

## Effect of Student Alcohol Consumption on Grades

## The CONTENTS Procedure

<b>Data Set Name</b>	STUDENT.DATA1	<b>Observations</b>	1044
<b>Member Type</b>	DATA	<b>Variables</b>	25
<b>Engine</b>	V9	<b>Indexes</b>	0
<b>Created</b>	04/28/2017 12:44:22	<b>Observation Length</b>	208
<b>Last Modified</b>	04/28/2017 12:44:22	<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>	WINDOWS_64		
<b>Encoding</b>	wlatin1 Western (Windows)		

## Engine/Host Dependent Information

<b>Data Set Page Size</b>	65536
<b>Number of Data Set Pages</b>	4
<b>First Data Page</b>	1
<b>Max Obs per Page</b>	314
<b>Obs in First Data Page</b>	297
<b>Number of Data Set Repairs</b>	0
<b>ExtendObsCounter</b>	YES
<b>Filename</b>	I:\Data Analysis and Modeling Project\Student Grades and Alcohol Consumption\data1.sas7bdat
<b>Release Created</b>	9.0401M2
<b>Host Created</b>	X64_SRV12

## Alphabetic List of Variables and Attributes

#	Variable	Type	Len	Format	Informat
19	Dalc	Num	8	BEST12.	BEST32.
7	Fedu	Num	8	BEST12.	BEST32.
25	G3	Num	8	BEST12.	BEST32.
6	Medu	Num	8	BEST12.	BEST32.
20	Walc	Num	8	BEST12.	BEST32.
22	absences	Num	8	BEST12.	BEST32.
13	activities	Num	8	BEST12.	BEST32.
3	address	Num	8	BEST12.	BEST32.
2	age	Num	8	BEST12.	BEST32.
10	failures	Num	8	BEST12.	BEST32.
16	famrel	Num	8	BEST12.	BEST32.
4	famsize	Num	8	BEST12.	BEST32.
12	famsup	Num	8	BEST12.	BEST32.
17	freetime	Num	8	BEST12.	BEST32.
18	goout	Num	8	BEST12.	BEST32.
21	health	Num	8	BEST12.	BEST32.
23	higher	Num	8	BEST12.	BEST32.
14	internet	Num	8	BEST12.	BEST32.
5	pstatus	Num	8	BEST12.	BEST32.
24	reason	Char	10	\$10.	\$10.
15	romantic	Num	8	BEST12.	BEST32.
11	schoolsup	Num	8	BEST12.	BEST32.
1	sex	Num	8	BEST12.	BEST32.
9	studytime	Num	8	BEST12.	BEST32.
8	travelttime	Num	8	BEST12.	BEST32.

## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3

Number of Observations Read	1044
Number of Observations Used	1044

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	23	3433.56171	149.28529	12.54	<.0001
Error	1020	12145	11.90722		
Corrected Total	1043	15579			

Root MSE	3.45068	R-Square	0.2204
Dependent Mean	11.34195	Adj R-Sq	0.2028
Coeff Var	30.42407		

Parameter Estimates								
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t	Standardized Estimate	Tolerance	Variance Inflation
Intercept	1	10.23510	0.96759	10.58	<.0001	0	.	0
Dalc	1	-0.18161	0.15472	-1.17	0.2408	-0.04284	0.57372	1.74301
Fedu	1	0.07958	0.12927	0.62	0.5383	0.02265	0.56463	1.77108
Medu	1	0.27444	0.13112	2.09	0.0366	0.07988	0.52475	1.90565
Walc	1	-0.01614	0.11935	-0.14	0.8924	-0.00537	0.48526	2.06077
absences	1	0.00203	0.01797	0.11	0.9101	0.00326	0.91693	1.09060
activities	1	0.04629	0.22216	0.21	0.8350	0.00599	0.92448	1.08169
address	1	0.48487	0.26175	1.85	0.0643	0.05592	0.83875	1.19225
age	1	-0.31547	0.25555	-1.23	0.2173	-0.03666	0.86685	1.15360
failures	1	-1.68815	0.17854	-9.46	<.0001	-0.28660	0.83191	1.20206
famrel	1	0.14194	0.11919	1.19	0.2340	0.03428	0.92240	1.08413
famsize	1	-0.38910	0.24454	-1.59	0.1119	-0.04585	0.92052	1.08635
famsup	1	-0.21649	0.22955	-0.94	0.3458	-0.02730	0.91246	1.09594
freetime	1	0.02346	0.11405	0.21	0.8371	0.00626	0.82486	1.21233
goout	1	-0.22572	0.10889	-2.07	0.0384	-0.06731	0.72485	1.37960
health	1	-0.16404	0.07735	-2.12	0.0342	-0.06047	0.94000	1.06383
internet	1	0.44367	0.28219	1.57	0.1162	0.04660	0.86988	1.14958
pstatus	1	-0.22846	0.35112	-0.65	0.5154	-0.01893	0.90283	1.10763
romantic	1	-0.58222	0.23177	-2.51	0.0122	-0.07214	0.92688	1.07889
schoolsup	1	-1.25958	0.34665	-3.63	0.0003	-0.10362	0.93983	1.06402
sex	1	-0.02808	0.24858	-0.11	0.9101	-0.00360	0.75146	1.33074
studytime	1	0.40229	0.13955	2.88	0.0040	0.08685	0.84208	1.18754
traveltime	1	-0.03542	0.16107	-0.22	0.8260	-0.00671	0.82184	1.21679
higher	1	1.31498	0.42018	3.13	0.0018	0.09506	0.82842	1.20712

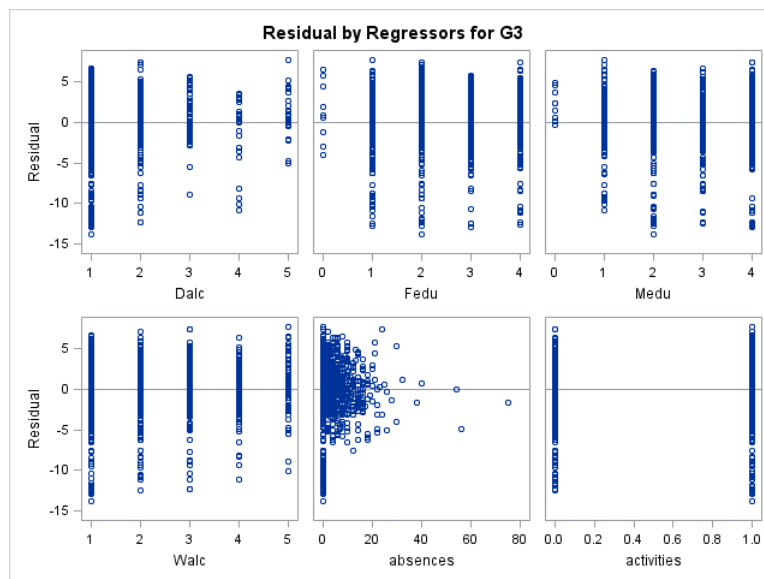
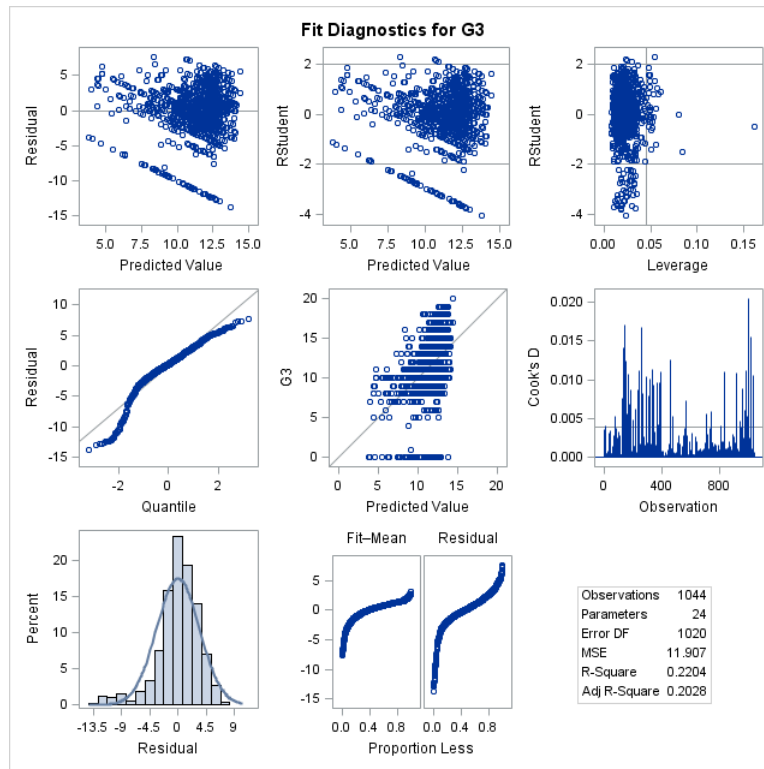
## Collinearity Diagnostics (Intercept)

