Program Summary - Birth.sas

Code: _Birth.sas   1/19

```sas
/*Investigate relationship between the variable "weight" and other variables*/;

PROC IMPORT
   DATAFILE="/home/u63414794/BAN100/FileBIRTH(1).xlsx"
   OUT=Birth_weight
   DBMS=xlsx REPLACE;
RUN;


proc contents data=birth_weight;
run;


/* Center the MomAge variable */
DATA Birth_weight_centered;
   SET Birth_weight;
   MomAge_centered = MomAge - 27; /* Centering at the mean age.MomAge=-7 means the mother was 20 years old
   whereas MomAge=5 means that the mother was 32 years old. */
RUN;

proc ttest data=birth_weight;
   var weight; /* Numeric variable to compare with */
   class MomSmoke ; /* Categorical variable to compare with */
   ods output ttests=ttest_results; /* Save t-test results to a dataset */
run;

proc ttest data=birth_weight;
   var weight; /* Numeric variable to compare with */
   class Married; /* Categorical variable to compare with */
   ods output ttests=ttest_results; /* Save t-test results to a dataset */
run;


proc ttest data=Birth_weight;
   var weight; /* Numeric variable to compare with */
   class Boy; /* Categorical variable to compare with */
   ods output ttests=ttest_results; /* Save t-test results to a dataset */
   run;
```

```
proc ttest data=Birth_weight;
   var weight; /* Numeric variable to compare with */
   Var MomAge; /* Categorical variable to compare with */
   ods output ttests=ttest_results; /* Save t-test results to a dataset */
  run;


proc ttest data=Birth_weight;
   var weight; /* Numeric variable to compare with */
   var MomSmoke; /* Categorical variable to compare with */
   ods output ttests=ttest_results; /* Save t-test results to a dataset */
  run;


proc ttest data=Birth_weight;
   var weight; /* Numeric variable to compare with */
   var CigsPerDay; /* Numerical variable to compare with */
   ods output ttests=ttest_results; /* Save t-test results to a dataset */
  run;


proc ttest data=Birth_weight;
   var weight; /* Numeric variable to compare with */
   var MomWtGain; /* Numerical variable to compare with */
   ods output ttests=ttest_results; /* Save t-test results to a dataset */
  run;


proc ttest data=Birth_weight;
   var weight; /* Numeric variable to compare with */
   var Visit; /* Numerical variable to compare with */
   ods output ttests=ttest_results; /* Save t-test results to a dataset */
  run;


proc ttest data=Birth_weight;
   var weight; /* Numeric variable to compare with */
   var MomEdLevel; /* Numerical variable to compare with */
   ods output ttests=ttest_results; /* Save t-test results to a dataset */
  run;
```

Results: Assignment1_Birth.sas

The CONTENTS Procedure

Data Set Name	WORK.BIRTH_WEIGHT	**Observations**	50000
Member Type	DATA	**Variables**	10
Engine	V9	**Indexes**	0
Created	06/04/2023 13:28:49	**Observation Length**	80
Last Modified	06/04/2023 13:28:49	**Deleted Observations**	0
Protection		**Compressed**	NO
Data Set Type		**Sorted**	NO
Label			
Data Representation	SOLARIS_X86_64, LINUX_X86_64, ALPHA_TRU64, LINUX_IA64		
Encoding	utf-8 Unicode (UTF-8)		

Engine/Host Dependent Information	
Data Set Page Size	131072
Number of Data Set Pages	31
First Data Page	1
Max Obs per Page	1635

Obs in First Data Page	1596
Number of Data Set Repairs	0
Filename	/saswork/SAS_workC7ED0001B155_odaws02-usw2-2.oda.sas.com/SAS_work83A30001B155_odaws02-usw2-2.oda.sas.com/birth_weight.sas7bdat
Release Created	9.0401M7
Host Created	Linux
Inode Number	268578660
Access Permission	rw-r--r--
Owner Name	u63414794
File Size	4MB
File Size (bytes)	4194304

Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Label
2	Black	Num	8	BEST.	Black
4	Boy	Num	8	BEST.	Boy
7	CigsPerDay	Num	8	BEST.	CigsPerDay
3	Married	Num	8	BEST.	Married
5	MomAge	Num	8	BEST.	MomAge
10	MomEdLevel	Num	8	BEST.	MomEdLevel
6	MomSmoke	Num	8	BEST.	MomSmoke
8	MomWtGain	Num	8	BEST.	MomWtGain
9	Visit	Num	8	BEST.	Visit
1	Weight	Num	8	BEST.	Weight

The TTEST Procedure

Variable: Weight (Weight)

MomSmoke	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
0		43467	3402.3	558.0	2.6766	240.0	6350.0
1		6533	3160.9	576.8	7.1358	312.0	5245.0
Diff (1-2)	Pooled		241.5	560.5	7.4376		

MomSmoke	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
Diff (1-2)	Satterthwaite		241.5		7.6213		

MomSmoke	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0		3402.3	3397.1	3407.6	558.0	554.3	561.8
1		3160.9	3146.9	3174.8	576.8	567.0	586.8
Diff (1-2)	Pooled	241.5	226.9	256.0	560.5	557.1	564.0
Diff (1-2)	Satterthwaite	241.5	226.5	256.4			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	49998	32.46	<.0001
Satterthwaite	Unequal	8474.1	31.68	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	6532	43466	1.07	0.0004

Distribution of Weight

Q-Q Plots of Weight

The TTEST Procedure

Variable: Weight (Weight)
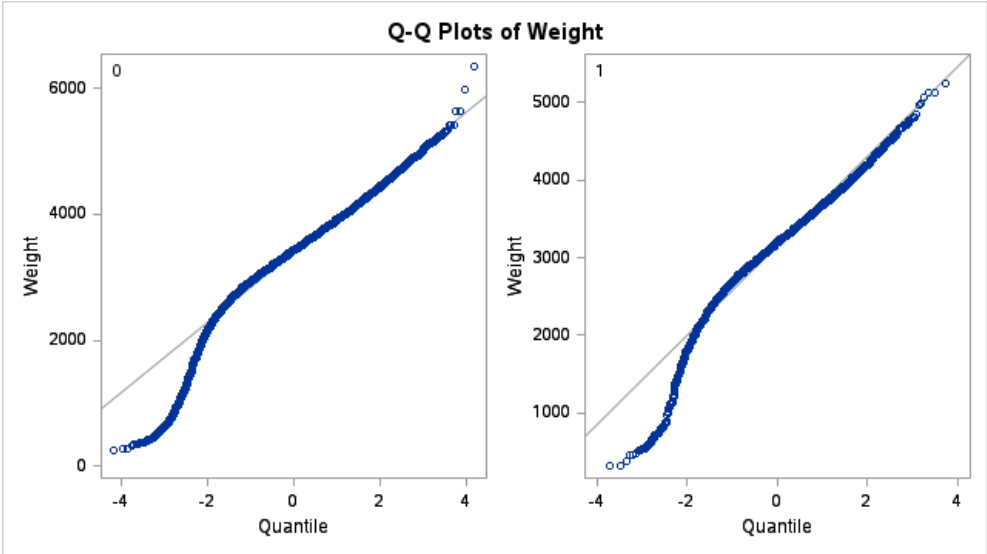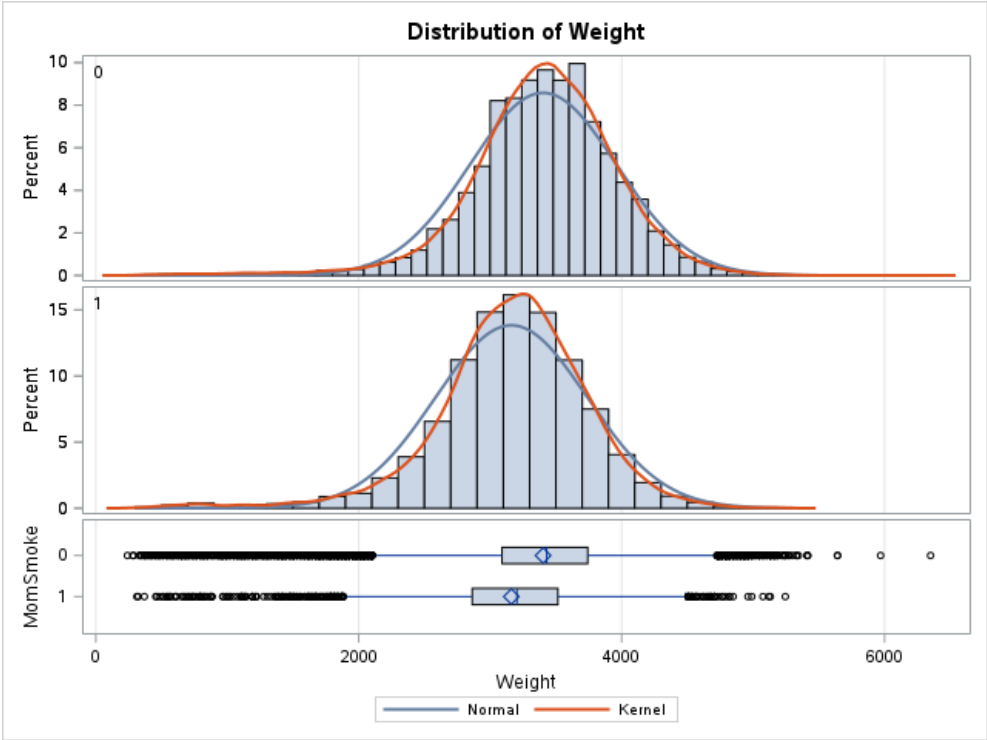
Married	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
0		14369	3234.4	579.0	4.8302	284.0	6350.0
1		35631	3425.7	551.8	2.9231	240.0	5970.0
Diff (1-2)	Pooled		-191.3	559.7	5.5315		
Diff (1-2)	Satterthwaite		-191.3		5.6459		

