This second assignment of a series of three consists of designing an experiment, mainly a controlled experiment, and documenting such design in the format of questions/answers. These six questions need to be answered. A controlled experiment is an empirical test done under controlled conditions, meaning that just one (or a few) factors are changed at a time, while all others are kept constant. In a controlled experiment, researchers manipulate the independent variables (one or two, but not so many) to test their effects on dependent variables. See the following figure which studies the influences of Caffeine on the Capacity of recalls measured via the number of words. The question a controlled experiment commonly should answer can be framed as: does making a change to the value of variable X (independent variable) have a significant effect on the value of variable Y (dependent variable)? For example, X might be an interface or interaction feature, and Y might be time to complete a task, the number of errors, or users’ subjective satisfaction from working with the interface. Question 1 – Application of controlled experiments Describe how a controlled experiment can be applied in your research proposal to study the influences of an independent variable on a specific independent variable, provide a rationale/motivation for why you apply controlled experiments, and the objectives of the research to be conducted while justifying the appropriateness of controlled experiment (in terms of expected outcomes of the research). Question 2 – Research Question and Variables Formulation Formulate a research question that shows/defines the relationship between independent variables and dependent ones. Use the following table to organize your answer to this question. A good example of a scientific question for a controlled experiment can be: “What effect does the pH of water have on seed germination in spring?” The scientific question should be measurable, and controllable (meaning it quantifies the dependent variables versus independent ones).