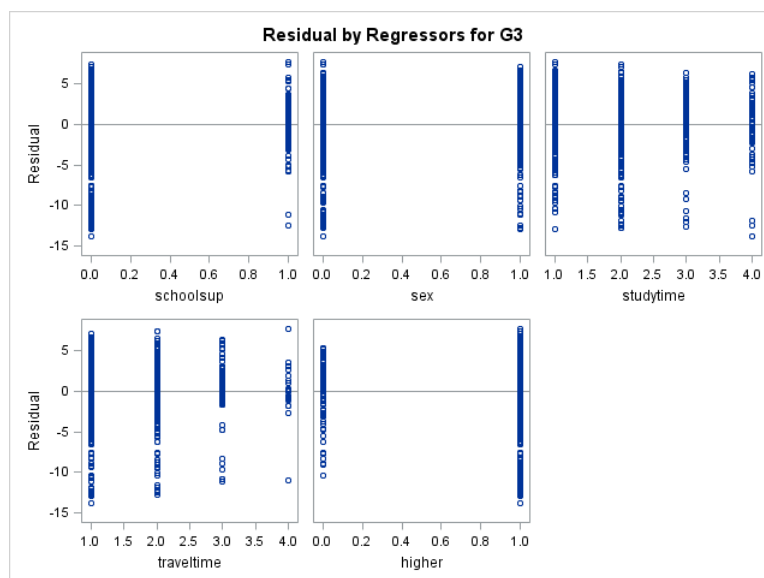
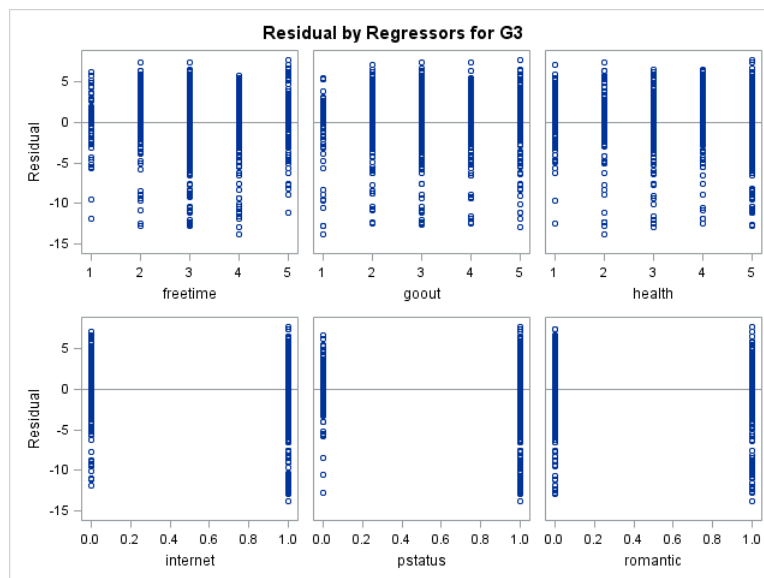
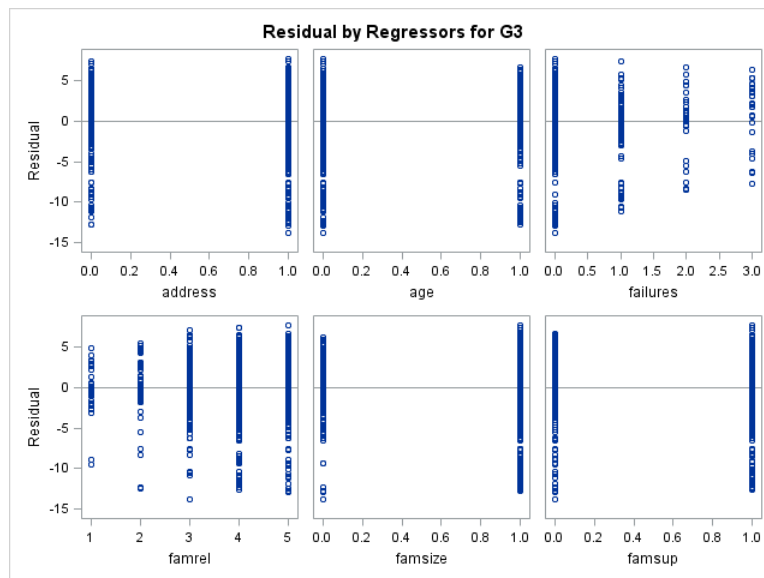
Number	Eigenvalue	Condition Index	Prop										
			Dalc	Fedu	Medu	Walc	absences	activities	address	age	failures	famrel	famsiz
1	2.59838	1.00000	0.03023	0.01279	0.01410	0.02892	0.00307	0.00035153	0.00907	0.00995	0.02589	0.00035375	0.0018
2	2.24043	1.07693	0.01884	0.04358	0.04467	0.02058	0.00492	0.01080	0.01618	0.00262	0.00428	0.00141	0.0007288
3	1.51805	1.30831	0.00077970	0.00113	0.00434	2.825448E-7	0.10148	0.02647	0.03120	0.06555	0.01606	0.04960	0.0136
4	1.35472	1.38493	0.00727	0.00076433	0.00003151	0.00972	0.00025802	0.04675	0.00064036	0.04916	0.03117	0.03788	0.0924
5	1.27513	1.42749	0.03492	0.00553	0.00079896	0.02088	0.01867	0.00051983	0.07502	0.00851	0.00281	0.07532	0.0324
6	1.16308	1.49468	0.00010272	0.00846	0.01476	0.00041303	0.00433	0.05962	0.08909	0.03918	0.05146	0.00069255	0.0305
7	1.13828	1.51087	0.00027424	0.02497	0.01518	0.00055783	0.00301	0.00172	0.00575	0.00083293	0.02613	0.04164	0.1890
8	1.09290	1.54192	0.00347	0.02479	0.01219	0.01239	0.01905	0.00069252	0.06186	0.00024850	0.02817	0.06572	0.0084
9	0.98807	1.62166	0.00085263	0.01359	0.00713	0.00014363	0.00882	0.39384	0.00551	0.06859	0.00424	0.11255	0.0120
10	0.97637	1.63134	0.02262	0.01981	0.01604	0.01714	0.00224	0.05615	0.01179	0.00828	0.02049	0.01173	0.0036
11	0.92102	1.67964	0.00306	0.00389	0.00116	0.00051906	0.10166	0.02280	0.00530	0.05721	0.00964	0.09953	0.0554

12	0.90759	1.69203	0.00704	0.01481	0.00936	0.00086878	0.22771	0.00659	0.00247	0.19237	0.05171	0.06770	0.0137
13	0.86776	1.73043	0.00120	0.00744	0.00069376	0.00436	0.06565	0.00021370	0.00384	0.03508	0.01657	0.06375	0.1245
14	0.81177	1.78910	0.01418	0.00888	0.00441	0.00051712	0.23377	0.09612	0.00896	0.00028614	0.01556	0.00423	0.0024
15	0.70784	1.91595	0.01727	0.00304	0.00057097	0.00571	0.00184	0.03013	0.00065003	0.00174	0.19793	0.09039	0.0257
16	0.69408	1.93484	0.05946	0.03102	0.00053134	0.00008740	0.00072982	0.01134	0.00508	0.04397	0.00742	0.01407	0.2147
17	0.68710	1.94465	0.01600	0.00084465	0.00018473	0.00447	0.04945	0.01474	0.13079	0.00560	0.17905	0.18682	0.0089
18	0.66646	1.97454	0.00479	0.00003201	1.051683E-7	0.00718	0.07784	0.09366	0.01365	0.02517	0.00000743	0.00303	0.0560
19	0.63546	2.02212	0.00658	0.00028514	0.00015162	0.01314	0.03907	0.00315	0.42860	0.01947	0.12722	0.01351	0.0161
20	0.59287	2.09350	0.00174	0.02422	0.03303	0.00019711	0.02649	0.08323	0.00099448	0.34976	0.18018	0.01671	0.0937
21	0.50810	2.26139	0.20391	0.01539	0.00072548	0.00014741	0.00625	0.04109	0.08829	0.00249	0.00125	0.02515	0.0002798
22	0.35447	2.70744	0.15292	0.51473	0.53637	0.20268	0.00001718	0.00002090	0.00445	0.00031361	0.00128	0.00474	0.0012
23	0.30007	2.94265	0.39248	0.22000	0.28358	0.64938	0.00366	0.00000382	0.00080250	0.01363	0.00150	0.01348	0.0021

## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3





## Effect of Student Alcohol Consumption on Grades

## The CORR Procedure

<b>23</b> <b>Variables:</b>	Dalc Fedu Medu Walc absences activities address age failures famrel famsize famsup freetime goout health internet pstatus romantic schoolsup sex studytime traveltime higher
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Simple Statistics						
Variable	N	Mean	Std Dev	Sum	Minimum	Maximum
Dalc	1044	1.49425	0.91171	1560	1.00000	5.00000
Fedu	1044	2.38793	1.09994	2493	0	4.00000
Medu	1044	2.60345	1.12491	2718	0	4.00000
Walc	1044	2.28448	1.28510	2385	1.00000	5.00000
absences	1044	4.43487	6.21002	4630	0	75.00000
activities	1044	0.49425	0.50021	516.00000	0	1.00000
address	1044	0.72701	0.44571	759.00000	0	1.00000
age	1044	0.27969	0.44906	292.00000	0	1.00000
failures	1044	0.26437	0.65614	276.00000	0	3.00000
famrel	1044	3.93582	0.93340	4109	1.00000	5.00000
famsize	1044	0.70690	0.45540	738.00000	0	1.00000
famsup	1044	0.61303	0.48729	640.00000	0	1.00000
freetime	1044	3.20115	1.03151	3342	1.00000	5.00000
goout	1044	3.15613	1.15257	3295	1.00000	5.00000
health	1044	3.54310	1.42470	3699	1.00000	5.00000
internet	1044	0.79215	0.40597	827.00000	0	1.00000
pstatus	1044	0.88410	0.32026	923.00000	0	1.00000
romantic	1044	0.35536	0.47885	371.00000	0	1.00000
schoolsup	1044	0.11398	0.31794	119.00000	0	1.00000
sex	1044	0.43391	0.49585	453.00000	0	1.00000
studytime	1044	1.97031	0.83435	2057	1.00000	4.00000
traveltime	1044	1.52299	0.73173	1590	1.00000	4.00000
higher	1044	0.91475	0.27939	955.00000	0	1.00000

Pearson Correlation Coefficients, N = 1044  
Prob > |r| under H0: Rho=0

	Dalc	Fedu	Medu	Walc	absences	activities	address	age	failures	famrel	famsize	famsup	freetime	goout	health	internet
Dalc	1.00000	-0.00016 0.9958	0.00152 0.9610	0.62781 <.0001	0.13287 <.0001	-0.01058 0.7327	-0.06403 0.0386	0.08121 0.0087	0.11634 0.0002	-0.07648 0.0134	-0.07565 0.0145	-0.02228 0.4722	0.14498 <.0001	0.25313 <.0001	0.06552 0.0343	0.03951 0.2021
Fedu	-0.00016 0.9958	1.00000	0.64206 <.0001	0.01952 0.5286	0.04083 0.1874	0.09380 0.0024	0.12430 <.0001	-0.07818 0.0115	-0.19139 <.0001	0.01307 0.6733	0.04729 0.1268	0.15334 <.0001	0.00214 0.9449	0.03007 0.3316	0.03429 0.2683	0.17001 <.0001
Medu	0.00152 0.9610	0.64206 <.0001	1.00000	-0.02933 0.3438	0.05971 0.0538	0.11692 0.0002	0.17972 <.0001	-0.07631 0.0136	-0.18777 <.0001	0.01500 0.6282	0.02556 0.4094	0.14306 <.0001	0.00105 0.9729	0.02561 0.4084	-0.01325 0.6688	0.24973 <.0001
Walc	0.62781 <.0001	0.01952 0.5286	-0.02933 0.3438	1.00000	0.13970 <.0001	0.00627 0.8395	-0.04339 0.1612	0.03145 0.3100	0.10743 0.0005	-0.10066 0.0011	-0.09002 0.0036	-0.07360 0.0174	0.13038 <.0001	0.39979 <.0001	0.10667 0.0006	0.04361 0.1591
absences	0.13287 <.0001	0.04083 0.1874	0.05971 0.0538	0.13970 <.0001	1.00000	-0.01000 0.7470	0.03670 0.2362	0.09593 0.0019	0.10000 0.0012	-0.06217 0.0446	-0.01828 0.5551	0.03127 0.3128	-0.03208 0.3004	0.05614 0.0698	-0.02748 0.3751	0.09065 0.0034
activities	-0.01058 0.7327	0.09380 0.0024	0.11692 0.0002	0.00627 0.8395	-0.01000 0.7470	1.00000	-0.02210 0.4757	-0.06540 0.0346	-0.02750 0.3747	0.05157 0.0958	0.00943 0.7608	-0.00520 0.8667	0.12860 <.0001	0.07224 0.0196	0.01717 0.5796	0.07202 0.0200
address	-0.06403 0.0386	0.12430 <.0001	0.17972 <.0001	-0.04339 0.1612	0.03670 0.2362	-0.02210 0.4757	1.00000	-0.04928 0.1115	-0.06116 0.0482	-0.01680 0.5876	-0.05448 0.0785	0.01197 0.6991	-0.00974 0.7532	0.03079 0.3203	-0.01089 0.7251	0.19479 <.0001
age	0.08121 0.0087	-0.07818 0.0115	-0.07631 0.0136	0.03145 0.3100	0.09593 0.0019	-0.06540 0.0346	-0.04928 0.1115	1.00000	0.21087 <.0001	0.00398 0.8978	-0.03945 0.2028	-0.09641 0.0018	-0.01601 0.6053	0.07300 0.0183	-0.04733 0.1264	0.00365 0.9063
failures	0.11634 0.0002	-0.19139 <.0001	-0.18777 <.0001	0.10743 0.0005	0.10000 0.0012	-0.02750 0.3747	-0.06116 0.0482	0.21087 <.0001	1.00000	-0.05368 0.0830	0.04459 0.1500	-0.02757 0.3734	0.10268 0.0009	0.07468 0.0158	0.04831 0.1188	-0.07426 0.0164
famrel	-0.07648 0.0134	0.01307 0.6733	0.01500 0.4094	-0.10066 0.0011	-0.06217 0.0446	0.05157 0.7608	-0.01680 0.5876	0.00398 0.8978	-0.05368 0.0830	1.00000	0.00533 0.8635	0.00226 0.9418	0.13690 0.0092	0.08062 0.0092	0.10410 0.0008	0.06597 0.0331
famsize	-0.07565 0.0145	0.04729 0.1268	0.02556 0.4094	-0.09002 0.0036	-0.01828 0.5551	0.00943 0.7608	-0.05448 0.0785	-0.03945 0.2028	0.04459 0.1500	0.00533 0.8635	1.00000	0.06734 0.0296	0.00725 0.8150	-0.00589 0.8493	0.00915 0.7678	-0.00832 0.7884
famsup	-0.02228 0.4722	0.15334 <.0001	0.14306 <.0001	-0.07360 0.0174	0.03127 0.3128	-0.00520 0.8667	0.01197 0.6991	-0.09641 0.0018	-0.02757 0.3734	0.00226 0.9418	0.06734 0.0296	1.00000	0.00623 0.8407	0.00525 0.8654	0.02267 0.4644	0.08252 0.0076
freetime	0.14498 <.0001	0.00214 0.9449	0.00105 0.9729	0.13038 <.0001	-0.03208 0.3004	0.12860 <.0001	-0.00974 0.7532	-0.01601 0.6053	0.10268 0.0009	0.13690 <.0001	0.00725 0.8150	0.00623 0.8407	1.00000	0.32356 <.0001	0.08152 0.0084	0.06102 0.0487
goout	0.25313 <.0001	0.03007 0.3316	0.02561 0.4084	0.39979 <.0001	0.05614 0.0698	0.07224 0.0196	0.03079 0.3203	0.07300 0.0183	0.07468 0.0158	0.08062 0.0092	-0.00589 0.8493	0.00525 0.8654	0.32356 <.0001	1.00000	-0.01374 0.6575	0.08377 0.0068
health	0.06552 0.0343	0.03429 0.2683	-0.01325 0.6688	0.10667 0.0006	-0.02748 0.3751	0.01717 0.5796	-0.01089 0.7251	-0.04733 0.1264	0.04831 0.1188	0.10410 0.0008	0.00915 0.7678	0.02267 0.4644	0.08152 0.0084	-0.01374 0.6575	1.00000	-0.04168 0.1783

