Homework for Chapter 2: Research Questions

1. What is data mining useful for? What are its limitations?
2. Are each of the following questions a good research question? Explain your reasoning. If the question is not good, suggest ways to make it a better question if possible.
   1. Do severe hurricanes cause psychological disorders in children in gestation during the hurricanes?
   2. Are dogs the best pets?
   3. Do organic labels in grocery store items increase sales of those items?
3. Think about a possible research question in your field of study (e.g., your major).
   1. Can this question be answered? Is it feasible to answer it?
   2. Does the question answer something about how the world works? If so, how?
   3. Write down some hypotheses based on the question.
   4. What kind of data needs to be collected to test the hypothesis?
4. For each of the following theories and research questions, does the research question *inform theory* (that is, does answering the research question tell you something about the theory?).
   1. Theory: People donate to political campaigns largely because they want to defeat a political opponent, not because they like the candidate they’re donating to.  
      Research question: Do negative advertisements increase political campaign donations in US Congressional races more than positive advertisements do?
   2. Theory: men have higher average salaries than women in the US partially because employers discriminate against women in job interviews  
      Research question: Does the use of a gender-blind interview process, where hiring decisions and salary offers are made without knowing the employee’s gender, shrink the salary gap between men and women?
   3. Theory: Living in a rich country improves happiness.  
      Research question: Do people who live in richer countries on average report higher happiness levels?
   4. Theory: Many plants survive without eating because they collect energy from sunlight.  
      Research question: Are plants that live underneath a thick canopy (where little light can get through) less healthy than those in a loose canopy?