Married	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0		3234.4	3225.0	3243.9	579.0	572.4	585.8
1		3425.7	3420.0	3431.5	551.8	547.8	555.9
Diff (1-2)	Pooled	-191.3	-202.1	-180.5	559.7	556.3	563.2
Diff (1-2)	Satterthwaite	-191.3	-202.4	-180.2			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	49998	-34.58	<.0001
Satterthwaite	Unequal	25443	-33.88	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	14368	35630	1.10	<.0001

Distribution of Weight

Q-Q Plots of Weight
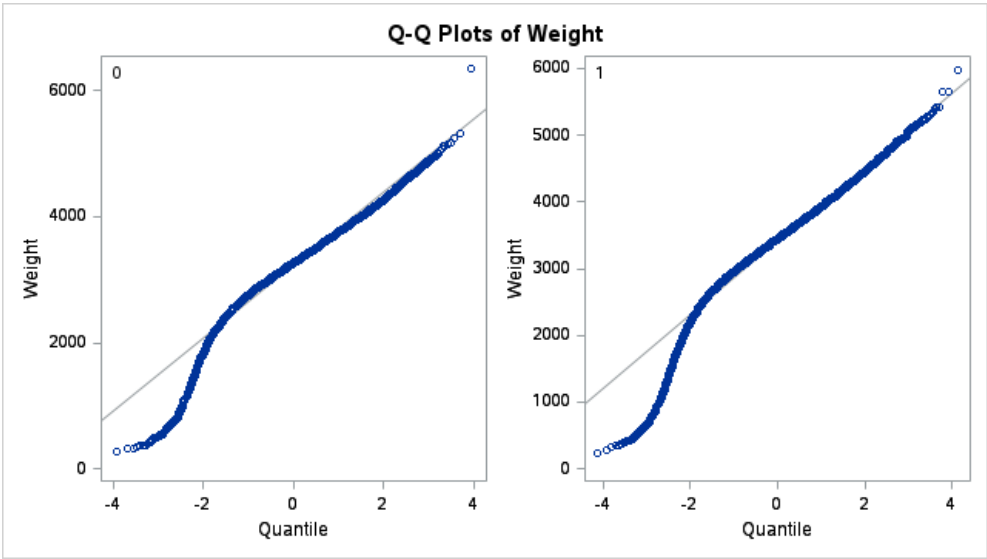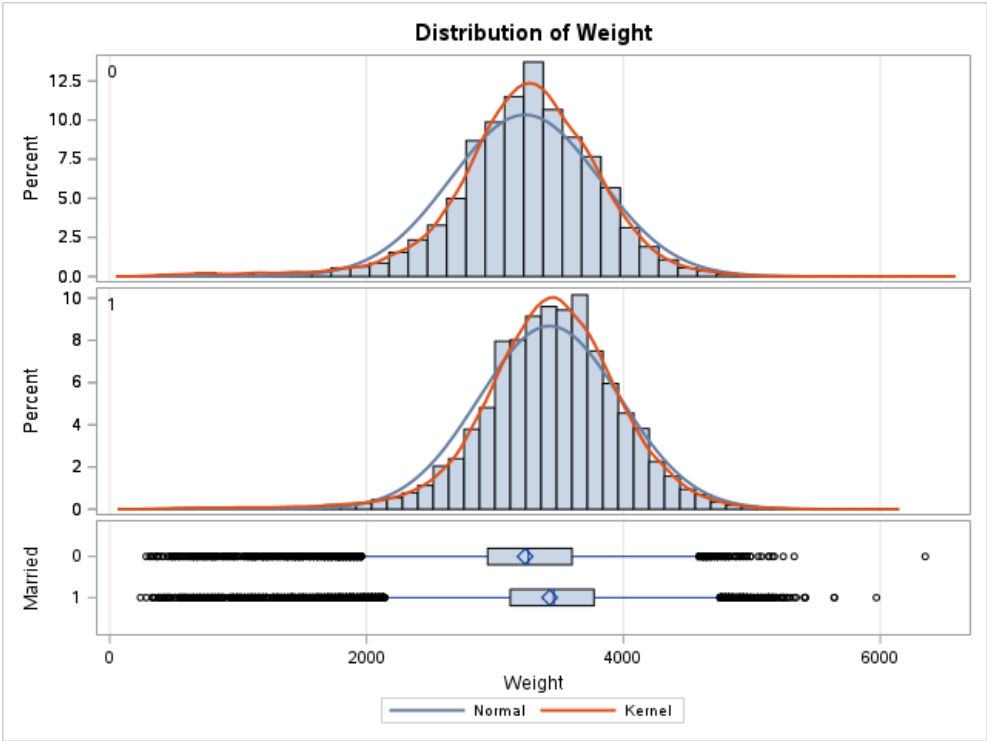
The TTEST Procedure

Variable: Weight (Weight)

Boy	Method	N	Mean	Std Dev	Std Err	Minimum	Maximum
0		24208	3310.6	547.7	3.5204	240.0	6350.0
1		25792	3427.3	577.7	3.5970	284.0	5970.0
Diff (1-2)	Pooled		-116.7	563.4	5.0416		
Diff (1-2)	Satterthwaite		-116.7		5.0331		

Boy	Method	Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0		3310.6	3303.7	3317.5	547.7	542.9	552.7
1		3427.3	3420.2	3434.3	577.7	572.7	582.7
Diff (1-2)	Pooled	-116.7	-126.6	-106.8	563.4	559.9	566.9
Diff (1-2)	Satterthwaite	-116.7	-126.6	-106.8			

Method	Variances	DF	t Value	Pr > |t|
Pooled	Equal	49998	-23.15	<.0001
Satterthwaite	Unequal	49993	-23.18	<.0001