<b>internet</b>	0.03951 0.2021	0.17001 <.0001	0.24973 <.0001	0.04361 0.1591	0.09065 0.0034	0.07202 0.0200	0.19479 <.0001	0.00365 0.9063	-0.07426 0.0164	0.06597 0.0331	-0.00832 0.7884	0.08252 0.0076	0.06102 0.0487	0.08377 0.0068	-0.04168 0.1783	1.00000
<b>pstatus</b>	0.01578 0.6106	-0.04916 0.1124	-0.07713 0.0127	0.04758 0.1245	-0.11396 0.0002	0.10058 0.0011	-0.07410 0.0166	-0.00105 0.9730	-0.00462 0.8816	0.04245 0.1705	0.20730 <.0001	0.01337 0.6661	0.03871 0.2114	0.02050 0.5082	0.01621 0.6008	0.06526 0.0350
<b>romantic</b>	0.04531 0.1435	-0.03991 0.1976	-0.00868 0.7793	-0.01643 0.5960	0.10532 0.0007	0.04256 0.1694	-0.02121 0.4936	0.13480 <.0001	0.07604 0.0140	-0.05189 0.0938	0.00766 0.8048	-0.01000 0.7470	0.01237 0.6897	0.00361 0.9074	-0.00210 0.9461	0.04988 0.1072
<b>schoolsup</b>	-0.02585 0.4040	0.03245 0.2949	-0.02362 0.4459	-0.09352 0.0025	-0.00910 0.7689	0.00111 0.9715	0.02358 0.4466	-0.12278 <.0001	0.00248 0.9361	-0.00763 0.8054	0.04555 0.1413	0.08695 0.0049	-0.02613 0.3991	-0.05123 0.0981	0.00078 0.9798	-0.01683 0.5871
<b>sex</b>	0.27593 <.0001	0.07079 0.0222	0.10939 0.0004	0.30262 <.0001	-0.01308 0.6730	0.11637 0.0002	0.01156 0.7092	-0.00302 0.9224	0.06554 0.0342	0.07472 0.0157	-0.09436 0.0023	-0.13770 <.0001	0.18160 <.0001	0.06253 0.0434	0.14111 <.0001	0.06267 0.0429
<b>studytime</b>	-0.15966 <.0001	0.03346 0.2801	0.09062 0.0034	-0.22907 <.0001	-0.07559 0.0146	0.07885 0.0108	0.03748 0.2263	0.04010 0.1954	-0.15202 <.0001	0.01232 0.6908	0.03511 0.2571	0.14386 <.0001	-0.09443 0.0023	-0.07294 0.0184	-0.06304 0.0417	0.04970 0.1085
<b>traveltime</b>	0.10942 0.0004	-0.19633 <.0001	-0.23818 <.0001	0.08429 0.0064	-0.02267 0.4644	-0.02583 0.4044	-0.34380 <.0001	0.05336 0.0848	0.08718 0.0048	-0.01258 0.6848	-0.03155 0.3085	-0.02612 0.3992	-0.00740 0.8112	0.04974 0.1082	-0.02900 0.3492	-0.16948 <.0001
<b>higher</b>	-0.11296 0.0003	0.19196 <.0001	0.20655 <.0001	-0.08727 0.0048	-0.07256 0.0190	0.06167 0.0464	0.07472 0.0158	-0.21479 <.0001	-0.28489 <.0001	0.04150 0.1803	-0.00065 0.9833	0.08845 0.0042	-0.08682 0.0050	-0.06284 0.0424	0.00804 0.7954	0.06341 0.0405

## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3

Number of Observations Read	1044
Number of Observations Used	1044

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	7	1721.14861	245.87837	18.38	<.0001
Error	1036	13858	13.37623		
Corrected Total	1043	15579			

Root MSE	3.65735	R-Square	0.1105
Dependent Mean	11.34195	Adj R-Sq	0.1045
Coeff Var	32.24623		

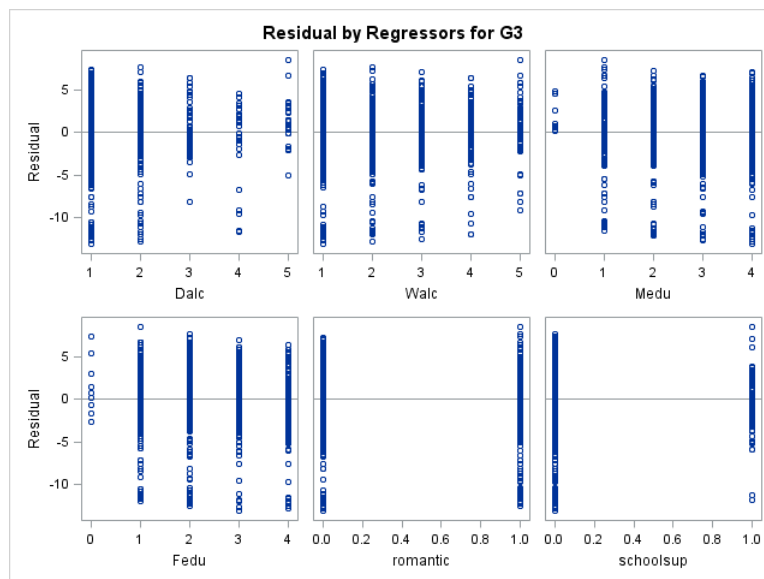
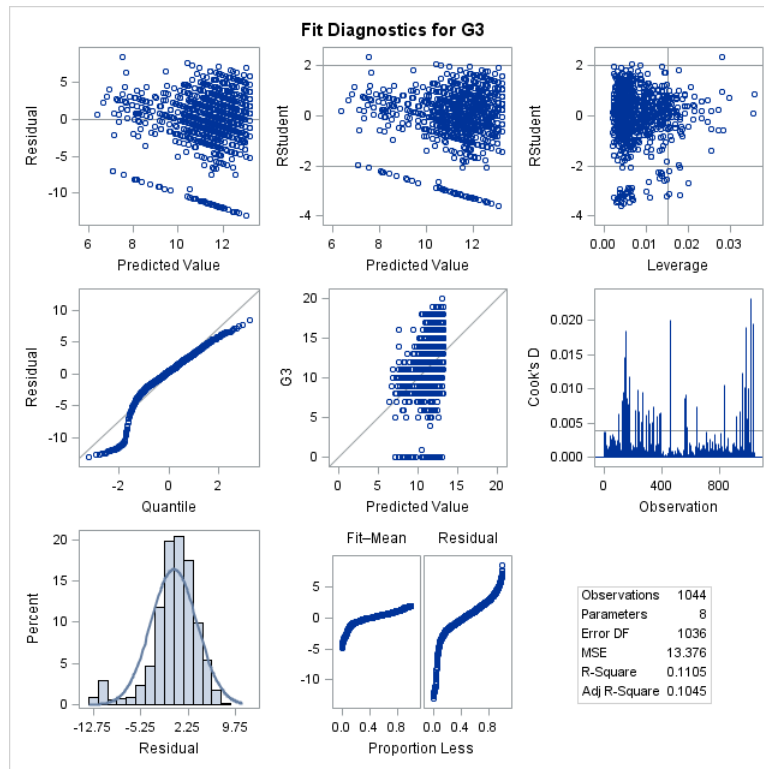
Parameter Estimates								
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t	Standardized Estimate	Tolerance	Variance Inflation
Intercept	1	8.70890	0.52258	16.67	<.0001	0	.	0
Dalc	1	-0.27949	0.16086	-1.74	0.0826	-0.06593	0.59629	1.67705
Walc	1	-0.19945	0.11443	-1.74	0.0816	-0.06632	0.59303	1.68625
Medu	1	0.45116	0.13285	3.40	0.0007	0.13132	0.57420	1.74156
Fedu	1	0.14339	0.13534	1.06	0.2896	0.04081	0.57867	1.72810
romantic	1	-0.67800	0.23937	-2.83	0.0047	-0.08400	0.97613	1.02445
schoolsup	1	-1.30713	0.36145	-3.62	0.0003	-0.10753	0.97109	1.02977
higher	1	2.60098	0.42140	6.17	<.0001	0.18802	0.92523	1.08082

