# Exercise 1: Populations, Frames, and Coverage Error

Using the lectures, textbook and other readings as resources, answer the following questions as thoroughly and completely as possible:

Question 1. Using some of the issues discussed in the reading, discuss some of the errors  
made in the spectacular failure of the 1936 Literary Digest poll? (1-2 paragraphs)

Question 2. For each of the following surveys, identify the target population, the sample frame, and one possible coverage issue (this could be an over or an under coverage issue). Then for each,  
propose one change to the sample frame that you think would improve coverage and reduce  
error. Support your proposal with evidence from the reading and lecture.

**1) NSDUH**  
A) Target Population:  
B) Sample Frame:  
C) Coverage Error:  
D) Proposed Frame change:

**2) NAEP**  
A) Target Population:  
B) Sample Frame:  
C) Coverage Errror:  
D) Proposed Frame change:

Question 3. Answer the questions about the following survey. (Adapted from Survey Methodology  
ch.2 ex.1) A recent newspaper article reported that “sales of handheld digital devices are up by  
nearly 10% in the last quarter, while sales of laptops and desktop PCs have remained  
stagnant.” This report was based on the results of an online survey in which 9.8% of the more  
than 126,000 respondents said they “purchased a handheld digital device between January 1,  
and April 30 of this year.”

Emails soliciting participation in this survey were sent to individuals using an email address  
frame from the five largest commercial Internet service providers in the US. Data collection took  
place over a 6- week period beginning May 1, 2002. The overall response rate achieved was  
13%.

Assume that the authors of the study wanted to infer something about the purchases of U.S.  
Adults (18 years old and older).  
1. What is the target population?  
2. What is the population in the sample frame?  
3. Is this a probability sample?

Discuss how the design of this survey might affect the following:  
4. Coverage error  
5. Nonresponse error  
6. Measurement error