Categorize each of the following research questions as "good" or "bad", and provide alternative formulations for the bad ones. Save your responses in a document of some kind, submit a link below, and discuss your reasoning with your mentor.

1. What is the 1994 rate of juvenile delinquency in the U.S.?

This is a good question. It is simply defined and answerable with

the right data. This should be easily obtained from US census data. That is if there is a standard definition for delinquency. For example that may mean a criminal or juvenile record etc.

1. What can we do to reduce juvenile delinquency in the U.S.?

This question is bad. It is ill defined. There are probably many factors that contribute to juvenile delinquency. Poverty, level of education, family composition, location, age etc. To establish a causal relation or at least a correlation one would have to examine some of these variables with respect to a metric

1. Does education play a role in reducing juvenile delinquents' return to crime?

This is a good question. Among the many contributing factors to juvenile delinquency education may play a key role. One could do a principal component analysis on the contributing variables and their relationship to juvenile delinquency and determine how much education contributes to the observable of delinquency.

1. How many customers does AT&T currently serve in Washington, DC?

This is also a good question. It is quantifiable since one could simply count the number of AT&T customers who are living in Washington DC. Data that is sure to be in the possession of AT&T.

1. What factors lead consumers to choose AT&T over other service providers?

Bad question. This question is too broad. Perhaps one could first identify factors that lead people to choose a particular service. Once that list of variables is identified a subset of variables that is applicable to a business like AT&T should be chosen. After which it would be possible to identify the predominant causes for the choice of carrier.

1. How can AT&T attract more customers?

Very bad question. It is too broad. An A/B test for some control on advertising or other marketing tool would be useful here.

1. Why did the Challenger Shuttle explode?

This is a good question as it relies on what we know about physics and how these complex physical systems interact.

1. Which genes are associated with increased risk of breast cancer?

Good question but hard. There are so many genes. Preliminary research on the most likely candidates would need to be done instead of an exhaustive search

1. Is it better to read to children at night or in the morning?

Bad question. What does better mean. This has to be a quantifiable observation. Is it better for the child or for the parents? If either is chosen what does it mean to be better for that individual. Perhaps it is better for the childs reading readiness, or IQ or parental bonding . An A/B experiment with control and treatment would have to be applied here.

1. How does Google’s search algorithm work?

Good/Bad. If you want google search algorithm specifically, I would think that information is proprietary to google. However query algorithms in a broad sense can be understood.