Final Project

To complete this project, use the "Final Project Data Set" See below page Two
PART I:

1. Calculate the mean yearly value using the average gas prices by month found in the "Final Project Data Set."

2. Using the years as your x-axis and the annual mean as your y-axis, create a scatterplot and a linear regression line.

3. Answer the following questions using your scatterplot and linear regression line:

    - What is the slope of the linear regression line?
    - What is the Y-intercept of the linear regression line?
    - What is the equation of the linear regression line in slope-intercept form?
    - Based on the linear regression line, what would be an estimated cost of gas in the year 2020?
    - What are the residuals of each year?
    - Select a current price that you have seen or paid recently for gas. Is that price within the range of the linear regression line or is it an outlier? Is it within the confidence interval of 5% or either end?

PART II:

Imagine that you are a manager at a delivery service and you are creating a report to project the effects on your company of rising gas prices in the next ten years. Using the preceding statistical analysis as your basis and outside scholarly resources to support your claims, write a 3 to 5 page paper interpreting the results from this perspective. Include the following considerations:

1. Introduce the project and its significance to the company.

2. Explain the statistical analysis that you completed in Part I. Be sure to explain where the data came from, what analysis was done, and what the results were.

3. Give conclusions that you have drawn from the data. Consider the effects of your gas price predictions on the delivery business. Also consider whether or not you believe your predicted gas prices are accurate. What could occur in the future that would change your linear regression line and therefore your prediction?

Consumer Price Index - Average Price Data
Original Data Value

Series Id: APU000074714
Area: U.S. city average
Item: Gasoline, unleaded regular, per gallon/3.785 liters
Years: 1982 to 2011

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	N
1982	1.358	1.334	1.284	1.225	1.237	1.309	1.331	1.323	1.307	1.295	1
1983	1.230	1.187	1.152	1.215	1.259	1.277	1.288	1.285	1.274	1.255	1
1984	1.216	1.209	1.210	1.227	1.236	1.229	1.212	1.196	1.203	1.209	1
1985	1.148	1.131	1.159	1.205	1.231	1.241	1.242	1.229	1.216	1.204	1
1986	1.194	1.120	0.981	0.888	0.923	0.955	0.890	0.843	0.860	0.831	0
1987	0.862	0.905	0.912	0.934	0.941	0.958	0.971	0.995	0.990	0.976	0
1988	0.933	0.913	0.904	0.930	0.955	0.955	0.967	0.987	0.974	0.957	0
1989	0.918	0.926	0.940	1.065	1.119	1.114	1.092	1.057	1.029	1.027	0
1990	1.042	1.037	1.023	1.044	1.061	1.088	1.084	1.190	1.294	1.378	1
1991	1.247	1.143	1.082	1.104	1.156	1.160	1.127	1.140	1.143	1.122	1
1992	1.073	1.054	1.058	1.079	1.136	1.179	1.174	1.158	1.158	1.154	1
1993	1.117	1.108	1.098	1.112	1.129	1.130	1.109	1.097	1.085	1.127	1
1994	1.043	1.051	1.045	1.064	1.080	1.106	1.136	1.182	1.177	1.152	1
1995	1.129	1.120	1.115	1.140	1.200	1.226	1.195	1.164	1.148	1.127	1
1996	1.129	1.124	1.162	1.251	1.323	1.299	1.272	1.240	1.234	1.227	1
1997	1.261	1.255	1.235	1.231	1.226	1.229	1.205	1.253	1.277	1.242	1
1998	1.131	1.082	1.041	1.052	1.092	1.094	1.079	1.052	1.033	1.042	1
1999	0.972	0.955	0.991	1.177	1.178	1.148	1.189	1.255	1.280	1.274	1
2000	1.301	1.369	1.541	1.506	1.498	1.617	1.593	1.510	1.582	1.559	1
2001	1.472	1.484	1.447	1.564	1.729	1.640	1.482	1.427	1.531	1.362	1
2002	1.139	1.130	1.241	1.407	1.421	1.404	1.412	1.423	1.422	1.449	1
2003	1.473	1.641	1.748	1.659	1.542	1.514	1.524	1.628	1.728	1.603	1
2004	1.592	1.672	1.766	1.833	2.009	2.041	1.939	1.898	1.891	2.029	2
2005	1.823	1.918	2.065	2.283	2.216	2.176	2.316	2.506	2.927	2.785	2
2006	2.315	2.310	2.401	2.757	2.947	2.917	2.999	2.985	2.589	2.272	2
2007	2.274	2.285	2.592	2.860	3.130	3.052	2.961	2.782	2.789	2.793	3
2008	3.047	3.033	3.258	3.441	3.764	4.065	4.090	3.786	3.698	3.173	2
2009	1.787	1.928	1.949	2.056	2.265	2.631	2.543	2.627	2.574	2.561	2
2010	2.731	2.659	2.780	2.858	2.869	2.736	2.736	2.745	2.704	2.795	2
2011	3.091	3.167									