Equality of Variances				
Method	Num DF	Den DF	F Value	Pr > F
Folded F	25791	24207	1.11	<.0001
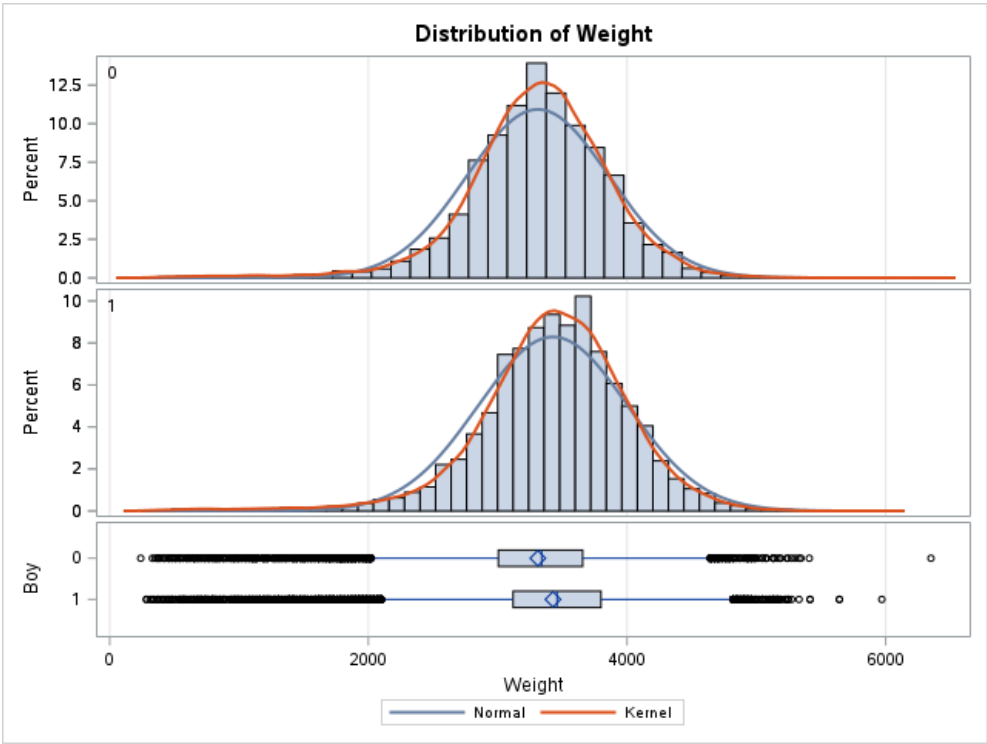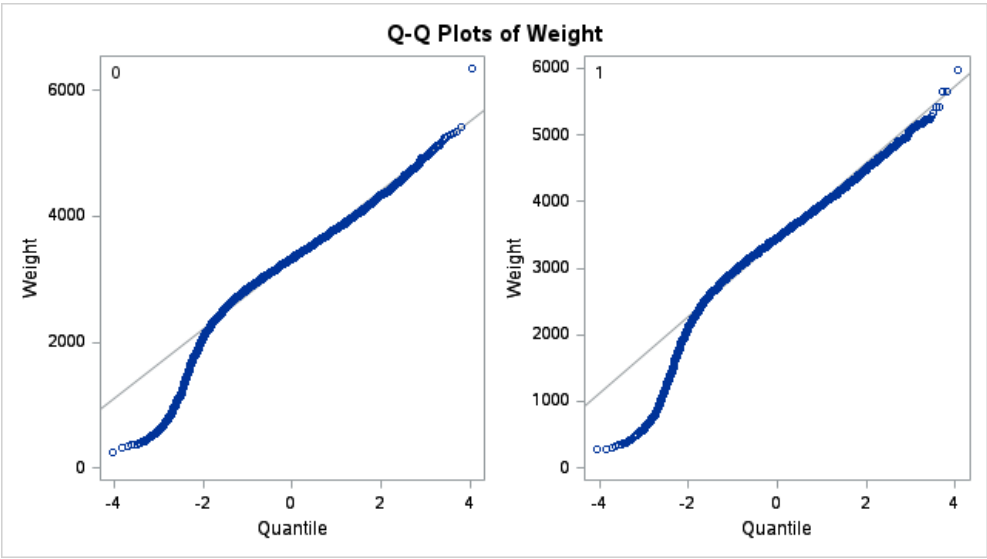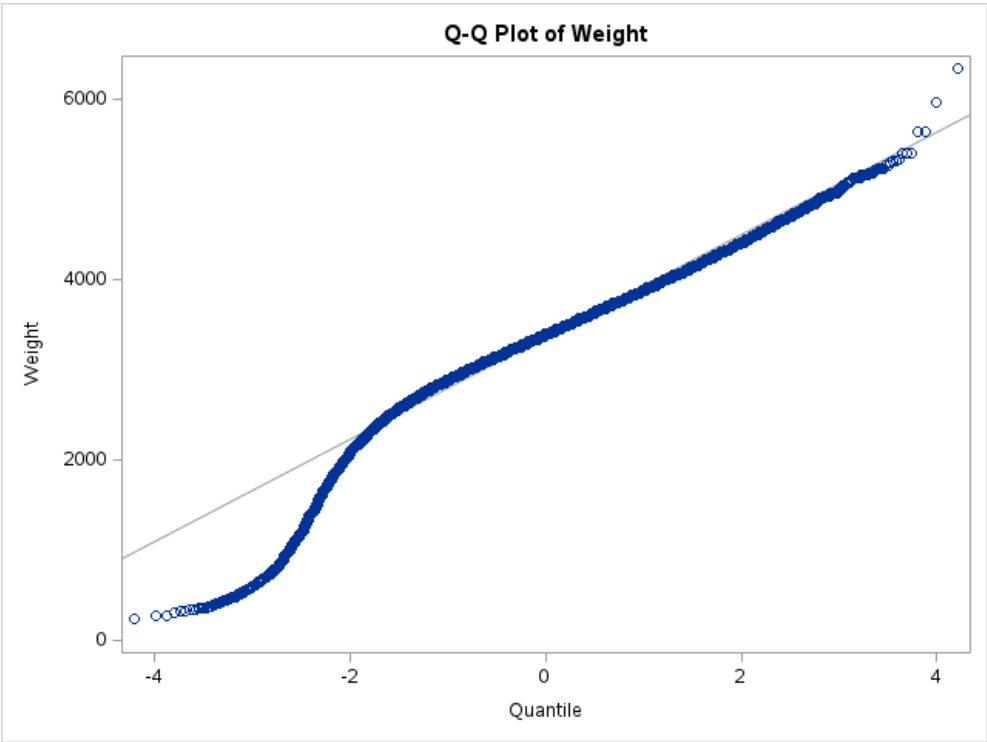
Distribution of Weight

Q-Q Plots of Weight

The TTEST Procedure

Variable: Weight (Weight)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	3370.8	566.4	2.5330	240.0	6350.0

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
3370.8	3365.8	3375.7	566.4	562.9	569.9

DF	t Value	Pr > |t|
49999	1330.76	<.0001

Distribution of Weight
With 95% Confidence Interval for Mean

Q-Q Plot of Weight
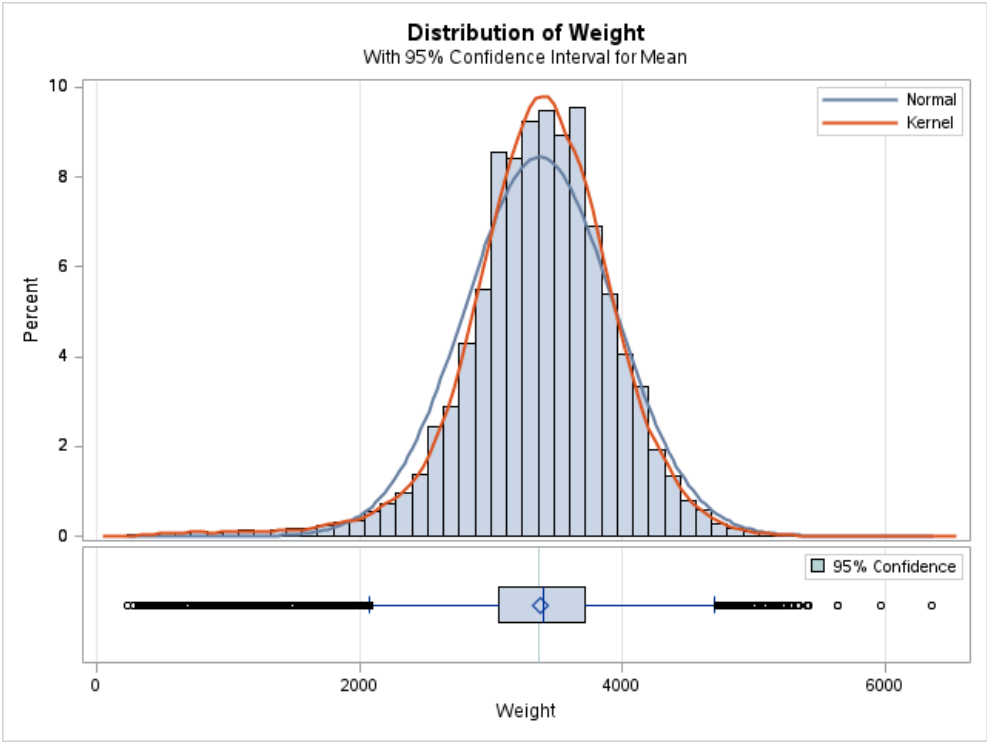
Variable: MomAge (MomAge)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	0.4161	5.7285	0.0256	-9.0000	18.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0.4161	0.3659	0.4664	5.7285	5.6932	5.7642

