NIBRS DA Assignment
Be sure to indicate in the comments which ones you are ready to present in class. Your homework grade depends on this. Please review the syllabus on homework grading if you need more information.

1. From the NIBRS Excel data description, create a lookup table for UCR offense codes. You can do this "by hand" or you can try to write a R code to read in the cells with the offenses. Here's an example of making a lookup table for the state codes and abbreviations. You may adapt this for a UCR offense lookup table

```
# create state code lookup
i <- which(fmtXL$Description=="50  = AK -Alaska")
j <- which(fmtXL$Description=="49  =  WY -  Wyoming")
a <- fmtXL$Description[i:j]
a <- data.frame(StateCode=substring(a,1,2),
        State=gsub(".*([A-Z][A-Z]).*","\\1", a)) # ask ChatGPT what this is doing
a$StateCode <- as.numeric(a$StateCode)
StateLookup <- a
# alternatively with pipe operator
StateLookup <-
  fmtXL$Description[i:j] |>
  data.frame() |>
  rename(temp=fmtXL.Description.i.j.) |>
  mutate(StateCode=as.numeric(substring(temp,1,2)),
      State=gsub(".*([A-Z][A-Z]).*","\\1", temp)) |>
  select(-temp)
```

2. Find all crimes in Philadelphia for which the reporting agency was the Philadelphia Police Department. Make a table of the crime types (UCR codes) they reported. Use your UCR code lookup table to convert the codes to their definitions (hint: use merge()).

3. Subset the property data to contain only mobile phones.

   - What percentage of stolen mobile phones are recovered within 1 week? We'll learn more about dates & times soon. For now, you can use the lubridate package and compute time to recovery using
     ```
     library(lubridate)
     difftime(ymd(nibrsProp03$DATE.RECOVERED),
     ymd(nibrsProp03$INCIDENT.DATE), units="days")
     ```

   - Which is more? The median value of a recovered phone or the median value of a phone that is not recovered?

   - Which state has the most expensive stolen mobile phones?

4. Where is the highest homicide rate?

   - Which ten law enforcement agencies have the highest homicide rate per 100,000 residents?

   - Which ten law enforcement agencies serving more than 100,000 residents have the highest homicide rate per 100,000 residents?

   - Which ten cities have the most costly crime burden? Use the cost of crime numbers shown in the cost of crime slides Download cost of crime slides