	Omega	19	1289400
24JUL2019	Wed	Alpha	17	669500
24JUL2019	Wed	Omega	27	1818300
25JUL2019	Thu	Alpha	34	1337800
25JUL2019	Thu	Omega	30	2040500
26JUL2019	Fri	Alpha	37	1469000
26JUL2019	Fri	Omega	42	2856400
27JUL2019	Sat	Alpha	48	1902800
27JUL2019	Sat	Omega	49	3322400
28JUL2019	Sun	Alpha	33	1297650
28JUL2019	Sun	Omega	35	2382900



---

<b>i</b>	<b>Date</b>	<b>Day</b>	<b>Car</b>	<b>Units</b>	<b>Team</b>	<b>Avg_Price</b>
1	20JUL2019	Sat	Alpha	20	A1	39000
1	20JUL2019	Sat	Alpha	20	A2	39100
1	20JUL2019	Sat	Omega	25	A3	67000
1	20JUL2019	Sat	Omega	22	A4	68000
1	21JUL2019	Sun	Alpha	12	A1	39200
1	21JUL2019	Sun	Alpha	14	A2	39300
1	21JUL2019	Sun	Omega	16	A3	67500
1	21JUL2019	Sun	Omega	11	A4	67300
1	22JUL2019	Mon	Alpha	14	A1	39300
1	22JUL2019	Mon	Alpha	11	A2	39500

Date	Day	Car	Units	Team	Avg_Price
20JUL2019	Sat	Alpha	20	A1	39000
20JUL2019	Sat	Alpha	20	A2	39100
20JUL2019	Sat	Omega	25	A3	67000
20JUL2019	Sat	Omega	22	A4	68000
21JUL2019	Sun	Alpha	12	A1	39200
21JUL2019	Sun	Alpha	14	A2	39300
21JUL2019	Sun	Omega	16	A3	67500
21JUL2019	Sun	Omega	11	A4	67300
22JUL2019	Mon	Alpha	14	A1	39300
22JUL2019	Mon	Alpha	11	A2	39500

Column Name	Type	Length	Format	Informat	Label
DATE	Numeric	8	DATE9.		
DAY	Char	8			
CAR	Char	8			
UNITS	Numeric	8			
TEAM	Char	8			
AVG_PRICE	Numeric	8			

General	Columns	Extended Attributes	Column	Extended Attributes	
Column Name	Type	Length	Format	Informat	Label
DATE	Numeric	8	DATE9.		
DAY	Char	8			
CAR	Char	12			
UNITS	Numeric	8			
TEAM	Char	8			
AVG_PRICE	Numeric	8	DOLLAR11.2		Avg Price USD

Date	Day	Car	Units	Team	Avg_Price	Rating	Incentive
20JUL2019	Sat	Alpha	20	A1	39000		.
20JUL2019	Sat	Alpha	20	A2	39100		.
20JUL2019	Sat	Omega	25	A3	67000		.
20JUL2019	Sat	Omega	22	A4	68000		.
21JUL2019	Sun	Alpha	12	A1	39200		.
21JUL2019	Sun	Alpha	14	A2	39300		.
21JUL2019	Sun	Omega	16	A3	67500		.
21JUL2019	Sun	Omega	11	A4	67300		.
22JUL2019	Mon	Alpha	14	A1	39300		.
22JUL2019	Mon	Alpha	11	A2	39500		.

---

<b>Obs</b>	<b>ClassID</b>	<b>Year</b>	<b>Age</b>	<b>Height</b>	<b>Weight</b>
1	A1234	2013	8	85	34
2	A2323	2013	9	81	36
3	B3423	2013	8	80	31
4	B5324	2013	9	70	35
5	C2342	2013	9	80	31
6	D3242	2013	9	85	30
7	A1234	2019	14	105	64
8	A2323	2019	15	101	66
9	B3423	2019	14	100	61
10	B5324	2019	15	90	55
11	C2342	2019	15	112	70
12	D3242	2019	14	112	70

---

<b>Obs</b>	<b>Height</b>	<b>ClassID</b>	<b>Year</b>	<b>Age</b>	<b>Weight</b>
<b>1</b>	70	B5324	2013	9	35
<b>2</b>	80	C2342	2013	9	31
<b>3</b>	81	A2323	2013	9	36
<b>4</b>	85	D3242	2013	9	30
<b>5</b>	90	B5324	2019	15	55
<b>6</b>	100	B3423	2019	14	61
<b>7</b>	101	A2323	2019	15	66
<b>8</b>	105	A1234	2019	14	64
<b>9</b>	112	C2342	2019	15	70

---

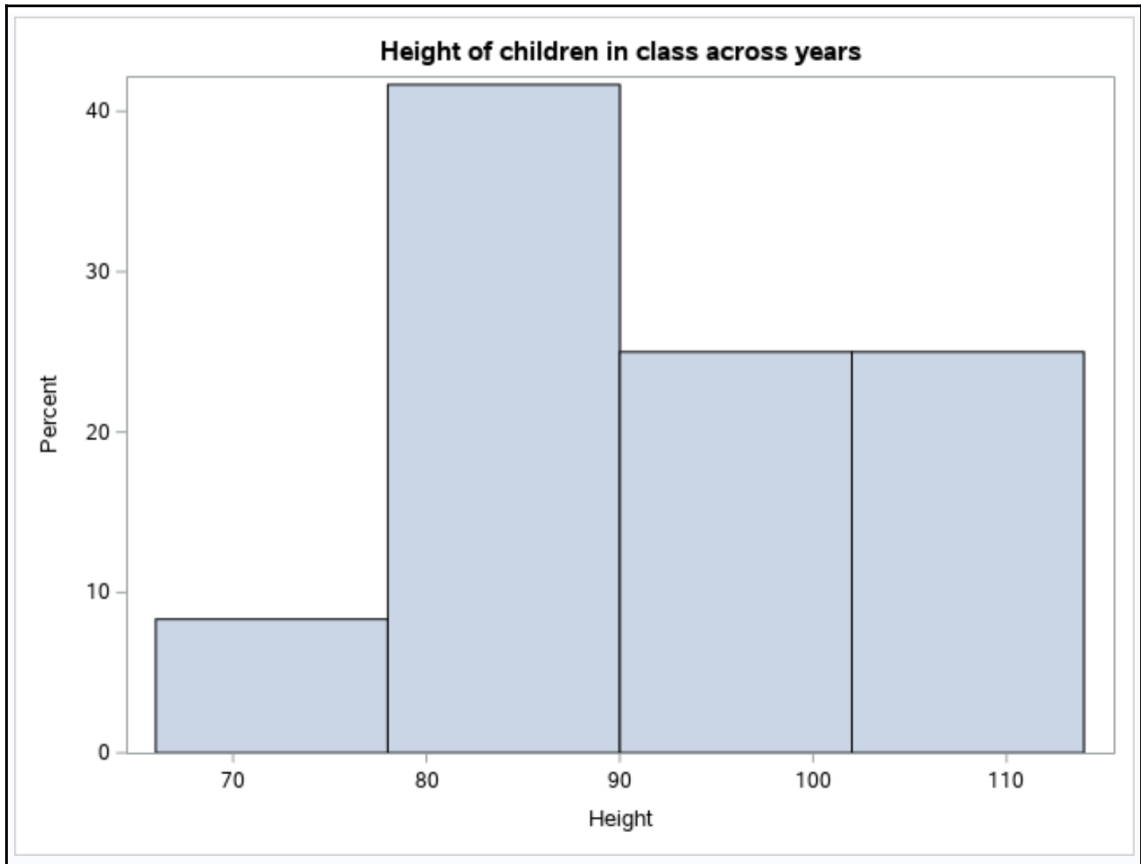
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70	B5324	2013	9	35	1
80	C2342	2013	9	31	2
81	A2323	2013	9	36	1
85	D3242	2013	9	30	2
90	B5324	2019	15	55	1
100	B3423	2019	14	61	1
101	A2323	2019	15	66	1
105	A1234	2019	14	64	1
112	D3242	2019	14	70	2

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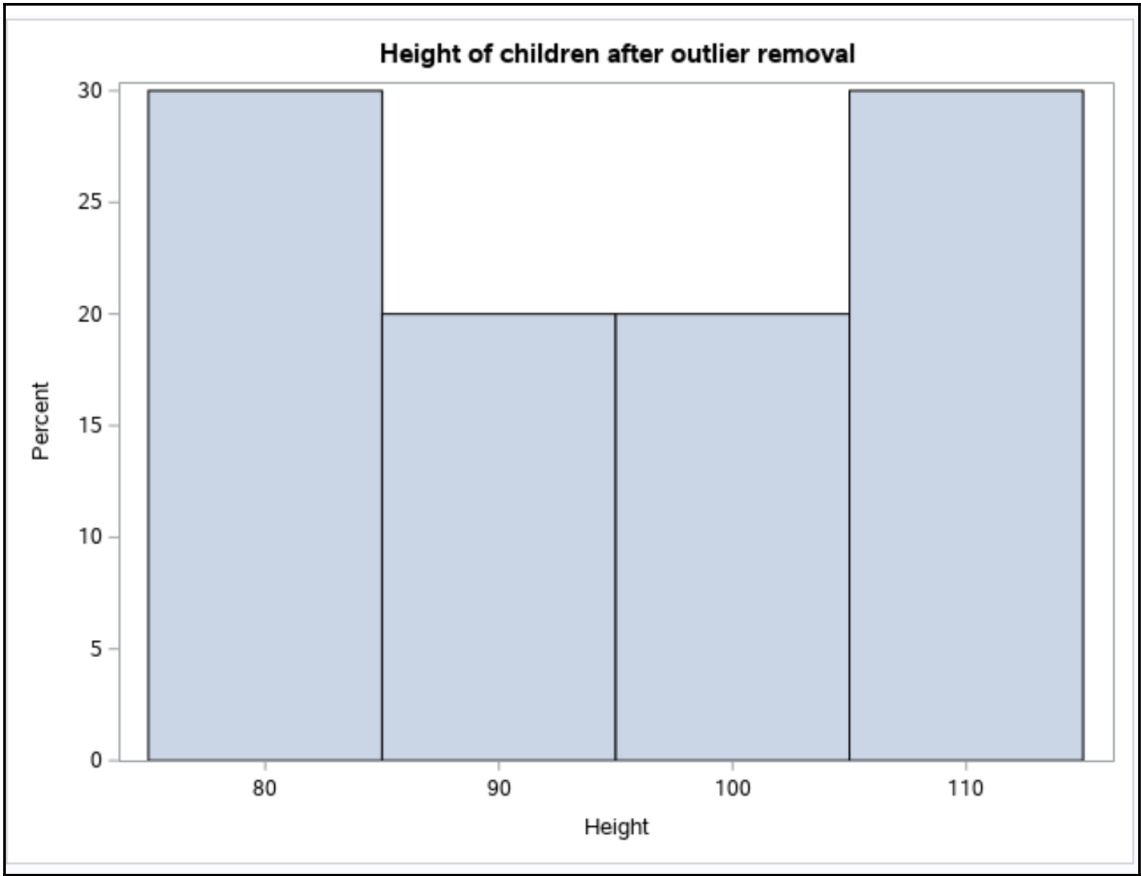
Team
A1
A2
A3
A4