DF	t Value	Pr > |t|
49999	16.24	<.0001
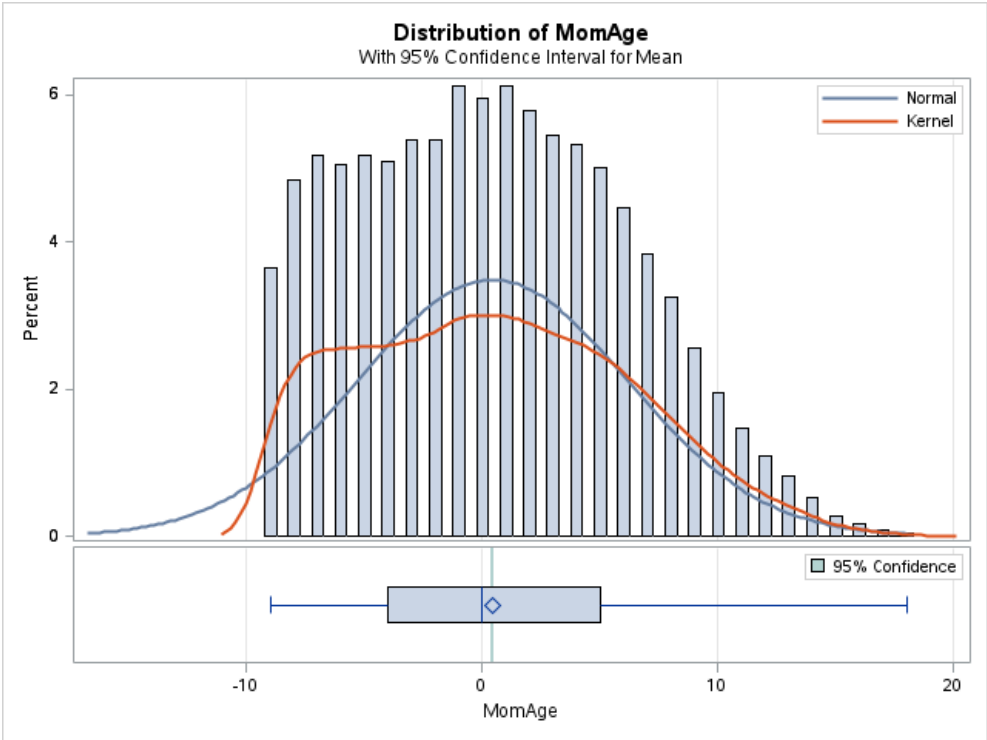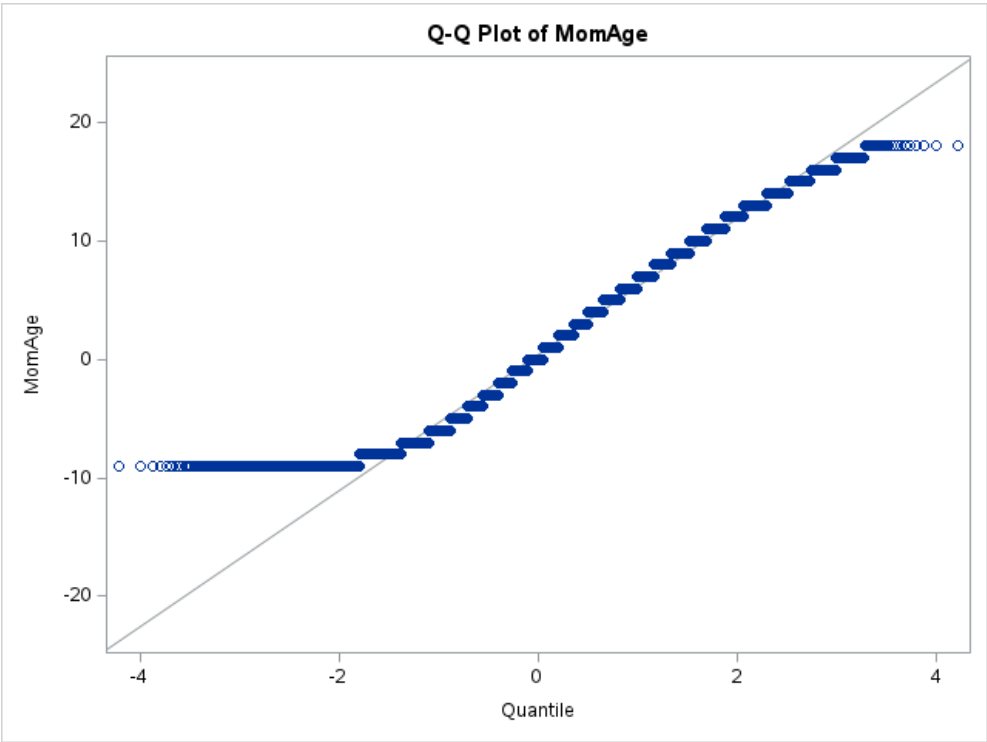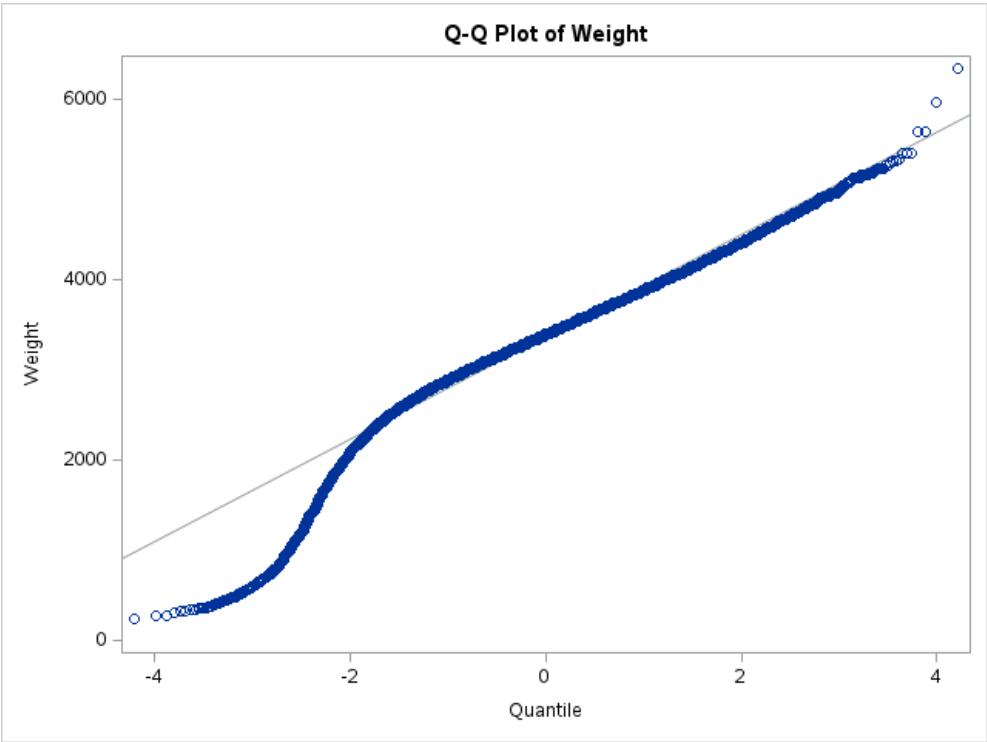
Distribution of MomAge
With 95% Confidence Interval for Mean

Q-Q Plot of MomAge

The TTEST Procedure

Variable: Weight (Weight)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	3370.8	566.4	2.5330	240.0	6350.0

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
3370.8	3365.8	3375.7	566.4	562.9	569.9

DF	t Value	Pr > |t|
49999	1330.76	<.0001

Distribution of Weight
With 95% Confidence Interval for Mean

Q-Q Plot of Weight
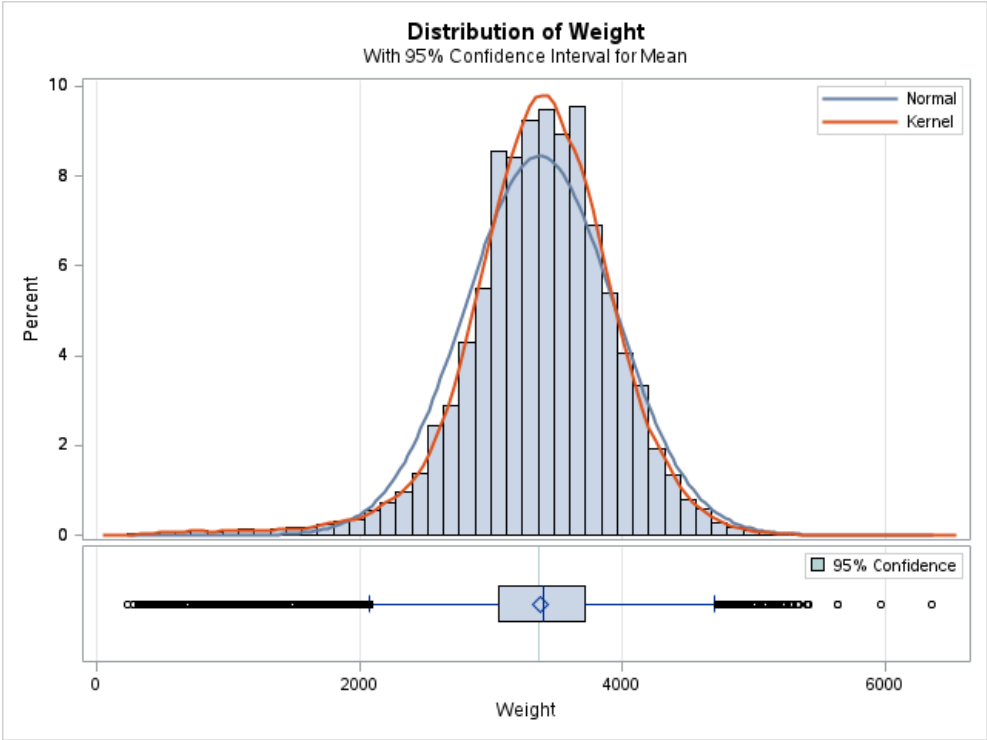
Variable: MomSmoke (MomSmoke)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	0.1307	0.3370	0.00151	0	1.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0.1307	0.1277	0.1336	0.3370	0.3350	0.3391