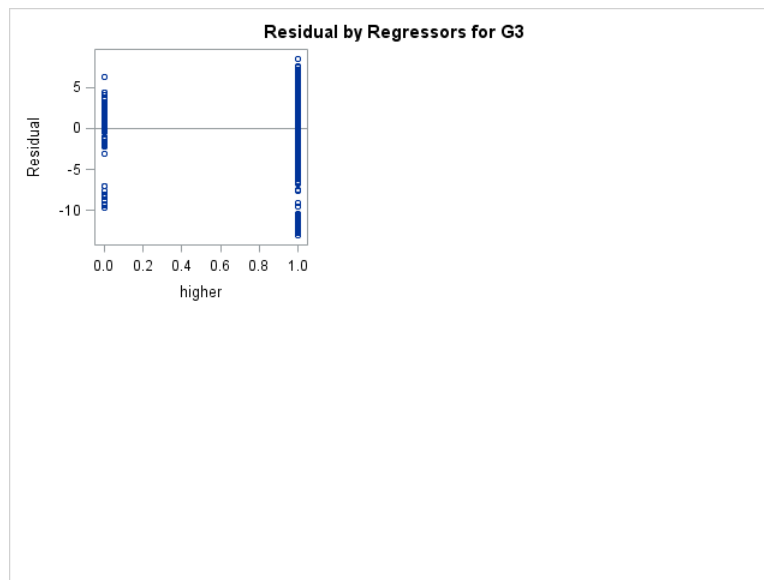
Collinearity Diagnostics (Intercept adjusted)									
Number	Eigenvalue	Condition Index	Proportion of Variation						
			Dalc	Walc	Medu	Fedu	romantic	schoolsup	higher
1	1.78708	1.00000	0.03195	0.03131	0.10365	0.10165	0.00646	0.00579	0.07814
2	1.63586	1.04520	0.13617	0.13659	0.03951	0.04404	0.00014507	0.00731	0.00002526
3	1.11003	1.26883	0.00959	0.01197	0.01698	0.00561	0.40816	0.32338	0.06865
4	0.91804	1.39522	0.00830	0.00210	0.00102	0.00434	0.38138	0.62186	0.02911
5	0.83090	1.46655	0.00560	0.00692	0.02019	0.03518	0.18556	0.01002	0.81983
6	0.38670	2.14974	0.46321	0.43163	0.29801	0.31420	0.01660	0.00214	0.00015503
7	0.33141	2.32215	0.34518	0.37948	0.52064	0.49499	0.00169	0.02949	0.00409



## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3





## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3

Number of Observations Read	1044
Number of Observations Used	1044

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	3189.59583	398.69948	33.31	<.0001
Error	1035	12389	11.97036		
Corrected Total	1043	15579			

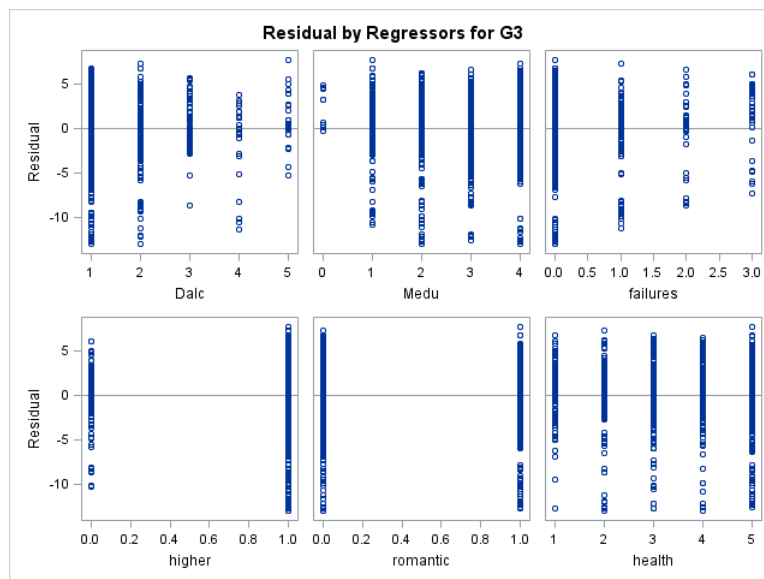
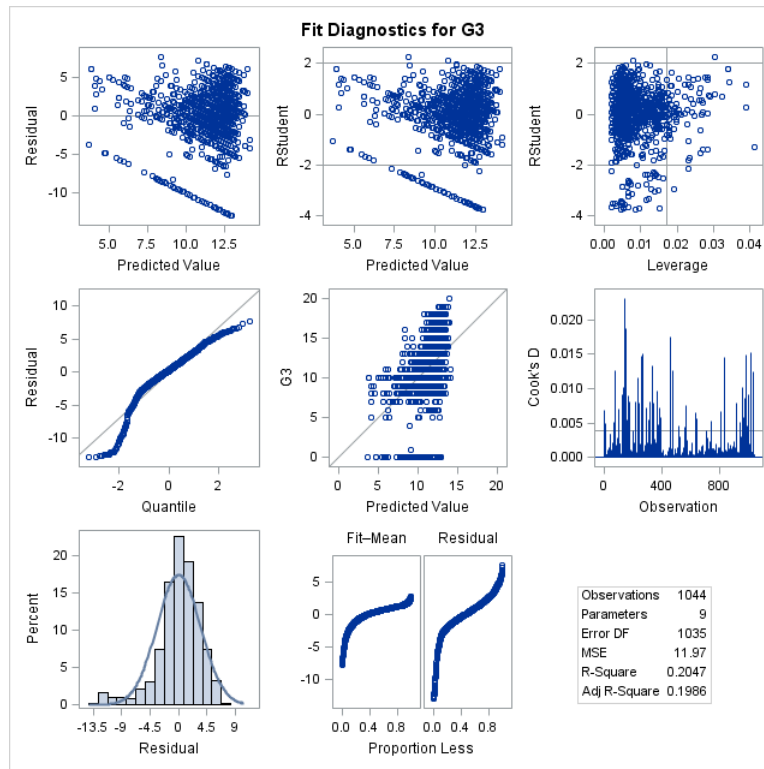
Root MSE	3.45982	R-Square	0.2047
Dependent Mean	11.34195	Adj R-Sq	0.1986
Coeff Var	30.50463		

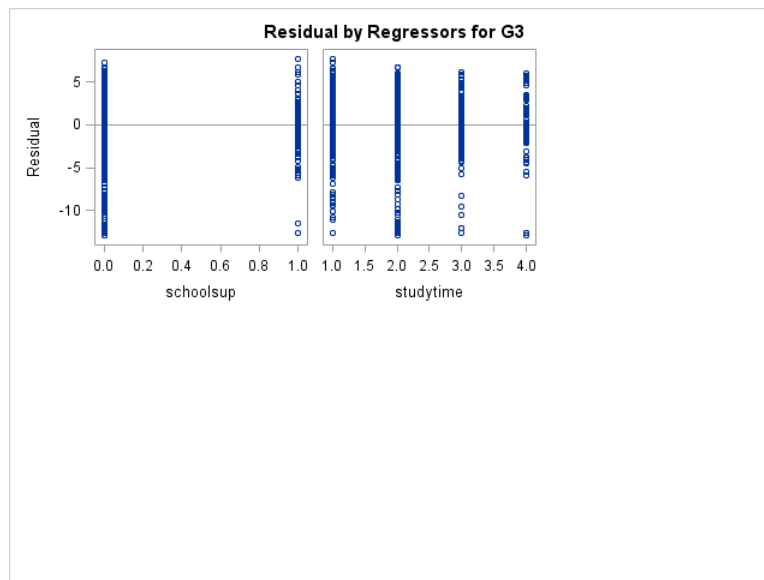
Parameter Estimates								
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t	Standardized Estimate	Tolerance	Variance Inflation
Intercept	1	10.03372	0.60193	16.67	<.0001	0	.	0
Dalc	1	-0.27642	0.12020	-2.30	0.0217	-0.06521	0.95570	1.04635
Medu	1	0.38406	0.09853	3.90	0.0001	0.11179	0.93424	1.07039
failures	1	-1.78977	0.17385	-10.30	<.0001	-0.30386	0.88206	1.13371
higher	1	1.45063	0.41360	3.51	0.0005	0.10487	0.85950	1.16347
romantic	1	-0.58592	0.22673	-2.58	0.0099	-0.07260	0.97367	1.02705
health	1	-0.15034	0.07556	-1.99	0.0469	-0.05542	0.99041	1.00968
schoolsup	1	-1.19087	0.34027	-3.50	0.0005	-0.09797	0.98054	1.01985
studytime	1	0.37772	0.13354	2.83	0.0048	0.08154	0.92447	1.08170

Collinearity Diagnostics (intercept adjusted)										
Number	Eigenvalue	Condition Index	Proportion of Variation							
			Dalc	Medu	failures	higher	romantic	health	schoolsup	studytime
1	1.66185	1.00000	0.05378	0.07618	0.13811	0.15079	0.01526	0.00676	0.00924	0.09244
2	1.09853	1.22996	0.04468	0.15280	0.01932	0.00000213	0.27221	0.00004095	0.39061	0.00011302
3	1.08786	1.23597	0.19836	0.08463	0.01075	0.03912	0.13399	0.27975	0.00271	0.12994
4	0.97407	1.30617	0.00024619	0.00215	0.02504	0.00584	0.26555	0.40025	0.13697	0.15932
5	0.93444	1.33359	0.33683	0.08781	0.00785	0.00011102	0.03376	0.28040	0.28626	0.00460
6	0.78408	1.45584	0.33088	0.50431	0.16735	0.03102	0.00311	0.00111	0.04226	0.10735
7	0.76763	1.47137	0.03523	0.05844	0.26184	0.02089	0.26169	0.00173	0.10318	0.46816
8	0.69155	1.55019	9.417234E-7	0.03368	0.36974	0.75223	0.01443	0.02997	0.02878	0.03808

## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3





## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3

Number of Observations Read	1044
Number of Observations Used	1044

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	3173.77711	396.72214	33.10	<.0001
Error	1035	12405	11.98565		
Corrected Total	1043	15579			

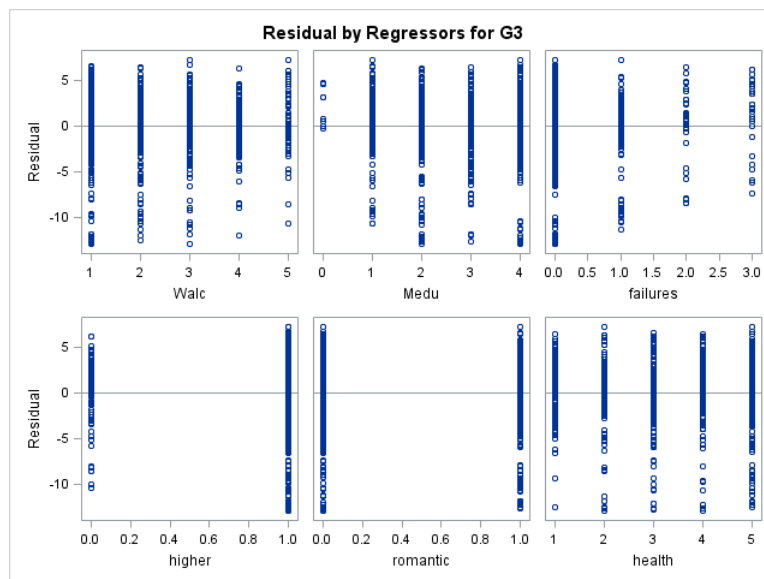
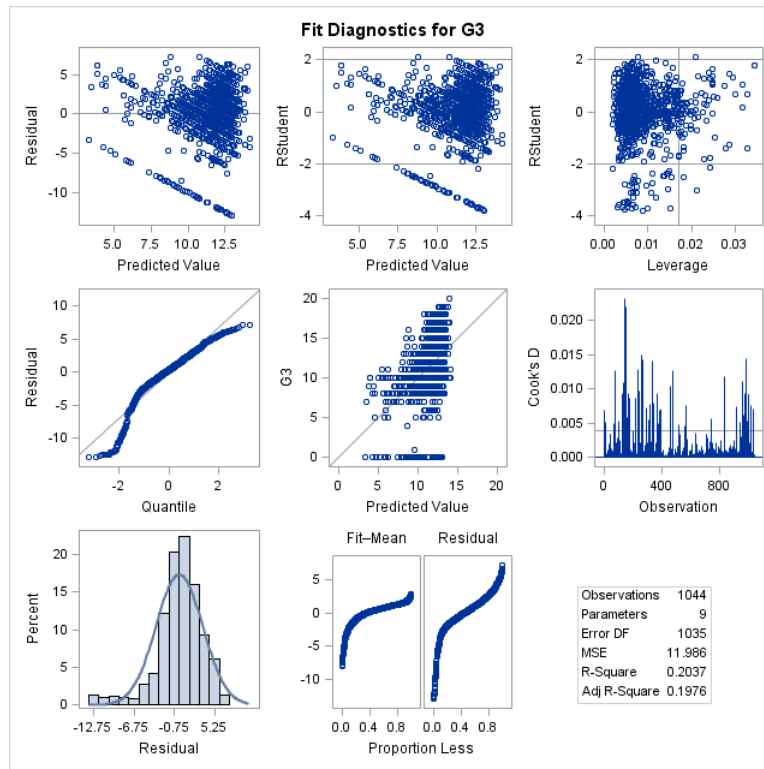
Root MSE	3.46203	R-Square	0.2037
Dependent Mean	11.34195	Adj R-Sq	0.1976
Coeff Var	30.52410		