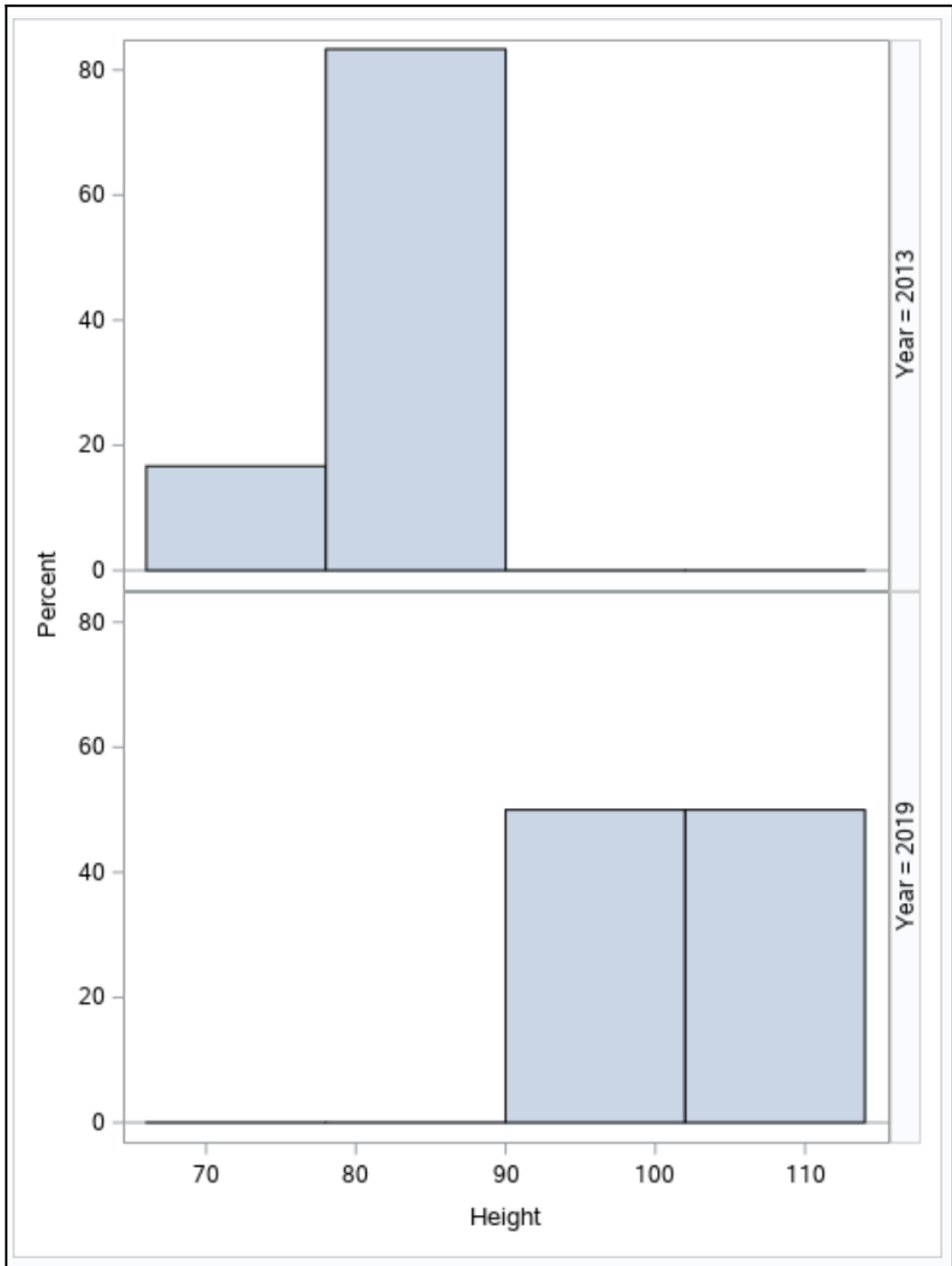
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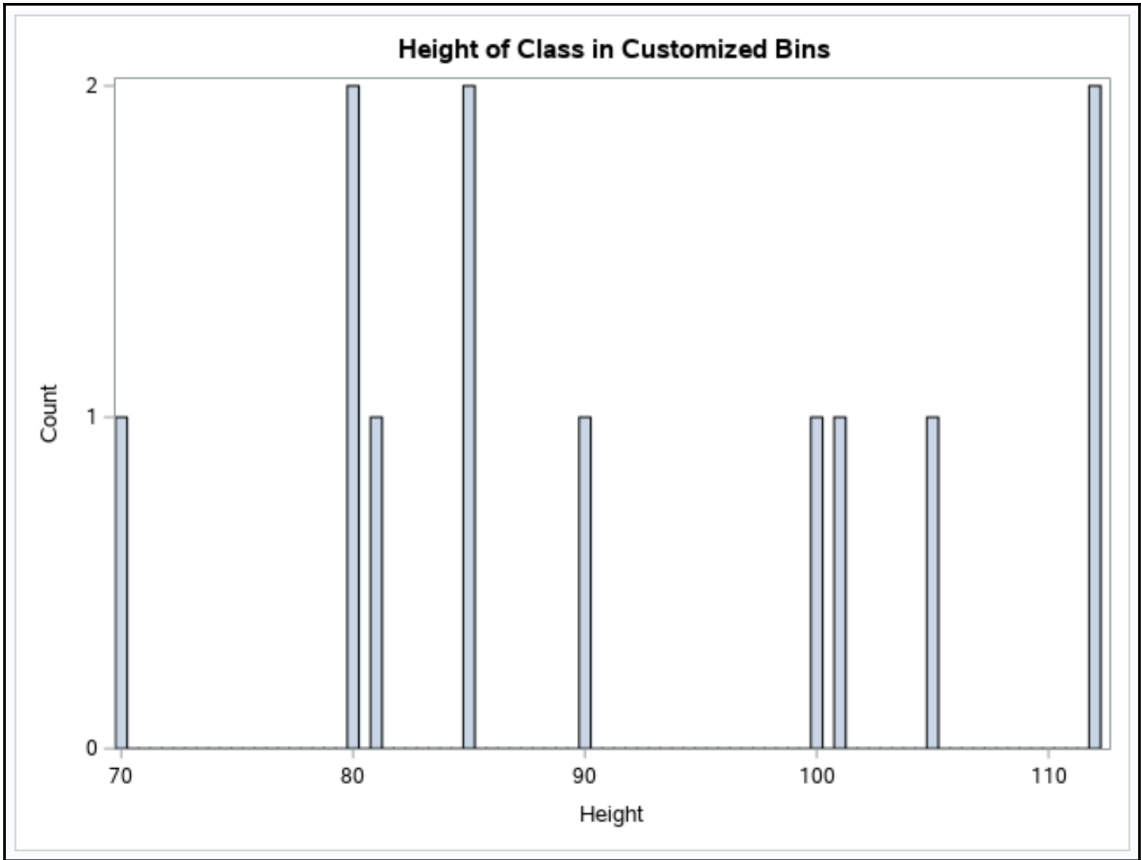
## Chapter 9: Data Visualization

