**MBA Car Problem Factor Analysis**

In January 1998, 303 MBA students were asked about their evaluations of and preferences for 10 different automobiles. The automobiles, listed in order of presentation in the survey were

1. BMW328i

2. Ford Explorer

3. Infiniti J30

4. Jeep Grand Cherokee

5. Lexus ES300

6. Chrysler Town & Country

7. Mercedes C280

8. Saab 9000

9. Porche Boxster

10. Volvo V90

Each student rated all cars. For the purposes of this exercise, one car was selected randomly from each student, resulting in a sample size of 303 evaluations (approx. 30 observations per type of car).

The students rated each car on 16 attributes. The first eight questions asked the students to assess the extent to which each of the following words was descriptive of a particular car (where 5= “Extremely Descriptive” and 1 = “Not at all descriptive”): The words are: exciting, dependable, luxurious. Outdoorsy, powerful, stylish, comfortable, and rugged.

The next eight questions asked the students to rate their level of agreement with each of the following statements about a particular car (where 5= “Strongly Agree” and 1 = “Strongly Disagree”). The questions are:

“This car is fun to drive”

“This car is safe”

“This car is a family car”

“This car is a high performance car”

“This car is versatile”

“This car is sporty”

“This car is a high-status car”

This car is practical”

The raw data are available in the file labeled mbacar.

1. Conduct a common factor analysis on the data set. How many factors you would retain? How do you interpret them?
2. Save the factor scores and plot the average factor scores for each of the 10 cars evaluated by the students. What do the plots tell you about the similarities of the 10 car models.