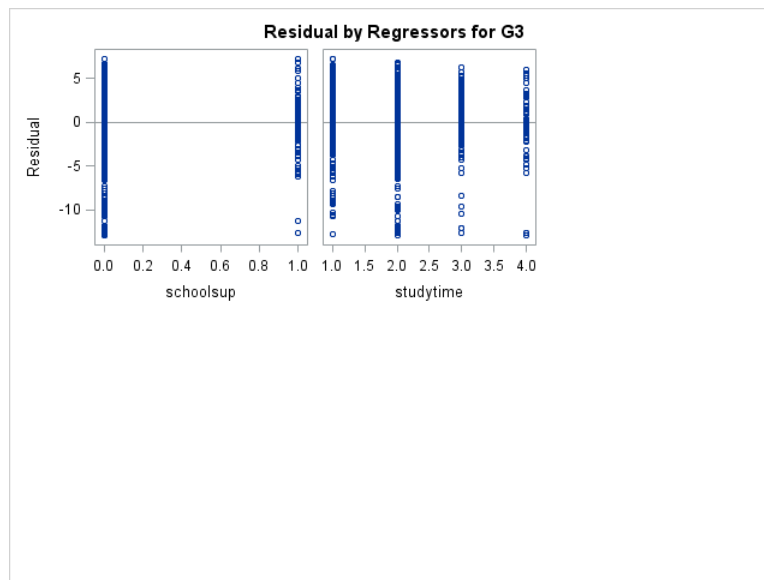
Parameter Estimates								
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t	Standardized Estimate	Tolerance	Variance Inflation
Intercept	1	10.02681	0.61281	16.36	<.0001	0	.	0
Walc	1	-0.17249	0.08665	-1.99	0.0468	-0.05735	0.92670	1.07910
Medu	1	0.37553	0.09850	3.81	0.0001	0.10930	0.93597	1.06841
failures	1	-1.79712	0.17384	-10.34	<.0001	-0.30510	0.88326	1.13217
higher	1	1.49124	0.41310	3.61	0.0003	0.10780	0.86268	1.15918
romantic	1	-0.61646	0.22678	-2.72	0.0067	-0.07638	0.97447	1.02620
health	1	-0.14580	0.07582	-1.92	0.0548	-0.05375	0.98471	1.01553
schoolsup	1	-1.24085	0.34161	-3.63	0.0003	-0.10208	0.97411	1.02658
studytime	1	0.36522	0.13513	2.70	0.0070	0.07885	0.90394	1.10626

Collinearity Diagnostics (intercept adjusted)										
Number	Eigenvalue	Condition Index	Proportion of Variation							
			Walc	Medu	failures	higher	romantic	health	schoolsup	studytime
1	1.67996	1.00000	0.06535	0.07347	0.12622	0.13563	0.00894	0.00985	0.01353	0.10218
2	1.16422	1.20124	0.23699	0.09405	0.04154	0.05927	0.09668	0.14359	0.03203	0.09859
3	1.09569	1.23824	0.00240	0.08705	0.01267	0.00244	0.33114	0.01406	0.42848	0.00538
4	0.97775	1.31080	0.00448	0.00000412	0.01723	0.00738	0.18625	0.65751	0.05257	0.06964
5	0.85524	1.40154	0.07139	0.35032	0.04964	0.00019950	0.13197	0.09900	0.37079	0.04058
6	0.78544	1.46249	0.30449	0.36803	0.15106	0.10565	0.15845	0.04690	0.04085	0.00519
7	0.75673	1.48997	0.25197	0.00611	0.26357	0.00742	0.07453	0.01770	0.02386	0.55781
8	0.68498	1.56607	0.06293	0.02096	0.33808	0.68201	0.01205	0.01138	0.03789	0.12064

## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3







# Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3

Number of Observations Read	1044
Number of Observations Used	1044

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	5	1704.18703	340.83741	25.50	<.0001
Error	1038	13875	13.36680		
Corrected Total	1043	15579			

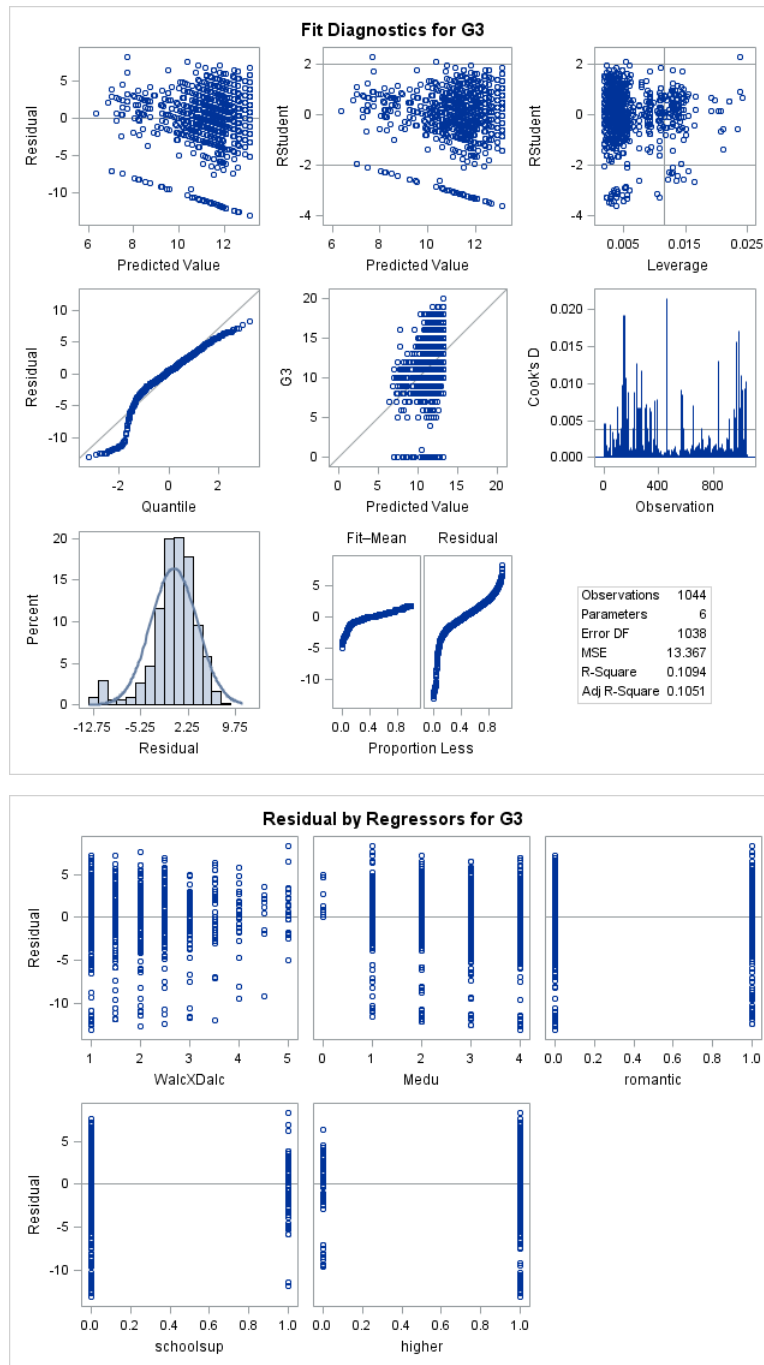
Root MSE	3.65606	R-Square	0.1094
Dependent Mean	11.34195	Adj R-Sq	0.1051
Coeff Var	32.23486		

Parameter Estimates								
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t	Standardized Estimate	Tolerance	Variance Inflation
Intercept	1	8.78240	0.51801	16.95	<.0001	0	.	0
WalcXDalc	1	-0.45700	0.11478	-3.98	<.0001	-0.11756	0.98414	1.01612
Medu	1	0.53814	0.10294	5.23	<.0001	0.15663	0.95567	1.04638
romantic	1	-0.69197	0.23851	-2.90	0.0038	-0.08574	0.98249	1.01782
schoolsup	1	-1.29555	0.35938	-3.60	0.0003	-0.10658	0.98158	1.01877
higher	1	2.64066	0.41971	6.29	<.0001	0.19089	0.93205	1.07290

Collinearity Diagnostics (intercept adjusted)								
Number	Eigenvalue	Condition Index	Proportion of Variation					
			WalcXDalc	Medu	romantic	schoolsup	higher	
1	1.29778	1.00000	0.09701	0.15657	0.09327	0.08044	0.30875	
2	1.07977	1.09631	0.03666	0.33262	0.14510	0.34939	0.03466	
3	0.98851	1.14580	0.59267	0.01068	0.38874	0.00152	0.00094154	
4	0.88206	1.21297	0.20771	0.05166	0.30828	0.54434	0.00025565	
5	0.75188	1.31379	0.06596	0.44846	0.06462	0.02432	0.65539	

## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3



## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3

Number of Observations Read	1044
Number of Observations Used	1044

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	8	3192.59476	399.07434	33.35	<.0001
Error	1035	12386	11.96747		
Corrected Total	1043	15579			