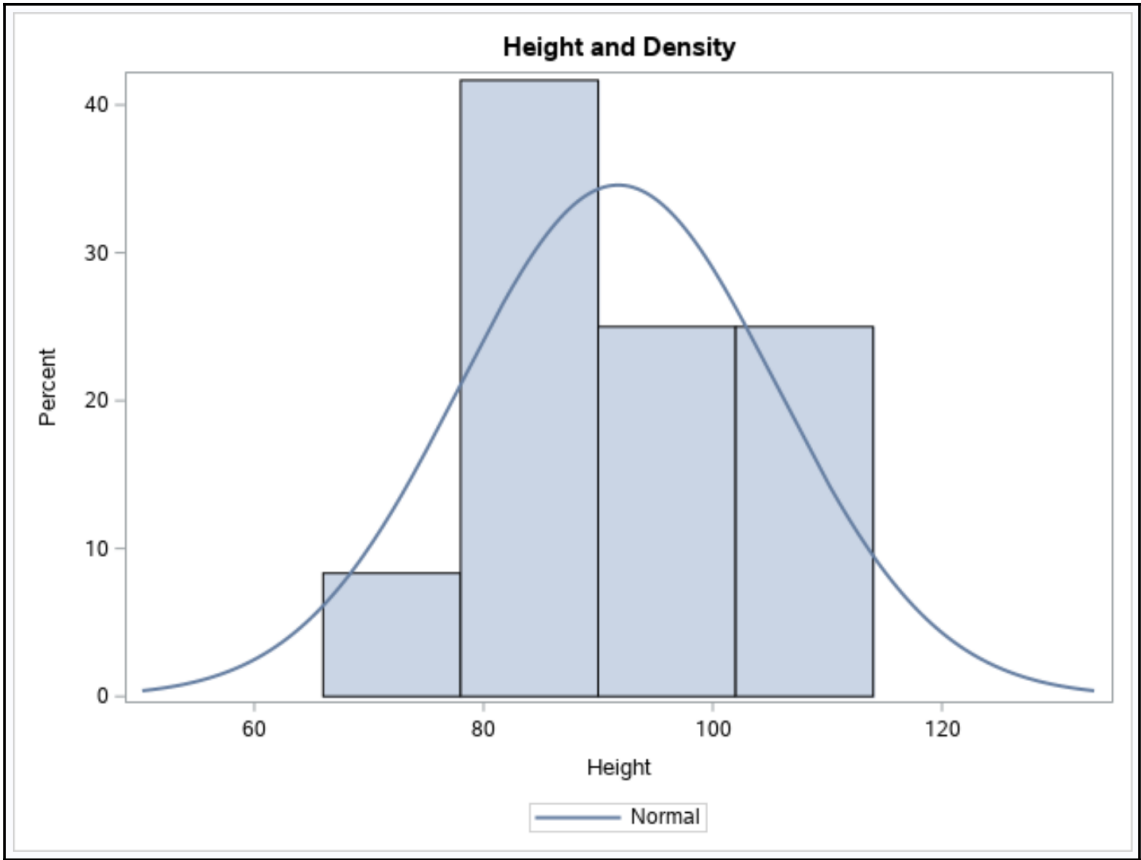


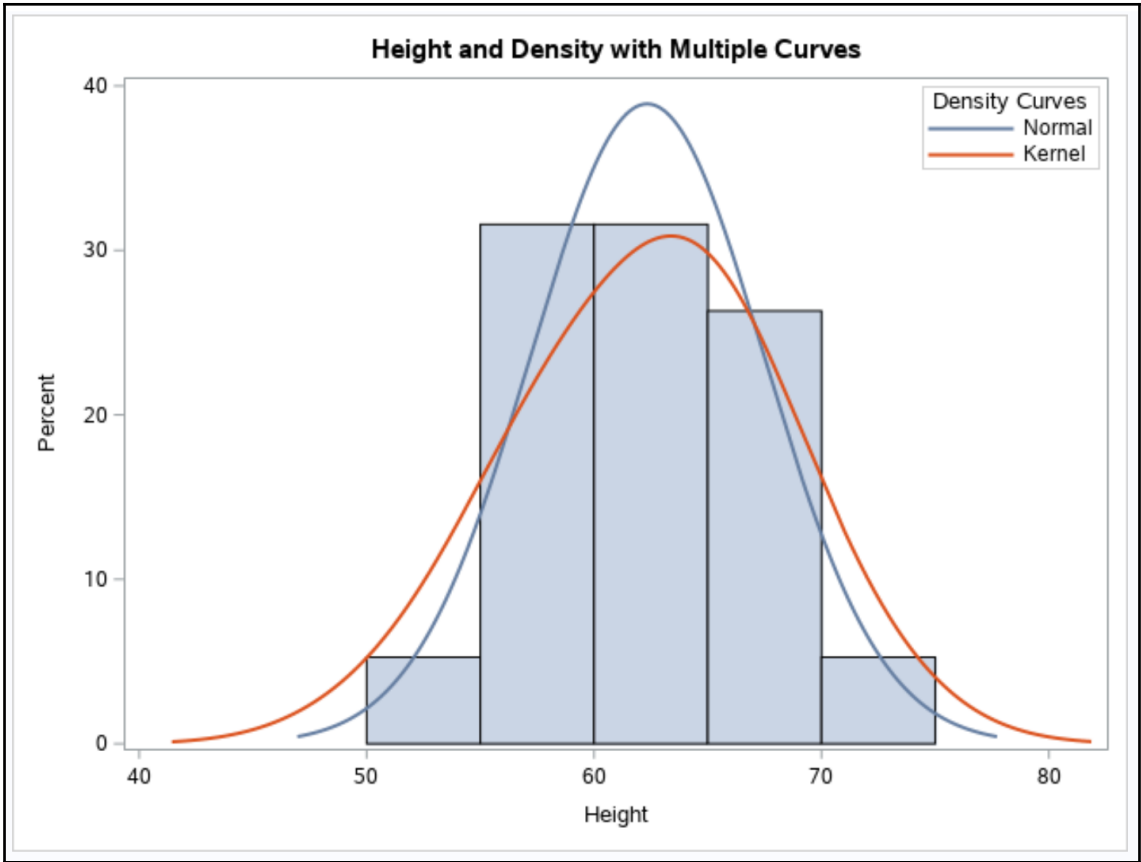


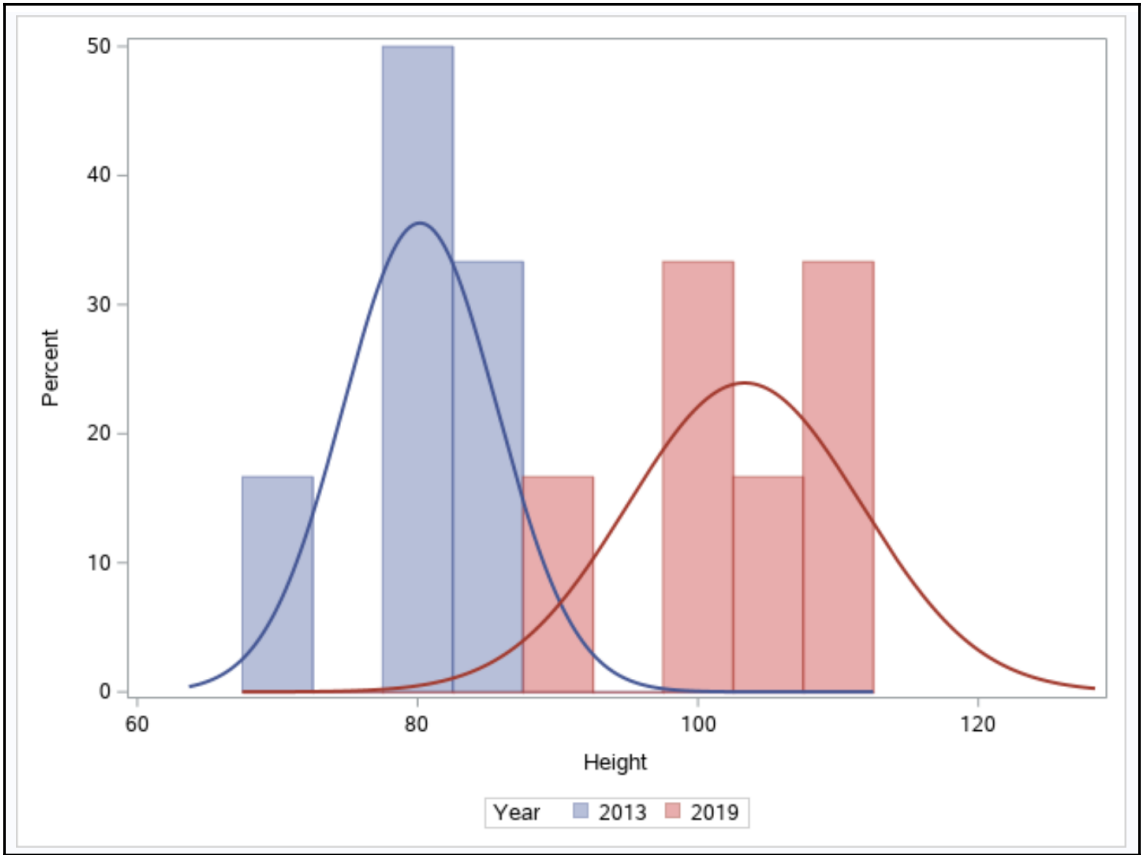


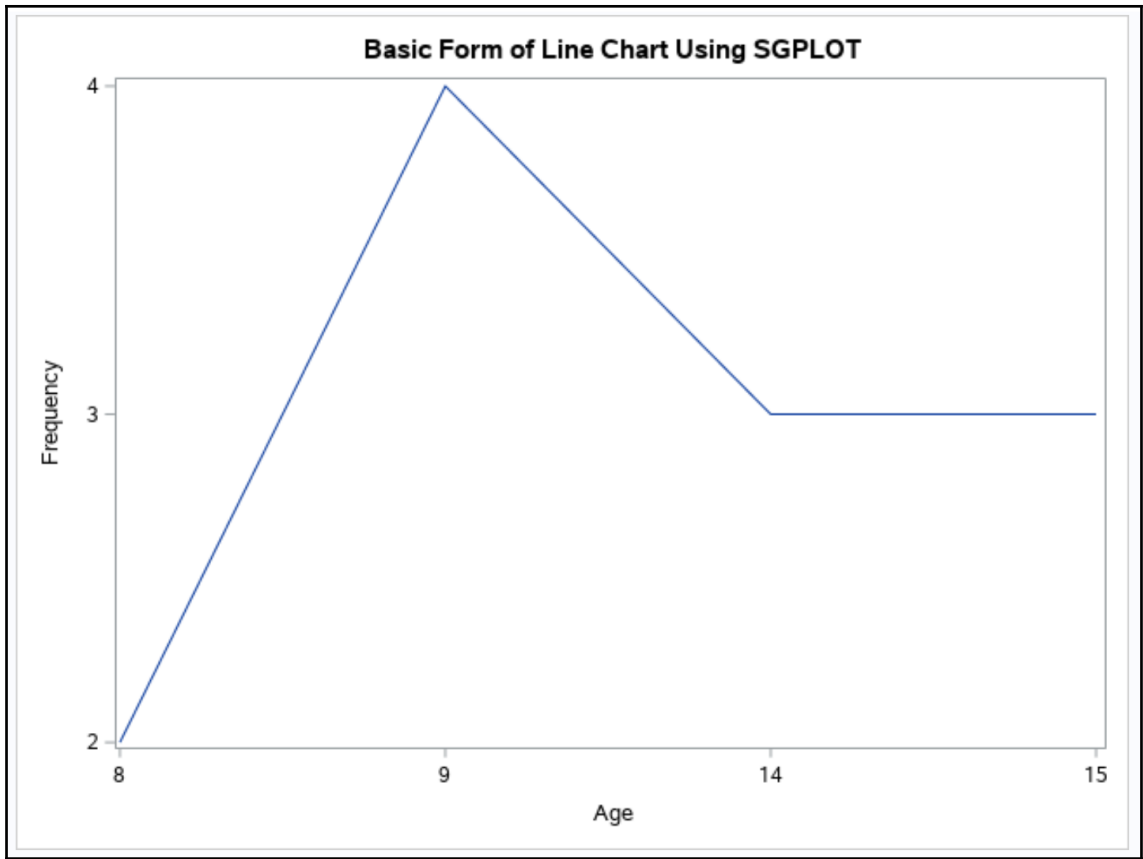


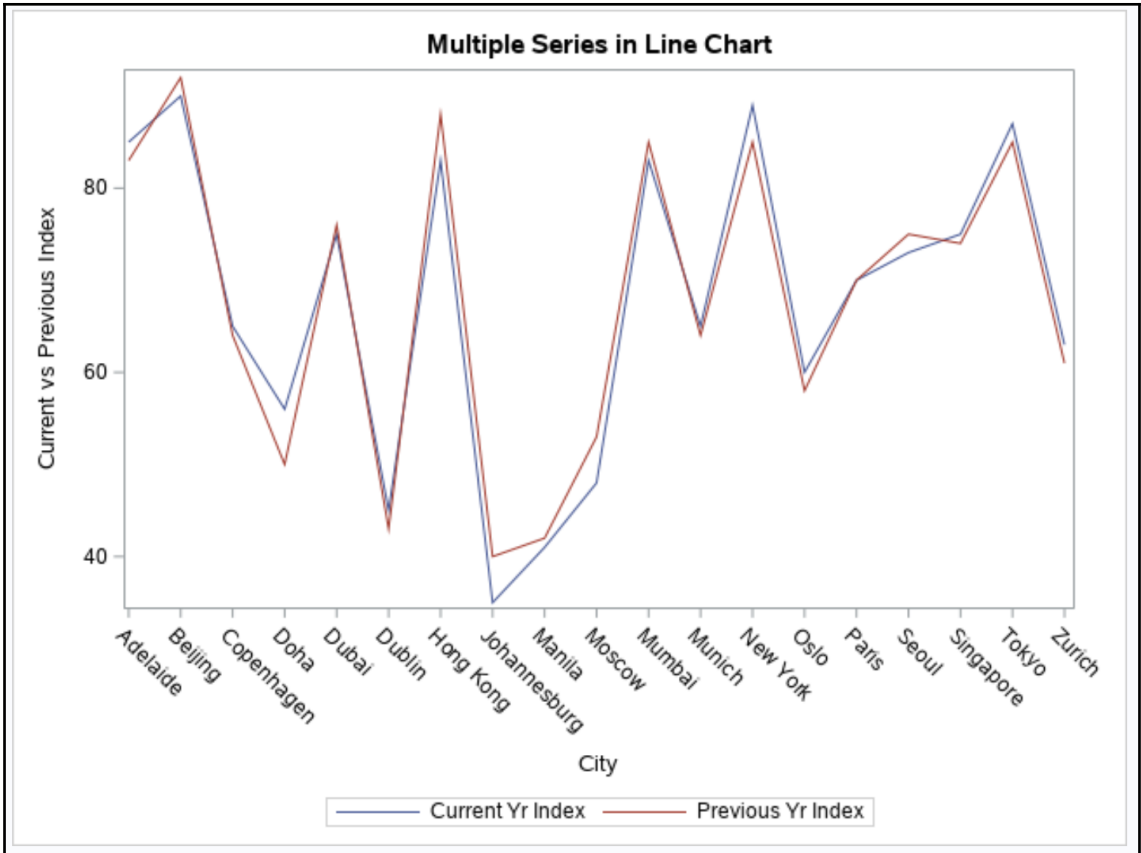




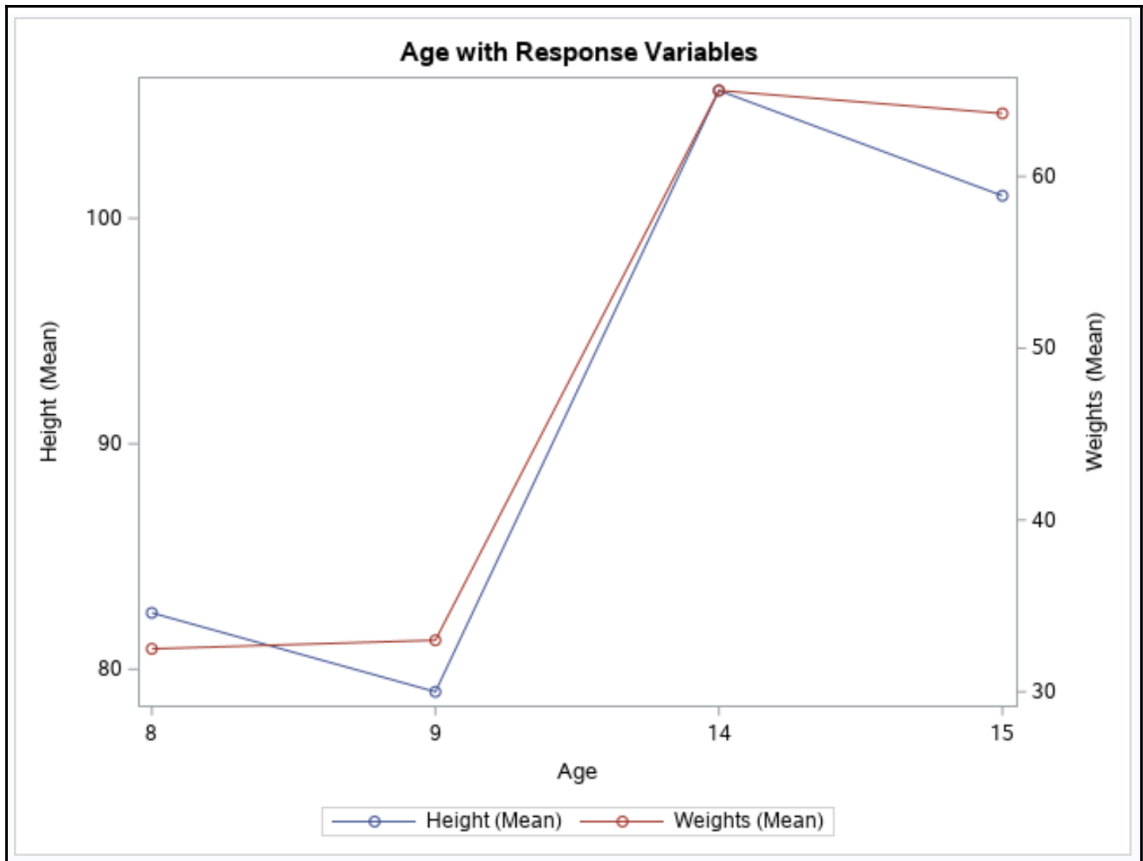


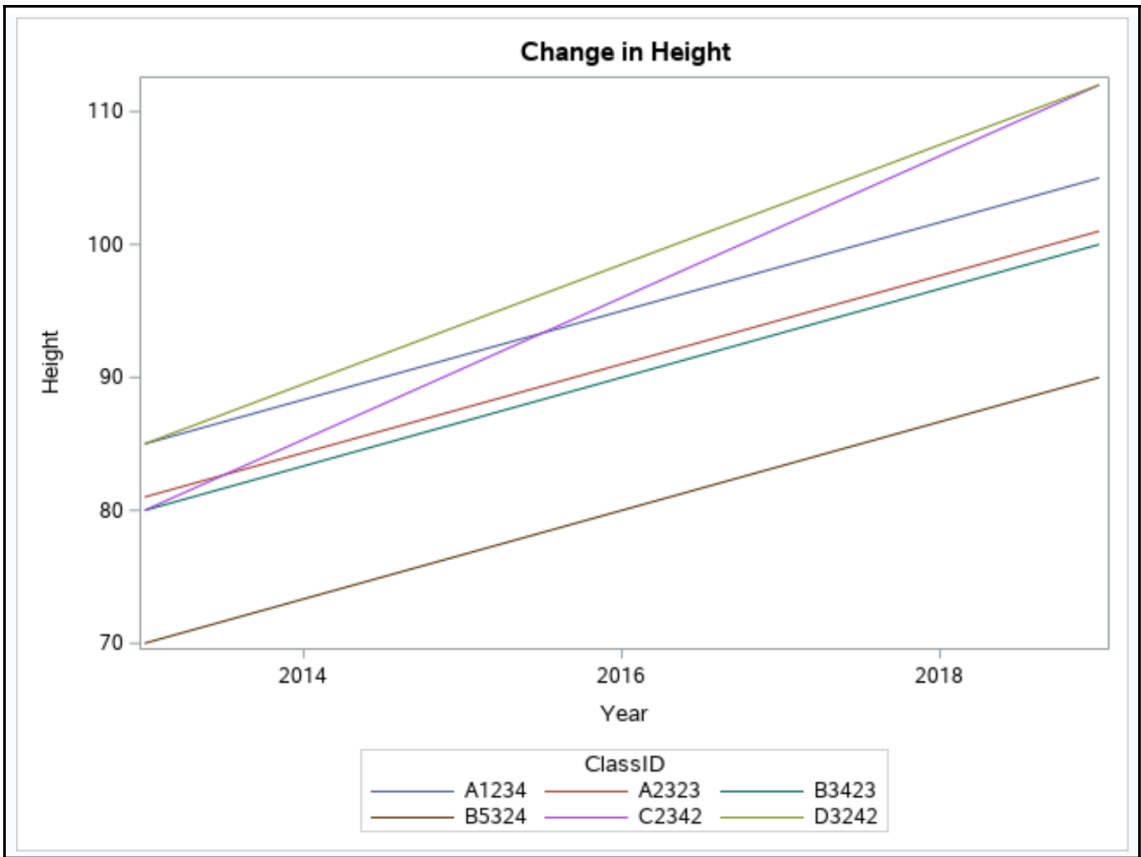


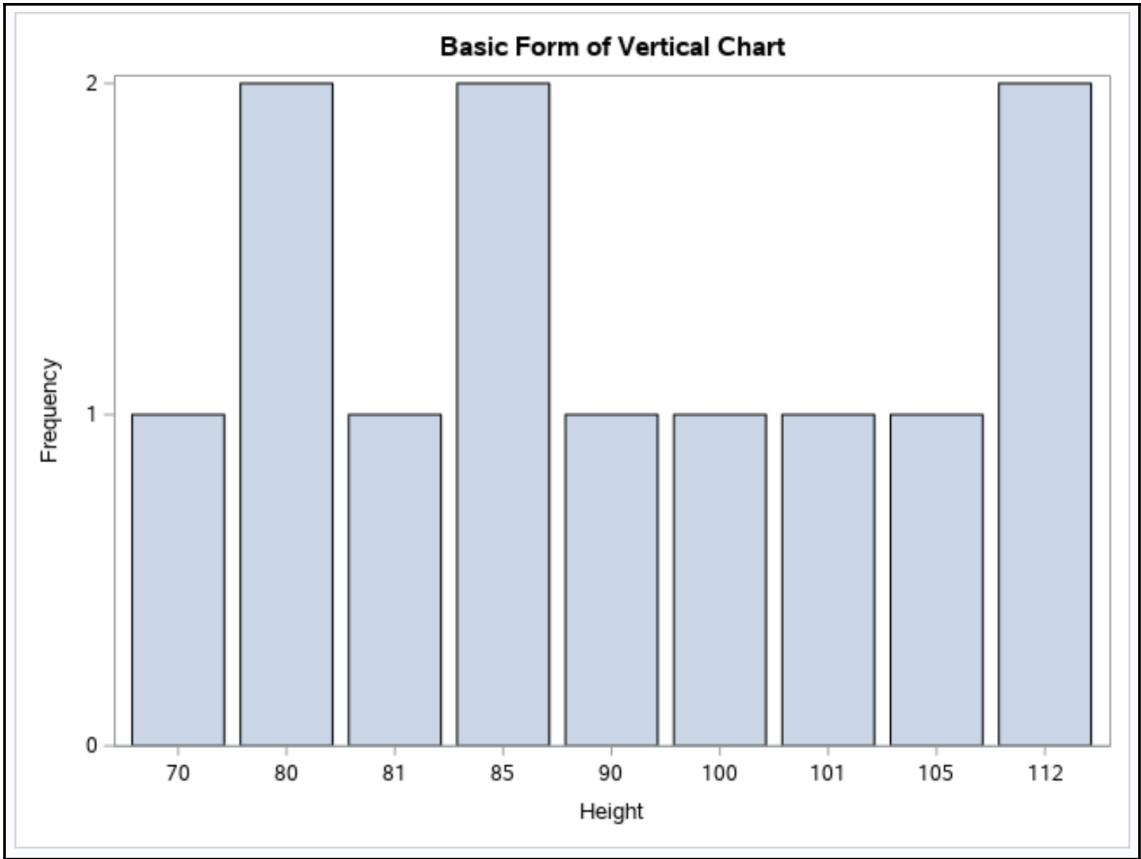


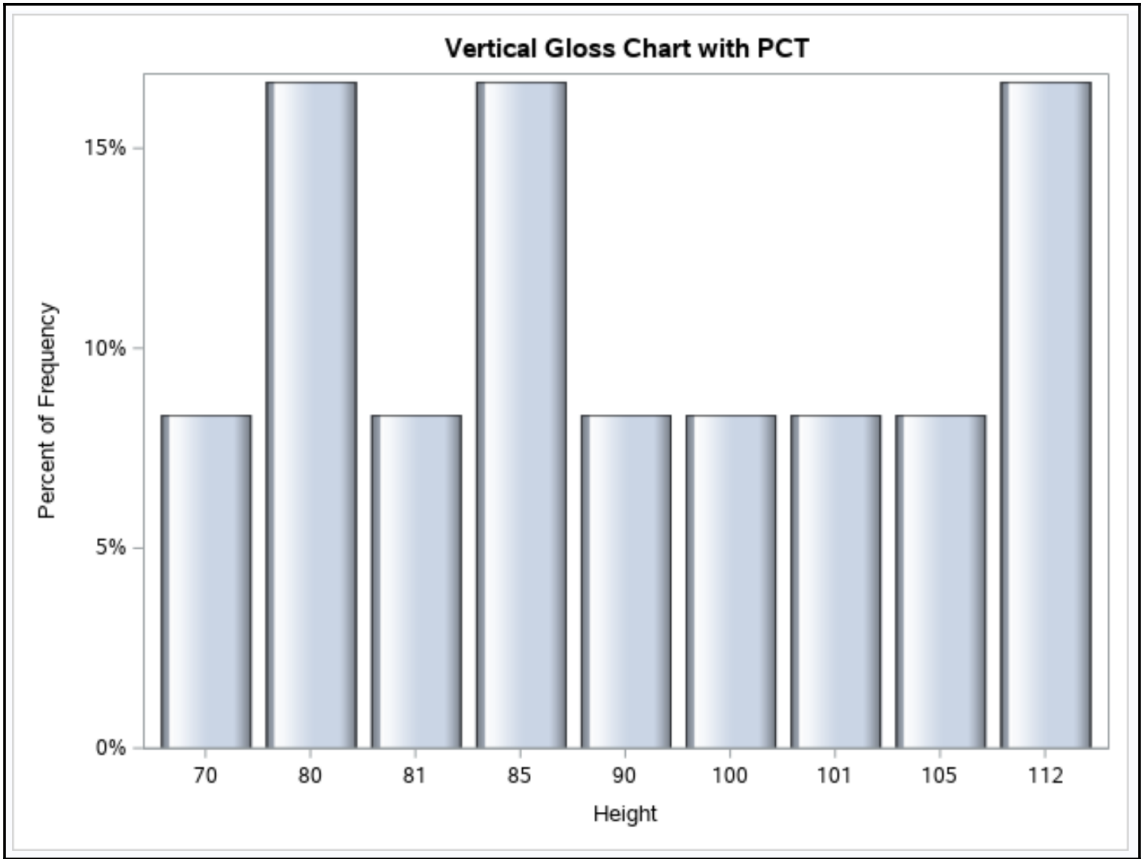


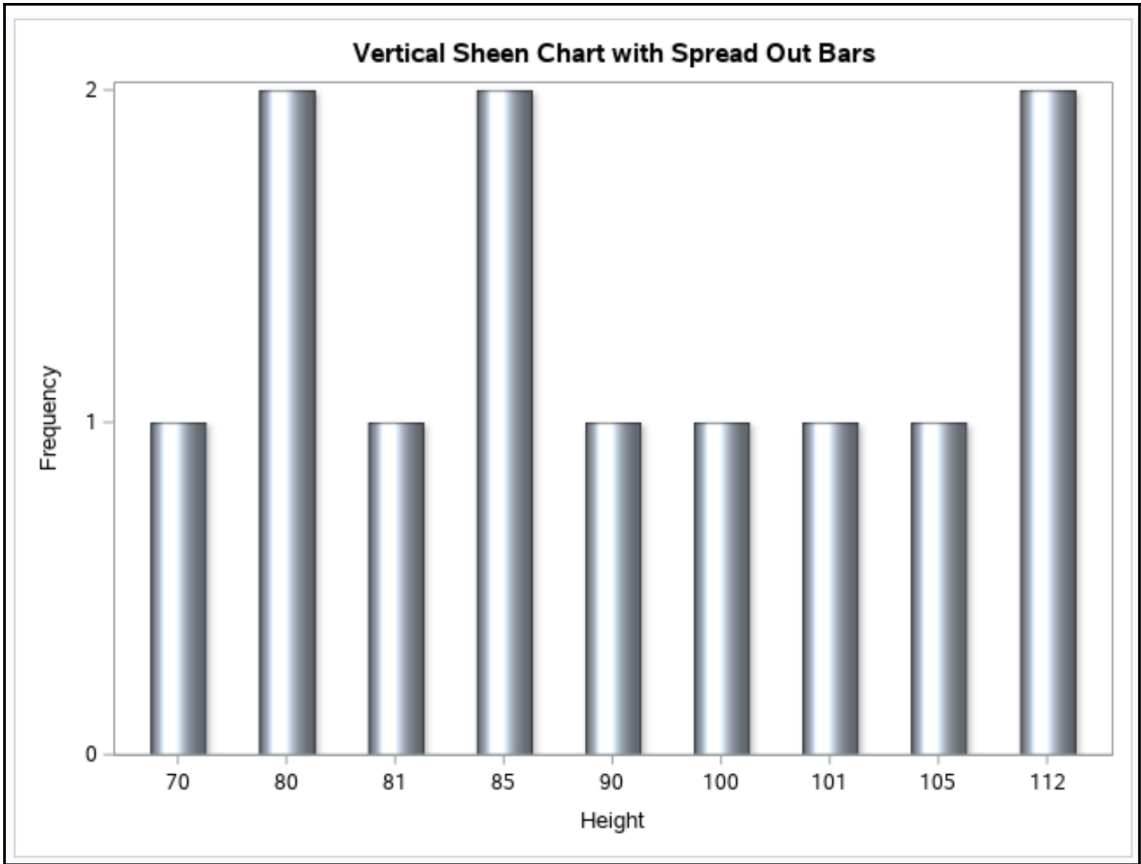


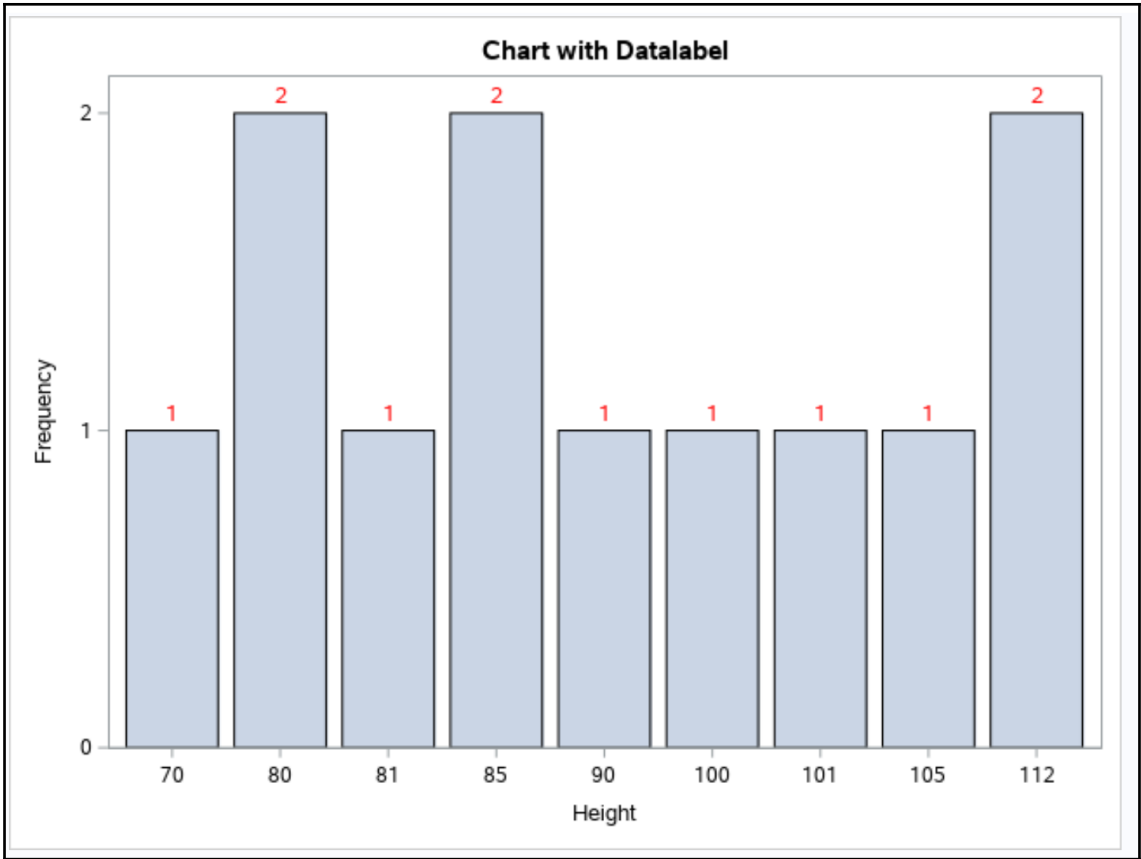


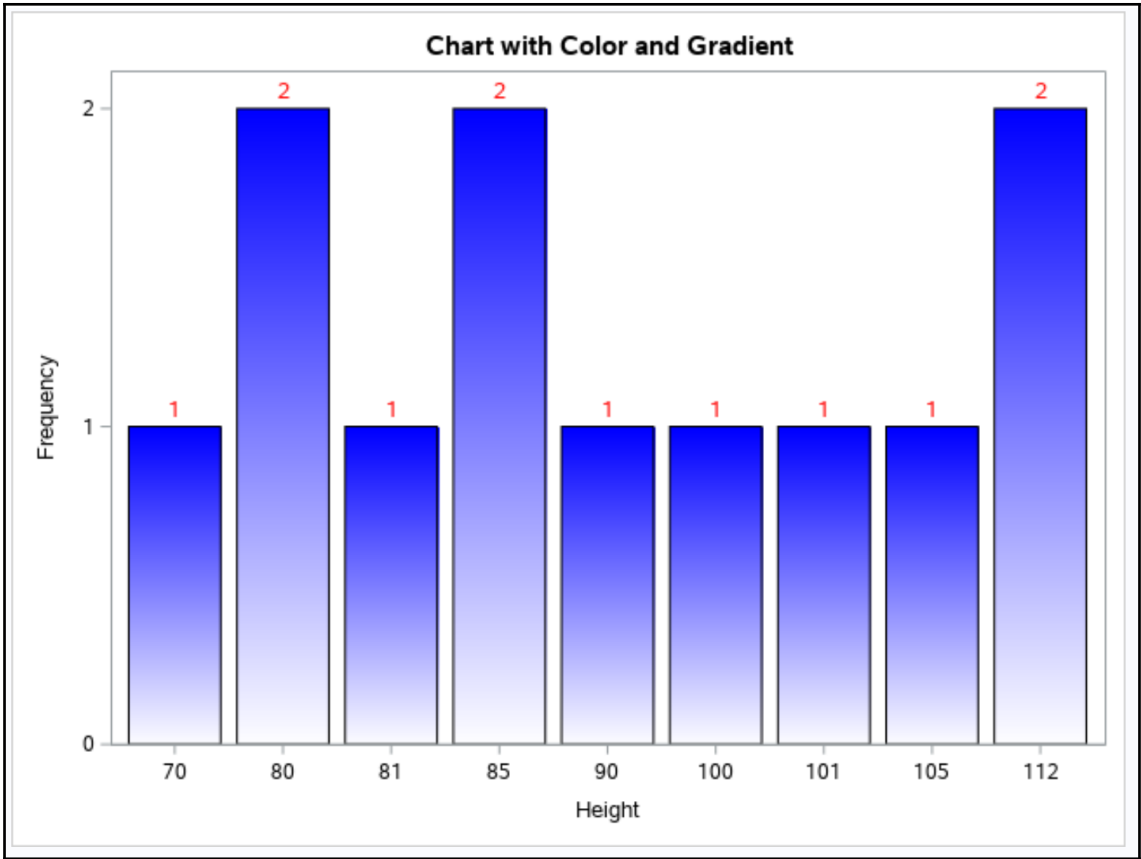


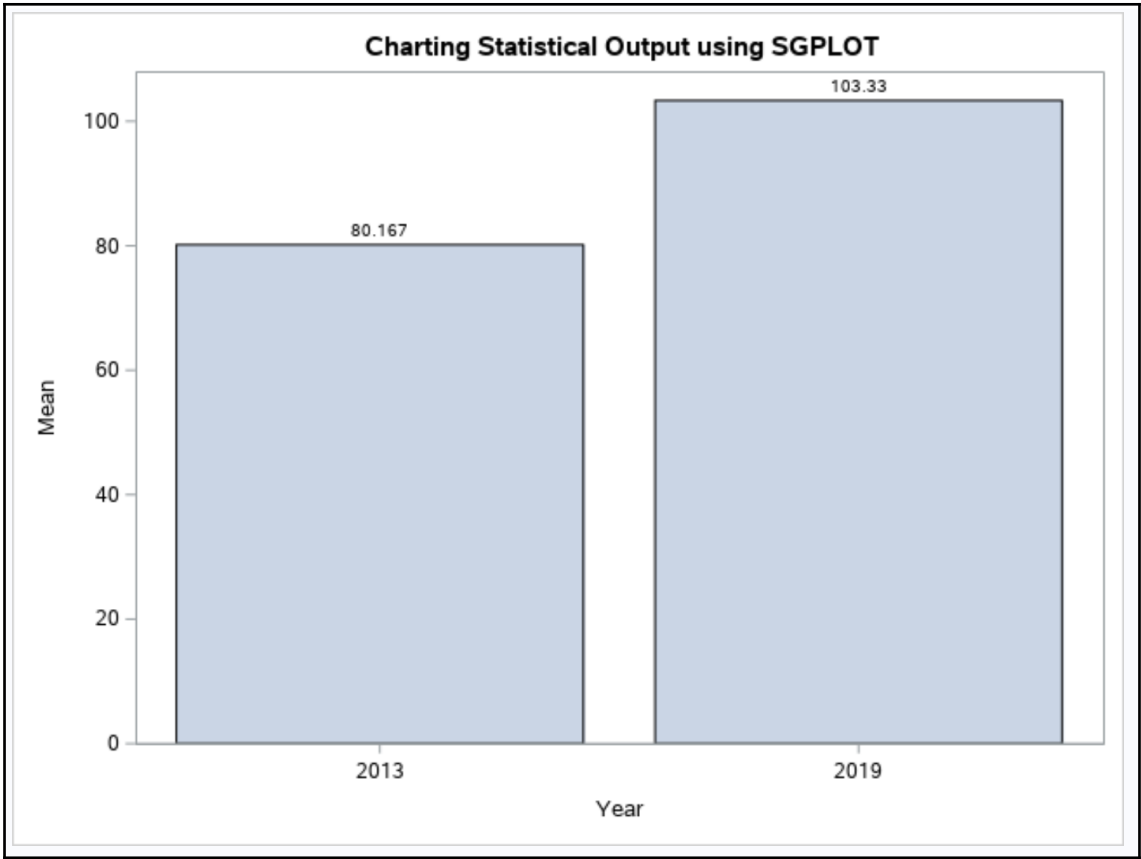




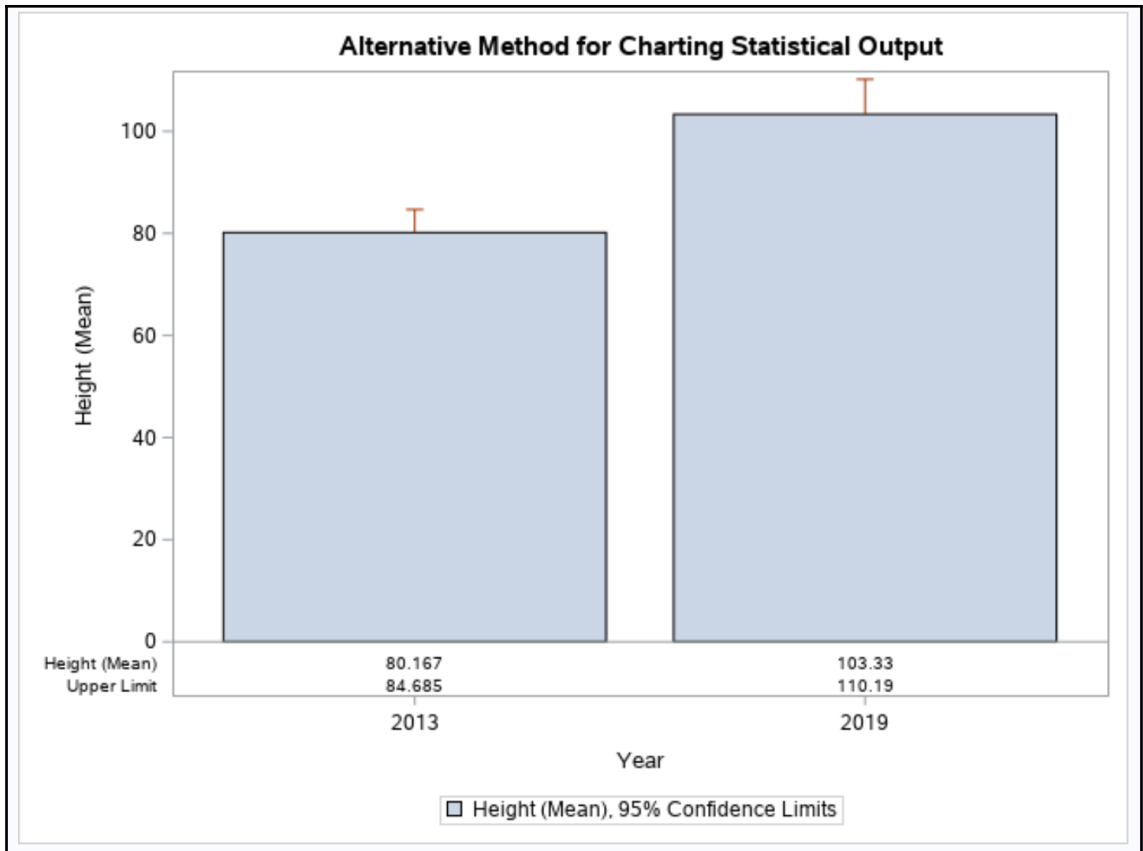


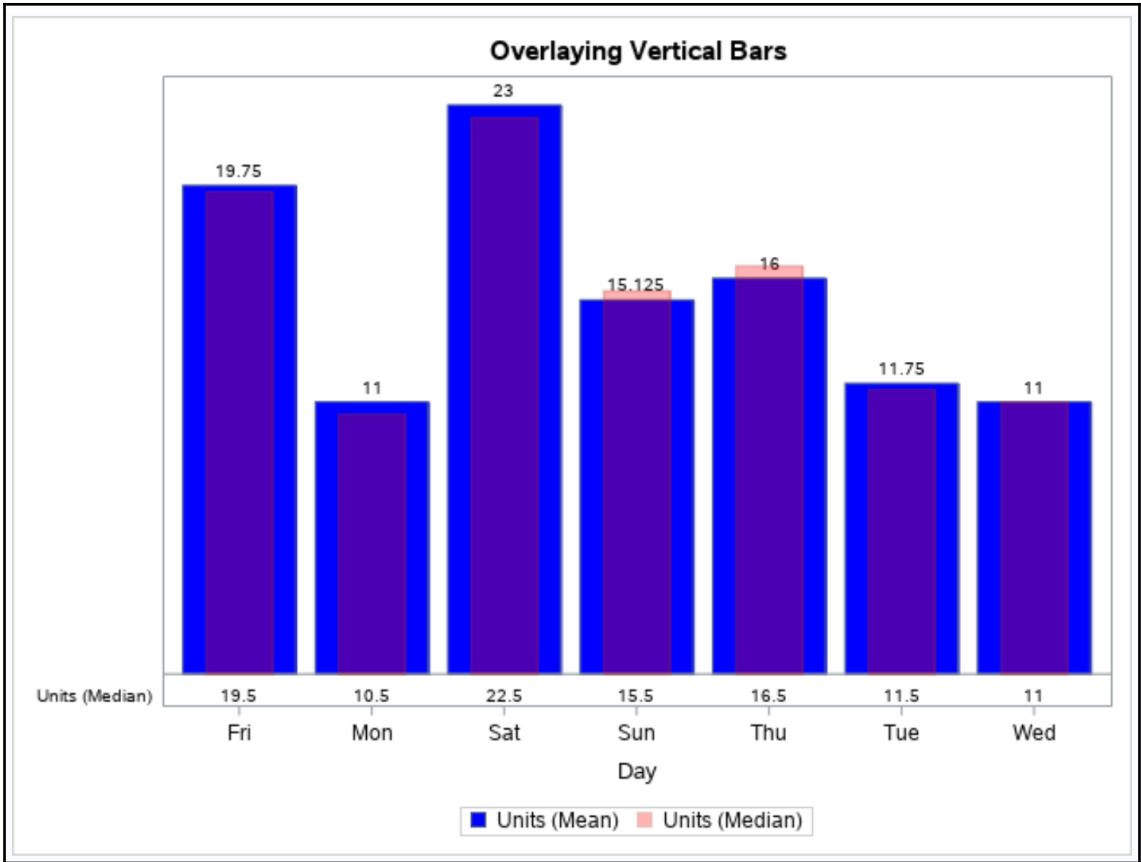


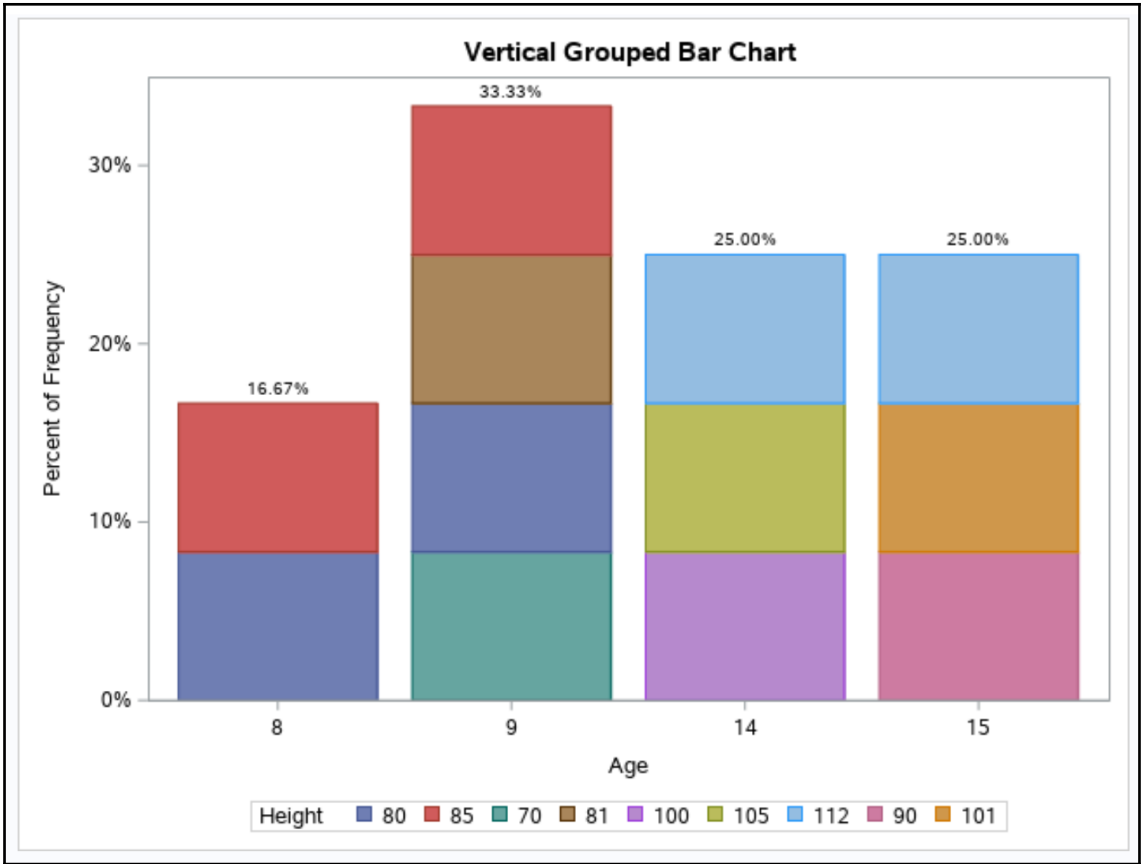


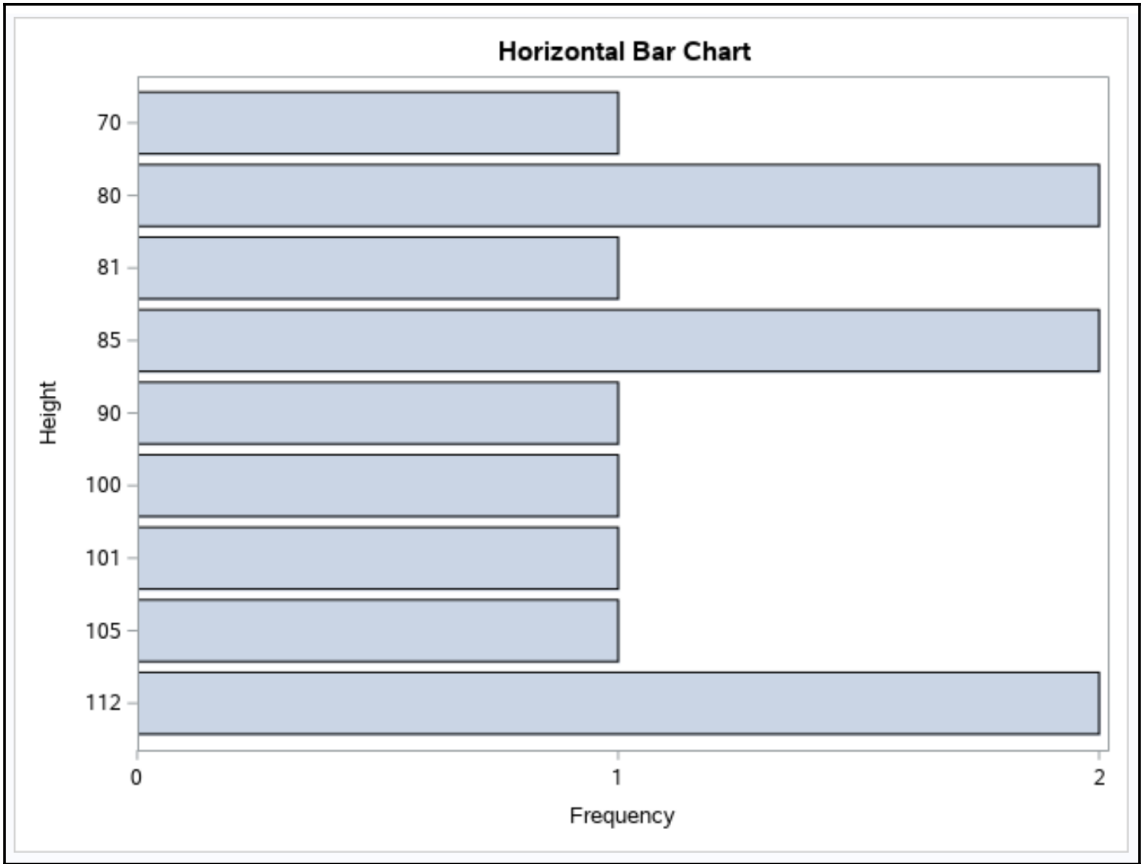


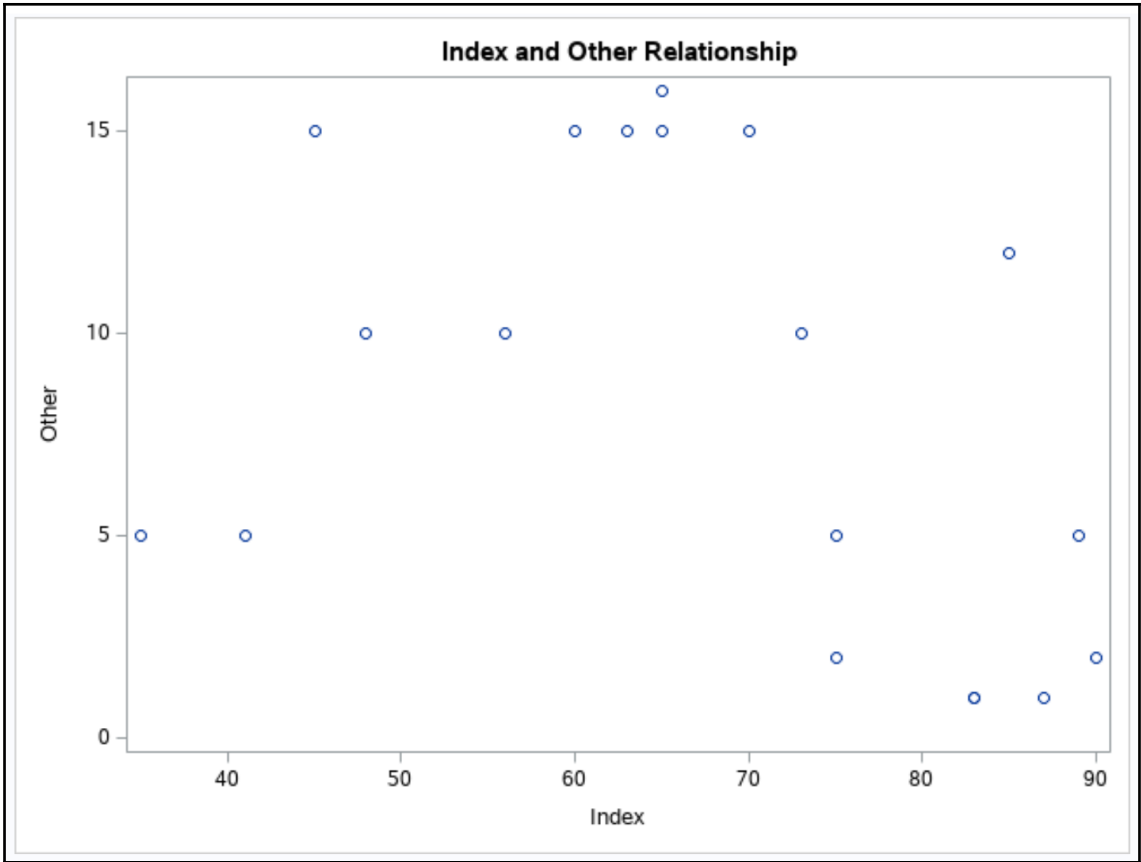


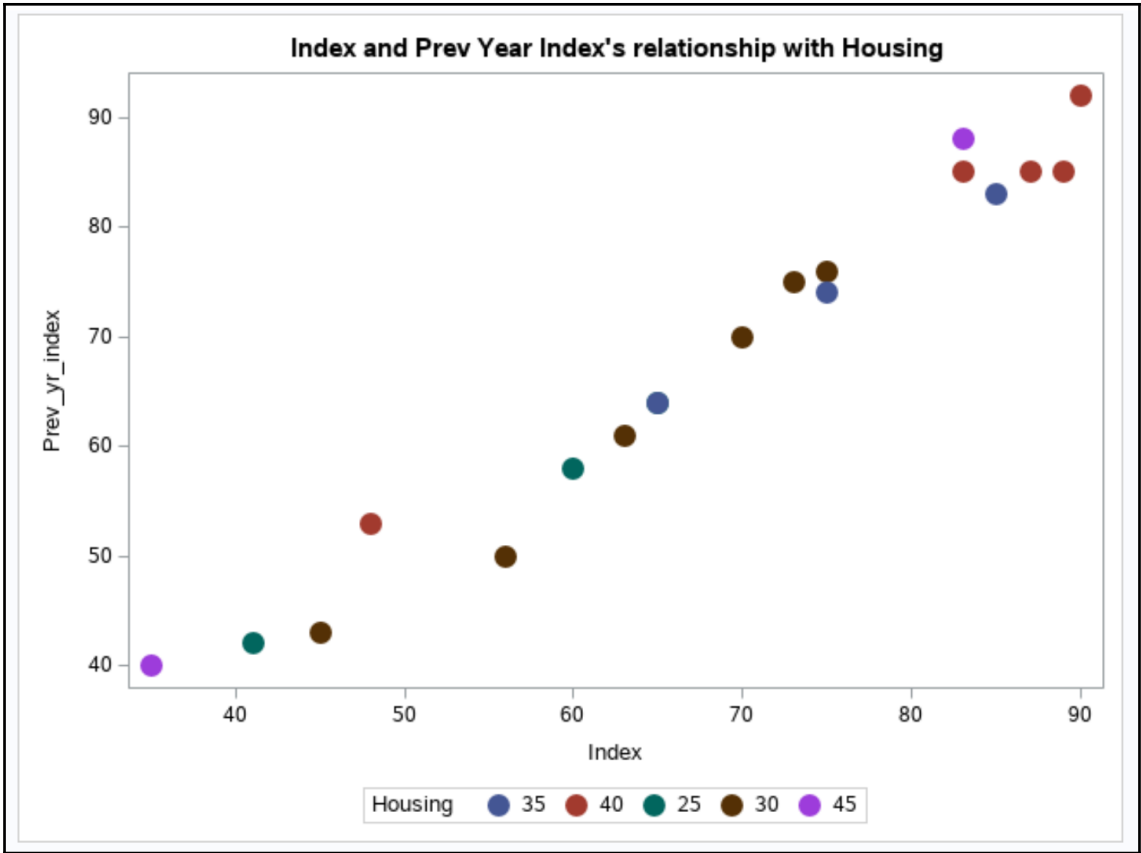


