* You're testing advertising emails for a bathing suit company and you test one version of the email in February and the other in May.
  + Mistake in experiment design: vacationers are more likely to visit swimming facilities or beaches in the summer; therefore, we can expect the February group to react much less than the May group to the advertising emails. This difference will be due to bad timing of the emails, which renders responses based on advertising content unclear.
* You open a clinic to treat anxiety and find that the people who visit show a higher rate of anxiety than the general population.
  + Mistake in experiment design: people who even think about going to such a clinic will have signs or symptoms of anxiety, or at least think they do. A sample of people who visit such a clinic is very much different from the general population of people, and there would be no need for an experiment to be conducted in order to get to such a finding.
* You launch a new ad billboard-based campaign and see an increase in website visits in the first week.
  + In the case of conducting the A/B experiment for increasing sales, this billboard ad is directed toward the general public and will generally attract attention from the general population of viewers who pass by the billboards in question, give a week’s time. However, the product or service advertised may not suit all audiences and therefore a week is not enough to gauge loyalty or purchases.
* You launch a loyalty program but see no change in visits in the first week.
  + Loyalty programs are based on repetitive visits, and members who are likely to take advantage of them may new to start making purchases soon, but a week may not be enough. The change in visits may have actually happened (e.g the current stream of sales may have dropped for some reason, and was aided by the new increase through the billboard channel), but would need some time to become significant.