- **STAT 232**
 - (1) A study examined whether frequent use of digital social media during adolescence is associated with subsequent occurrence of ADHD symptoms. Researchers rated the frequency of digital social media use (high frequency or low frequency) of teens who were 15 or 16 years old at and did not show symptoms of ADHD at the start of the study. They then followed the participants for two years and recoded whether or not ADHD symptoms appeared.

Social Media Use	ADHD	No ADHD	Total
High Frequency	16	149	165
Low Frequency	23	472	495
Total	39	621	660

Here, our explanatory variable, Social Media Use has two values, Low and High. Construct a logistic regression model with X = 0 (low) or X = 1 (high):

(2) Can telling a joke affect whether or not a waiter in a coffee bar receives a tip from a customer? A study investigated this question at a coffee bar at a famous resort on the west coast of France (dataset: **TipJoke** in the R package Stat2data). Randomly assigned coffee-ordering customers to one of three groups: When receiving the bill one group also received a card telling a joke, another group received a card containing an advertisement for a local restaurant, and a third group received no card at all. Results are summarized below:

	Joke Card	Advertisement Card	No Card	Total
Left a Tip	30	14	16	60
Did note leave a Tip	42	60	49	151
Total	72	74	65	211

In this problem, the explanatory variable is the type of card (if any) given to the customer and the response variable is whether or not the customer left a tip. Here, we have k = 3 levels. Let's use "No Car" as the reference value. Find the logistic regression model.