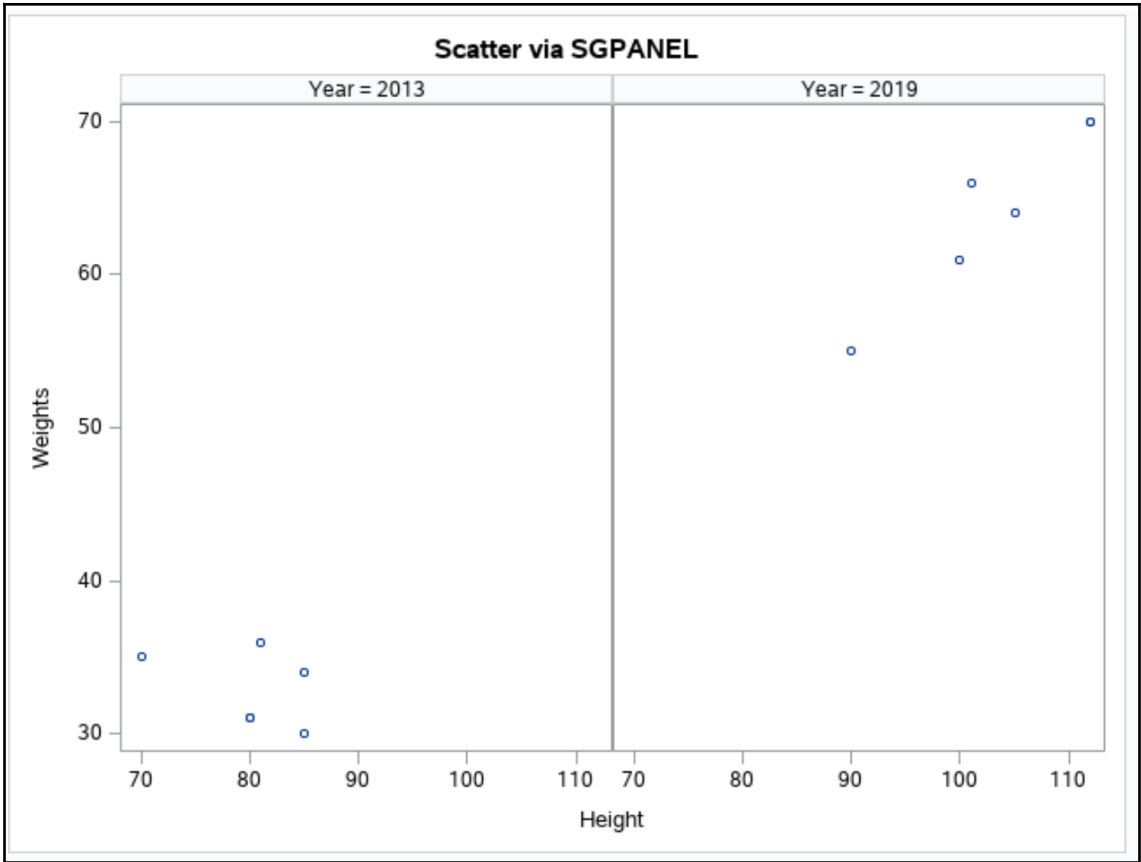


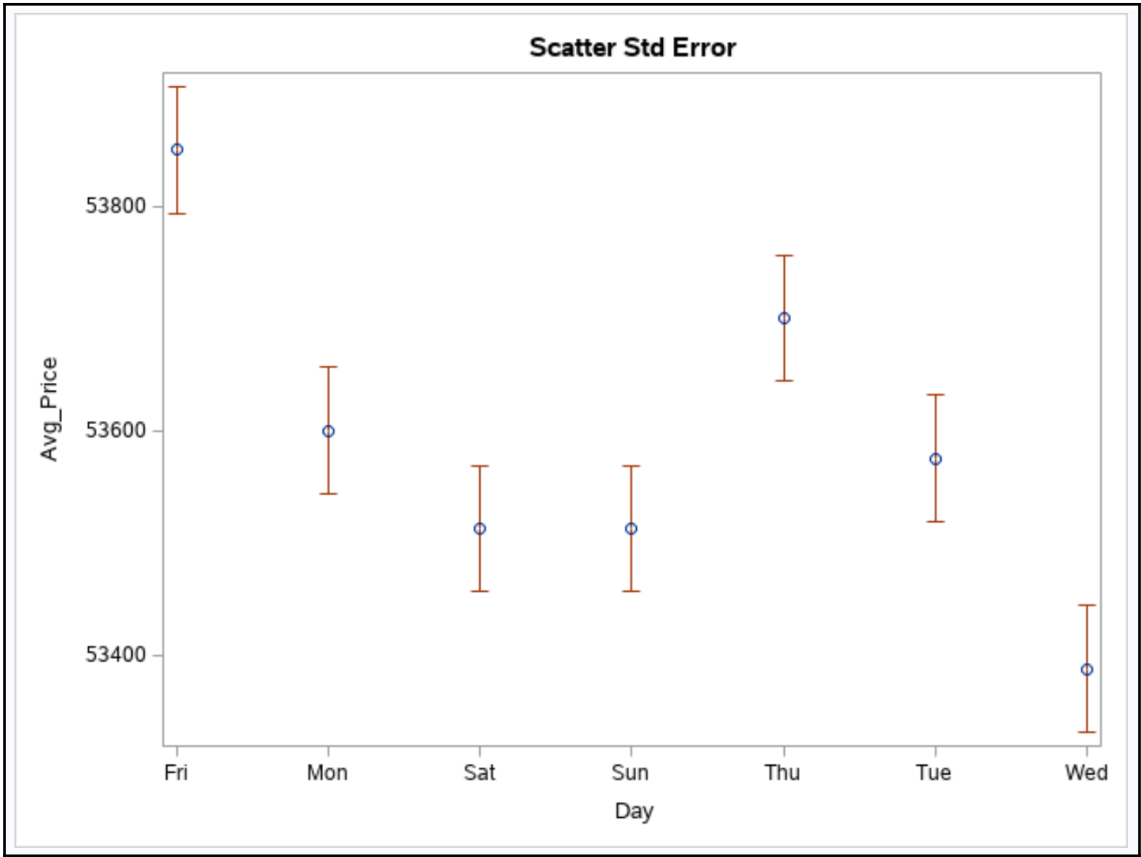




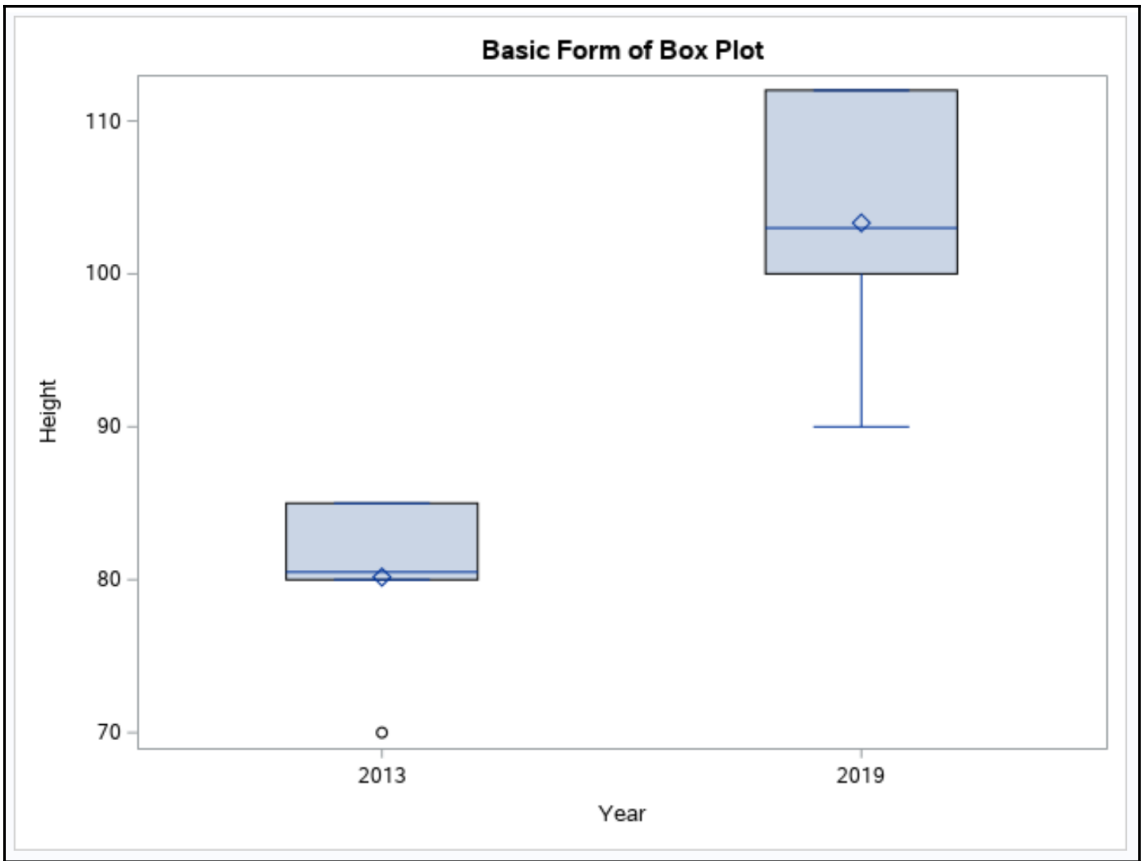


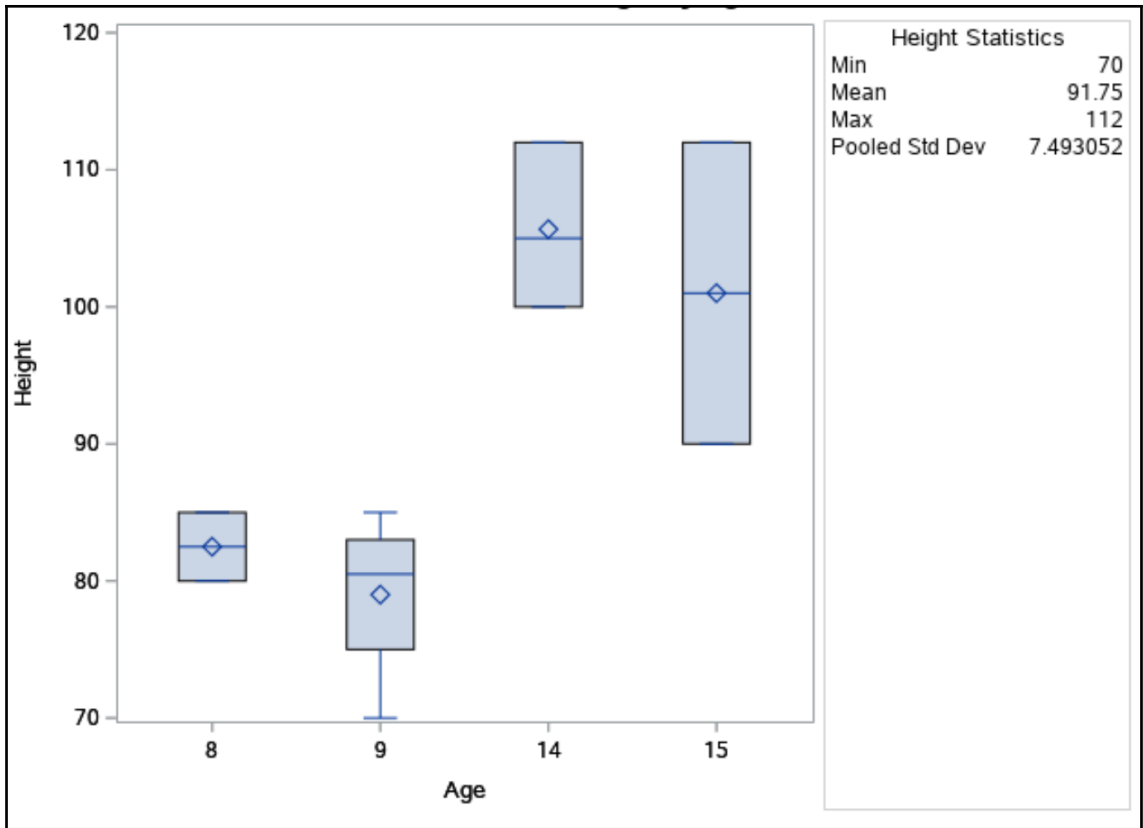












# Chapter 10: Reporting and Output Delivery System

ID	Class	Height	Weight	Football	Basketball	Hockey
1	A	Over5.7	Above50	1	0	1
2	A	Over5.7	Above50	1	1	0
3	B	Over5.7	Below50	1	1	.
4	B	Under5.7	Below50	1	1	1
5	A	Over5.7	Below50	1	1	1
6	A	Over5.7	Above50	1	.	1

**The MEANS Procedure**

**Analysis Variable : Basketball**

Height	N Obs	N	Mean	Std Dev	Minimum	Maximum
Over5.7	5	4	0.7500000	0.5000000	0	1.0000000
Under5.7	1	1	1.0000000	.	1.0000000	1.0000000

		Height		All
		Over5.7	Under5.7	
Basketball	Mean	0.75	1.00	0.80

<b>Units</b>
<b>Sum</b>
583.00

Car		Team				Day						
Alpha	Omega	A1	A2	A3	A4	Fri	Mon	Sat	Sun	Thu	Tue	Wed
N	N	N	N	N	N	N	N	N	N	N	N	N
