Title: Visualization of Quantitative Data

Abstract: Our data set is information on 150 used Ford automobiles. The student will be presented with data in tabular form and asked several questions about information that the data ostensibly can answer. The data is converted into graphic form and the same questions are asked.

Instructions to Students:
Individual or group project: This module can be used for small groups of students or individuals at the discretion of the instructor.

Data: The data set used has 150 observations of used Ford Automobiles. Each observation has six measures:

year = model year
model = SE (Special Edition), SEL (Special Edition Luxury) or SES (Special Edition Sport)
price = asking price (USD)
miles = current odometer reading
color = primary body color
transmission = automatic or manual

Below is a random sample of 20 observations in this data set. For the purpose of answering the next few questions imagine that you were looking at the entire data set.

#	year	model	price	mileage	color	transmission
19	2011	SEL	15992	11662	Blue	AUTO
118	2008	SE	10836	40330	Green	MANUAL
64	2009	SE	13991	36252	Silver	MANUAL
68	2010	SE	13895	48174	Gray	AUTO
85	2010	SE	12995	32743	Black	MANUAL
72	2009	SES	13742	38380	Black	AUTO
42	2010	SES	14699	36469	Gray	AUTO
13	2011	SEL	16950	9388	Green	AUTO
67	2010	SE	13950	37185	Blue	AUTO
112	2009	SES	10995	42834	Red	AUTO
57	2010	SE	13995	20278	Black	MANUAL
41	2010	SES	14761	44813	Black	AUTO
113	2005	SES	10995	69415	Blue	AUTO
148	2000	SE	5980	96841	Red	AUTO
140	2005	SES	7488	59013	Red	AUTO

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82   2009      SE 12998     34846    Blue         AUTO
31   2010     SES 14999     36306     Red         AUTO
90   2008      SE 12995    127327     Red         AUTO
53   2010     SES 14000     24929  Silver         AUTO
115  2009      SE 10979     60709     Red         AUTO
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Step by Step procedure:

Question one: If you had the full data set how would you answer, "Of the three models which model is most abundant in the data set?" (Remember, you are to imagine you have the full set of data.)

Question two: would it be easy or difficult to prepare your answer to Question one?

Question three: We are looking for a relation between price and transmission type. What steps would you take to discover if a relation exist?

Question four: How would you decide which model gives you the best selection of lower priced cars?

After preparing brief answers to the above four questions look at the graphic below which was created from the full data set.
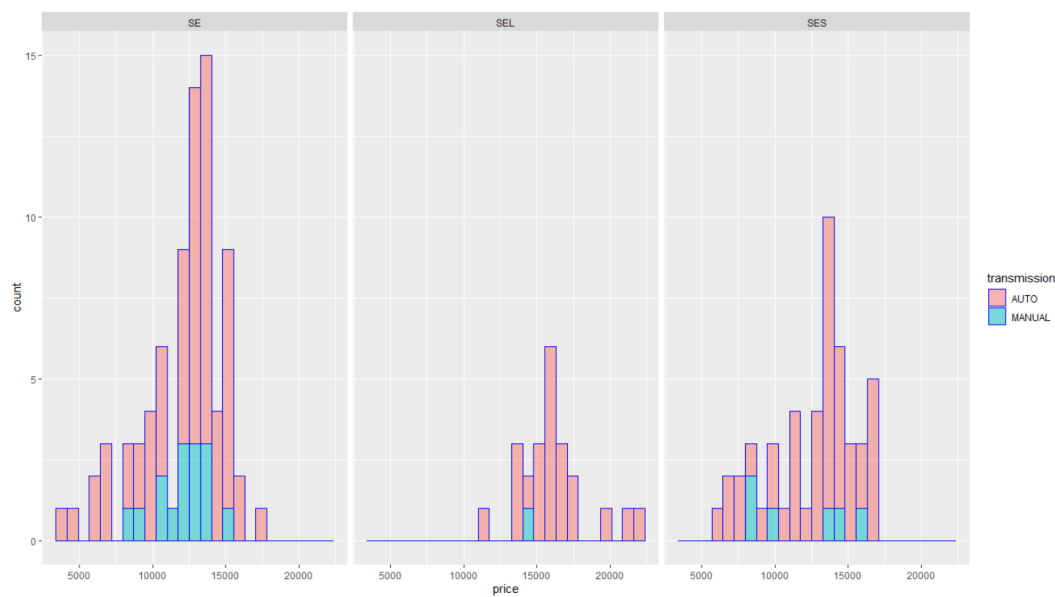
Study the information displayed in the graph and prepare answers to the same four questions.

Question one: Of the three models which model is most abundant in the data set?

Question two: How easy was it to answer to Question one?

Question three: We are looking for a relation between price and transmission type. Looking at the three graphs what do you discover about price vs transmission type?

Question four: Which model gives you the best selection of lower priced cars?

After preparing brief answers to the above four questions write a short paragraph comparing your thoughts on the usefulness of graphs to communicate quantitative information.

Examples of how to complete the project: Student looks at a data set and a graph made from the data set and answers short questions.

Deliverables and evaluation: You will turn in answers to two sets of questions and a one paragraph summary of this experience.