MA117 - Worksheet 6
Confidence Intervals for Proportions
Week 2, Tuesday

Problem 1. The General Social Survey asked the question: "For how many days during the past 30 days was your mental health, which includes stress, depression, and problems with emotions, not good?" Based on responses from 1151 US residents, the survey reported a 95% confidence interval of 3.40 to 4.24 days in 2010. Interpret this confidence interval in context of the data.

Problem 2. A poll conducted in 2013 found that 52% of U.S. adult Twitter users get at least some news on Twitter. The standard error for this estimate was 2.4%, and a normal distribution may be used to model the sample proportion. Construct a 97% confidence interval for the fraction of U.S. adult Twitter users who get some news on Twitter, and interpret the confidence interval in context.

Problem 3. The `csv` file at the URL below contains data about a simple random sample of 1000 crimes that occurred in the city of Atlanta between 2009 and 2017. Each row contains information about a single crime from this simple random sample. There are three columns: `crime` classifies the crime into one of several possible types, `date` indicates the date the crime occurred, and `neighborhood` indicates the neighborhood in which the crime occurred.

`https://sagrawalx.github.io/teaching/fa21-b1_ma117/class/atlantacrimes.csv`

Use this data to construct a 98% confidence interval for the proportion of crimes that occurred in Atlanta between 2009 and 2017 that were classified as `AUTO THEFT`.