18	18	9	9	9	9	4	4	8	8	4	4	4

Avg_Price					
Car					
Alpha			Omega		
Sum	Mean	StdDev	Sum	Mean	StdDev
708800.00	39377.78	232.14	1219850.00	67769.44	431.53

Avg_Price		Avg_Price		Avg_Price	
Car		Car		Car	
Alpha	Omega	Alpha	Omega	Alpha	Omega
Sum	Sum	Mean	Mean	StdDev	StdDev
708800.00	1219850.00	39377.78	67769.44	232.14	431.53

<b>No. of Students Playing Basketball</b>	
<b>Total No. of Students</b>	
<b>Height</b>	
<b>Over5.7</b>	<b>Under5.7</b>
3.00	1.00

---

<b>Basketball</b>	
<b>Sum</b>	
<b>Height</b>	
<b>Over5.7</b>	<b>Under5.7</b>
3.00	1.00

---

<b>Country</b>	<b>Segment</b>	<b>Type</b>	<b>Product</b>	<b>Amt</b>
US	Retail	Software	A	23
US	Retail	Software	B	11
US	Retail	Hardware	A	8
US	Retail	Hardware	B	10
US	Commercial	Software	A	45
US	Commercial	Software	B	46
US	Commercial	Hardware	A	4
US	Commercial	Hardware	B	11