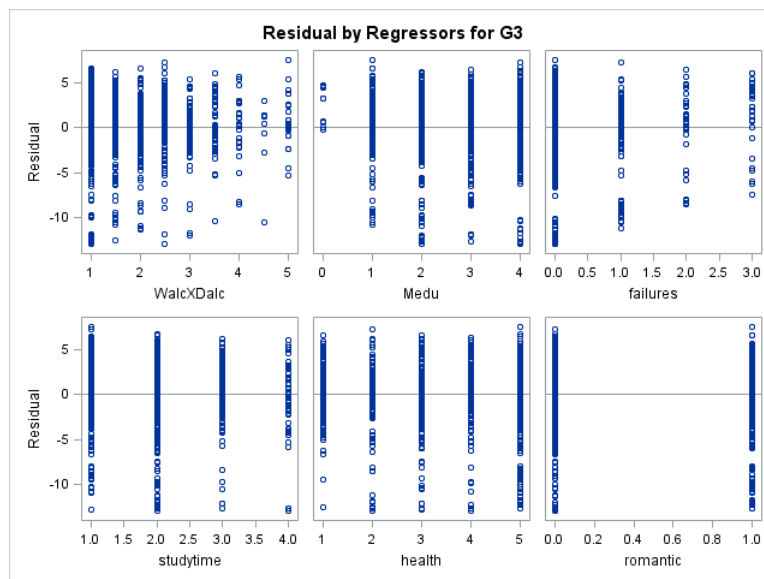
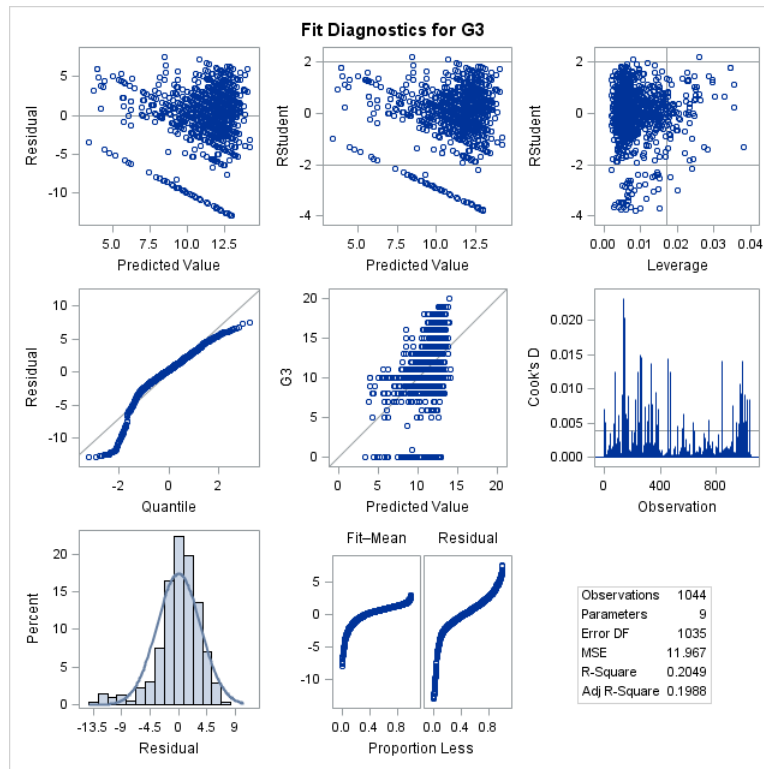
Root MSE	3.45940	R-Square	0.2049
Dependent Mean	11.34195	Adj R-Sq	0.1988
Coeff Var	30.50094		

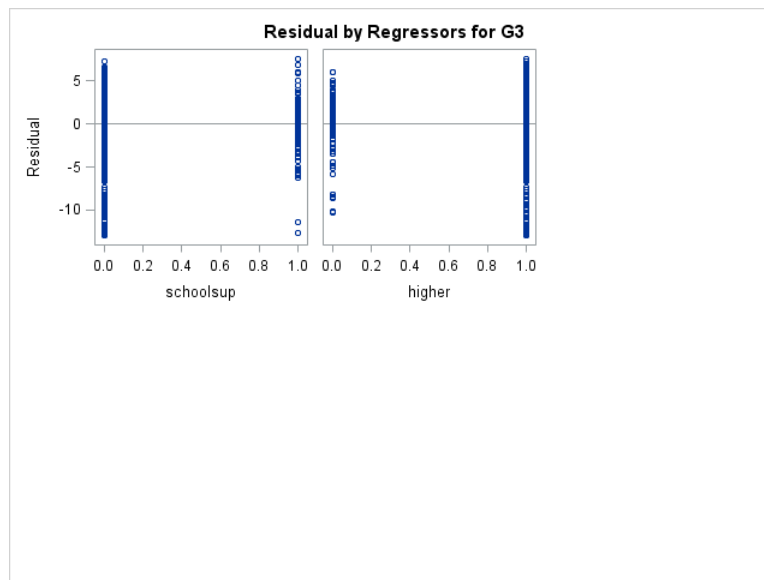
Parameter Estimates								
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t	Standardized Estimate	Tolerance	Variance Inflation
Intercept	1	10.14215	0.61734	16.43	<.0001	0	.	0
WalcXDalc	1	-0.26294	0.11170	-2.35	0.0188	-0.06764	0.93028	1.07495
Medu	1	0.37990	0.09845	3.86	0.0001	0.11058	0.93545	1.06901
failures	1	-1.78821	0.17385	-10.29	<.0001	-0.30359	0.88178	1.13407
studytime	1	0.35841	0.13479	2.66	0.0080	0.07738	0.90720	1.10229
health	1	-0.14459	0.07571	-1.91	0.0564	-0.05330	0.98607	1.01413
romantic	1	-0.60453	0.22654	-2.67	0.0077	-0.07490	0.97504	1.02560
schoolsup	1	-1.23022	0.34075	-3.61	0.0003	-0.10121	0.97755	1.02297
higher	1	1.46648	0.41313	3.55	0.0004	0.10601	0.86127	1.16107

Collinearity Diagnostics (intercept adjusted)										
Number	Eigenvalue	Condition Index	Proportion of Variation							
			WalcXDalc	Medu	failures	studytime	health	romantic	schoolsup	higher
1	1.68715	1.00000	0.06836	0.07008	0.12702	0.09873	0.00912	0.01073	0.01183	0.13700
2	1.13875	1.21720	0.22582	0.12754	0.03724	0.10553	0.17150	0.06925	0.03280	0.05341
3	1.09633	1.24053	0.00155	0.08110	0.01091	0.00915	0.02032	0.35251	0.40602	0.00330
4	0.97602	1.31476	0.00338	0.00054617	0.01899	0.09236	0.60076	0.20788	0.06498	0.00696
5	0.87619	1.38764	0.15840	0.23384	0.03300	0.00418	0.14590	0.12728	0.39151	0.00002433
6	0.77941	1.47127	0.22637	0.46434	0.25962	0.00000167	0.02319	0.10707	0.01313	0.08794
7	0.75734	1.49255	0.28914	0.00289	0.14295	0.60272	0.01056	0.10862	0.05093	0.00501
8	0.68881	1.56504	0.02697	0.01966	0.37026	0.08733	0.01866	0.01665	0.02879	0.70636

## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3





## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3

Number of Observations Read	1044
Number of Observations Used	1044

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	11	3328.50732	302.59157	25.49	<.0001
Error	1032	12250	11.87056		
Corrected Total	1043	15579			

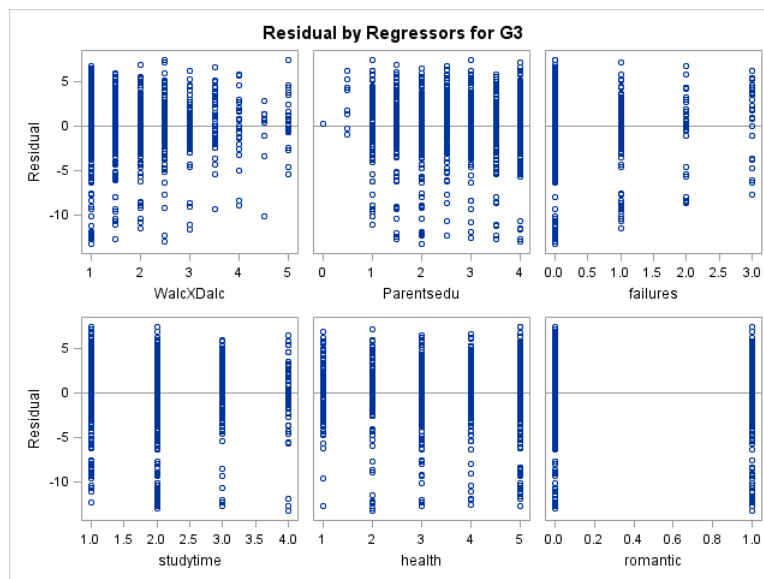
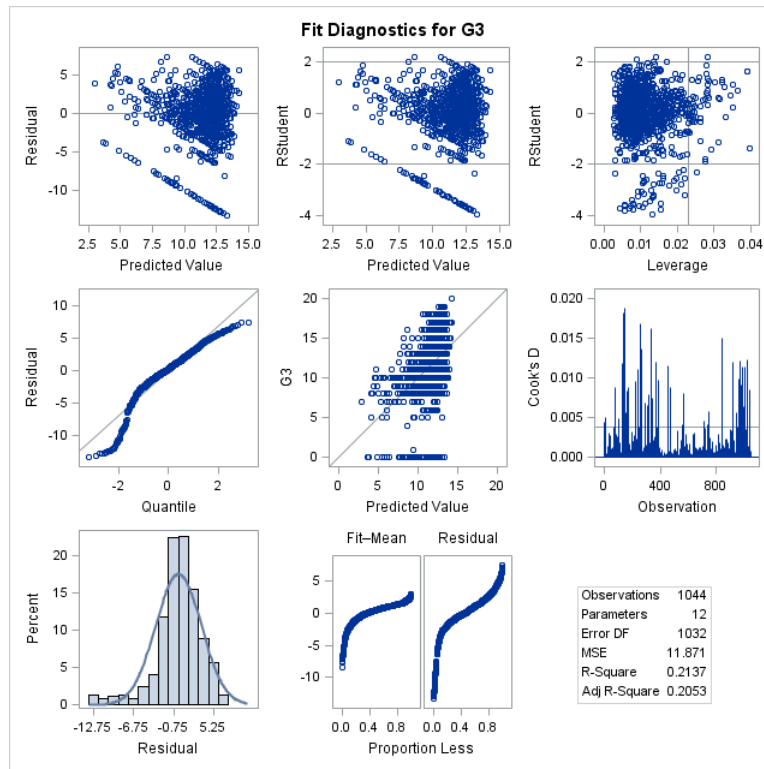
Root MSE	3.44537	R-Square	0.2137
Dependent Mean	11.34195	Adj R-Sq	0.2053
Coeff Var	30.37720		

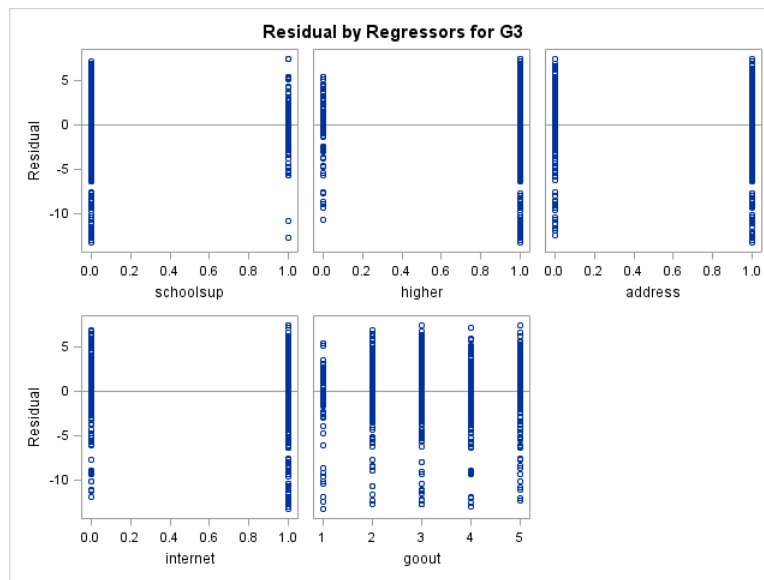
Parameter Estimates								
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t	Standardized Estimate	Tolerance	Variance Inflation
Intercept	1	10.06940	0.68330	14.74	<.0001	0	.	0
WalcXDalc	1	-0.17918	0.11987	-1.49	0.1353	-0.04609	0.80132	1.24794
Parentsedu	1	0.33881	0.11345	2.99	0.0029	0.08837	0.87027	1.14908
failures	1	-1.75024	0.17397	-10.06	<.0001	-0.29715	0.87347	1.14486
studytime	1	0.36495	0.13424	2.72	0.0067	0.07879	0.90724	1.10224
health	1	-0.15247	0.07561	-2.02	0.0440	-0.05620	0.98087	1.01950
romantic	1	-0.61344	0.22603	-2.71	0.0068	-0.07601	0.97148	1.02935
schoolsup	1	-1.29308	0.33934	-3.81	0.0001	-0.10638	0.97771	1.02279
higher	1	1.40993	0.41236	3.42	0.0007	0.10192	0.85750	1.16618
address	1	0.55639	0.24708	2.25	0.0245	0.06417	0.93843	1.06560
internet	1	0.46181	0.27594	1.67	0.0945	0.04851	0.90694	1.10261
goout	1	-0.20446	0.10049	-2.03	0.0422	-0.06097	0.84834	1.17877