DF	t Value	Pr > |t|
49999	86.69	<.0001
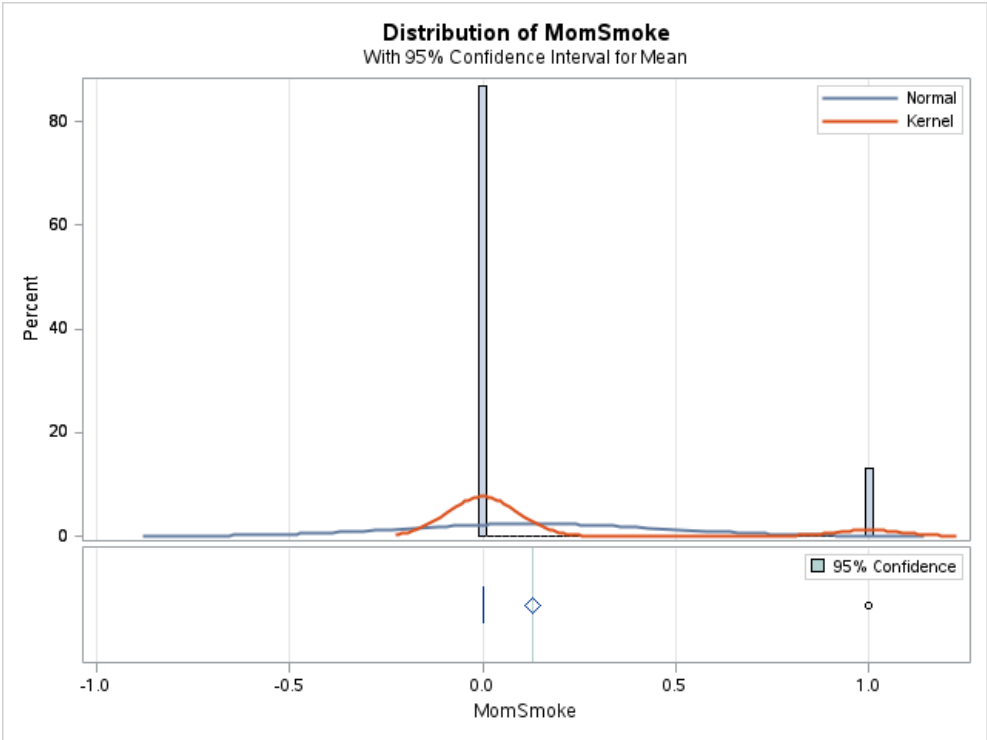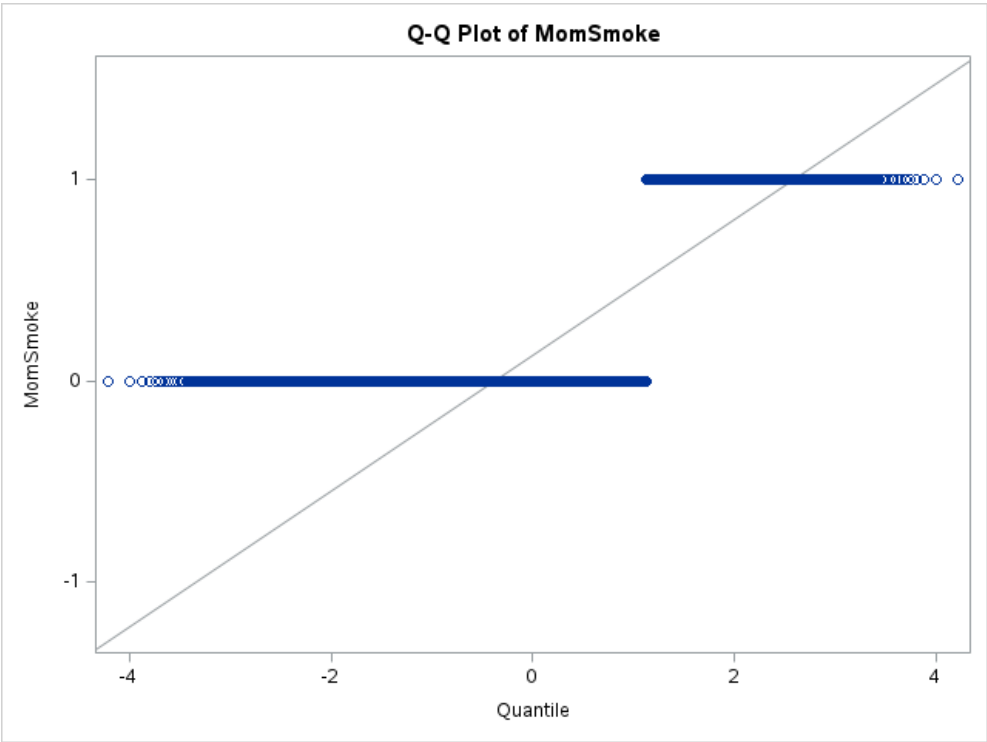
Distribution of MomSmoke
With 95% Confidence Interval for Mean

Q-Q Plot of MomSmoke

The TTEST Procedure

Variable: Weight (Weight)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	3370.8	566.4	2.5330	240.0	6350.0

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
3370.8	3365.8	3375.7	566.4	562.9	569.9

DF	t Value	Pr > |t|
49999	1330.76	<.0001

Distribution of Weight
With 95% Confidence Interval for Mean

Q-Q Plot of Weight
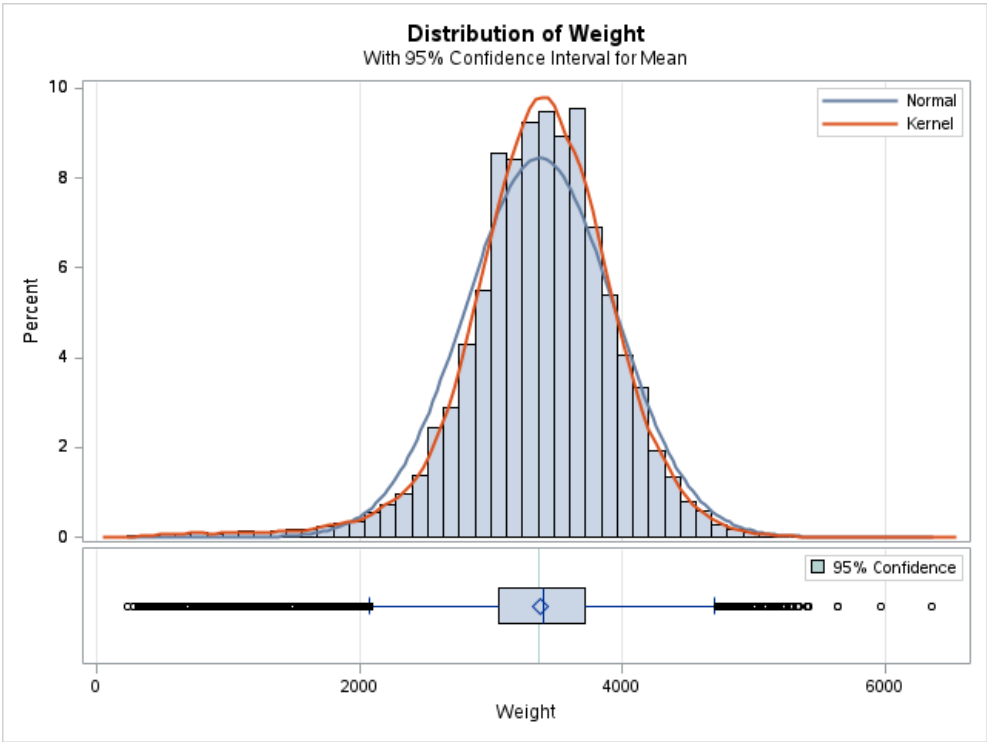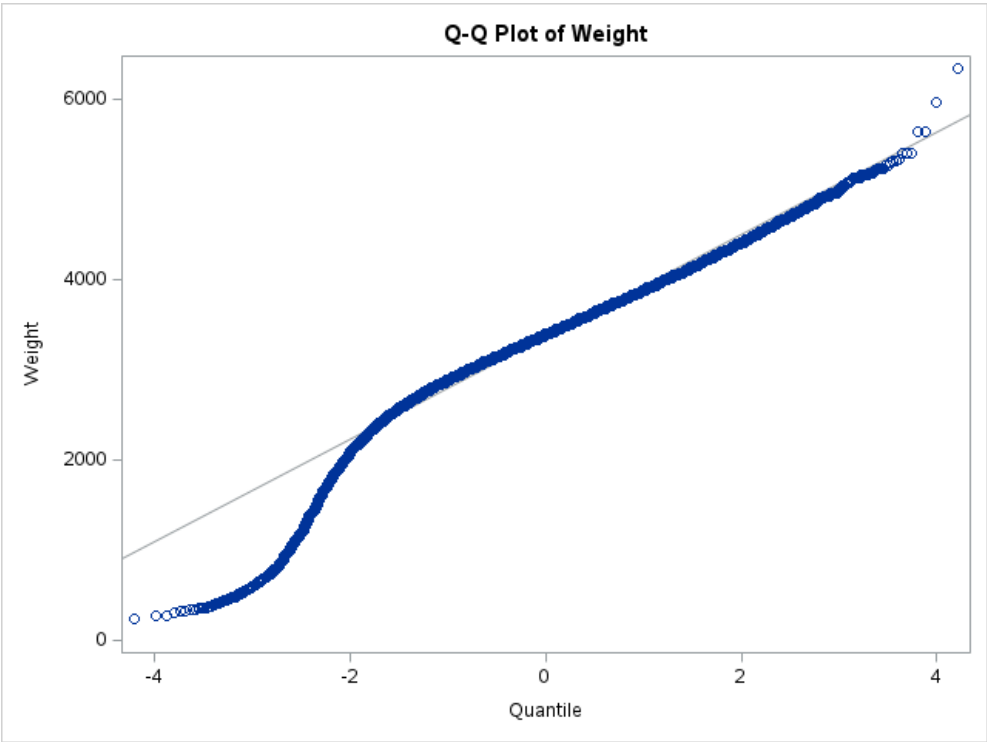
Variable: CigsPerDay (CigsPerDay)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	1.4766	4.6541	0.0208	0	60.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
1.4766	1.4358	1.5174	4.6541	4.6254	4.6831