Germany	Retail	Software	A	12
Germany	Retail	Software	B	15
Germany	Commercial	Software	A	55
Germany	Commercial	Software	B	67
Germany	Commercial	Hardware	A	23
Germany	Commercial	Hardware	B	25

			Amt	
			Type	
			Hardware	Software
			Mean	Mean
Country	Segment	Product		
Germany	Commercial	A	23.00	55.00
		B	25.00	67.00
	Retail	A	.	12.00
		B	.	15.00
US	Commercial	A	4.00	45.00
		B	11.00	46.00
	Retail	A	8.00	23.00
		B	10.00	11.00



AutoSave  Off

Class... Harish Gulati HG

File Home Insert Draw Page Layout Formulas Data Review View Help Search

Clipboard Font Alignment Number Styles Cells Editing

Conditional Formatting  
Format as Table  
Cell Styles

A1 Obs

Obs	ClassID	Year	Age	Height	Weights
1	A1234	2013	8	85	34
2	A2323	2013	9	81	36
3	B3423	2013	8	80	31
4	B5324	2013	9	70	35
5	C2342	2013	9	80	31
6	D3242	2013	9	85	30
7	A1234	2019	14	105	64
8	A2323	2019	15	101	66
9	B3423	2019	14	100	61
10	B5324	2019	15	90	55
11	C2342	2019	15	112	70
12	D3242	2019	14	112	70
13					
14					

Print 1 - Data Set WORK.CLAS

100%

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Clipboard Font Alignment Number Conditional Formatting Format as Table Cell Styles Cells Editing Id >

Styles

A1 *fx* Obs

	A	B	C	D	E	F	G	H	I	J
1	<b>Obs</b>	<b>ClassID</b>	<b>Year</b>	<b>Age</b>	<b>Height</b>	<b>Weights</b>				
2	1	A1234	2013	8	85	34				
3	2	A2323	2013	9	81	36				
4	3	B3423	2013	8	80	31				
5	4	B5324	2013	9	70	35				
6	5	C2342	2013	9	80	31				
7	6	D3242	2013	9	85	30				
8	7	A1234	2019	14	105	64				
9	8	A2323	2019	15	101	66				
10	9	B3423	2019	14	100	61				
11	10	B5324	2019	15	90	55				
12	11	C2342	2019	15	112	70				
13	12	D3242	2019	14	112	70				
14										