Collinearity Diagnostics (Intercept adjusted)													
Number	Eigenvalue	Condition Index	Proportion of Variation										
			WalcXDalc	Parentsedu	failures	studytime	health	romantic	schoolsup	higher	address	internet	goout
1	1.82914	1.00000	0.05693	0.06376	0.09380	0.06746	0.00502	0.00594	0.00968	0.09883	0.02899	0.02130	0.02535
2	1.47842	1.11231	0.12325	0.09224	0.00265	0.01367	0.00243	0.00012654	0.01259	0.00295	0.05698	0.12728	0.15145
3	1.13741	1.26813	0.03838	0.00032729	0.01676	0.02845	0.09603	0.36334	0.09789	0.06601	0.02963	0.08032	0.00953
4	1.02422	1.33637	0.01220	0.00623	0.12250	0.00438	0.04152	0.05168	0.39205	0.04634	0.20365	0.03740	0.00009441
5	1.00958	1.34603	0.00987	0.01828	0.01973	0.03192	0.63955	0.03330	0.00053075	0.00190	0.06351	0.00621	0.11525
6	0.95252	1.38575	0.02363	0.00292	0.01291	0.26868	0.06817	0.20757	0.25480	0.01842	0.05854	0.00000489	0.06655
7	0.82665	1.48752	0.00203	0.12343	0.01095	0.26866	0.04291	0.07217	0.15666	0.00059466	0.28684	0.07083	0.07971
8	0.76844	1.54283	0.00454	0.00053154	0.07937	0.13797	0.02640	0.25489	0.03937	0.03921	0.23322	0.37789	0.00988
9	0.70941	1.60574	0.00633	0.49128	0.46236	0.01019	0.02780	0.00138	0.02080	0.03137	0.00310	0.18623	0.00032555
10	0.68832	1.63016	0.00378	0.20076	0.17895	0.05514	0.01212	0.00772	0.01561	0.69025	0.00006956	0.08479	0.01439
11	0.57589	1.78219	0.71907	0.00024868	0.00001869	0.11348	0.03805	0.00189	0.00001315	0.00413	0.03548	0.00775	0.52748

## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3







# Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3

Number of Observations Read	1044
Number of Observations Used	1044

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	3279.37144	327.93714	27.54	<.0001
Error	1033	12300	11.90663		
Corrected Total	1043	15579			

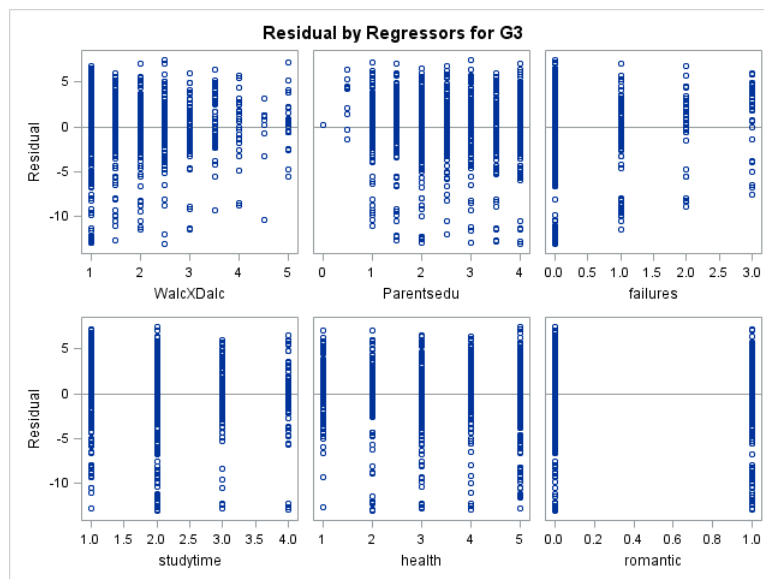
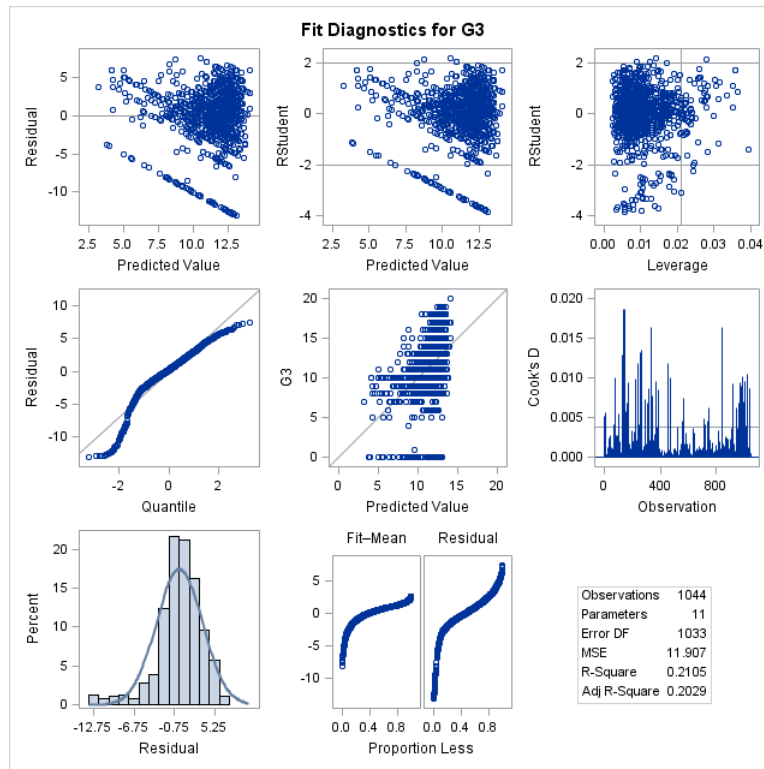
Root MSE	3.45060	R-Square	0.2105
Dependent Mean	11.34195	Adj R-Sq	0.2029
Coeff Var	30.42332		

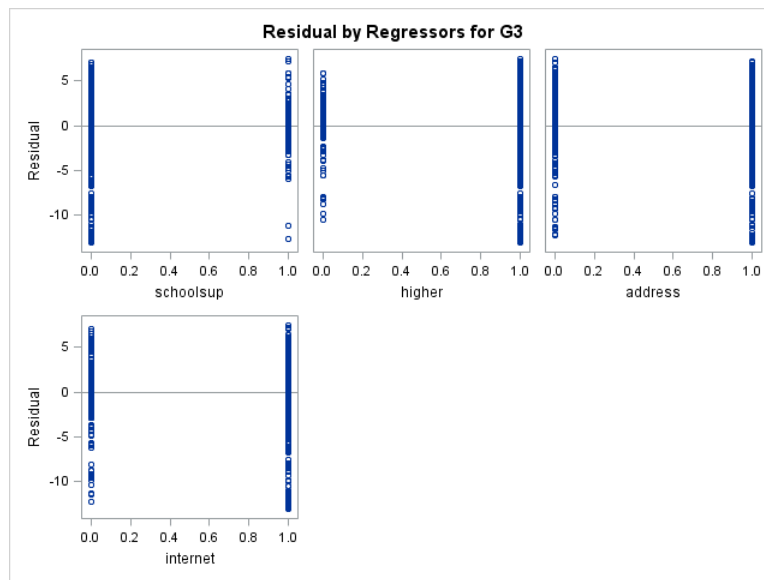
Parameter Estimates									
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t	Heteroscedasticity Consistent			Standardized Estimate
						Standard Error	t Value	Pr >  t	
Intercept	1	9.60621	0.64523	14.89	<.0001	0.61158	15.71	<.0001	0
WalcXDalc	1	-0.26759	0.11188	-2.39	0.0170	0.11071	-2.42	0.0158	-0.06884
Parentsedu	1	0.33284	0.11359	2.93	0.0035	0.11562	2.88	0.0041	0.08681
failures	1	-1.76421	0.17410	-10.13	<.0001	0.20626	-8.55	<.0001	-0.29952
studytime	1	0.36124	0.13443	2.69	0.0073	0.13771	2.62	0.0088	0.07799
health	1	-0.14435	0.07562	-1.91	0.0565	0.07278	-1.98	0.0476	-0.05321
romantic	1	-0.60868	0.22637	-2.69	0.0073	0.23259	-2.62	0.0090	-0.07542
schoolsup	1	-1.27502	0.33974	-3.75	0.0002	0.31032	-4.11	<.0001	-0.10489
higher	1	1.43075	0.41285	3.47	0.0006	0.42381	3.38	0.0008	0.10343
address	1	0.53478	0.24723	2.16	0.0308	0.25660	2.08	0.0374	0.06167
internet	1	0.43021	0.27592	1.56	0.1193	0.28382	1.52	0.1299	0.04519

HCC Approximation Method: HC3

## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3





# Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3

Number of Observations Read	1044
Number of Observations Used	1044

Analysis of Variance					
Source	DF	Sum of Squares	Mean Square	F Value	Pr > F
Model	10	3279.37144	327.93714	27.54	<.0001
Error	1033	12300	11.90663		
Corrected Total	1043	15579			

Root MSE	3.45060	R-Square	0.2105
Dependent Mean	11.34195	Adj R-Sq	0.2029
Coeff Var	30.42332		

Parameter Estimates					
Variable	DF	Parameter Estimate	Standard Error	t Value	Pr >  t
Intercept	1	9.60621	0.64523	14.89	<.0001
WalcXDalc	1	-0.26759	0.11188	-2.39	0.0170
Parentsedu	1	0.33284	0.11359	2.93	0.0035
failures	1	-1.76421	0.17410	-10.13	<.0001
studytime	1	0.36124	0.13443	2.69	0.0073
health	1	-0.14435	0.07562	-1.91	0.0565
romantic	1	-0.60868	0.22637	-2.69	0.0073
schoolsup	1	-1.27502	0.33974	-3.75	0.0002
higher	1	1.43075	0.41285	3.47	0.0006
address	1	0.53478	0.24723	2.16	0.0308
internet	1	0.43021	0.27592	1.56	0.1193

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**Effect of Student Alcohol Consumption on Grades**