DF	t Value	Pr > |t|
49999	70.94	<.0001
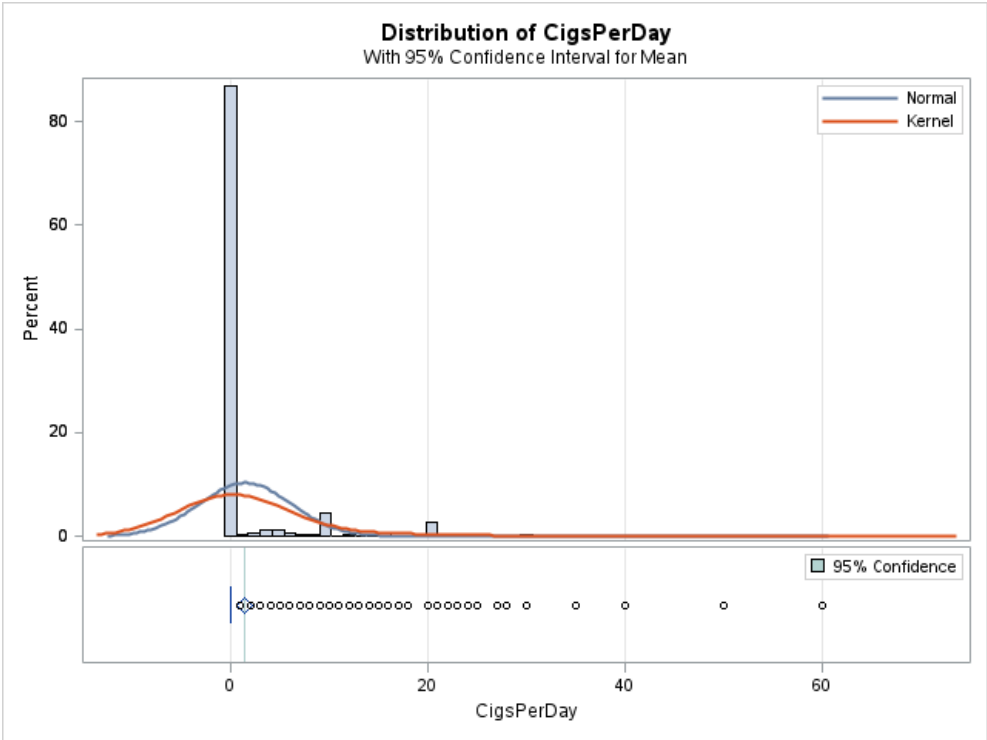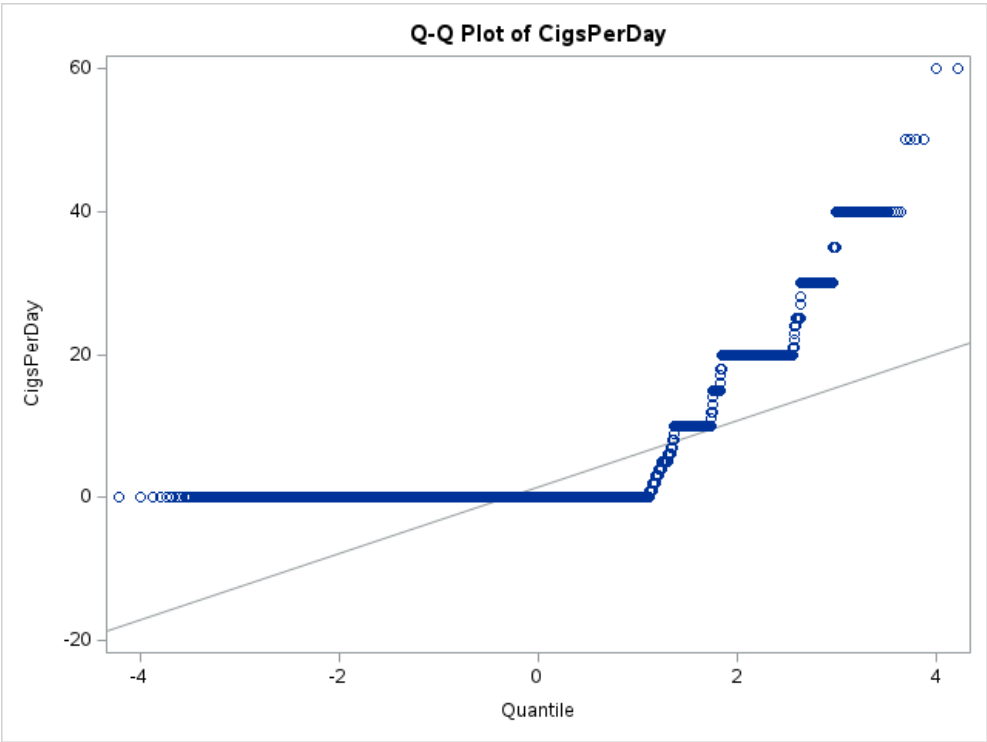
Distribution of CigsPerDay
With 95% Confidence Interval for Mean

Q-Q Plot of CigsPerDay

The TTEST Procedure

Variable: Weight (Weight)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	3370.8	566.4	2.5330	240.0	6350.0

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
3370.8	3365.8	3375.7	566.4	562.9	569.9

DF	t Value	Pr > |t|
49999	1330.76	<.0001

Distribution of Weight
With 95% Confidence Interval for Mean

Q-Q Plot of Weight
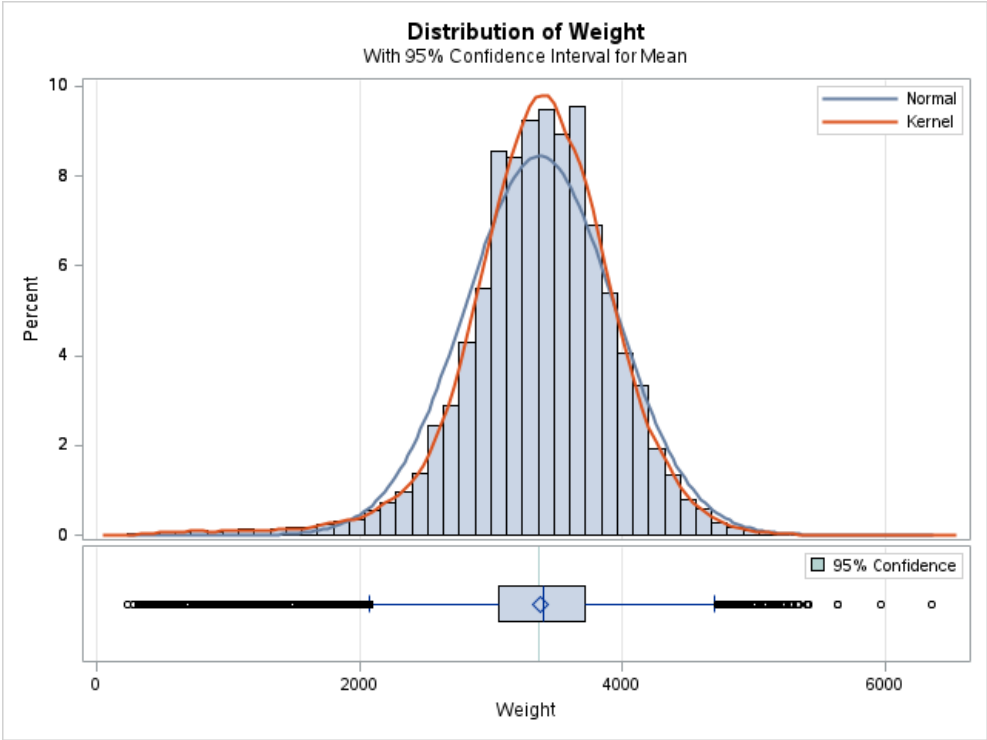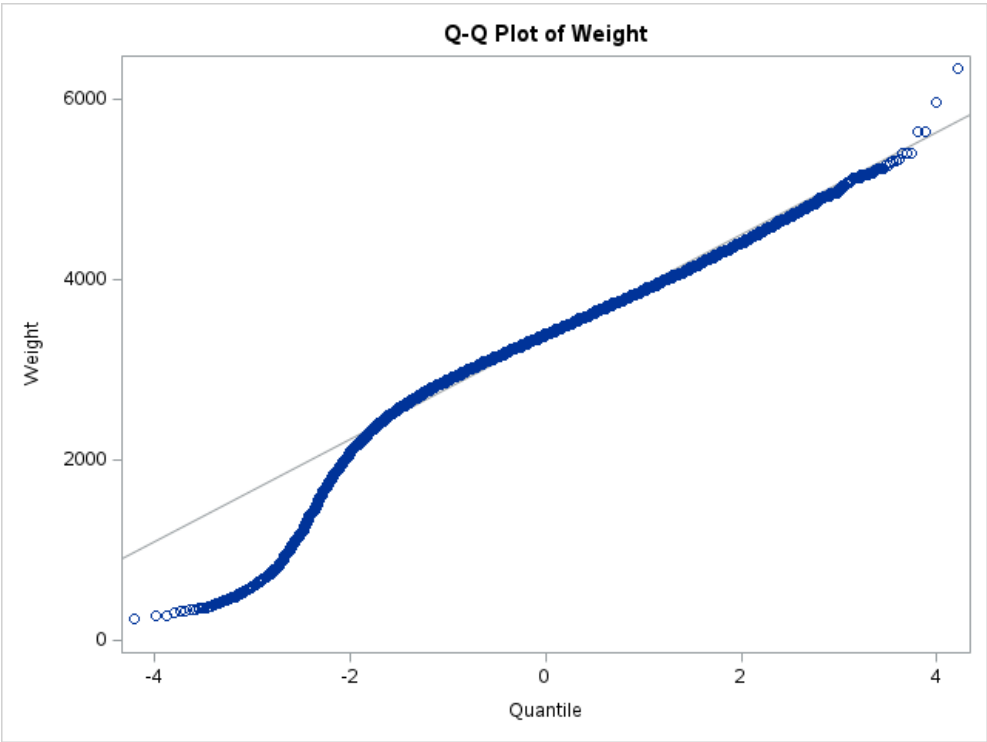
Variable: MomWtGain (MomWtGain)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	0.7092	12.8761	0.0576	-30.0000	68.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
0.7092	0.5964	0.8221	12.8761	12.7968	12.9564