Class Customer\_X Dealership + 100%

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Clipboard Font Alignment Number Conditional Formatting Cells Editing Ideas

Formulas: Cell Styles, Format as Table, Conditional Formatting

Formula Bar: A1 | Year=2013

	A	B	C	D	E	F	G	H
1	Year=2013							
2								
3	<b>ClassID</b>	<b>Year</b>	<b>Age</b>	<b>Height</b>	<b>Weights</b>			
4	A1234	2013	8	85	34			
5	A2323	2013	9	81	36			
6	B3423	2013	8	80	31			
7	B5324	2013	9	70	35			
8	C2342	2013	9	80	31			
9	D3242	2013	9	85	30			
10								
11								
12								

Report 1 - Detailed and-or s | Report 2 - Detailed and-or s

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Clipboard Font Alignment Number Conditional Formatting Format as Table Cell Styles Cells Editing Ideas

A1 Year=2019

	A	B	C	D	E	F	G	H
1	Year=2019							
2								
3	<b>ClassID</b>	<b>Year</b>	<b>Age</b>	<b>Height</b>	<b>Weights</b>			
4	A1234	2019	14	105	64			
5	A2323	2019	15	101	66			
6	B3423	2019	14	100	61			
7	B5324	2019	15	90	55			
8	C2342	2019	15	112	70			
9	D3242	2019	14	112	70			
10								
11								
12								

Report 1 - Detailed and-or s | **Report 2 - Detailed and-or s**

AutoSave  Off >> Filters -... Harish Gulati HG -

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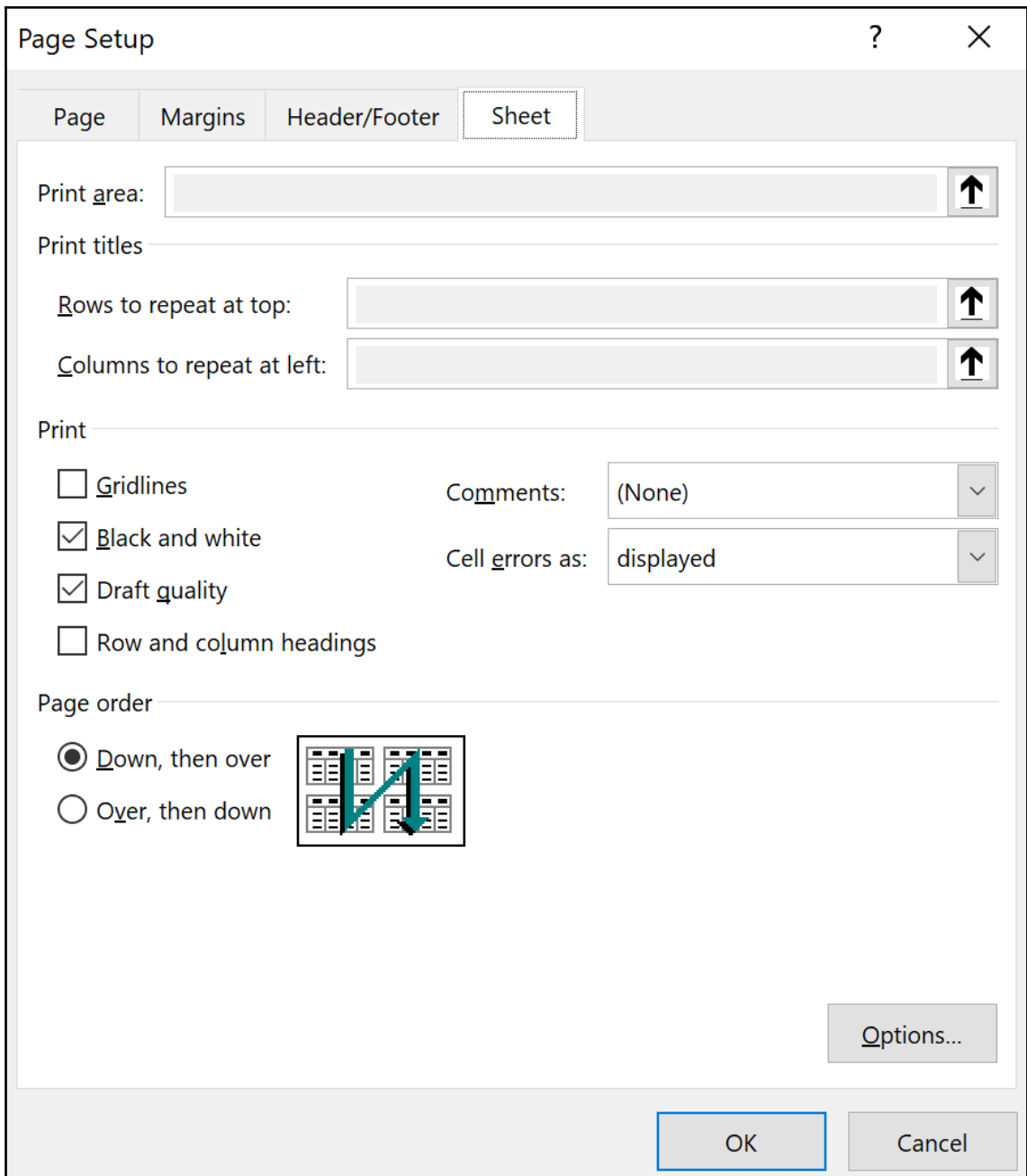
Clipboard Font Alignment Number Conditional Formatting Format as Table Cell Styles Cells Editing Ideas

Styles

A1 Obs

	A	B	C	D	E	F	G	H
1	O	ClassID	Ye	A	Heig	Weigh		
2	1	A1234	2013	8	85	34		
3	2	A2323	2013	9	81	36		
4	3	B3423	2013	8	80	31		
5	4	B5324	2013	9	70	35		
6	5	C2342	2013	9	80	31		
7	6	D3242	2013	9	85	30		
8	7	A1234	2019	14	105	64		
9	8	A2323	2019	15	101	66		
10	9	B3423	2019	14	100	61		
11	10	B5324	2019	15	90	55		
12	11	C2342	2019	15	112	70		
13	12	D3242	2019	14	112	70		

Table 1 - Data Set WORK.CLASS - + 100%



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Paste

Clipboard

Albany AMT 9.5 A A


B I U Font A

Alignment

A1


Obs

	A	B	C	D	E	F	G
1	Obs	Date	Day	Car	Units	Team	Avg_Price
2	1	20Jul2019	Sat	Alpha	20	A1	39000
3	2	20Jul2019	Sat	Alpha	20	A2	39100
4	3	20Jul2019	Sat	Omega	25	A3	67000
5	4	20Jul2019	Sat	Omega	22	A4	68000
6	5	21Jul2019	Sun	Alpha	12	A1	39200

  
**Print**

Copies:


## Printer ?



Microsoft XPS Document Writer  
 Ready


[Printer Properties](#)

## Settings




Print Active Sheets  
 Only print the active sheets

Pages:  to



Collated  
 1,2,3 1,2,3 1,2,3



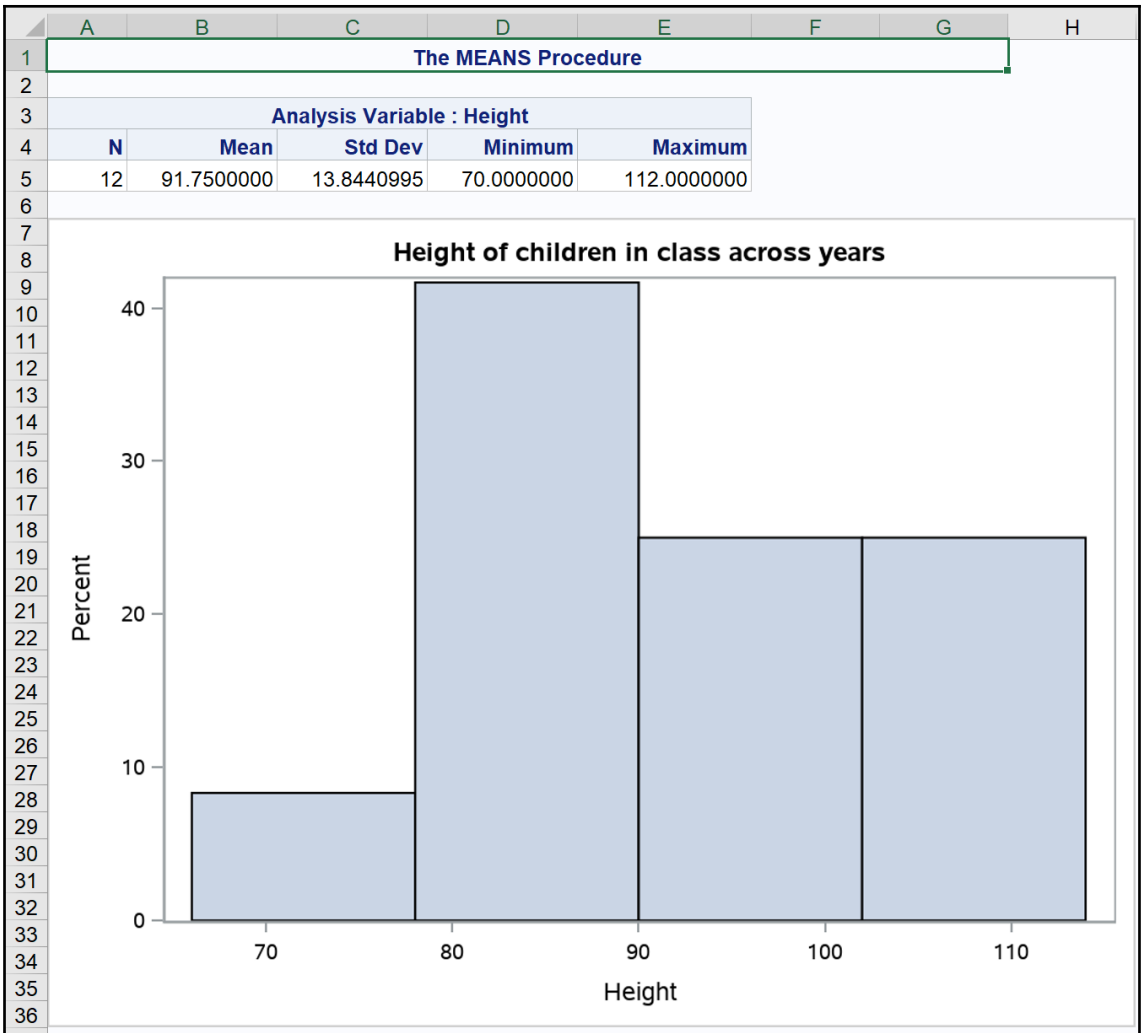
Landscape Orientation

	B	C	D	E	F	G
2	20Jul2019	Sat	Alpha	20	A1	39000
3	20Jul2019	Sat	Alpha	20	A2	39100
4	20Jul2019	Sat	Omega	25	A3	67000
5	20Jul2019	Sat	Omega	22	A4	68000
6	21Jul2019	Sun	Alpha	12	A1	39200
7	21Jul2019	Sun	Alpha	14	A2	39300
8	21Jul2019	Sun	Omega	16	A3	67500
9	21Jul2019	Sun	Omega	11	A4	67300
10	22Jul2019	Mon	Alpha	14	A1	39300
11	22Jul2019	Mon	Alpha	11	A2	39500



	A	B	C	D	E	F
1	<b>Obs</b>	<b>ClassID</b>	<b>Year</b>	<b>Age</b>	<b>Height</b>	<b>Weights</b>
2	1	A1234	2013	18	85	34
3	2	A2323	2013	9	81	36
4	3	B3423	2013	8	80	31
5	4	B5324	2013	9	70	35
6	5	C2342	2013	9	80	31
7	6	D3242	2013	9	85	30
8	7	A1234	2019	14	105	64
9	8	A2323	2019	15	101	66
10	9	B3423	2019	14	100	61
11	10	B5324	2019	15	90	55
12	11	C2342	2019	15	112	70
13	12	D3242	2019	14	112	70
14						

	A	B	C	D	E	F	G
1							
2							
3		<b>Obs</b>	<b>ClassID</b>	<b>Year</b>	<b>Age</b>	<b>Height</b>	<b>Weights</b>
4		1	A1234	2013	8	85	34
5		2	A2323	2013	9	81	36
6		3	B3423	2013	8	80	31
7		4	B5324	2013	9	70	35
8		5	C2342	2013	9	80	31
9		6	D3242	2013	9	85	30
10		7	A1234	2019	14	105	64
11		8	A2323	2019	15	101	66
12		9	B3423	2019	14	100	61
13		10	B5324	2019	15	90	55
14		11	C2342	2019	15	112	70
15		12	D3242	2019	14	112	70



	A	B	C
1	<b>ClassID</b>	<b>Age</b>	<b>Height</b>
2	A1234	14	105
3	A2323	15	101
4	B3423	14	100
5	B5324	15	90
6	C2342	15	112
7	D3242	14	112

E2      ×    ✓    fx    =(C2*D2)					
	A	B	C	D	E
1	<b>Date</b>	<b>Car</b>	<b>Units</b>	<b>Avg_Price</b>	<b>Total_Revenue</b>
2	20Jul2019	Alpha	20	39000	\$780,000.00
3	20Jul2019	Alpha	20	39100	\$782,000.00
4	20Jul2019	Omega	25	67000	\$1,675,000.00
5	20Jul2019	Omega	22	68000	\$1,496,000.00
6	21Jul2019	Alpha	12	39200	\$470,400.00