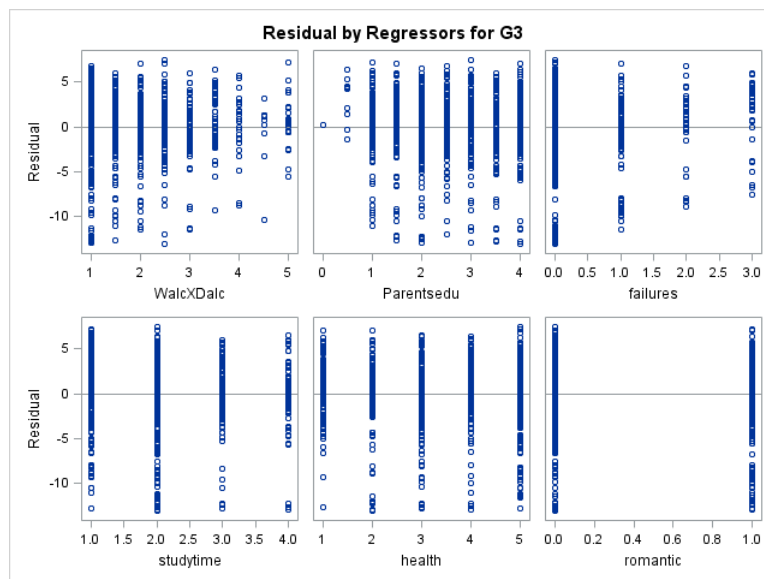
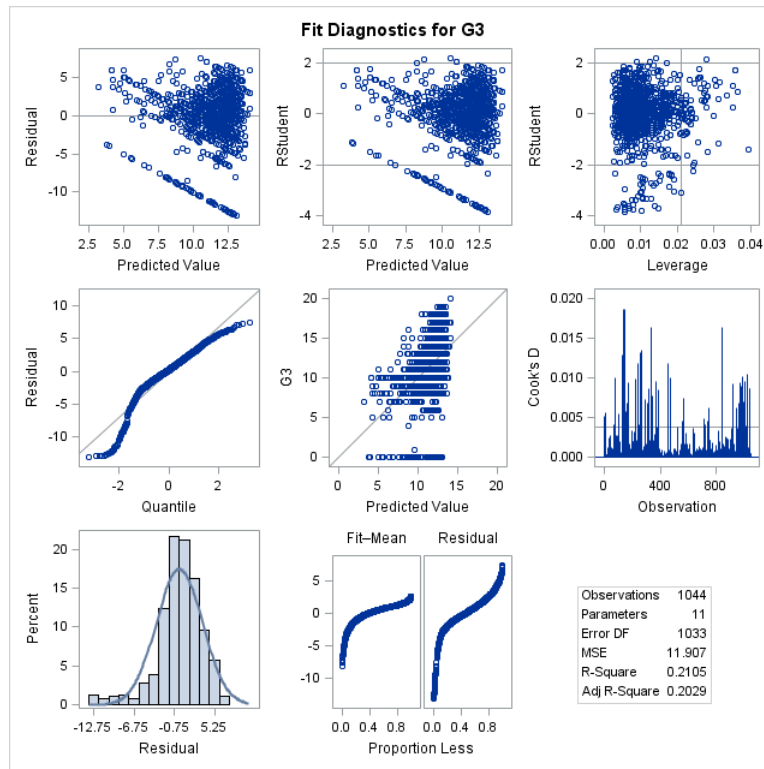
The REG Procedure  
Model: MODEL1  
Dependent Variable: G3

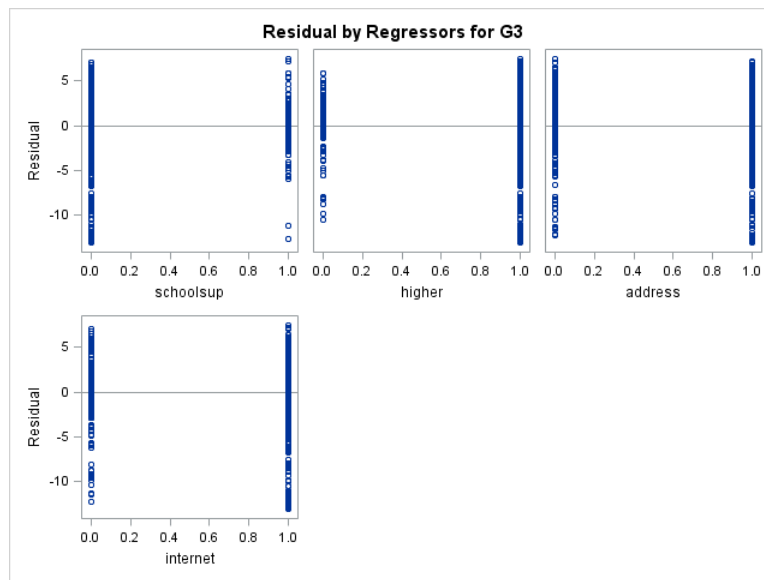
Durbin-Watson D	1.833
Pr < DW	0.0032
Pr > DW	0.9968
Number of Observations	1044
1st Order Autocorrelation	0.082

**Note:** Pr<DW is the p-value for testing positive autocorrelation, and Pr>DW is the p-value for testing negative autocorrelation.

## Effect of Student Alcohol Consumption on Grades

The REG Procedure  
Model: MODEL1  
Dependent Variable: G3





## Effect of Student Alcohol Consumption on Grades

## The FREQ Procedure

WalcXDalc	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	391	37.45	391	37.45
1.5	182	17.43	573	54.89
2	159	15.23	732	70.11
2.5	118	11.30	850	81.42
3	85	8.14	935	89.56
3.5	49	4.69	984	94.25
4	26	2.49	1010	96.74
4.5	10	0.96	1020	97.70
5	24	2.30	1044	100.00

Parentsedu	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	1	0.10	1	0.10
0.5	9	0.86	10	0.96
1	134	12.84	144	13.79
1.5	131	12.55	275	26.34
2	202	19.35	477	45.69
2.5	124	11.88	601	57.57
3	153	14.66	754	72.22
3.5	125	11.97	879	84.20
4	165	15.80	1044	100.00

failures	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	861	82.47	861	82.47
1	120	11.49	981	93.97
2	33	3.16	1014	97.13
3	30	2.87	1044	100.00

studytime	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	317	30.36	317	30.36
2	503	48.18	820	78.54
3	162	15.52	982	94.06
4	62	5.94	1044	100.00

health	Frequency	Percent	Cumulative Frequency	Cumulative Percent
1	137	13.12	137	13.12
2	123	11.78	260	24.90
3	215	20.59	475	45.50
4	174	16.67	649	62.16
5	395	37.84	1044	100.00

romantic	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	673	64.46	673	64.46
1	371	35.54	1044	100.00

schoolsup	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	925	88.60	925	88.60
1	119	11.40	1044	100.00

higher	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	89	8.52	89	8.52
1	955	91.48	1044	100.00

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address	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	285	27.30	285	27.30
1	759	72.70	1044	100.00

internet	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	217	20.79	217	20.79
1	827	79.21	1044	100.00

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**Effect of Student Alcohol Consumption on Grades****The MEANS Procedure**

Variable	N	Mean	Std Dev	Minimum	Maximum
WalcXDalc	1044	1.8893678	0.9942172	1.0000000	5.0000000
Parentsedu	1044	2.4956897	1.0079885	0	4.0000000
failures	1044	0.2643678	0.6561418	0	3.0000000
studytime	1044	1.9703065	0.8343532	1.0000000	4.0000000
health	1044	3.5431034	1.4247034	1.0000000	5.0000000

## Logit Analysis

### The LOGISTIC Procedure

Model Information	
Data Set	STUDENT.DATA2
Response Variable	G3
Number of Response Levels	19
Model	cumulative logit
Optimization Technique	Fisher's scoring

Number of Observations Read	1044
Number of Observations Used	1044

Response Profile		
Ordered Value	G3	Total Frequency
1	20	1
2	19	7
3	18	27
4	17	35
5	16	52
6	15	82
7	14	90
8	13	113
9	12	103
10	11	151
11	10	153
12	9	63
13	8	67
14	7	19
15	6	18
16	5	8
17	4	1
18	1	1
19	0	53

Probabilities modeled are cumulated over the lower Ordered Values.

Model Convergence Status
Convergence criterion (GCONV=1E-8) satisfied.

Score Test for the Proportional Odds Assumption		
Chi-Square	DF	Pr > ChiSq
1503.1434	170	<.0001

Model Fit Statistics		
Criterion	Intercept Only	Intercept and Covariates
AIC	5318.408	5039.965
SC	5407.522	5178.588
-2 Log L	5282.408	4983.965

R-Square	0.2486	Max-rescaled R-Square	0.2502
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Testing Global Null Hypothesis: BETA=0			
Test	Chi-Square	DF	Pr > ChiSq
Likelihood Ratio	298.4428	10	<.0001
Score	261.3649	10	<.0001
Wald	263.4934	10	<.0001

Analysis of Maximum Likelihood Estimates					

Parameter		DF	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept	20	1	-8.4199	1.0685	62.0982	<.0001
Intercept	19	1	-6.3268	0.4893	167.1912	<.0001
Intercept	18	1	-4.8097	0.3744	165.0622	<.0001
Intercept	17	1	-4.0608	0.3538	131.6989	<.0001
Intercept	16	1	-3.4203	0.3444	98.6434	<.0001
Intercept	15	1	-2.7639	0.3386	66.6230	<.0001
Intercept	14	1	-2.2206	0.3354	43.8225	<.0001
Intercept	13	1	-1.6426	0.3330	24.3397	<.0001
Intercept	12	1	-1.1571	0.3314	12.1906	0.0005
Intercept	11	1	-0.4269	0.3300	1.6731	0.1958
Intercept	10	1	0.4649	0.3307	1.9758	0.1598
Intercept	9	1	0.9391	0.3329	7.9559	0.0048
Intercept	8	1	1.6293	0.3394	23.0396	<.0001
Intercept	7	1	1.8878	0.3432	30.2508	<.0001
Intercept	6	1	2.1843	0.3487	39.2341	<.0001
Intercept	5	1	2.3415	0.3522	44.1950	<.0001
Intercept	4	1	2.3622	0.3527	44.8544	<.0001
Intercept	1	1	2.3833	0.3532	45.5261	<.0001
WalcXDalc		1	-0.2212	0.0571	15.0049	0.0001
Parentsedu		1	0.2207	0.0578	14.5921	0.0001
failures		1	-0.9072	0.0944	92.4139	<.0001
studytime		1	0.2374	0.0683	12.0627	0.0005
health		1	-0.0805	0.0384	4.3944	0.0361
romantic		1	-0.2193	0.1148	3.6489	0.0561
schoolsup		1	-0.8791	0.1742	25.4818	<.0001
higher		1	0.8530	0.2124	16.1337	<.0001
address		1	0.3009	0.1256	5.7418	0.0166
internet		1	0.2548	0.1401	3.3083	0.0689

Odds Ratio Estimates			
Effect	Point Estimate	95% Wald Confidence Limits	
WalcXDalc	0.802	0.717	0.896
Parentsedu	1.247	1.113	1.397
failures	0.404	0.335	0.486
studytime	1.268	1.109	1.450
health	0.923	0.856	0.995
romantic	0.803	0.641	1.006
schoolsup	0.415	0.295	0.584
higher	2.347	1.548	3.558
address	1.351	1.056	1.728
internet	1.290	0.980	1.698

Association of Predicted Probabilities and Observed Responses			
Percent Concordant	69.5	Somers' D	0.398
Percent Discordant	29.7	Gamma	0.402
Percent Tied	0.9	Tau-a	0.361
Pairs	494399	c	0.699

# Effect of various factors on Student Grades

## The PLM Procedure

Store Information	
Item Store	WORK.GRADES
Data Set Created From	STUDENT.DATA2
Created By	PROC LOGISTIC
Date Created	28APR17:12:47:42
Response Variable	G3
Link Function	Cumulative Logit
Distribution	Multinomial
Class Variable	G3
Model Effects	Intercept WalcXDalc Parentsedu failures studytime health romantic schoolsup higher address internet