DF	t Value	Pr > |t|
49999	12.32	<.0001
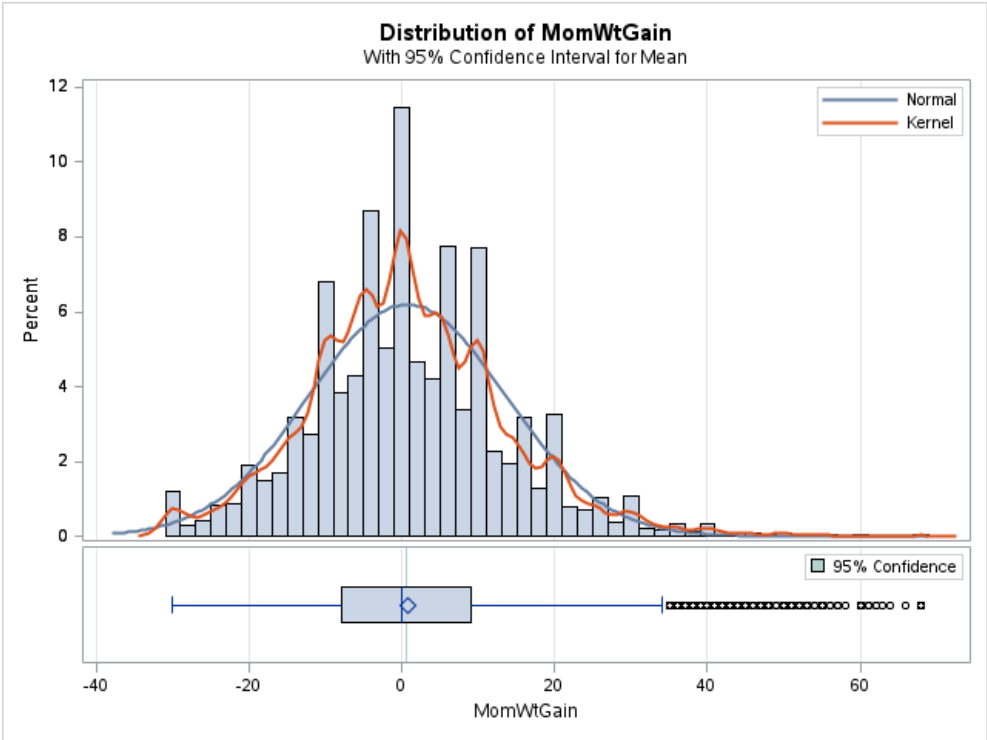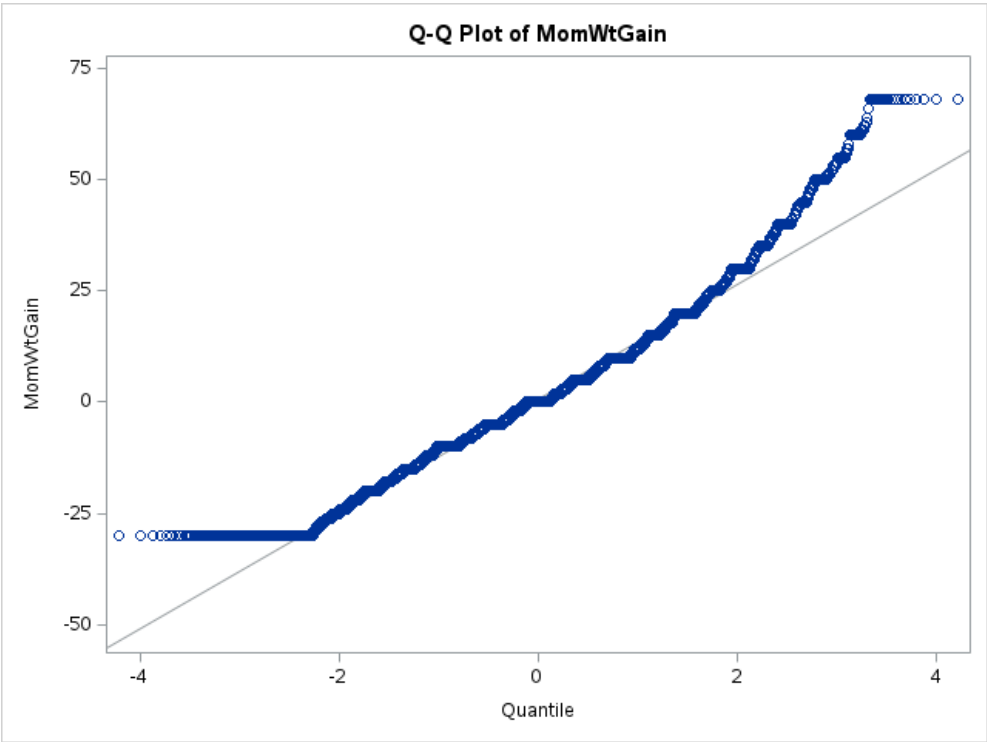
Distribution of MomWtGain
With 95% Confidence Interval for Mean

Q-Q Plot of MomWtGain

The TTEST Procedure

Variable: Weight (Weight)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	3370.8	566.4	2.5330	240.0	6350.0

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
3370.8	3365.8	3375.7	566.4	562.9	569.9

DF	t Value	Pr > |t|
49999	1330.76	<.0001

Distribution of Weight
With 95% Confidence Interval for Mean

Q-Q Plot of Weight
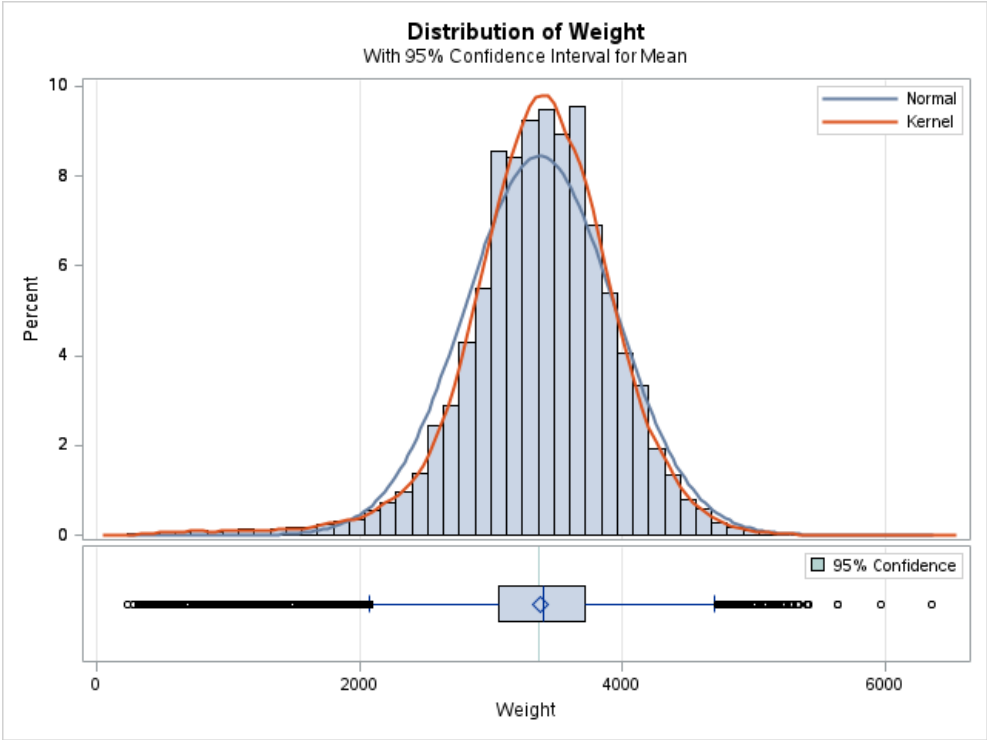
Variable: Visit (Visit)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	2.7000	0.7155	0.00320	0	3.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
2.7000	2.6937	2.7063	0.7155	0.7111	0.7200

DF	t Value	Pr > |t|
49999	843.79	<.0001
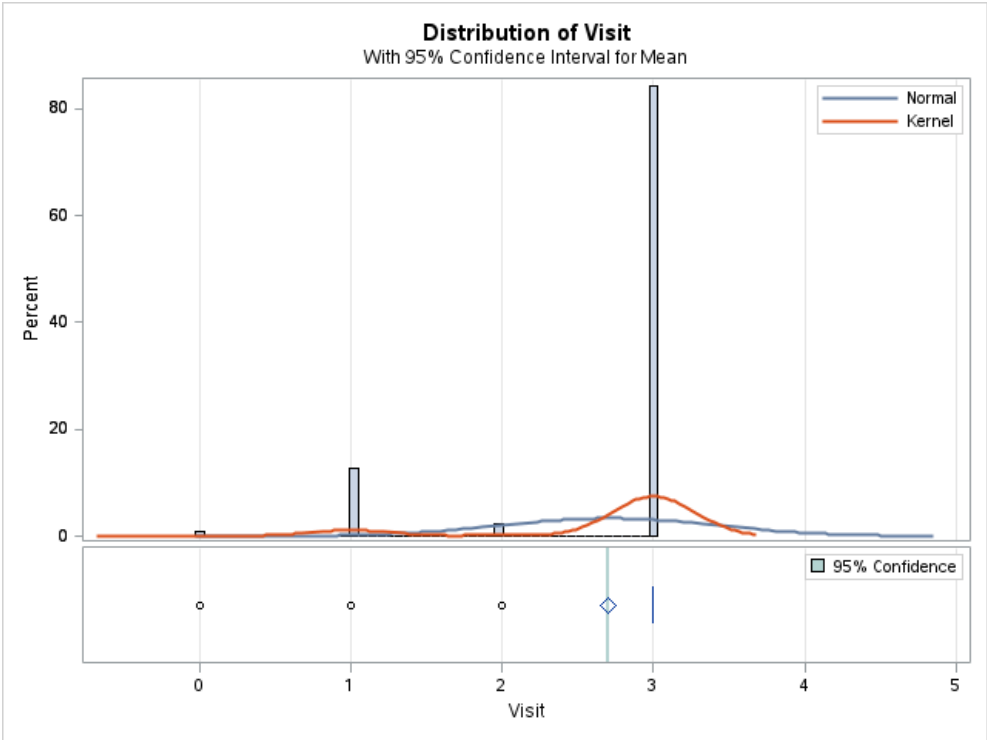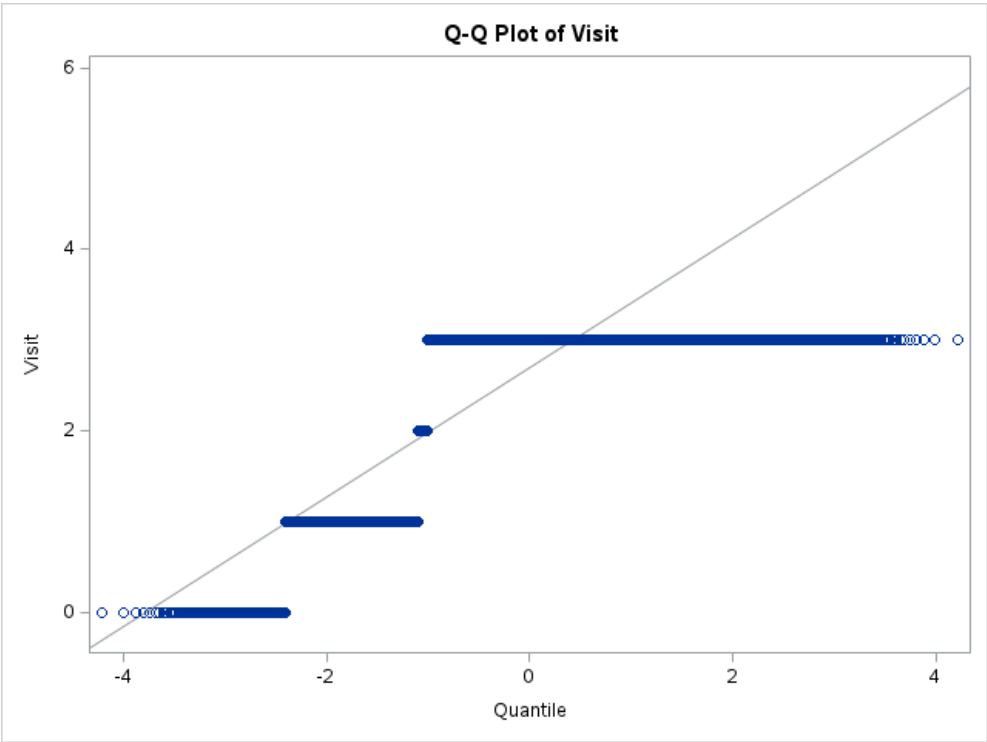
Distribution of Visit
With 95% Confidence Interval for Mean

Q-Q Plot of Visit

The TTEST Procedure

Variable: Weight (Weight)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	3370.8	566.4	2.5330	240.0	6350.0

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
3370.8	3365.8	3375.7	566.4	562.9	569.9

DF	t Value	Pr > |t|
49999	1330.76	<.0001

Distribution of Weight
With 95% Confidence Interval for Mean

Q-Q Plot of Weight
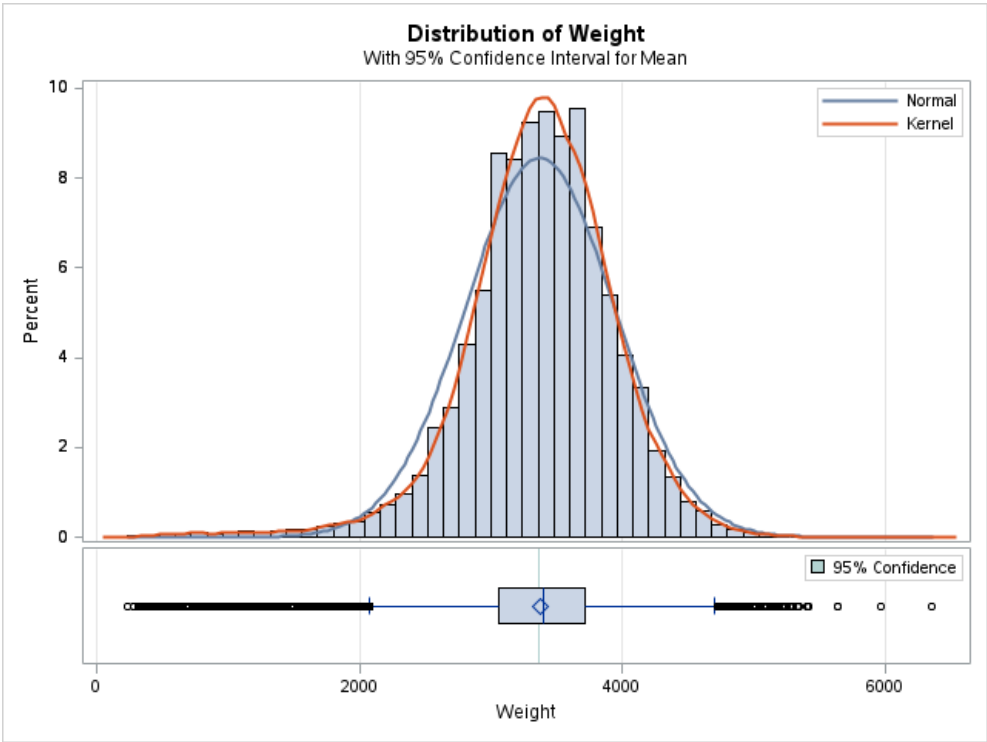
Variable: MomEdLevel (MomEdLevel)

N	Mean	Std Dev	Std Err	Minimum	Maximum
50000	1.2189	1.0899	0.00487	0	3.0000

Mean	95% CL Mean		Std Dev	95% CL Std Dev	
1.2189	1.2094	1.2285	1.0899	1.0832	1.0967

DF	t Value	Pr > |t|
49999	250.08	<.0001

Distribution of MomEdLevel
With 95% Confidence Interval for Mean

Q-Q Plot of MomEdLevel

Procedure

Procedure